THE DEVELOPMENT AT CORDOVA

ADDENDUM TO THE

APPLE VALLEY GENERAL PLAN AND ANNEXATIONS 2008-001 & 2008-002 ENVIRONMENTAL IMPACT REPORT (SCH No. 2008091077)

Prepared for:

Town of Apple Valley
14955 Dale Evans Parkway
Apple Valley, CA 92307

Prepared by:

Terra Nova Planning & Research, Inc.®
42635 Melanie Place, Suite #101
Palm Desert, California 92211

May 2024

Table of Contents

1. Introduction and Project Background 1

1.1. Summary 1

1.2. Project Location and Existing Conditions 1

1.3. Background 2

1.4. Purpose of an EIR Addendum 9

2. Proposed Project 10

3. Impact Analysis 15

3.1. Aesthetics and Visual Impacts 15

3.2. Agriculture Resources 18

3.3. Air Quality and Greenhouse Gas Emissions 20

3.4. Biological Resources 50

3.5. Cultural and Tribal Resources 72

3.6. Geology and Soils 81

3.7. Hazards and Hazardous Materials 88

3.8. Hydrology and Water Quality 95

3.9. Land Use Planning, Population and Housing 107

3.10. Mineral Resources 112

3.11. Noise 113

3.12. Public Services and Facilities 121

3.13. Recreation 136

3.14. Transportation 137

List of Exhibits

Exhibit 1 Regional Location Map 6
Exhibit 2 Vicinity Map 7
Exhibit 3 Project Location Map 8
Exhibit 4 Project Site Plan 12
Exhibit 5 Exterior Elevations 13
Exhibit 6 Preliminary Landscape Plan 14
Exhibit 7 General Plan Traffic Analysis Zones 155

List of Figures

Figure 1 Annexation Areas 2
Figure 2 General Plan I-P and NAVISP Lands 3
Figure 3 Current Land Use and Development Patterns 3

List of Tables

Table 1 Industrial Land Use – General Plan and Current 4
Table 2 Proposed Project Summary 10
Table 3 Projected Daily Emissions: 2009 General Plan Build Out 23
Table 4 Projected Daily Emissions: Annexation 2008-001 Build Out 23
Table 5 Projected Daily Emissions at General Plan Build Out 24
Table 6 Annual GHG Summary: 2009 General Plan Buildout 25
Table 7 Annual GHG Summary: Annexation 2008-001 Build Out 25
Table 8 Annual GHG Summary: Annexation Area 2008-002 Buildout 26
Table 9 Scenario 1: 2009 General Plan EIR Industrial Land Use Summary 35
Table 10 Scenario 1: 2009 General Plan Build Out, Industrial Only Maximum Daily Operational-Related Emissions Summary 37
Table 11 Scenario 2: Current (2024) Build Out Conditions Industrial Land Use Summary 37
Table 12 Scenario 2: Current (2024) Conditions Build Out, Industrial Uses Only Maximum Daily Operational-Related Emissions Summary 39
Table 13 Buildout Emissions Comparison: Scenario 1 and Scenario 2 39
Table 14 Proposed Project: Maximum Daily Construction-Related Emissions Summary 41
Table 15 Proposed Project: Maximum Daily Operational-Related Emissions Summary 42
Table 16 Proposed Project: GHG Emissions Summary 45
Table 17 Project emissions and CAP reduction target 48
Table 18 Project consistency with CAP reduction measures 48
Table 19 Special Status Plant Species 56
Table 20 Special Status Animals 61
Table 21 Special Status Vegetation Community Potential for Occurrence 68
Table 22 Scenario 1: Projected Total Water Demand 102
Table 23 Scenario 2: Indoor Commercial and Industrial Water Demand 103
Table 24 Scenario 2: Outdoor Irrigation Water Demand 103
Table 25 Scenario 2: Total Water Demand 104
Table 26 Project Indoor Commercial and Industrial Water Demand 105
Table 27 Project Outdoor Irrigation Water Demand 105
Table 28 Project Total Water Demand 106
Table 29 Land Use Compatibility for Community Noise Environments 114
Table 30 Construction Equipment Noise Levels 120
Table 31 Project Operational Electricity Consumption 130
Table 32 Project Operational Natural Gas Consumption 132
Table 33 Project Total Water Demand 133
Table 34 Project Wastewater Generation 134
Table 35 Project Operations Estimated Solid Waste Generation 135

Table 36 Existing 2008 Conditions Intersection Operations Analysis Summary.....140
Table 37 General Plan Land Use and Trip Generation by TAZ.....156
Table 38 Current Intersection Analysis.....159
Table 39 Project Trip Generation – Actual Trips.....160
Table 40 Project Trip Generation – PCE.....161
Table 41 Intersection Opening Year 2025 Conditions.....162
Table 42 Intersection General Plan Build Out 2040 Conditions.....164
Table 43 Project Fair Share Contributions to Impacted Intersections.....168

List of Appendices

Appendix A Technical Memorandum..... A
Appendix B Air Quality and Greenhouse Gas Report..... B
Appendix C Biological Resources Assessment and Desert Tortoise Focused Survey.....C
Appendix D Jurisdictional Assessment..... D
Appendix E Historical/Archaeological Resources Survey.....E
Appendix F Geotechnical Investigation Report.....F
Appendix G Phase I Environmental Site Assessment..... G
Appendix H Preliminary Hydrology Study..... H
Appendix I Water Supply Assessment.....I
Appendix J Traffic Generation Assessment Memo..... J
Appendix K Project Traffic Analysis.....K

DEVELOPMENT AT CORDOVA

ADDENDUM TO THE APPLE VALLEY GENERAL PLAN AND ANNEXATIONS 2008-001 & 2008-002 ENVIRONMENTAL IMPACT REPORT (SCH No. 2008091077)

1. INTRODUCTION AND PROJECT BACKGROUND

1.1. SUMMARY

This document is an Addendum to the Town of Apple Valley's General Plan Environmental Impact Report (EIR, SCH No. 2008091077). This Addendum has been prepared to evaluate the potential environmental impacts of developing approximately 1.37 million square feet of distribution warehouse use on a 90± acre site proposed in the Development at Cordova Project, referred to herein as the "Project."

In accordance with the California Environmental Quality Act (CEQA), this Addendum analyzes the proposed Project and demonstrates that all potential environmental impacts associated with the Project at buildout would be within the envelop of impacts already evaluated in the approved EIR, herein referred to as "2009 EIR."

In this document, Section I provides the detailed description of the Town of Apple Valley's planning procedures and environmental review process under the California Environmental Quality Act (CEQA). Section 2 describes the proposed Development at Cordova Project. Section 3 describes the potential environmental impacts of the proposed Project in the context of the 2009 General Plan EIR.

1.2. PROJECT LOCATION AND EXISTING CONDITIONS

The Project site consists of 90± acres of vacant, undeveloped land located on the east side of Dachshund Avenue, between Quarry Road on the north and Cordova Road on the south in the northeastern area of the Town of Apple Valley, San Bernardino County, California. The site is

located within the boundaries of the North Apple Valley Industrial Specific Plan (NAVISP) and is currently surrounded by vacant lands designated for Industrial – Specific Plan (I-SP) uses in the NAVISP. Scattered residential and industrial development occurs at a distance from the Project site, as described below. At the time the General Plan was adopted, the Project site was within the NAVISP, and was included in the General Plan's EIR. The Project site is located in Section 16, Township 6 North, Range 3 West, San Bernardino Baseline and Meridian and consists of two Assessor's Parcels: 0463-213-01 and -32. Regional location and project vicinity maps are provided in Exhibits 1 through 3.

1.3. BACKGROUND

This Addendum was prepared to analyze potential impacts of the proposed Development at Cordova Project as compared to those previously identified in the Apple Valley General Plan EIR. The Project proposes 1.3 million square feet of distribution warehouse use on lands designed for industrial uses in the General Plan and North Apple Valley Industrial Specific Plan (NAVISP).

A technical memorandum was prepared in March 2024 that analyzed whether the assumptions and impacts identified for Planned Industrial (I-P) and NAVISP designated industrial lands in the 2009 EIR are consistent with current conditions and anticipated build out (see Appendix A). The analysis in the memorandum was conducted by first analyzing land use designations, their assigned acreages, and existing and anticipated development.

The following discussion and tables consider the land use analysis in the General Plan EIR compared to current conditions (2024) and anticipated build out of industrial lands.

Land Use

The Apple Valley General Plan and its EIR included lands within Town limits and within two potential annexation areas: Annexation Area 1 was located in the northwest corner of Town, and Annexation Area 2 was south of Quarry Road, east of Town limits (Figure 1). Following adoption of the General Plan, the Town proceeded with the annexations. Area 2 was successful. Annexation of Area 1 failed, but a portion of Area 1 was successfully annexed in 2019/2020.

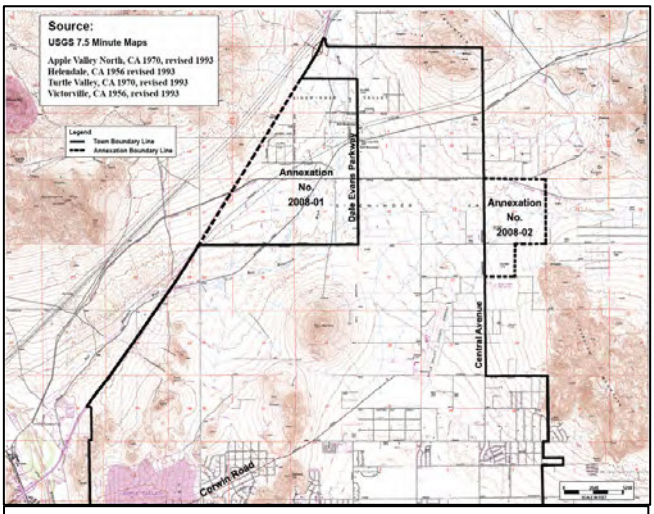


Figure 1
Annexation Areas

The Project site was and continues to be located within the incorporated Town limits, not within either Annexation Area. Because the NAVISP is treated as a land use designation in the General Plan, lands within the NAVIISP, including the Specific Plan Industrial (SPI) zone assigned to the proposed Project site, were analyzed based on the NAVISP zones in the General Plan EIR.

The General Plan assigned industrial land use designations, I-P and NAVISP, only in the North Apple Valley area, as shown in Figure 2. Within Town limits, there were 645.3 acres designated I-P and 4,855.8 acres designated NAVISP, including the Project site. In addition, Annexation Area 1 contained 812.1 acres of I-P designated lands, and Annexation Area 2 contained 801 acres of I-P designated lands. Only limited development had occurred, and it was estimated that there were 205,080 square feet of developed I-P space, and 3.1 million square feet of developed space in the NAVISP.

After completion of the General Plan, the Town amended the NAVISP to include all of the 801 acres of land in Annexation Area 2, as well as the I-P designated land north of Quarry Road, west of Central Road, and east of Dale Evans Parkway, thereby decreasing the I-P designated lands within the Town. The Town also annexed a portion of Annexation Area 1, thereby increasing the I-P designated lands within the Town. Currently there are 737.3 acres of I-P designated land within the Town, and 5,838.3 acres of land designated NAVISP[1] and depicted in Figure 3.

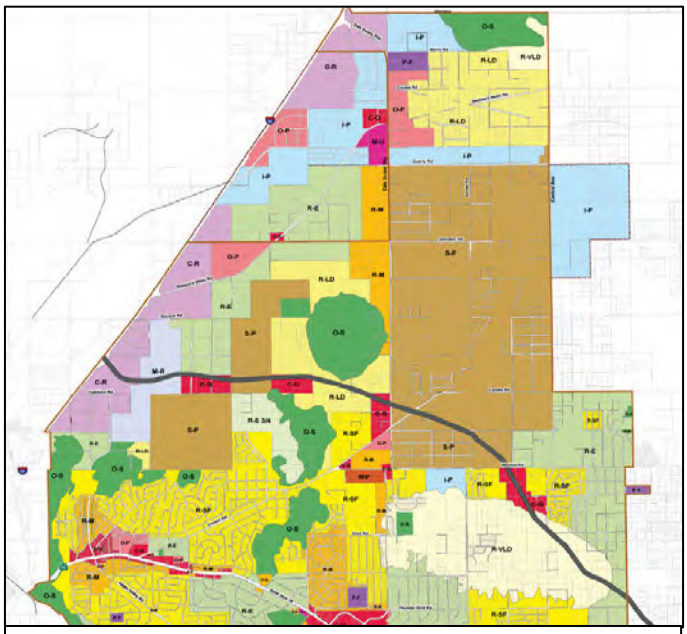


Figure 2
General Plan I-P and NAVISP Lands

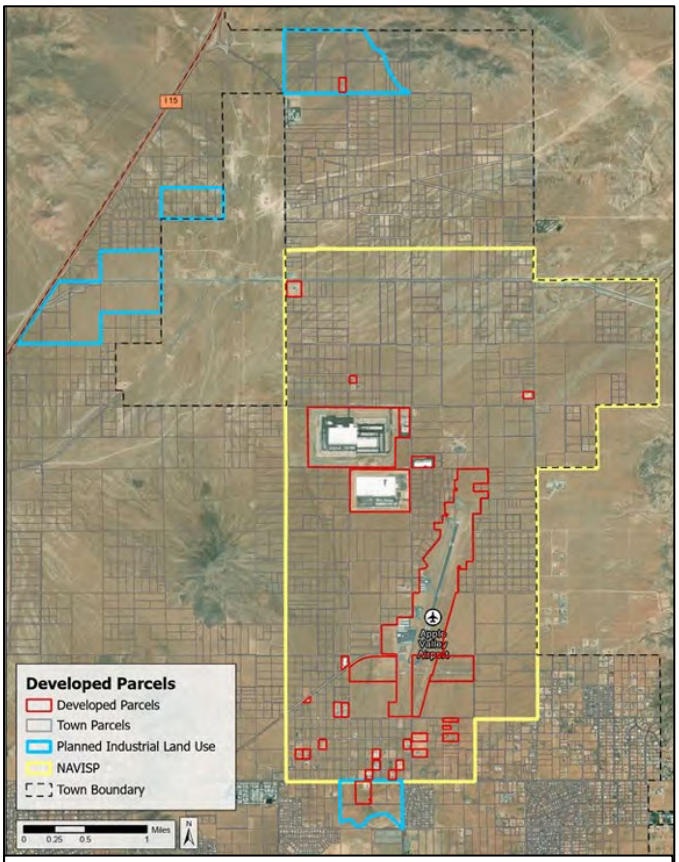


Figure 3
Current Land Use and Development Patterns

[1] Net of 94.4 acres of dedicated right of way, which is undevelopable for industrial purposes.

In order to analyze whether the impacts associated with build out of the General Plan remained consistent under current conditions, the analysis consisted of two parts. First, General Plan 2009 conditions were calculated. Current conditions were then evaluated. Under this scenario, a GIS analysis of vacant and developed parcels for the I-P and NAVISP designations was conducted, and current projects under review or approved by the Town within the I-P and NAVISP boundaries were added. Calculations of vacant and developed land and development potential were based on the following assumptions, which are taken from the General Plan EIR's analysis:

1. General Plan 2009 acreage for I-P lands are based on General Plan EIR Table 1-18.
2. General Plan 2009 acreage for NAVISP lands are based on the NAVISP EIR as they were in the General Plan EIR, because the SP lands in the General Plan EIR were aggregated, and the NAVISP had not changed its boundaries in 2009.
3. Development potential for General Plan 2009 conditions was calculated at 22 percent building coverage, consistent with the General Plan EIR assumptions.
4. Current I-P and NAVISP acreage was calculated in GIS based on current San Bernardino County Assessor data.
5. Development potential for vacant lands with no current proposed project were calculated at 22 percent building coverage, consistent with the General Plan assumptions.
6. Development potential for known proposed projects was calculated based on project proposed square footage.

Table 1 represents the result of the land use analysis. As shown in the Table, the land use build out assumptions in the General Plan were marginally higher than those currently anticipated.

Table 1
Industrial Land Use – General Plan and Current

Land Use	General Plan 2009 (Build Out)		2024 Conditions (Build Out)	
	Acres (Parcels)	Actual/Potential Building Area (SF)	Acres (Parcels)	Actual/Potential Building Area (SF)[1, 2]
IP Vacant	623.9	5,978,958	718.5	6,885,561
IP Developed	21.4	205,080	18.8	24,412
Total IP	**645.3**	**6,184,039**	**737.3**	**6,909,972**
NAVISP Vacant	4,121.6	36,338,536*	4,243	40,665,432
NAVISP Developed	734.2	3,100,165*	924.2	2,872,007*
Total NAVISP	**4,855.8**	**39,438,701**	**5,838.3**	**54,086,288**
Annex 1 (IP Vacant)	812.1	7,782,517		
Annex 2 (IP Vacant)	801	7,676,143		
Total Annexation Areas	**1,613.1**	**15,458,659.92**		
Total Build Out Potential	**7,114.2**	**61,081,400**	**6,575.6**	**60,996,260**

* No development potential assigned to Apple Valley Airport lands.

[1] Acreage and square footage potential in Annexation 1 and 2 are incorporated into IP and NAVISP for 2024 Build Out conditions, because these lands have now been annexed.

[2] Includes projects for which the Town has applications or has approved a project. These total 10,548,849 square feet of space.

These land use calculations are the basis for the impact analysis in this Addendum. Throughout the analysis below, the 2024 Build Out Conditions are referred to as the "2024 Industrial Lands Build Out." Finally, it should be noted that the 2009 EIR assumed General Plan build out in 2025. This has not occurred, and actual build out of the General Plan cannot be determined at this time. However, because the 2009 EIR assumed a rapid build out, and therefore concentrated impacts over a relatively short period of time, the analysis of impacts was conservative. The build out year for 2024 Build Out Conditions is not known, but like the 2009 EIR, analysis under these conditions would also result in development of all lands within the Town limits.

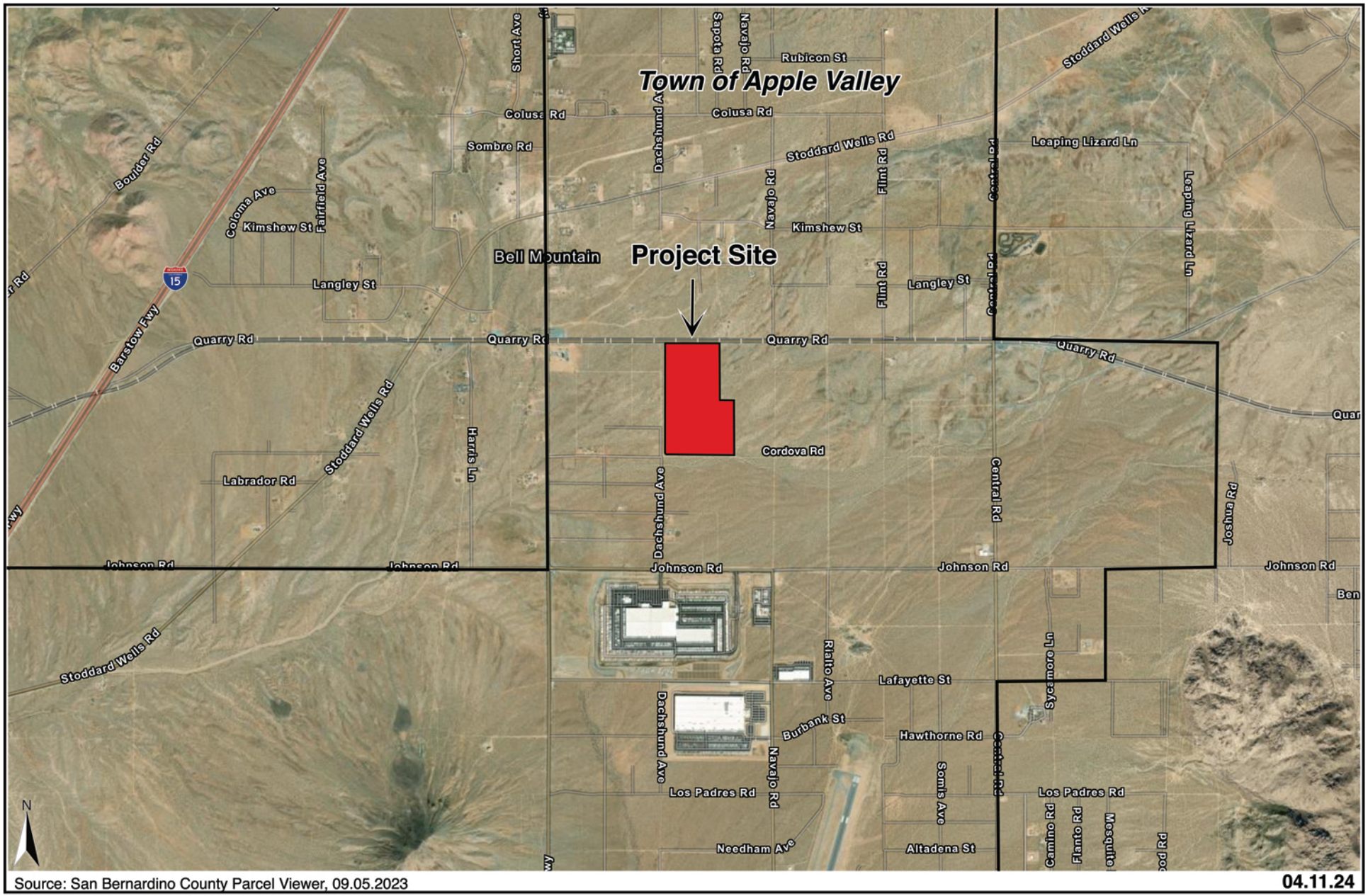
Source: Google Maps, 2023

04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Regional Location Map
Apple Valley, California

Exhibit
1



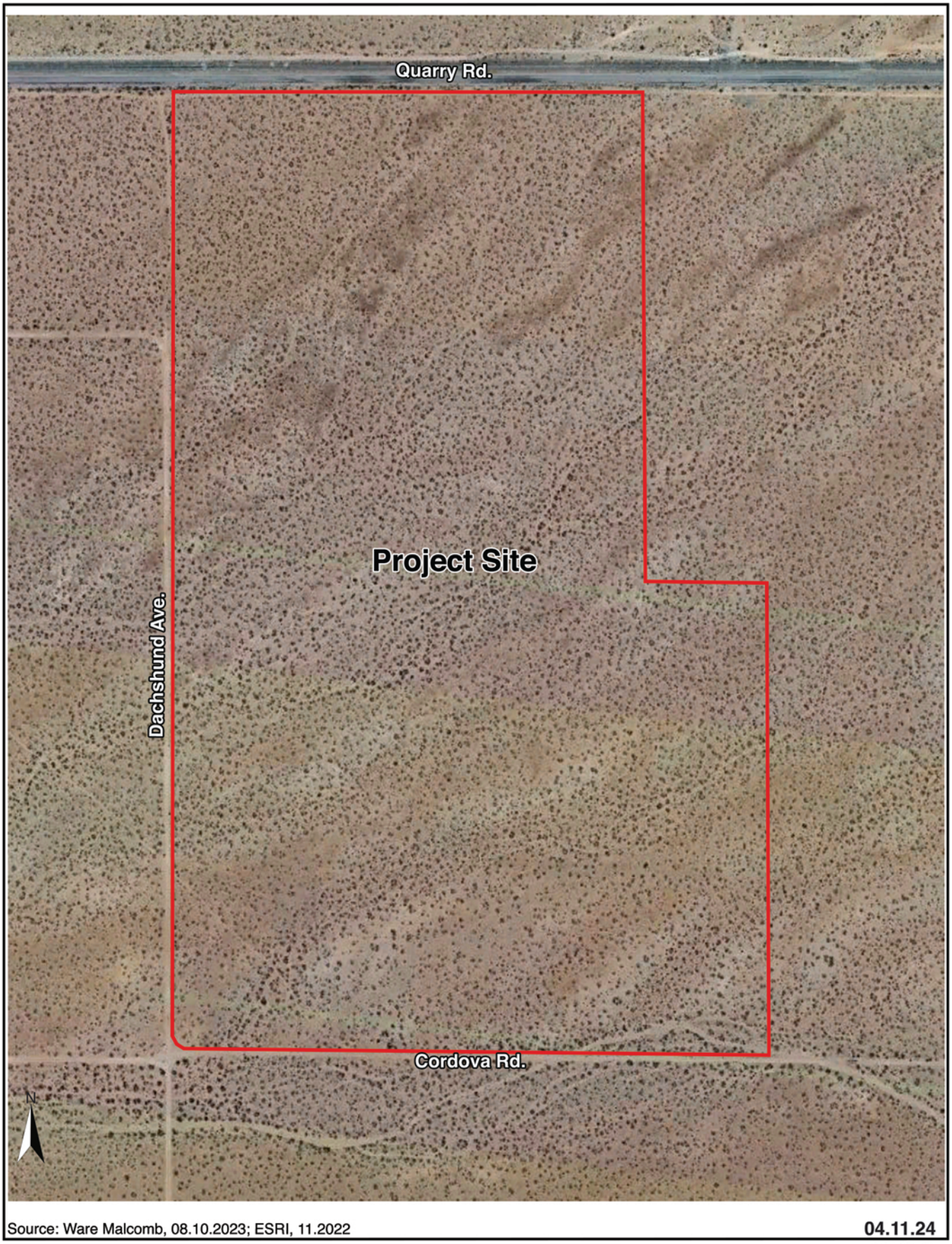
Source: San Bernardino County Parcel Viewer, 09.05.2023

04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Vicinity Map
Apple Valley, California

Exhibit
2



Source: Ware Malcomb, 08.10.2023; ESRI, 11.2022

04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Location Map
Apple Valley, California

Exhibit

3

1.4. PURPOSE OF AN EIR ADDENDUM

In accordance with CEQA Guidelines Section 15164, a Lead Agency is required to prepare an EIR Addendum to a previously certified EIR if some changes or additions to a project are necessary, but the proposed project modifications do not require preparation of a subsequent EIR, as provided in Guidelines Section 15162. In addition, the proposed modifications cannot result in new or substantially more significant environmental impacts compared with the impacts disclosed in the previously certified 2009 EIR.

CEQA Guidelines Section 15162 states that a subsequent EIR would be required for a project if any of the following conditions exist:

1. Substantial changes to the project require major revisions to the previously certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects.

2. Substantial changes occur with respect to the circumstances under which the project is undertaken that require major revisions to the previously certified EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects; or

3. The availability of new information of substantial importance, which was not known or could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified, shows that the project will have one or more significant effects not discussed in the previous EIR, significant effects previously examined will be substantially more severe than shown in the previous EIR, or mitigation measures or alternatives that were previously found not to be feasible or that are considerably different from those analyzed in the previously certified EIR would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative.

The analysis conducted in Section 3 is divided into three parts. First, the analysis, findings and mitigation measures provided in the 2009 EIR are summarized. Then the 2024 Build Out Conditions shown in Table 1, referred to as the "2024 Industrial Lands Build Out," is compared to the 2009 EIR's findings, to determine whether any substantial change in conditions or impacts have occurred on the lands designated for industrial development in the Town. Finally, an analysis of the proposed Project is conducted to establish its Project-specific impacts, its consistency with the 2009 EIR, and provide any Project-specific mitigation measures necessary to reduce impacts to less than significant levels.

Based on the evaluation of information provided in this EIR Addendum, no new significant impacts would occur as a result of the proposed Project, nor would there be any substantial increase in the severity of any previously identified adverse environmental impacts. Therefore, none of the conditions described in Section 15162 of the CEQA Guidelines has occurred. For this reason, an EIR addendum is the appropriate document to comply with CEQA requirements for the proposed Project.

2. PROPOSED PROJECT

The Project applicant proposes 1.37 million square feet of distribution warehouse on 90± acres of currently vacant, undeveloped land located at the northeast corner of Cordova Road and Dachshund Road. The parcels are within the NAVISP boundary, as they were at the time the General Plan was approved. The Project applicant proposes on building consisting of 1,319,390 square feet of warehouse space and 53,760 square feet of office space for a total of 1,373,150 square feet of building space. The building includes a 26,880 square foot mezzanine with a maximum building height of 50 feet. The building has been designed to include 224 docks with roll-up doors, and 4 man-doors. The site will provide 1,422 parking stalls that includes 28 accessible stalls, and 739 trailer stalls. The trailer stalls would be utilized for temporary parking of semi-truck trailers between distribution trips. Landscaping is proposed along the perimeter of the site on all sides, as well as in the vehicular parking areas. The landscaped area totals 819,232± square feet, or 20 percent of the site.

Table 2
Proposed Project Summary

Acres	90.15 AC
Building Footprint	1,346,270 SF
Building Square Footage	1,373,150 SF
Warehouse	*1,319,390 SF*
Office	*53,760 SF*
Max. Building Height	50 feet
Parking Stalls	1,422 stalls
Trailer Parking	739 stalls
Landscaping	819,232 SF

The Project will include six points of access:

- Two 40 foot wide, truck-accessible driveways on Dachshund, in the southwest and northwest quadrants of the site;
- Two 26 foot wide vehicle-only driveways on Dachshund, in the southwest and northwest quadrants of the site;
- One 50 foot wide, truck-accessible primary driveway on Cordova Road; and
- One 26 foot wide vehicle-only driveway at the southeast corner of the site.

A specific user has not been identified, but it is expected that the ultimate use will consist of warehousing and distribution. In order to provide a conservative (worst-case) analysis, it has been assumed that up to 15 percent of the building's square footage, or about 206,000 square feet, could be occupied by cold storage.

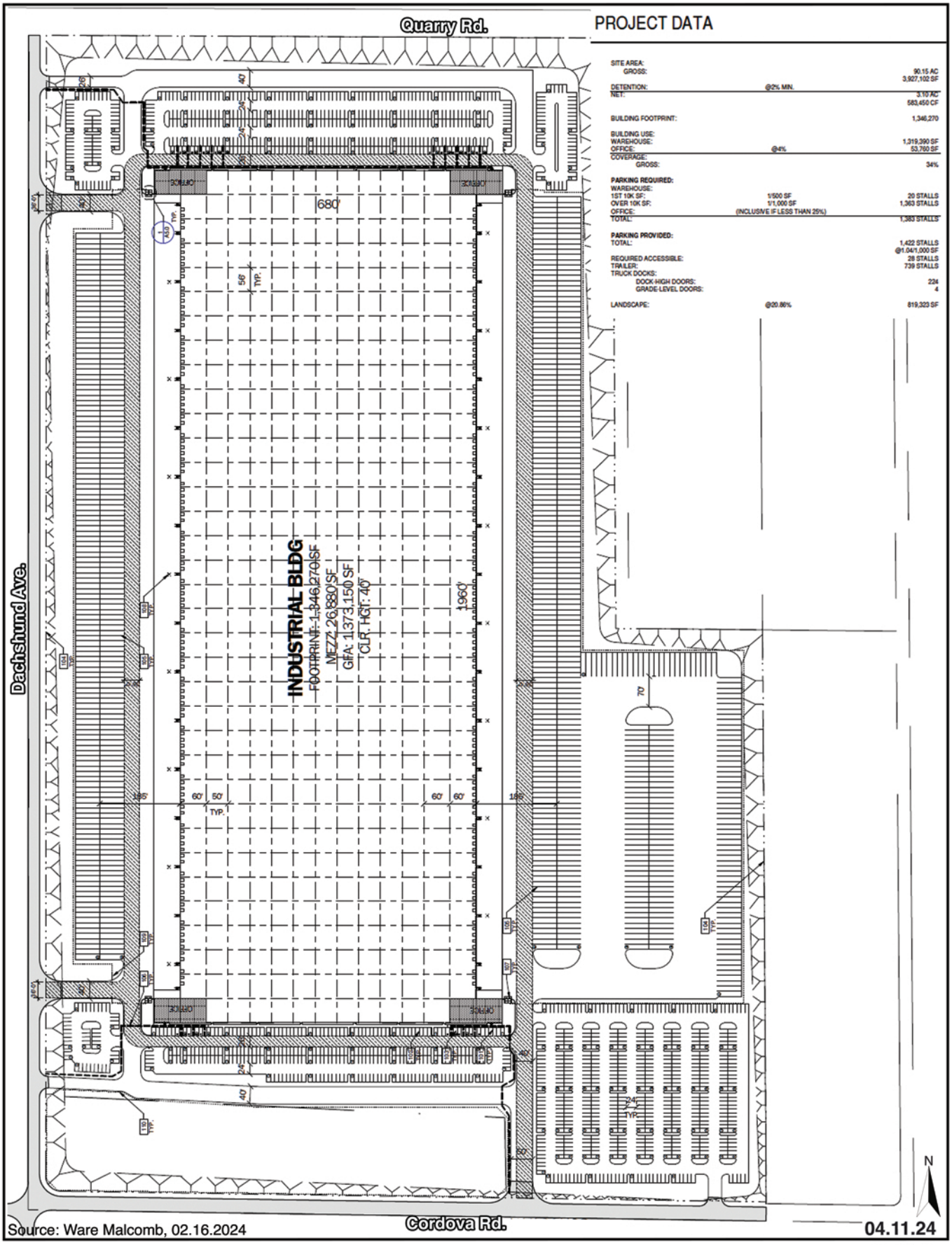
The Project will be required to contain the 100-year storm on-site, and proposes a retention basin along the Cordova frontage to accommodate these flows. The retention basin will be approximately 150,000 square feet and approximately 4 feet in depth, to accommodate 220,000 cubic feet of storm flow with freeboard.

Both Dachshund Road and Cordova Road exist as unpaved roadways currently. The Project will be required to improve Dachshund Road to a General Plan build out half-width of 40 feet, and Cordova Road to its build out half-width of 44 feet along the project boundary. These improvements will include parkway, sidewalk, curb and gutter in addition to roadway paving. Internal water, sanitary sewer, electric power lines, and natural gas connections to the building will also be constructed. Additional improvements will be required off-site, as follows:

- Cordova Road from Dachshund Road to Dale Evans Parkway, 24 foot wide paving; no curb and gutter, a distance of approximately 2,600 linear feet.
- Dachshund Road from Cordova Road to Johnson Road, 24 foot wide paving, no curb and gutter, a distance of approximately 2,600 linear feet.
- Extension of a 16 inch water line in Dachshund Road, from Johnson Road to the Project's northwest corner, a distance of approximately 5,300 linear feet.
- Extension of a sanitary sewer force main in Cordova Road to Navajo Road, and a 10 inch line in Navajo Road southerly to Johnson Road, a total distance of approximately 4,700 linear feet; and installation of a lift station within the Project at its southern boundary.
- Extension of a gas line in Dachshund, southerly from the Project site to connect to an existing gas line in Johnson Road, a total distance of approximately 3,000 linear feet.
- Extension of overhead power lines (OHP) along Dale Evans Parkway, easterly approximately 2,700 linear feet to the intersection of Dachshund and Cordova to a proposed electric vault, where the OHP will be buried and extend northerly underground on Dachshund to connect to the southwest corner of the Project site.

All off-site improvements are proposed in existing, paved and unpaved roadways.

The analysis in this Addendum compares impacts identified in 2009 EIR and proposed Project. Where analysis of General Plan buildout is critical and quantifiable, a comparison of the 2009 EIR and current (2024) land use calculations has been provided.



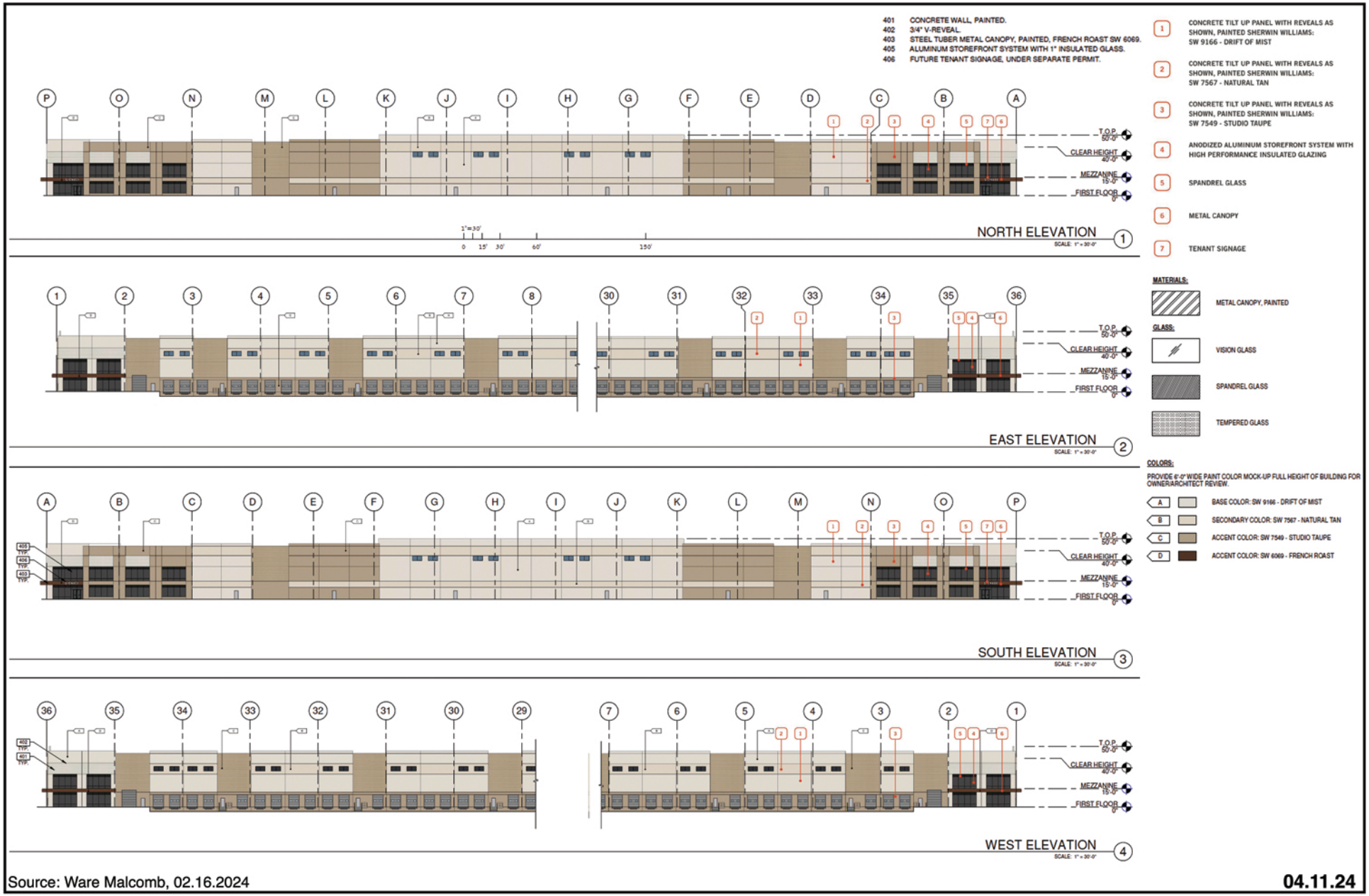
Source: Ware Malcomb, 02.16.2024

04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Site Plan
Apple Valley, California

Exhibit
4



Source: Ware Malcomb, 02.16.2024

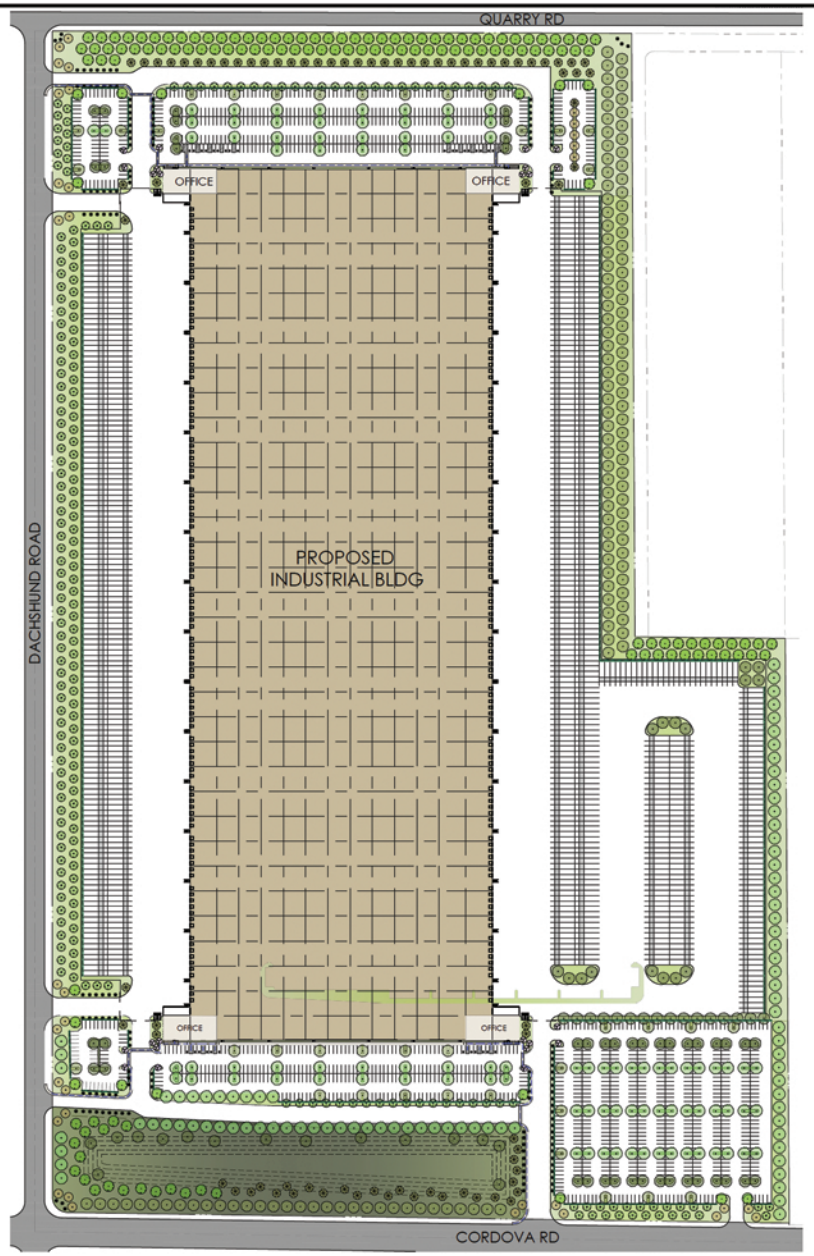
04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Exterior Elevations
Apple Valley, California

Exhibit

5



Source: Ware Malcomb, 02.16.2024

PRELIMINARY PLANTING LEGEND

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED TREES		
	ULMUS PARVIFOLIA / CHINESE ELM	24" BOX STANDARD
	RHUS LANCEA / AFRICAN SUMAC	24" BOX STANDARD
	KOELREUTERIA PANICULATA / GOLDEN RAIN TREE	24" BOX STANDARD
	GLEDITSIA TRIACANTHUS / HONEY LOCUST	24" BOX STANDARD
	CERCIDIUM MICROPHYLLUM / LITTLE LEAF PALO VERDE	24" BOX STANDARD
	QUERCUS BERBERIDIFOLIA / SCRUB OAK	24" BOX STANDARD
	PRUNUS CAROLINIANA / CAROLINA CHERRY LAUREL	24" BOX STANDARD
	BRAHEA ARMATA / MEXICAN BLUE PALM	24" BOX STANDARD
	ARBUTUS UNEDO / STRAWBERRY TREE	24" BOX STANDARD

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED SHRUBS		
	LIGUSTRUM J. 'TEXANUM' / TEXAS PRIVET	5 GAL / 36" O.C.
	FOUQUIERIA SPLENDENS / OCOTILLO	5 GAL / 36" O.C.
	LEUCOPHYLLUM FRUTESCENS / TEXAS SAGE	5 GAL / 36" O.C.
	FREMONTODENDRON CALIFORNICUM / FLANNEL BUSH	1 GAL / 36" O.C.
	MAHONIA SP. / OREGON GRAPE	1 GAL / 42" O.C.
	PITTOSPORUM T. 'WHEELERS DWARF' / WHEELER'S DWARF	1 GAL / 36" O.C.
	RHAPHIOLEPIS I. 'CLARA' / INDIAN HAWTHORNE	1 GAL / 36" O.C.
	RHUS OVATA / SUGAR BUSH	5 GAL / 48" O.C.
	ROSA BANKSIAE / BANKS ROSE	1 GAL / 42" O.C.
	SALVIA GREGII 'FURHMAN'S RED' / AUTUMN SAGE	1 GAL / 36" O.C.
	YUCCA WHIPPLEI / CHAPARREL YUCCA	5 GAL / 36" O.C.
	CAESALPINIA GILLIESII / BIRD OF PARADISE BUSH	5 GAL / 42" O.C.
	CALLIANDRA ERIOPHYLLA / FAIRY DUSTER	1 GAL / 30" O.C.
	COTONEASTER SP. / COTONEASTER	1 GAL / 42" O.C.
	LAVENDULA ANGUSTIFOLIA / ENGLISH LAVENDER	1 GAL / 30" O.C.
	ACACIA REDOLENS / PROSTRATE ACACIA	1 GAL / 42" O.C.
	BACCHARIS 'CENTENNIAL' / CENTENNIAL COYOTE BRUSH	1 GAL / 30" O.C.
	DALEA GREGGII / TRAILING INDIGO BUSH	1 GAL / 36" O.C.
	GAZANIA SP. / GAZANIA	1 GAL / 30" O.C.
	PYRACANTHA SP / PYRACANTHA	1 GAL / 36" O.C.
	ROSMARINUS O. PROSTRATUS / PROSTRATE ROSEMARY	1 GAL / 30" O.C.
PROPOSED DETENTION BASIN		
	CAREX PRAEGRACILIS / CALIFORNIA FIELD SEDGE	1 GAL / 36" O.C.
	DESCHAMPSIA CAESPITOSA / TUFTED HAIRGRASS	1 GAL / 36" O.C.
	JUNCUS PATENS / CALIFORNIA GREY RUSH	1 GAL / 36" O.C.
	MUHLENBERGIA RIGENS / DEER GRASS	1 GAL / 36" O.C.

ULMUS PARVIFOLIA / CHINESE ELM

RHUS LANCEA / AFRICAN SUMAC

KOELREUTERIA PANICULATA / GOLDEN RAIN TREE

GLEDITSIA TRIACANTHUS / HONEY LOCUST

CERCIDIUM MICROPHYLLUM / LITTLE LEAF PALO VERDE

QUERCUS BERBERIDIFOLIA / SCRUB OAK

PRUNUS CAROLINIANA / CAROLINA CHERRY LAUREL

BRAHEA ARMATA / MEXICAN BLUE PALM

ARBUTUS UNEDO / STRAWBERRY TREE

04.11.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Preliminary Landscape Plan
Apple Valley, California

Exhibit

6

3. IMPACT ANALYSIS

The General Plan EIR is referenced as the "2009 EIR" below. In accordance with CEQA Guidelines §15162, the following analysis addresses each of the environmental issues analyzed in the approved 2009 EIR as compared to the potential changes in environmental impacts due to the proposed Project. Where analysis of General Plan buildout is critical and quantifiable, a comparison of the 2009 EIR and current (2024) land use calculations has been provided.

The analysis is divided into three parts. First, the analysis, findings and mitigation measures provided in the 2009 EIR are summarized. Then the 2024 Build Out Conditions shown in Table 1, referred to as the "2024 Industrial Lands Build Out," is compared to the 2009 EIR's findings, to determine whether any substantial change in conditions or impacts has occurred on the lands designated for industrial development in the Town. Finally, an analysis of the proposed Project is conducted to establish its Project-specific impacts, its consistency with the 2009 EIR, and provide any Project-specific mitigation measures necessary to reduce impacts to less than significant levels.

3.1. AESTHETICS AND VISUAL IMPACTS

Summary of Findings in the 2009 EIR (Section III.A, page III-1 et.seq.)

Background

The 2009 EIR described the Town's existing character and scenic resources. The Town and annexation areas are located primarily on alluvial slopes of the Mojave River floodplain, at the southern edge of the Mojave Desert. Natural visual resources that provide the planning area with special character include uninterrupted expanses of 'wide skies' and panoramic vistas of distant mountains. Although the visual character of most parts of the planning area have been impacted to some extent by residential, commercial and industrial development, many acres of undeveloped desert lands remain.

The 2009 EIR described the aesthetic quality of development in the Town and vicinity as being inconsistent, with the built form being representative of several different periods of time and various standards of development. However, there are residential and commercial buildings located along Highway 18 that make an important visual contribution to local character.

Impacts to Visual Character/Scenic Resources

The 2009 EIR found that build out of the General Plan and Annexation areas would result in some change to the existing visual character of much of the planning area due to converting vacant lands and rural land uses to industrial, commercial and more intense residential uses. Existing viewsheds may be partially obstructed by buildings and other structures, and the present sense of open space would be diminished. Other elements of the built environment, including signage, utility infrastructure, and paved surfaces would also impact existing visual resources. However, the EIR determined that implementation of the Town's General Plan policies and design performance standards, together with mitigation measures, are expected to reduce potentially detrimental impacts to visual resources to less than significant levels.

Impacts from Light and Glare

The 2009 EIR found that build out of the General Plan and Annexation areas would also result in increased levels of illumination and glare, as previously undeveloped land is developed for residential, commercial and industrial uses. The designation of new and more intensively developed industrial areas may also impact on sensitive neighboring residential developments. However, the 2009 EIR determined impacts resulting from light and glare would be reduced to less than significant levels through implementation of the Town's General Plan policies and design performance standards.

Summary of Impacts

The 2009 EIR found that the conversion of vacant rural land uses to industrial, commercial and more intense residential uses would increase the levels of illumination and glare, and change the open, semi-rural character would change the visual character of much of the planning area. The 2009 EIR found that although the build out of the General Plan within Town limits and within both Annexation areas would result in the above aesthetic impacts, implementation of the Town's General Plan policies and design performance standards, together with mitigation measures, would reduce potentially detrimental impacts to visual resources to less than significant levels.

Mitigation Measures

In order to ensure that impacts to visual resources were reduced to less than significant levels, the 2009 EIR provided the following mitigation measures. (Pages III-4 through -5 of the 2009 EIR)

1. Signage shall be in compliance with the Town's sign ordinance and shall be limited to the minimum size, scale and number needed to provide functional information, thereby minimizing impacts on traffic safety, streetscape, scenic viewsheds and the aesthetic character of the area.

2. Compliance with the Town's performance and design standards for landscaping, building coverage and setbacks, building design and height, architectural finishes, walls, fences and utility structures will be required of all development and redevelopment projects.

3. The Town shall maintain and implement design standards which protect scenic viewsheds and enhance community cohesion. Development standards shall address signage, landscaping, setbacks, building facades, vehicular and pedestrian access and related issues.

4. The Town's performance and design standards for lighting shall be maintained and implemented.

5. In addition to being in compliance with the Town's lighting ordinance, supplementary lighting recommendations include:

    - External lighting shall be limited to the minimum height, fewest number and lowest intensity required to provide effective levels of illumination.

- Every reasonable effort shall be made to reduce spillage, both to protect residential use areas from excessive levels of illumination and to preserve dark skies at nighttime.
- Elevated lighting, including but not limited to parking lot lighting, shall be full-cutoff fixtures.
- Lighting fixtures in the vicinity of the airport shall be compatible with airport operations.

6. Overhead utility lines shall be undergrounded to the greatest extent possible through the maintenance of an undergrounding program.

7. The Town shall coordinate with utility providers to assure that utility infrastructure, including water wells, substations and switching/control facilities, are effectively screened to preserve scenic viewsheds and limit visual clutter.

8. Planning and design of residential neighborhoods and street corridors shall provide distinctive and characteristic design elements, such as entry monuments and landscaping, which preserve and enhance viewsheds enjoyed from these areas

9. All development proposed within scenic viewsheds shall be regulated to minimize adverse impacts to views and vistas.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with aesthetics based on build out of the General Plan based on the Land Use Element and its distribution of land uses. Since 2009, the industrial development is the Town has continued to build out with no significant change in the character of buildings. Buildings within the NAVISP and I-P land use designations have been constructed consistent with the General Plan and NAVISP standards. There have been no substantial General Plan Amendments or NAVISP amendments that would change the intensity of development or the mix of land uses within the General Plan or annexation areas. Therefore, the impacts to aesthetics as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The Project applicant proposes 1.37 million square feet of distribution warehouse on 90± acres of currently vacant, undeveloped land within the NAVISP planning area.

Visual Character/Scenic Resources

The site is surrounded by predominantly vacant, desert lands with the exception of scattered industrial development approximately 0.25 miles to the south, and single-family residences approximately 0.25 miles to the north and east. From the Project site there are distant views of the upper Turtle and Black Mountains are to the north, Fairview Mountain to the northeast, the Granite Mountains to the southeast, and San Bernardino mountains and Bell Mountain to the south.

All lands surrounding the site are designated for industrial uses in the NAVISP. The proposed Project would allow for similar land uses, patterns of development, and range of building heights as currently occur in the project area, with comparable landscaping, architectural features, and other amenities. The Project has been designed consistent with the development standards set forth in the NAVISP for Industrial land uses (I-SP), including a maximum building height of 50 feet, 25 foot building setbacks, 45 percent maximum building coverage, and minimum 10 percent required landscaping. Impacts associated with visual character and scenic resources will be less than significant, consistent with the conclusions of the EIR.

Light and Glare

The Project site is currently vacant and there is no lighting onsite. No substantial amount of lighting would be expected during construction, because the Town limits construction hours to 7 AM to 7 PM on weekdays and Saturdays. Build out of the site can be expected to generate increased levels of light and glare from interior and exterior building lighting, safety and security lighting, landscape lighting, and vehicles accessing the area. The types and sources of lighting under the proposed land use designations would be the same as those anticipated in the 2009 General Plan update and NAVISP, and would be required to comply with the development standards contained in the NAVISP, as is the case with all projects within its boundaries. Lighting and glare levels are not expected to exceed typical levels for an urban environmental and will be regulated by the Town's General Plan night sky policies and Municipal Code lighting standards. Impacts associated with light and glare will be less than significant, consistent with the conclusions of the EIR.

Summary of Impacts

The Project site is designated for industrial development under the NAVISP, and is surrounded by vacant lands also designated for industrial development in the NAVISP. Because the proposed Project will result in similar development to that anticipated in the Project area in all aesthetic aspects analyzed above, it is not expected to result in impacts beyond those identified in the 2009 EIR. Future development of the site will adhere to applicable General Plan policies and NAVISP requirements. Impacts associated with visual character would be comparable to what's currently permitted in the area. Project impacts associated with scenic vistas and resources, visual character, and light and glare would not exceed those expected under the current land use designation, and thus would be comparable to those identified in the 2009 EIR.

3.2. AGRICULTURE RESOURCES

Summary of Findings in the 2009 EIR (Section III.B, page III-7 et.seq.)

Background

The 2009 EIR described the agricultural resources in the Land Use Element of the 2009 General Plan, which allows ranching and agricultural activities in the Very Low Density Residential, Low Density Residential, Estate Residential and Estate Residential ¾ land use designations. The 2009 EIR identified four areas in Apple Valley that are designated as Farmland of Statewide Importance that total approximately 130 acres. Two are located north of Yucca Loma Road, and west of Apple Valley Road. Two are located south of Yucca Loma Road; one immediately east of Apple Valley Road, and one south of Bear Valley Road, in the Deep Creek area.

The 2009 EIR also identified one Williamson Act contract within the Town owned by the Apple Valley Ranchos Water Company (AVR). The land under contract was approximately 1.8 acres in size and was not actively farmed at the time the 2009 EIR.

Farmland of Statewide Importance

The 2009 EIR determined that about 100 acres of land designated by the State as Farmland of Statewide Importance would be lost as a result of the 2009 General Plan Update. The parcels identified by the State occur in the Single Family Residential, Specific Plan, Public Facilities and Low Density Residential designations. However, the EIR determined that none of those parcels represented viable long term agricultural production lands within Apple Valley, or for the region. Impacts were found to be less than significant.

Williamson Act

The 2009 EIR determined that should the contract be removed from the one Williamson Act site in the planning area, it would not represent a significant loss of agricultural land in the area due to its size and lack of long term agricultural value. Impacts were found to be less than significant.

Summary of Impacts

The 2009 EIR found that buildout of the General Plan would result in a loss of 100 acres of land designated by the State as Farmland of Statewide Importance. However, the EIR determined these lands were not viable for long term agricultural production. The 2009 EIR found impacts to agricultural resources to be less than significant with implementation of the Town's General Plan policies and Development Code, as set forth in mitigation measures below.

Mitigation Measures

In order to protect lands in agricultural and equestrian activities in Town, the 2009 EIR included the following Mitigation Measures. (Page III-9 of the 2009 EIR)

1. The Town's Development Code shall include buffers between Very Low Density, Low Density and Estate Residential land use designations and more intense lands, in order to provide for the preservation or creation of ranching or animal raising activities in the Deep Creek area.

2. The Town shall coordinate with the Department of Conservation, Farmland Mapping and Monitoring Program, to accurately reflect farmed and farmable lands within the Town limits.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with agricultural resources based on build out of the General Plan as described in the Land Use Element and its distribution of land uses. Since that time, development has occurred consistent with the General Plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses, and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. Therefore, the impacts to agricultural resources as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The site is currently vacant and contains sparse native vegetation. The site is designated for industrial development under the NAVISP, and agricultural or forestry uses are not permitted in this designation. There are no existing or mapped agricultural or forestry resources within or in proximity to the Project site, and such uses are not proposed as part of the Project. No prime or unique farmland, or farmland of statewide importance exists within the Project site or vicinity. Therefore, the proposed Project would not create any new impacts associated with these resources, consistent with those identified in the 2009 EIR. No impacts to agricultural or forestry resources would occur under the proposed Project.

3.3. AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Summary of Findings in the 2009 EIR (Section III.C, page III-10 et.seq.)

Background

As described in the 2009 EIR, the Town of Apple Valley is located within the Mojave Desert Air Basin (MDAB) and under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). Air quality in the Mojave Desert Air Basin has been impacted by emissions associated with increased development, population growth, and vehicle emissions. Although air pollution is emitted locally from various sources, the most evident degradation of regional air quality, with the exception of fugitive dust, is due to sources outside the area, including the San Bernardino and Los Angeles County air basins. In the Project area, MDAQMD regulates air quality and implements applicable state and federal policies and regulations.

Criteria air pollutants consist of carbon monoxide (CO), ozone (O3), nitrogen oxides (NOx), sulfur dioxide (SO2), lead (Pb), and particulate matter with a diameter less than 10 microns and 2.5 microns, respectively (PM10 and PM2.5). Regional air quality monitoring stations in the region are located in Victorville, Lucerne, and Hesperia, and routinely measure the concentration of these pollutants in the air.

When the 2009 EIR was prepared, the Mojave Desert Air Basin exceeded state and federal standards for fugitive dust (PM10), was unclassified for PM2.5, and “Non-attainment; classified Severe17” for ozone. State and federal standards for carbon monoxide, nitrogen oxides, sulfur dioxide, and lead were in attainment within the Town of Apple Valley and the Mojave Desert Air Basin in 2009.

The 2009 EIR projected air quality emissions using a combination of the South Coast Air Quality Management District (SCAQMD) “CEQA Air Quality Handbook” (1993), the California Air Resources Board (CARB) EMFAC 2007 model, and Urbemis 2007.

Mining Operations Impact

As described in the 2009 EIR, mineral extraction operations and associated processes within the Town generate fugitive dust and emit other criteria pollutants into the atmosphere, which adversely impact local and regional air quality. The General Plan developed policies and programs to regulate extraction procedures and reduce impacts to air quality, which the 2009 EIR

concluded would reduce fugitive dust generated from mineral extraction within the Town's jurisdiction to less than significant levels.

Air Quality Management Plan Compliance

The 2009 EIR determined that build out of the 2009 General Plan and Annexation areas may interfere or delay implementation of the Ozone attainment plan, since it increases land use densities and buildout population, and is therefore non-conforming with the previously approved land use plan (previous General Plan). This represented a significant impact, and there were no mitigation measures available to reduce this impact to less than significant levels. As a result, the 2009 EIR concluded that build out of the General Plan, and of the Annexation areas, would result in a significant and unavoidable impacts to air quality management planning.

Fugitive Dust Impacts

Fugitive dust is generated and emitted into the atmosphere during grading and disturbance of undeveloped land and construction of new facilities. The 2009 EIR concluded that compliance with dust control measures listed in MDAQMD Rule 403.2 would reduce air quality impacts from fugitive dust to meet established PM_{10} standards. Rule 403.2 requires several operating conditions to assure that fugitive dust emissions are minimized. The 2009 EIR set forth mitigation measures that would be applied to reduce fugitive dust emissions, and are set forth below, under Mitigation Measures. With the implementation of these mitigation measures, impacts would be reduced to less than significant levels.

Construction-Related Emissions Impacts

The 2009 EIR determined it was beyond the scope of the EIR analysis to project pollutant emissions generated by the construction of new buildings and improvements for project-specific activities because such calculations would require knowledge of development plans. The 2009 EIR stated that air quality impacts resulting from construction activities should be analyzed in detail, as each specific development is proposed, and site-specific environmental documents are prepared. At that time, project-specific mitigation measures would be identified, as needed, to reduce potential impacts to acceptable levels.

Power Plant Emissions Impacts

Emissions from power plants consist primarily of combustion products, such as carbon monoxide, oxides of nitrogen, sulfur oxides, particulate matter and reactive organic gases (ROG). Electrical power plants that serve the Town of Apple Valley are located outside the Mojave Desert Air Basin (MDAB) and region. Therefore, most of the pollutants associated with energy production will be emitted outside the region.

The 2009 EIR determined annual electricity usage for all residential uses would be 358,683,749 kilowatt-hours (kwh) per year, commercial uses would be 924,262,572 kwh per year, and industrial uses would be 525,032,571 kwh per year. Impacts from emissions from power plants were calculated using SCAQMD CEQA Air Quality Handbook and are included in Table 3 under Summary of Air Quality Impacts, below.

Natural Gas Emissions Impacts

The 2009 EIR determined natural gas usage for all residential uses would be 352,897,630 cubic feet (cf) per month, commercial uses would be 145,002,703 cf per month, and industrial uses would be 281,188,992 cf per month. Impacts from emissions from natural gas usage were calculated using Urbemis and are included in Table 3 under Summary of Air Quality Impacts, below.

Impacts from Consumer Products

The 2009 EIR determined build out of the General Plan, including the Annexation areas, has the potential to result in a maximum of 3,333.32 pounds of ROG per day from the use of consumer products such as air fresheners, automotive products, household cleaners, and personal care products. The project-specific thresholds for ROG of 137 pounds per day would be exceeded. Thus, the EIR concluded that build out of the General Plan would generate unavoidable significant impacts to air quality as a result of ROG emissions. Emissions from consumer products were calculated using Urbemis and are included in Table 3 under Summary of Air Quality Impacts, below.

Traffic Exhaust Emissions Impacts

Projections of the vehicle emissions associated with the build out of the General Plan, including the Annexation areas were based on emission factors for passenger vehicles and delivery trucks for the year 2025. The 2009 EIR averaged all trip types using average trip lengths and determined the 2009 General Plan update would result in 17,039,495 miles traveled.[2] Emissions from traffic exhaust were calculated using the CARB EMFAC model and are included in Table 3 under Summary of Air Quality Impacts, below.

As shown in Tables 3 and 4 below, air emissions associated with power plant, natural gas, consumer products and traffic exhaust emissions would, in the aggregate, exceed emission thresholds, and represent a significant impact.

Summary of Air Quality Impacts

The following tables summarizes pollutant emissions generated at build out of the 2009 General Plan and Annexation areas, including emissions from the use of consumer products, electricity, and natural gas, and emissions from vehicle exhaust for residential, commercial, office, and industrial land use designations as set forth in the 2009 General Plan Land Use Tables.

For buildout of the General Plan, all criteria pollutant thresholds were projected to be exceeded without the application of mitigation measures, as shown in Table 3 below. Although emissions could be mitigated to a certain degree, the 2009 EIR determined that significant and unavoidable impacts to air quality would occur as a result of development of the General Plan. Therefore, as required under CEQA, Findings and a Statement of Overriding Considerations were adopted. Regardless of mitigation measures, development of the General Plan was found to contribute to cumulative air quality impacts locally and regionally.

[2] Table III-14 Moving Exhaust Emissions for all Land Uses at General Plan Buildout, page III-28 of EIR, shows 12,220,803 miles traveled.

Table 3
Projected Daily Emissions: 2009 General Plan Build Out
(lbs./day)

Criteria Pollutant	Stationary Source Emissions			Moving Source Emissions	Total Project Emissions	Threshold Criteria*
	Consumer Products	Power Plant	Natural Gas	All Vehicles	Lbs./Day	Lbs./Day
CO	-	991	1,641	42,503	**45,135**	**548**
NOx	-	5,696	2,492	4,960	**13,148**	**137**
SOx	-	594	0.026	135	**729**	**137**
PM10	-	198	4.61	1,229	**1,431**	**82**
PM2.5	-	-	4.61	820	**824**	**55**
ROGs	3,333	50	186	5,440	**5,676**	**137**
CO2	-	-	3,073,667	14,007,469	**17,081,136**	**N/A**

Source: Table III-16 of 2009 GP EIR.
*Threshold criteria offered by the Mojave Desert Air Quality Management District for determining the significance of air quality impacts. Source: "CEQA and Federal Conformity Guidelines," MDAQMD, June 2007 and URBEMIS 2007 Version 9.2.4 default emissions.

For buildout of Annexation 2008-001, air quality emissions associated with stationary and moving source emitters would significantly exceed established thresholds for all criteria pollutants with the exception of PM_{10}, as shown in Table 4 below. Although mitigation measures set forth in the 2009 EIR would somewhat offset emissions, it was determined that impacts associated with build out of the Annexation area would result in significant and unavoidable air quality impacts. As a result, Findings and a Statement of Overriding Considerations were adopted.

Table 4
Projected Daily Emissions: Annexation 2008-001 Build Out
(Lbs./day)

Criteria Pollutants	Stationary Source Emissions			Moving Source Emissions	Total Project Emissions	Threshold Criteria*
	Consumer Products	Power Plant	Natural Gas	All Vehicles	Lbs./Day	Lbs./Day
CO	-	121	183	5,068	**5,372**	**548**
NOx	-	696	247	591	**1,534**	**137**
SOx	-	73	0.003	649	**721**	**137**
PM10	-	24	0.45	16	**41**	**82**
PM2.5	-	-	0.45	146	**147**	**55**
ROGs	226.4	6	18	98	**348.4**	**137**
CO2	-	-	300,664	1,670,120	**1,670,120**	**N/A**

Source: Table III-17 of 2009 GP EIR.
*Threshold criteria offered by the Mojave Desert Air Quality Management District for determining the significance of air quality impacts. Source: "CEQA and Federal Conformity Guidelines," MDAQMD, June 2007 and Urbemis 2007Version 9.2.4 default emissions.

For buildout of Annexation 2008-002, air quality emissions associated with stationary and moving source emitters would significantly exceed established thresholds for all criteria pollutants, except for particulates and ROG's, as shown in Table 5 below. Although mitigation measures in the 2009 EIR would somewhat offset emissions, impacts would be significant and unavoidable, and Findings and a Statement of Overriding Consideration were adopted for CO, NOx, and SOx.

Table 5
Projected Daily Emissions at General Plan Build Out
Annexation Area 2008-002
(Lbs./day)

Criteria Pollutants	Stationary Source Emissions		Moving Source Emissions	Total Emissions	Threshold Criteria*
	Power Plant	Natural Gas	All Vehicles	Total Lbs./Day	Total Lbs./Day
CO	38	102	1,249	**1,388**	**548**
NOx	217	121	146	**484**	**137**
SOx	23	0.001	160	**182**	**137**
PM10	8	0.2	4	**12**	**82**
PM2.5	-	0.2	36	**36**	**55**
ROGs	1.9	9	24	**35**	**137**
CO2	-	145,367	411,624	**556,992**	**N/A**

Source: Table III-19 of 2009 GP EIR.
Source: Emission factors are from "CEQA Air Quality Handbook," South Coast Air Quality Management District, April 1993. *Threshold criteria as established by the Mojave Desert Air Quality Management District for determining the significance of air quality impacts.

Greenhouse Gas Emissions Impacts

The discussion and analysis of greenhouse gas emissions was provided in Section III-C Air Quality of the 2009 EIR. CEQA had not established significance thresholds for greenhouse gas emissions when the 2009 EIR was drafted, thus there is not a standalone Section.

The 2009 EIR assumed that development activities and operations that interfered with the objectives of AB 32 would be considered to have a significant impact. AB 32 requires a coordinated effort to curb greenhouse gas emissions within the state of California. Specifically, the Bill requires the state board to adopt a statewide greenhouse gas emissions limit, so that by the year 2020 GHG emissions are at or below 1990 emission levels.

Build out of the General Plan was estimated to generate 3.2227 million metric tons of carbon dioxide equivalent per year, or 19.49 million pounds per day, as shown in Table 6. The 2009 EIR compared the total carbon dioxide equivalent emissions in California for the year 1990 to buildout of the General Plan. According to the EIR, 1990 CO2e emissions in California were estimated to be 427 million metric tons. The EIR found that build out the Town of Apple Valley would contribute approximately 0.756 percent of the total California emissions limit for 2020 as established by CARB. In 2005 the total carbon dioxide equivalent emissions for the United States was estimated at 7,260.4 million metric tons. The General Plan represents 0.044 percent of the total emissions for the U.S. as estimated in year 2005.

Table 6
Annual GHG Summary: 2009 General Plan Buildout

Emission Source	CO2 Equivalent Metric Tons	CO2 Equivalent Million Metric Tons	Million Pounds Per Day
Electricity	660,712.98	0.661	3,990,747.31
Natural Gas	511,838.54	0.512	3,091,536.47
Moving Source	2,054,443.56	2.054	12,408,966.31
Total	**3,226,995.08**	**3.227**	**19,491,250.10**

Source: Table III-15 of 2009 GP EIR

Build out of Annexation 2008-001 was estimated to generate 375,691 million metric tons of carbon dioxide equivalent per year, or 2.269 million pounds per day, as shown in Table 7. The 2009 EIR compared the total carbon dioxide equivalent emissions in California for the year 1990 to buildout of the General Plan. According to the EIR, 1990 CO2e emissions in California were estimated to be 427 million metric tons. At build out the Annexation will contribute approximately 0.088 percent of the total California GHG emissions limits established by ARB for year 2020. In 2005 the total carbon dioxide equivalent emissions for the United States was estimated at 7,260.4 million metric tons. The Annexation represents 0.005 percent of the total emissions for the U. S. as estimated in year 2005.

Table 7
Annual GHG Summary: Annexation 2008-001 Build Out

Emission Source	CO2 Equivalent Metric Tons	CO2 Equivalent Million Metric Tons	Pounds Per Day
Electricity	80,671.16	0.081	487,258.81
Natural Gas	50,067.67	0.050	302,411.83
Moving Source	244,952.74	0.245	1,479,529.74
Total	**375,691.58**	**0.376**	**2,269,200.38**

Source: Table III-18 of 2009 GP EIR.

Build out of Annexation 2008-002 was estimated to generate 109,721 million metric tons of carbon dioxide equivalent per year, or 662,724 pounds per day, as shown in Table 8. The 2009 EIR compared the total carbon dioxide equivalent emissions in California for the year 1990 to buildout of the General Plan. According to the EIR, 1990 CO2e emissions in California were estimated to be 427 million metric tons. At build out Annexation 2008-002 will contribute approximately 0.026% of California's total GHG emission limits as established by ARB for year 2020. In 2005 the total carbon dioxide equivalent emissions for the United States was estimated at 7,260.4 million metric tons. The Annexation represents 0.002% of the total emissions for the US as estimated in year 2005.

Table 8
Annual GHG Summary: Annexation Area 2008-002 Buildout

Emission Source	CO2 Equivalent Metric Tons	CO2 Equivalent Million Metric Tons	Pounds Per Day
Electricity	25,142.30	0.025	151,861.07
Natural Gas	24,207.13	0.024	146,212.59
Moving Source	60,372.03	0.060	364,650.78
Total	**109,721.46**	**0.110**	**662,724.44**

Source: Table III-20 of 2009 GP EIR.

Summary of Greenhouse Gas Emission Impacts

The 2009 EIR determined that build out of the General Plan and Annexation areas would increase emissions over 1990 levels, resulting in a significant impact. Mitigation measures were provided in the EIR. However, the reductions which these mitigation measures offered could not be effectively quantified. Therefore, the 2009 EIR determined that impacts associated with GHG emissions would be significant and unavoidable.

Mitigation Measures

According to the 2009 EIR, a wide range of mitigation measures could be applied to new development and redevelopment projects to reduce project-related criteria pollutant and greenhouse gas emissions at General Plan build out, and build out of the Annexation areas. The following Mitigation Measures are from pages III-34 through -39 of the 2009 EIR. As previously stated, the reductions which these mitigation measures offered could not be effectively quantified. The 2009 EIR determined that impacts associated with GHG emissions would be significant and unavoidable.

General Measures

1. Grading and development permits shall be reviewed and conditioned to require the provision of all available methods and technologies to assure minimal air quality emissions from development. See EIR Table III-21 below.

EIR Table III-21
Available Emission Reduction Technologies

	Daily Emission Reduction Factors				
Diesel Equipment	CO	NOx	SOx	PM_{10}	ROG
Aqueous Fuel	0%	14%	0%	63%	0%
Diesel Particle Filter	0%	0%	0%	80%	0%
Cooled Exhaust Gas Recirculation	90%	40%	0%	85%	90%
Lean NOx Catalyst	0%	20%	0%	0%	0%
Diesel Oxidation Catalyst	0%	20%	0%	0%	0%
Worker Trips	CO	NOx	SOx	PM_{10}	ROG
Use of Shuttle or Ride Sharing	1.3%	1.3%	1.3%	1.3%	1%

Source: Urban Emissions Model (URBEMIS2002) version 8.7.0 April 2005; developed by the California Air Resources Board (CARB) as a modeling tool to assist local public agencies with estimating air quality impacts from land use projects when preparing a CEQA environmental analysis.

2. As part of the grading permit process, developers shall concurrently submit a dust control plan as required by MDAQMD in compliance with Rule 403 (see EIR Table III-22 below).

EIR Table III-22
Fugitive Dust Control Methods

Daily PM_{10} Reduction	
Apply Soil Stabilizers to Inactive Areas	30%
Replace Ground Cover in Disturbed Areas Quickly	15%
Water Exposed Surfaces 2 Times Daily	34%
Water Exposed Surfaces 3 Times Daily	50%

Source: Urban Emissions Model (URBEMIS2002) version 8.7.0, April 2005.

3. Prior to grading activities, a wind erosion control plan that among other things addresses soil stabilization techniques shall be submitted to the Apple Valley Building Division to assure that dust control is realized for all projects.

4. The Town shall conduct an initial study for all projects that are expected to exceed any of the MDAQMD pollutant emission threshold criteria, and shall require detailed air quality analyses for all development applications that have the potential to adversely affect air quality including quantification of greenhouse gas emissions. Until new factors are developed the use of the CEQA Handbook prepared by SCAQMD or other appropriate modelling tools such as URBAMIS shall be utilized.

5. All construction activities within the Town of Apple Valley shall be subject to Rule 401 Visible Emissions, Rule 402 Nuisance, and Rule 403 Fugitive Dust in accordance with the Mojave Desert Planning Area PM10 Attainment Plan.[3]

6. Set backs and buffer zones shall be provided between sensitive receptors (residences, schools, daycare centers, playgrounds and medical facilities) and point source emitters, such as highways, hazardous materials sites, and industrial development. Projects proposed for sites located within the specified distance to an existing or planned (zoned) sensitive receptor land use shall be evaluated to determine impacts to sensitive receptors including a health risk assessment for the following projects:

   Any industrial project within 1000 feet;
   A distribution center (40 or more trucks per day) within 1000 feet;
   A transportation project with 50,000 or more vehicles per day within 1000 feet;
   A dry cleaner using perchloroethylene within 500 feet;
   A gasoline dispensing facility within 300 feet.

[3] "Final Mojave Desert Planning Area Federal Particulate Matter (PM10) Attainment Plan," prepared by the Mojave Desert Air Quality Management District, July 31, 1995.

7. The General Plan Land Use Plan shall be routinely updated to assure that air pollution point sources, such as those described above, are located a sufficient distance residential areas and other sensitive receptors, to the greatest extent practical.

8. The Town shall encourage the phasing of development projects and the staging of construction equipment to assure the lowest construction-related pollutant emission levels practical.

9. The Town shall strive to maintain a balance between housing, commercial, and industrial development, and shall encourage mixed-use development to reduce the length of vehicle trips and associated moving vehicle emissions.

10. The Town shall promote the development of pedestrian-oriented retail centers, community-wide trails, and dedicated bike lanes to encourage alternatives to vehicle travel. These components shall be integrated and periodically updated in the General Plan Circulation Element.

11. The Town shall pursue programs that create a diversified transportation system that minimizes vehicle miles traveled and associated air quality emissions.

12. The Town shall encourage the incorporation of energy-efficient design measures in site plans, including appropriate site orientation to assure solar access, and the use of shade and windbreak trees to enhance the use of alternative energy systems and reduce the need for excessive heating and cooling.

13. The Town shall encourage the use of clean burning energy sources for transportation, heating and cooling. Pilot studies and/or demonstration programs shall be initiated by the Town and/or local agencies to promote these uses. The following programs shall be pursued:

    - Replace Town and County vehicle fleet with alternative vehicles
    - Initiate ride sharing programs for employees and of telecommuter options
    - Utilize Town building rooftops for placement of Solar equipment

14. The Town shall continue to develop and coordinate mass transit services that link residential, commercial, shopping and industrial centers, and shall coordinate with regional transportation authorities to facilitate public transport outside Town limits.

15. As requested, the Town shall participate, through the San Bernardino Associated Governments and MDAQMD, in the routine monitoring of all pollutants of regional concern, and shall maintain records of regional air quality trends.

16. The Town shall create staff positions that emphasis the Town's commitment towards building a green and sustainable community including LEED certified personnel and interagency liaisons that work directly with the Town and utility providers to increase efficiency, initiate

programs, and develop incentives for water and energy conservation and reducing air quality emissions.

17. The Town shall coordinate with MDAQMD and the nearby SCAQMD in providing air quality management training to staff and volunteers.

18. The Town shall review individual projects under CEQA using the control efficiencies provided on pages 11-13 through 11-32 of the 1993 SCAQMD "CEQA Air Quality Handbook" to determine the effectiveness of proposed air quality mitigation measures for specific projects.

19. A PM_{10} Management Plan for construction operations shall be submitted with all development proposal applications. Plans shall include dust management controls, which can reduce PM emission as shown in the table below:

EIR Table III-23
Particulate Matter Emission Reduction Techniques

Mitigation Measure	Daily Reduction Factor for PM10
Apply non-toxic soil stabilizers to graded construction areas that are inactive for 10 days or more	30-65%
Replace ground cover immediately through seeding and watering	15-49%
Enclose, cover, water twice daily or apply soil binders to exposed piles with more than 5% silt content	30-74%
Water active site at least twice a day	34-68%
Water active site at least three times daily	45-85%
Cover soil haul trucks or maintain at least two feet of freeboard	7-14%
Conduct street sweeps at the end of each day	25-60%
Install wheel washers where vehicles enter and exist unpaved roads or wash off equipment leaving the site	40-70%
Enforce maximum speeds of less than 15 mph on all unpaved roads	40-70%
Pave construction roads that have more than 50 daily construction equipment trips or 150 total daily trips	92.5%
Pave construction site access roads at least 100 feet on to the site from the main road	92.5%
Pave construction roads that have less than 50 daily trips	92.5%

Source: "CEQA Air Quality Handbook," prepared by SCAQMD, 1993.

20. To reduce construction-related traffic congestion, developers and contractors shall implement the following mitigation measures:

- configure construction equipment parking to minimize traffic disturbance
- minimize obstruction of through-traffic lanes
- provide a flag person to ensure safety at construction sites, as necessary
- schedule operations affecting roadways for off-peak traffic hours
- provide rideshare incentives to construction personnel

21. To minimize construction equipment emissions, developers shall implement the following measures:

    - wash off trucks leaving the site
    - require trucks to maintain two feet of freeboard
    - properly tune and maintain construction equipment
    - use low sulfur fuel for construction equipment

22. To minimize indirect-source emissions, developers may:

    - implement energy conservation measures beyond state and local requirements
    - install low-polluting, high-efficiency appliances
    - install solar pool and water heaters, where feasible
    - landscape with appropriate drought-tolerant species to reduce water consumption and provide passive solar benefits
    - install energy-efficient street lighting

23. To minimize building energy consumption, developers shall be encouraged to implement the following:

    - improve the thermal integrity of buildings
    - utilize window glazing, wall insulation, and efficient ventilation methods
    - introduce efficient heating and appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units
    - incorporate appropriate passive solar design and solar heaters
    - use devices that minimize the combustion of fossil fuels

The following greenhouse gas mitigation measures are from pages III-39 through -43 of the 2009 EIR.

1. Design and implement land uses that encourage job/housing proximity or easy access to transit opportunities including high density development along transit corridors, compact mixed use projects, and urban villages that maximize affordable housing and encourage biking, walking, and the use of public transit. This can be accomplished through the implementation of the goals, policies and programs of the Medium Density Residential and Mixed Use land use designations and, as appropriate, implementation of specific plans in

targeted areas where the opportunities for such development can be created through advance planning. Transit corridors to be focused on high density development are along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road. Furthermore, high density development will be targeted for the future High Desert Corridor.

2. Encourage infill, redevelopment, mixed use, and higher density development in appropriate areas of the Town where existing development can serve as the foundation for the creation of new urban villages. . Such development would be focused around the southern portion of the Town near the major intersections of Bear Valley Road, such as its intersections with Apple Valley Road, Kiowa Road and Navajo Road. Other areas targeted for development include those along Highway 18 and Dale Evans Parkway.

3. In order to reduce vehicle miles traveled and greenhouse gas emissions, mixed use projects with a maximum density of 30 dwelling units per acre shall be developed in the core of Apple Valley on infill lots and/or adjacent to transportation corridors (such as Bear Valley Road, Highway 18, and Dale Evans Parkway) and existing and future job centers.

4. Incentive programs shall be offered for affordable Medium Density Residential infill projects (maximum 20 dwelling units per acre) within the core of Apple Valley and/or adjacent to transportation corridors and existing and proposed job centers. This will help to reduce the vehicle miles traveled and greenhouse gas emissions.

5. Infill in the Mountain Vista Neighborhood is encouraged and incentives shall be offered by the Town for projects greater than 20 units in size. Infill and higher densities in this existing neighborhood will reduce the amount of vehicle miles traveled.

6. Mobile Home Park development shall be encouraged through the creation of the Mobile Home Park Land Use Designation. This will encourage higher density residential development along transportation corridors and adjacent to existing and future job centers. As a result, this should help reduce vehicle miles traveled and greenhouse gas emissions.

7. The Town shall encourage and promote the development of the North Apple Valley Industrial Specific Plan to create a job center with productive industries, which will reduce the vehicle miles traveled of high desert residents that typically have to drive to employment centers in the San Bernardino Valley, as well as the Riverside City and County portions of the Inland Empire for work. The Town shall reduce the approval time for entitlements and permit process for industrial projects within this area. The industrial development also supports a broad-based economy and encourages a jobs housing balance.

8. The Town shall permit childcare facilities in single-family and multi-family residential zones, as well as, in the commercial and industrial areas where employment is concentrated. This will encourage the reduction of vehicle miles traveled.

9. New developments shall be encouraged to include housing, recreational, and retail amenities, so as to limit the number of vehicle miles traveled by providing accessible and desirable amenities onsite.

10. All new development shall be required to install infrastructure prior to occupancy, which will encourage a well planned, orderly development pattern.

11. Advanced technology systems and effective management strategies shall be employed in order to improve the operational efficiency of transportation systems and the movement of people, goods, and services including synchronization of traffic lights and signals. New development that requires roadway and/or intersection improvements will be required to install such improvements such that these advanced traffic management systems may be easily implemented by the Town.

12. New projects shall incorporate design parameters that allow for frequent, reliable, and convenient public transit.

13. The Town shall expand and develop an integrated and comprehensive bikeway, walking path and trail system. The expansion of a regional trail system shall be in consultation with neighboring communities to improve the overall Victor Valley system.

14. Street and travel corridors shall be monitored and maintained to assure that congested areas and intersections are rectified.

15. Idling time for commercial, delivery, and construction vehicles shall be regulated and limited.

16. Landscaping designs shall use trees and other vegetation to maximize the shading of buildings in order to reduce energy requirements for heating and cooling.

17. Planting and preserving existing trees shall be utilized as means of providing carbon storage. Preserving existing trees shall be encouraged during the development review of new projects. The Town shall formulate minimum tree planting standards to be applied during the development review of a project.

18. Tree planting in parks and open spaces will be encouraged. Tree planting programs shall be implemented by the Town. These programs shall include an educational component that emphasizes the importance of trees as means of providing carbon storage.

19. The Town shall promote the use of LEED (Leadership in Energy and Environmental Design) building practices for public and private development by considering the utilization of such building practices as a factor favoring project approval during the entitlement process. Sustainable or “green” building standards similar to LEED shall also be considered favorably. Alternative energy systems such as solar, thermal, photovoltaics and other clean energy systems shall be integrated in building design. Building design shall take advantage of shade, prevailing winds and sun screen to promote energy efficiency.

20. The Town shall encourage the use of energy saving measures beyond the requirements of Title 24 for residential and commercial projects. The incorporation of such measures shall be considered as a factor in favor of project approval during the entitlement process. An incentive program shall be developed for projects that exceed Title 24 requirements by 15% and/or achieve LEED certification or similar performance standards for building design. Incentives such as fee reductions or waivers of certain development standards shall be considered.

21. Promote the use of facilities for low/zero carbon fueled vehicles in new developments, such as the charging of electric vehicles from green electricity sources.

22. The Town will encourage and facilitate the exploitation of local renewable resources by supporting public and private initiatives to develop and operate alternative systems of electricity generation, using wind, solar and other renewable energies.

23. Promote educational programs directed at the public, schools, professional associations, businesses, and industries that offer strategies for reducing GHG emissions.

24. Initiate a program to replace existing traffic lights, street lights, and other electrical uses to energy efficient bulbs and appliances. Encourage new lighting to be energy efficient. The Town shall require that lighting in all Town facilities be replaced with energy efficient fixtures as existing fixtures fail and require replacement.

25. Utilize Energy Star equipment and appliances for new development and encourage replacement appliances to be energy efficient. The voluntary commitment to such a requirement by project applicants shall be considered a factor in favor of project approval.

26. Promote the use of on-site renewable energy production including installation of photovoltaic cells or other solar options. The Town shall encourage the use of solar cells in private development and consider such project features favorably during project review. The Town shall investigate the cost effectiveness of installing such solar cells on Town buildings for the purposes of powering Town facilities and possibly selling excess “clean” energy back to the SCE power grid, pursuant to state law.

27. Consider an Energy Savings Performance Contract with a private entity to retrofit public buildings, which will allow the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.

28. Utilize the Collaborative for High Performance Schools (CHPS) best practices for school design, building, and operation.

29. Replace or retrofit municipal water and wastewater systems with energy efficient motors, pumps, and other equipment, and recover wastewater treatment methane for energy production.

30. Capture and utilize landfill gas for use as an energy source including fuel for vehicles, operating equipment, and heating buildings.

31. Promote the use of vehicles and buses that use alternative fuels or technologies such as hybrids, biodiesel, and ethanol. The Town's vehicle fleet shall be transitioned to alternative fuels to the extent economically feasible.

32. The Town shall promote the use of mass transit services, coordinating with all agencies to link residential and commercial businesses and employment centers within the Town's residential neighborhoods and nearby communities. Mass transit services shall be expanded as needed within the context of economic feasibility.

33. Ride sharing, carpooling, flexible work scheduling, telecommuting and Park & Ride programs shall be encouraged for public and private employers.

34. The Town shall assess the local transportation system annually with a view to gaining greater efficiency in the movement of people and goods through the community. Opportunities to expand the public transit system, using buses equipped with bicycle racks and fueled by compressed natural gas or hydrogen will be maximized. Widespread use of pedestrian pathways and alternative means of transportation, such as bicycles and electric hybrid vehicles will be facilitated and encouraged.

35. Offer incentives to private businesses for developing energy and water efficient features and building materials, such as expedited plan checks and reduced permit fees.

36. Offer rebates and low interest loans to residents that make energy saving improvements on their homes, including but not limited to the installation of solar cells and panels.

37. Incentives shall be provided for rehabilitation and remodeling of existing development. Assistance from the Town shall be provided through the Residential Rehabilitation Loan Program to improve energy efficiency of existing residences. Educational materials shall be provided to the public advising them of energy efficiency through available appliance programs and other energy conservation improvements that are eligible for the Residential Rehabilitation Loan Program.

38. The Town shall consider incentive programs, rebates and refunds for the use of energy efficient appliances, windows and building designs for new and remodeled structures. The incentive program could also include incentives for the use of recycled materials.

39. Encourage bicycle lanes and walking paths directed to the location of schools, parks, and other destination points. The provision of such facilities will be considered favorably during project review pursuant to the General Plan's Circulation Element.

40. The Town will implement a program to install photo voltaic systems on the buildings and carports located at the Public Works facility and Town Hall/Police Department, which will provide electricity for the Civic Center and the Public Works/Animal Control facilities. This will improve the energy efficiency of these facilities

41. Prior to July 15, 2010, the Town shall develop and adopt a Climate Action Plan ("CAP") that enhances the General Plan's goals, policies and programs relating to meeting the greenhouse gas emission targets established in the California Global Warming Solutions Act, including reducing emissions to 1990 levels by including an emissions inventory; emission targets that apply at reasonable intervals through the life of the plan; enforceable GHG control measures; monitoring and reporting; and mechanisms to allow for the revision of the plan, if necessary, to stay on target. The goal of the CAP shall be to reduce greenhouse gas emissions within the Town's control the achieve the emission reduction goals required by AB 32, as further developed and quantified by the California Air Resources Board. The CAP shall quantify the approximate greenhouse gas emissions reductions of each measure developed with the CAP, and shall consider the mechanisms, strategies and techniques included above.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

An Air Quality and Greenhouse Gas Report was prepared that compared air quality and greenhouse gas impacts of two General Plan buildout scenarios. Scenario 1 is buildout of industrial lands under the 2009 General Plan EIR, and Scenario 2 is buildout of industrial lands under current land use conditions (2024), including planned industrial projects.

Consistent with CEQA requirements for an EIR Addendum, the Project must not result in new or substantially more significant environmental impacts compared with the impacts disclosed in the previously certified EIR. Therefore, emissions from buildout of Scenario 2 must not exceed the emissions projected for buildout of Scenario 1.

Scenario 1: 2009 General Plan Buildout

Scenario 1 analyzes buildout of all industrial lands accounted for in the General Plan EIR, including Annexation Areas 2008-001 and 2008-002, as well as the industrial lands in the NAVISP area.

Table 9
Scenario 1: 2009 General Plan EIR Industrial Land Use Summary

Land Use	Acres	Building Area (vacant and developed)[1]
General Plan EIR(2009): IP	645.3	6,184,038.96 square feet
NAVISP EIR (2006)	4,855.8	39,438,701.00 square feet
Annexation Area 2008-001 &-002	1,613.1	15,458,659.92 square feet
TOTAL	**7,114.2**	**61,081,400 square feet**

[1] Building area for vacant land assumes 22% site coverage.

The 2009 General Plan air quality and greenhouse gas analysis was completed using an emissions model (Urbemis) that is no longer used for analysis. To provide a fair comparison of the two

buildout Scenarios, air quality emissions were recalculated for Scenario 1 using the currently approved model, California Emissions Estimator Model (CalEEMod Version 2022.1). To re-calculate 2009 conditions using CalEEMod, the Air Quality and Greenhouse Gas Report utilized the 2009 EIR assumptions for industrial land use mix, landscaping coverage, energy demand, water demand, and passenger vehicle trip lengths (see Appendix B). Traffic trips were derived from the Cumulative Trip Generation Assessment memo prepared by Urban Crossroads in February 2024 (see Appendix J) that quantified the traffic trips generated by industrial uses in the 2009 EIR analysis and 2009 EIR Traffic Study.

The air quality analysis conducted in the 2009 EIR assumed that industrial lands would be developed as 25 percent warehouse uses and 75 percent miscellaneous industrial uses. In order to recreate this land use assumption using CalEEMod, industrial lands were assumed to be 25 percent (15,270,350 SF) unrefrigerated warehouse (no rail) and 75 percent (45,811,050 SF). industrial park. Consistent with the 2009 EIR analysis it was assumed that buildout of the 2009 industrial lands would occur in 2025. A summary of these land uses is provided below.

According to the Cumulative Trip Generation Assessment memo, industrial land uses analyzed in the 2009 EIR generated a total of 243,973 annual trips at buildout. Consistent with the land use breakdown, this analysis assumes that 25 percent of the trips (60,994 trips) were unrefrigerated warehouse (no rail), and 75 percent of the trips (182,979 trips) were industrial park. For analysis purposes it was assumed that all warehouse trips were long-haul truck trips for distribution, and all industrial park trips were passenger vehicles. Passenger vehicle trip lengths were derived from the 2009 EIR, and trip lengths for long-haul truck trips assumed a 40-mile trip length derived from the Southern California Association of Government's (SCAG) estimation of average truck trip length in its 2016 Regional Transportation Plan.[4] The methodology and assumptions input into CalEEMod are described in greater detail in the Air Quality and Greenhouse Gas Report prepared for the Project (Appendix B).

Demand for electricity and natural gas was calculated based on the energy demand factors used in the 2009 GP EIR. Consistent with the assumptions used for analysis of industrial lands in 2009, it is assumed that 25 percent of industrial lands are/would be developed with warehouse uses, and 75 percent are/would be developed with general industrial park land uses. The 2009 EIR assumed that the industrial park and warehouse land uses would generate demand for electricity at a rate of 10.5 kilowatt hours (kWh) per square foot (sf) per year and 4.35 kWh/sf/year, respectively. Both the industrial park and warehouse land uses were assumed to generate demand for natural gas at a rate of 4.8 cubic feet per square foot per month. Based on these factors, Scenario 1 has a total electricity demand of approximately 547,442,048 kWh/yr and natural gas demand of 3,655,501,896.96 kbtu/yr.

[4] South Coast Air Quality Management District, Preliminary Draft Staff Report: Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce.

The 2009 EIR calculated industrial water demand using a factor of 1.61 acre-feet per acre per year.[5] Applying this factor to the 7,114.2 acres of vacant and developed industrial lands in the 2009 General Plan EIR, including Annexation Areas 2008-001 and -002, and NAVISP, results in an estimated water demand of 11,452.86 acre-feet per year (AFY).

Based on the parameters summarized above and described in the Air Quality and Greenhouse Gas Report, the following table shows the emissions estimated to be generated by the industrial lands analyzed in the 2009 EIR, including the General Plan and Annexation areas

Table 10
Scenario 1: 2009 General Plan Build Out, Industrial Only
Maximum Daily Operational-Related Emissions Summary
(pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO2e
Daily Max. (Total)	**10,393**	**3,737**	**2,478**	**38**	**1,998**	**598**	**5,329,028**

Projected emissions for operation of industrial lands based on 2009 Apple Valley General Plan EIR, Annexation Area 2008-001 and -002, and 2006 NAVISP EIR.
Source: CalEEMod Version 2022.1.1.21.

Scenario 2: Current (2024) Developed, Vacant, and Planned Industrial

Scenario 2 analyzes buildout emissions of the currently developed, vacant, and planned industrial projects in the Town of Apple Valley as of 2024. This scenario more accurately represents current conditions compared to the 2009 EIR analysis. As previously stated, Scenario 2 emissions must not exceed Scenario 1 emissions to demonstrate that the Project would not result in new or substantially more significant environmental impacts compared with the impacts disclosed in the previously certified EIR.

As shown in Table 11, there are 6,575.6 acres of industrial lands in Apple Valley in 2024, compared to 7,114 acres of industrial lands in 2009. The building square footage for developed sites is based on the actual building footprint, as measured in GIS. The building square footage for vacant sites assumes 22 percent site coverage. The square footage of buildings in planned industrial projects is based on the dimensions provided in development plans submitted to the Town. Based on these assumptions and as shown in Table 11, the total building area for vacant, developed, and planned industrial is 60,996,260 square feet.

Table 11
Scenario 2: Current (2024) Build Out Conditions Industrial Land Use Summary

Land Use	Acres	Building Area (vacant, developed & planned)[1]
Planned Industrial (IP) General Plan Designation – Vacant + Developed	737.3 acres	6,909,972 square feet

[5] Industrial factor based on CVWD (2004) factor for Commercial and Industrial parks, based on 35% return flow. Source: Water System Backup Facilities Charge Study, prepared by Engineering Dept, Coachella Valley Water District, Sept 2004.

North Apple Valley Industrial Specific Plan – Vacant, Developed + Planned	5,838.3 acres	54,086,287.65 square feet
TOTAL	**6,575.6 acres**	**60,996,260 square feet**

[1] Building area for vacant land assumes 22% site coverage.

Consistent with the assumptions used for analysis of industrial lands in 2009, it is assumed that 25 percent of industrial lands are/would be developed with warehouse uses, and 75 percent are/would be developed with general industrial park land uses. Likewise, it was assumed that 15 percent of total lot areas would be landscaped, consistent with the San Bernardino County development standards. Development has not occurred at the speed anticipated in the 2009 EIR, therefore build out was assumed to occur in 2040 under Scenario 2, which is consistent with the 15 year build out projection used for the 2009 EIR.

Like Scenario 1, the industrial trip generation for Scenario 2 was derived from the Cumulative Trip Generation Assessment memo that determined all currently developed and vacant industrial lands and proposed industrial projects in 2024 would generate a total of 209,538 trips. Consistent with the land use breakdown, this analysis assumes that 25 percent of the trips (52,340 trips) were unrefrigerated warehouse (no rail), and 75 percent of the trips (157,054 trips) were industrial park. As with Scenario 1, it was assumed that all warehouse trips were long-haul truck trips for distribution, and all industrial park trips were passenger vehicles. The same trip lengths applied to Scenario 1 were applied to Scenario 2. The methodology and assumptions input into CalEEMod are described in greater detail in the Air Quality and Greenhouse Gas Report prepared for the Project (Appendix B).

Demand for electricity and natural gas resulting from vacant, developed, and planned industrial projects in 2024 assumes the CalEEMod default rates, and assumes the default proportion that is subject to Title 24 Standards. As discussed above, and consistent with assumptions made in the 2009 DEIR, it is assumed that 25 percent of industrial lands are/would be developed with warehouse uses, and 75 percent are/would be developed with general industrial park land uses. Based on these CalEEMod defaults and land use assumptions, Scenario 2 has a total electricity demand of approximately 868,805,801 kWh/yr and natural gas demand of 1,545,198,907 kbtu/yr.

Water demand for 2024 conditions was calculated using separate demand factors for indoor industrial water use and outdoor landscape irrigation water use. Indoor water demand was estimated using a demand factor of 3.4 gallons per square foot per year from the U.S. Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey. Water demand associated with landscaped area was calculated assuming that 15 percent of total lot area would be landscaped.[6] Reference evapotranspiration, evapotranspiration adjustment

[6] The Town of Apple Valley General Plan EIR does not provide an assumed landscaped area for industrial sites, and the Town of Apple Valley Development Code does not provide a landscape are requirement based on total lot coverage. Therefore, landscaped area is assumed based on §83.10.060 of the San Bernardino County Development Code, which requires that landscaped area must be 15% of total lot area for industrial/warehouse developments.

factor, and conversion factors used to calculate water demand are based on the Town of Apple Valley Water Conservation/Landscaping Regulations (Ordinance No. 479). Based on these parameters, the estimated indoor and outdoor water demand projected for vacant, developed, and planned industrial projects in Apple Valley in 2024 is estimated to be 3,071.78 AFY. The methodology and assumptions input into CalEEMod are described in greater detail in the Air Quality and Greenhouse Gas Report prepared for the Project (Appendix B).

Based on the parameters described above, Table 12 shows the estimated operational emissions associated with operation of all vacant, developed, and planned industrial lands in Apple Valley in 2024.

Table 12
Scenario 2: Current (2024) Conditions Build Out, Industrial Uses Only
Maximum Daily Operational-Related Emissions Summary
(pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO2e
Daily Max. (Total)	**6,588**	**1,986**	**2,114**	**23**	**1,670**	**471**	**3,489,571**

Comparison of Scenario 1 and Scenario 2

As shown in Table 13, Scenario 2 conditions are estimated to generate fewer emissions than Scenario 1. The decrease in emissions is primarily due to the reduction in total industrial acreage and building square footage, fewer traffic trips, and increased energy efficiencies since 2009 that have been programmed into CalEEMod default emission factors.

Table 13
Buildout Emissions Comparison: Scenario 1 and Scenario 2
Maximum Daily Operational-Related Emissions (lbs/day)

Scenario	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO2e
Scenario 1	10,393	3,737	2,478	38	1,998	598	5,329,028
Scenario 2	6,588	1,986	2,114	23	1,670	471	3,489,571
Change:	**3,805 Decrease**	**1,751 Decrease**	**364 Decrease**	**15 Decrease**	**328 Decrease**	**127 Decrease**	**1,839,457 Decrease**

Analysis of the Proposed Project

Air Quality Management Plan Consistency

The Project is located within the MDAB, which is governed by the MDAQMD. MDAQMD is responsible for monitoring criteria air pollutant concentrations and establishing management policies for the MDAB. All development within the MDAB, including the proposed Project, is subject to all applicable air quality management plans that establish control strategies and guidance on regional emission reductions for air pollutants, including but not limited to ozone attainment plans and PM_{10} reduction plans.

According to the MDAQMD CEQA Guidelines, a project is considered non-conforming if it conflicts with or may delay the implementation of any applicable attainment or maintenance plan. According to the guidelines, a project is considered conforming if it "complies with all proposed control measures that are not yet adopted from the applicable plan(s) and is consistent with the growth forecasts in the applicable plan(s)."

The MDAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments, and cooperates actively with all state and federal government agencies. SCAG adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS) to comply with metropolitan planning organization (MPO) requirements under the Sustainable Communities and Climate Protection Act. The Growth Management chapter of the RTP/SCS forms the basis of land use and transportation controls of air quality plans. The 2020 SCAG RTP/SCS forecasts that by 2045, the Town of Apple Valley will have 37,400 households and a population 101,400.[7] According to the Town's 2009 General Plan, Apple Valley has the potential to accommodate 31,716 additional dwelling units and 96,829 additional residents in the Town boundaries through buildout of the General Plan.[8]
MDAQMD states that conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast.[9] The Project site is located in the planning area of the North Apple Valley Industrial Specific Plan (NAVISP). According to the NAVISP, the Project property is designated as Industrial – Specific Plan, which allows for "a broad range of clean manufacturing and warehousing uses… [including] warehouse distribution facilities."[10] The Project, which proposes the development of a warehouse distribution facility, is consistent with the land use and zoning designation established in the NAVISP, and will comply with the policies and regulations applicable to this designation. According to the MDAQMD CEQA Guidelines, given that the Project is consistent with the land use plan used to generate the growth forecast, it can be assumed that the Project is conforms with the growth forecast itself.

The MDAQMD CEQA Guidelines also state that a project is considered conforming if it complies with all proposed control measures. According to the Apple Valley General Plan, the Town is subject to the provisions of the MDAQMD Rule Book, which establishes policies and other measures designed to help the District reach federal and state attainment standards.[11] In accordance with the Town's policies, the proposed Project shall comply with the provisions of the MDAQMD Rule Book. These actions include the implementation of fugitive dust control measures (Rule 403) and the use of low VOC content architectural coatings (Rule 1113). Furthermore, the Project will be subject to Rule 201, which requires a permit from the Air Pollution Control Office prior to any construction activities, and Rule XIII, which requires preconstruction review of all new facilities to ensure they don't interfere with the attainment

---

7 SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Demographics and Growth Forecast Technical Report, Jurisdiction-Level Growth Forecast.

8 Town of Apple Valley General Plan (2009), page II-2.

9 MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (February 2020).

10 North Apple Valley Industrial Specific Plan (2006), p. I-2.

11 Town of Apple Valley General Plan (2009) Air Quality Element, p. III-70.

and maintenance of ambient air quality standards. Compliance with the MDAQMD's requirements will ensure that the Project does not conflict with applicable air quality plans.

Criteria Pollutants

For the purposes of this analysis, criteria pollutant emissions were estimated using CalEEMod Version 2022.1, which bases emission projections on land use factors for energy use, mobile trips, water use, solid waste generation, and wastewater generation.

Construction Impacts

The Project applicant proposes 1,373,150 square feet of distribution warehouse on 90± acres of currently vacant, undeveloped land within the NAVISP planning area. For analysis purposes, it is assumed that the Project will require a two-year buildout, concluding in 2027. The construction phase includes site preparation, grading, paving, building construction, off-site improvements, application of architectural coatings, and the worker and vendor trips required during this time. It is also assumed that cut and fill from grading of would balance on-site.

Table 14 shows that the emissions generated by the Project construction activities will not exceed the MDAQMD thresholds for any criteria air pollutants. The data in Table 14 represents maximum daily unmitigated emissions over the 2-year construction period. Given that MDAQMD's thresholds for criteria air pollutants will not be exceeded during unmitigated construction activities, impacts are anticipated to be less than significant.

Table 14
Proposed Project: Maximum Daily Construction-Related Emissions Summary
(pounds per day)

Construction Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Daily Maximum	81.6	31.7	59.3	0.09	12.0	5.25
MDAQMD Threshold	548	137	137	137	82	65
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix B CalEEMod outputs.

Operation Impacts

Operational Emissions refer to the ongoing emissions over the life of a project. They include area source emissions, emissions from energy demand (e.g. electricity) and mobile source emissions (e.g. vehicles).

The proposed Project is estimated to generate 2,864 daily trips according to the Traffic Impact Analysis (Appendix K) and is based on ITE Land Use Codes 157 for High-Cube Warehouse and High-Cube Cold Storage Warehouse[12]. The total of 2,864 daily trips is comprised of 1,994 passenger car trips and 870 truck trips. For warehouse uses, two CalEEMod runs were conducted. The first run modeled passenger vehicle trips associated with the warehouse uses, and assumed CalEEMod default trip lengths and purposes. The second modeling run modeled truck trips associated with the warehouse uses. Assuming that warehouse developments generate longer

[12] Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

truck trips associated with product delivery/distribution, modeling for truck trips assumed a 40-mile trip length) and 100% work-other trip types.[13]

CalEEMod defaults were assumed for electricity and natural gas demand. Southern California Edison 2027 forecasted intensity factors (as provided in CalEEMod) were applied, assuming an operational year of 2027. Based on CalEEMod default factors, the Project would generate a demand for 10,449,031 kWh/yr and 27,074,446 kBTU/yr.
CalEEMod defaults for water demand were updated based on the approved WSA. Water demand for the Project is estimated to be 65.13 acre-feet per year, which assumed 85 percent of indoor water use would be for unrefrigerated warehouse use, and 15 percent would be for refrigerated warehouse use.

As shown in Table 15, projected emissions during the Project's operational life will not exceed the MDAQMD thresholds for any criteria air pollutants. Impacts related to operational emissions can thus be assumed to be less than significant.

Table 15
Proposed Project: Maximum Daily Operational-Related Emissions Summary
(pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Daily Max (w/o mobile)	65.93	7.92	41.71	0.04	0.67	0.64
Mobile (Passenger Car)[1]	97.8	5.26	5.40	0.28	27.5	6.99
Mobile (Trucks)[1]	26.5	92.5	2.35	0.90	31.9	9.77
Daily Max. (Total)	**190.23**	**105.58**	**49.46**	**1.22**	**60.07**	**17.39**
MDAQMD Threshold	548	137	137	137	82	65
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix B CalEEMod outputs.

Cumulative Contribution – Non-Attainment Criteria Pollutants

Given the dispersing nature of pollutant emissions and aggregate impacts from nearby jurisdictions, cumulative air quality is evaluated on a regional scale. As previously described, the West Mojave Desert portion of the Mojave Desert Air Basin is a designated non-attainment region for PM_{10} and ozone. Any development resulting in emissions of PM_{10}, ozone, or ozone precursors will, to some extent, contribute to existing regional non-attainment, but as shown in Tables 14 and 15, the emissions will fall below threshold of what MDAQMD considers to be cumulatively considerable. Emissions of PM_{10}, CO, NO_x and ROG related to the Project are also projected to be below the MDAQMD thresholds.

Standard best practices will be applied during construction, including dust control measures in accordance with MDAQMD Rule 403, as well as the use of low VOC content architectural coatings per MDAQMD Rule 1113. Therefore, while the Project will contribute to incremental increases in emissions, the impacts on regional PM_{10} and ozone levels are not anticipated to be cumulatively considerable.

[13] SCAQMD Draft WAIRE Technical Report (2020).

Impacts to Sensitive Receptors

The MDAQMD considers residences, schools, daycare centers, playground, and medical facilities as sensitive receptor land uses. According to the MDAQMD CEQA Guidelines, projects within a specified distance of a sensitive receptor must be evaluated using significance threshold criteria number 4:

> *(4) [A project is significant if it] Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.*

The threshold distances from sensitive receptors, as specified by the MDAQMD are as follows:

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicle per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.[14]

The Project is located within the North Apple Valley Industrial Specific Plan area and is not within 1,000 feet of any sensitive receptor land uses. The nearest sensitive receptor land uses is a single family home located approximately 1,400 feet west of the Project site.

Given that the Project is well beyond the specified distance from any sensitive receptor land uses, it does not need to be evaluated using significance criteria number 4, stated above. Properties to the north, east, south and west of the subject site are designated for Industrial – Specific Plan per the NAVISP and would therefore not be intended for the future development of any sensitive receptors. Therefore, impacts to sensitive receptors would be less than significant.

Given that there are currently no sensitive receptors in the Project vicinity, the proposed development is not anticipated to expose sensitive receptors to substantial pollutant concentrations, and impacts can be considered less than significant.

Health Impacts

According to the MDAQMD CEQA Guidelines, the District does not currently have a methodology to correlate the expected air quality emissions of a project to the likely health consequences of those emissions consistently and meaningfully.[15] There are several factors that make it scientifically impossible with the technology available today to calculate the degree to which an individual's health would be impacted by exposure to various levels of criteria pollutant emissions:

- Differing medical histories mean that not all individuals would be affected equally. Some individuals may have medical pre-dispositions, and diet and exercise levels vary across a population.

[14] MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (February 2020).

[15] Ibid.

- Due to the dispersing nature of pollutants, it is difficult to local and identify which individuals will be impacted, either directly or indirectly.
- There are currently no agreed upon methodologies or studies upon which to base assumptions, such as baseline health levels or emissions level-to-health risk ratios.

While the air district, and the field of study in general, do not have methodologies available to analyze the specific health consequences of a project's emissions, MDAQMD does recommend the use of tools such as CalEEMod for the purposes of project evaluation.

Given these limitations, the extent to which the proposed Project poses a health risk is uncertain, but unavoidable. However, the results of the CalEEMod projections indicate that the Project's emissions are below the MDAQMD thresholds, and the application of the MDAQMD sensitive receptor guidelines also indicate that the Project is not within the threshold distance. Based on these findings, it is therefore anticipated that the Project's impacts and associated health effects resulting from criteria pollutants will overall be less than significant.

Odors

Land uses which are likely to generate odors, other than agricultural operations which are exempted, include chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rail yards, and wastewater treatment plants.[16]

The Project proposes the development of a distribution warehouse facility, which will not include any industrial production or processing activity onsite. While the proposed warehouse may produce some odors, it is not anticipated to produce any objectionable odors long term. While some odors may be generated on site during the construction process, their production will be short term. Any odors generated on site during construction or operations are expected to disperse quickly with distances.

Greenhouse Gases

The proposed Project will generate GHG emissions during both construction and operational phases. The California Emissions Estimator Model (CalEEMod) Version 2022.1 was used to project air quality and greenhouse gas emissions. The same methodology used to calculate the Project's estimated emissions is described in greater detail in the Air Quality discussion, above, and in the Air Quality and Greenhouse Gas Report, available in Appendix B.

Construction activities will result in short-term GHG emissions associated with the operation of construction equipment, vehicle emissions from construction employee commutes, material hauling, and other ground disturbing activities. Table 16 shows that the Project is projected to generate 3,085 metric tons of CO_2e over the two-year construction period.

There are currently no construction related GHG emissions thresholds for projects of this nature. As such, construction-related GHG emissions were amortized over a 30-year period, added to

[16] SCAQMD Guidance Document, Chapter 2: Air Quality Issues Regarding Land Use.

annual operational emissions, and compared to the MDAQMD threshold, in order to determine if construction emissions will result in a cumulatively considerable impact. Table 16 shows the combined amortized construction emissions and operational emissions.

Once the Project reaches the operational phase, five categories of emissions will contribute to its annual GHG emissions either directly or indirectly: area emissions (e.g. pavement and architectural coating off-gassing), energy use, mobile source emissions, solid waste disposal, and water use. As stated above, GHG emissions from construction of the Project were amortized over a 30-year period and added to the operational emissions total. Table 16 shows a summary of the total annual construction and operational GHG emissions projected for buildout of the Project.

Table 16
Proposed Project: GHG Emissions Summary
(Metric Tons)

Phase	CO_2e (MT/YR)
Construction	
2025	958
2026	2,127
Construction Total	3,085
Operational	
Area	20.1
Energy	3,151
Mobile (Passenger)	*4,290*
Mobile (Truck)	*16,357*
Mobile (Total)	20,647
Waste	403
Water	24.4
Refrigerants	909
Construction: 30-Year Amortized[1]	102.83
Total Operational	25,257.33
MDAQMD Annual Threshold	100,000.00
Exceeds?	**No**

[1] Buildout Construction GHG emissions were amortized over 30-years then added to buildout operational GHG emissions. 3,085/30=102.83

According to the MDAQMD CEQA Guidelines, a project is considered significant if it generates total emissions (direct or indirect) that exceed the applicable threshold. As shown in Table 16, the Project's annual CO_2e emissions will not exceed the MDAQMD's significance threshold of 100,000 metric tons of CO_2e per year. However, because the MDAQMD threshold has not been formally adopted, the Project's GHG emissions were also analyzed using the SCAQMD significance threshold.

The SCAQMD provides a series of "tiered" tests, based on staff recommendations, to determine whether a project's greenhouse gas emissions would be considered significant. In order to be considered less than significant, a project should comply with one of the following tiers:

- Tier 1: Is there an applicable exemption?
- Tier 2: Is the project compliant with a greenhouse gas reduction plan that is, at a minimum, consistent with the goals of AB 32?
- Tier 3: Is the project below an absolute threshold (10,000 MTCO2e/yr for industrial projects; 3,000 MTCO2e/yr for residential and commercial projects)?
- Tier 4: Is the project below a (yet to be set) performance threshold?
- Tier 5: Would the project achieve a screening level with off-site mitigation?

On the basis of this tiered system, the proposed Project was analyzed to determine its level of impact:

Tier 1: The Project is not eligible for an exemption. This tier does not apply.

Tier 2: Tier 2 is applicable. The Project is subject to the Town of Apple Valley's 2019 Climate Action Plan (CAP) Update, a comprehensive GHG emissions reduction plan. Pursuant to SB 32 and AB 32, the CAP aims to ensure that the Town continues to meet its GHG emissions reductions targets of 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030.[17] The Town has regularly updated its CAP every three years, which was last updated in 2021. The 2019 CAP is the third update to the original document, which underwent CEQA review and was adopted in 2010. Given that the Town's CAP is regularly updated, formally adopted, and consistent with the goals of AB 32, under SCAQMD's Tier 2 it provides suitable targets against which to evaluate the Project's GHG emissions.

Tier 3: This tier does not apply to the Project. Tier 3 provides the following quantitative thresholds for analyzing of CO2e emissions for projects under SCAQMD's permitting jurisdiction:

- 10,000 MTCO2e per year for industrial projects (stationary sources only)
- 3,000 MTCO2e per year for residential and commercial

While the proposed development is an industrial project, it will be used as a warehouse and distribution center, not as a manufacturing plant or other heavy industrial uses. As a result, most of its GHG emissions are expected to be produced by mobile sources, particularly from heavy duty trucks making regional distribution trips. It would therefore not be appropriate to analyze the Project's annual emissions of 25,257.33 MTCO2e against the SCAQMD threshold of 10,000 MTCO2e per year for industrial projects because this tier applies to stationary sources only.

The 3,000 MTCO2e threshold is also not suitable for the Project because it is intended for residential and commercial uses, neither of which are proposed for the Project. The Project proposes a 1,373,150 square foot warehouse space.

[17] Town of Apple Valley 2019 Climate Action Plan Update (May 2021).

Tier 4: There are no applicable performance thresholds against which to evaluate the Project. This tier does not apply.

Tier 5: There are no applicable off-site mitigation measures. This tier does not apply.

Based on the tiered tests provided by SCAQMD, and given that only Tier 2 applies to the Project, the following analysis will consider whether the Project is compliant with the Apple Valley 2019 Climate Action Plan. According to Tier 2, if the Project is determined to be compliant with the applicable greenhouse gas reduction plan, then impacts related to the greenhouse gas emissions resulting from that Project should be considered less than significant.

According to the CAP, the Town aims to meet the GHG emissions reduction target of 40% below 2005 levels by 2030. Based on growth forecasts in the SCAG 2020-2045 Regional Transportation Plan/SCS, the CAP forecasts that the Town will have a population of 84,535 in 2030. To meet the 40% below baseline target, the Town-wide GHG emissions in 2030 would need to be 449,347 MTCO2e, or 5.32 MTCO2e per capita.

As demonstrated in Table 16, above, based on projections made using CalEEMod Version 2022.1, the Project is expected to generate 25,257.33metric tons of CO_2e per year. As described in greater detail under Land Use, Population and Housing, at a density factor of 1,195 square feet per employee for logistics land uses, the proposed 1,373,150 square foot warehouse distribution facility would generate approximately 1,150 jobs.[18] Given the existing demand for jobs in the Town, it is likely that all of the jobs created by the Project would be filled by existing residents of Apple Valley. It is therefore assumed that the Town's 2030 population, including buildout of the Project, would be 84,535 as analyzed in the CAP.

Based on a population of 84,535, Table 17 shows that in order for the Town to meet the 2030 emissions reduction target, it would have to meet 5.32 tons per capita. The table also shows that with implementation of the CAP reduction measures, the Town expects to go beyond the established emissions target, reducing forecasted emissions to 410,922 $MTCO_2e$ per year or 4.86 tons per capita. The 2030 emissions forecast with CAP measures accounts for community emissions, including industrial projects. It is therefore likely that the Project's estimated annual emissions of 25,257.33 MTCO2e would already be covered by the 2030 emissions forecast. However, assuming an industrial development like the proposed Project was not accounted for in the CAP 2030 forecast, and to ensure a conservative analysis, the Project's emissions were added to the existing forecast. As shown in Table 17, the total annual emissions from the Project and existing 2030 forecast would be 436,179.33 MTCO2e, or 5.16 tons per capita. Both the total and per capita emissions meet the CAP target for 2030 of 40% below the 2005 baseline. The Town-wide emissions in 2030, including the Project, would therefore meet the CAP greenhouse gas emissions reduction target.

[18] Urban Crossroads, Inc., Cordova Logistics Facility VMT Analysis (December 2023).

Table 17
Project emissions and CAP reduction target

Target/Scenario	Forecast ($MTCO_2e$)	Population	Per Capita
CAP 2030 forecast w/CAP measures	410,922.00	84,535	4.86
Project emissions (per year)	25,257.33	84,535	--
Total	436,179.33	**84,535**	**5.16**
CAP 2030 target (40% below baseline)	449,347.00[1]	84,535	5.32
		Exceeds?	**No**

[1] Forecasted town-wide emissions for 2030.

In order to ensure that the Project's GHG emissions are reduced to the greatest extent possible, the Project will be subject to applicable reduction measures from the CAP. The Project's consistency with applicable reduction measures is shown in the following table. Where necessary to ensure compliance, the applicable CAP reduction measure has been included as a mitigation measure below.

Table 18
Project consistency with CAP reduction measures

Reduction Measure	Consistency
CO-4: Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.	**Consistent**: Per mitigation measure GHG-1, the Project will establish an employee carpooling program, including incentives for participating employees.
CO-5: Provide employees with free or discounted public transit passes.	**Consistent**: Per mitigation measure GHG-2, the Project will provide employees with free or discounted public transit passes.
ND-6: For projects within the North Apple Valley Industrial Specific Plan, develop employee housing within one mile of the industrial project.	**Consistent**: The area adjacent to the Project site, on the northern side of Quarry, is designated for Low Density Housing. Development of these sites would provide housing within one mile of the Project site.
ND-12: Building and site plan designs shall ensure that the project energy efficiencies meet applicable California Title 24 Energy Efficiency Standards.	**Consistent**: The Project design will comply with all requirements in the California Building Code, including the Title 24 Energy Efficiency Standards.

Source: Town of Apple Valley 2019 Climate Action Plan Update

In addition to measures provided in the CAP, future emissions reductions are expected to result from regulations passed since the 2019 CAP Update, as well as forthcoming regulatory or technological improvements. For example, the 2022 California Building Code, including the California Energy Code and California Green Building Standards Code (CALGreen), was made

effective as of January 1, 2023, and has been adopted by the Town. The California Energy Commission estimates that increases in energy efficiency and on-site generation in the 2022 Energy Code could result in the reduction of 10 million metric tons of CO2e over the next 30 years.[19]

Furthermore, given that a large portion of the Project's GHG emissions are expected to be from mobile sources, regulations from the California Air Resources Board pertaining to truck fleets would be expected to further reduce emissions. Such regulations include the 2021 Advanced Clean Truck regulation, which stipulates that manufacturers must sell an increasing proportion of zero emission vehicles from 2024 to 2035, and the proposed Advanced Clean Fleet (ACF) regulation, which required that medium and heavy-duty fleets be 100% zero-emission vehicles by 2045.[20] CARB projects that implementation of ACF would result in cumulative CO_2 emissions reductions of 307 million metric tons from 2024 to 2050.

Finally, the GHG emissions associated with the utilities provided to the Project would also be reduced. Under Senate Bill 350 (SB 350), the Renewable Portfolio Standard will require utilities and electric service providers to purchase 50% renewable energy resources by 2030.

Overall, given that the Project is both below the absolute CO_2e emissions threshold provided by MDAQMD and compliant with the SCAQMD Tier 2 test, it can be concluded that impacts would be less than significant.

Summary of Impacts

The 2009 EIR quantified maximum daily emissions for buildout of the General Plan and found impacts from criteria pollutants and greenhouse gas emissions to be significant and unavoidable, and mitigation measures were provided requiring project-level air quality analysis to determine if future development project impacts would be managed and mitigated accordingly on a case-by-case basis. A project-level air quality and greenhouse gas analysis was prepared for the Project that found impacts to be less than significant with mitigation for greenhouse gas emissions. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

Mitigation Measures

Consistent with and to assure compliance with existing Climate Action Plan reduction measures, the following mitigation measures shall be included as conditions of approval to the Project:

GHG-1 Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.

GHG-2 Provide employees with free or discounted public transit passes.

[19] 2022 Energy Code Title 24, Part 6 Fact Sheet, Ace Resources.

[20] The proposed Advanced Clean Fleet Regulation would also require last mile delivery fleets must be fully converted to zero emission vehicles by 2035 and would ban manufacturers from selling any new fossil-fueled medium-duty and heavy-duty trucks by 2040.

3.4. BIOLOGICAL RESOURCES

Summary of Findings in the 2009 EIR (Section III.D, page III-45 et.seq.)

Background

The 2009 EIR included a comprehensive biological assessment of resources on which the 2009 EIR analysis was based. This assessment included literature reviews of multiple databases and records, review and analysis of both the Town's draft Multiple Species Habitat Conservation Plan and the West Mojave Habitat Conservation Plan and Conservation Banking Program, and a field survey of the Town conducted by a qualified biologist. The analysis identified nine natural communities present in the area, as well as a number of common and sensitive plant, invertebrate, amphibian, reptile, bird and mammal species. The 2009 EIR identified Creosote Bush Scrub as the primary natural community in the NAVISP and I-P areas of the Town and both Annexation areas, with Saltbush Scrub occurring in the southern end of the NAVISP.

Impacts to Sensitive Species

The 2009 EIR found that Desert Cymopterus, Southern Skullcap, Booth's Evening Primrose (along the western edge of the Town), and Joshua Trees were sensitive plants that could be significantly impacted by General plan build out.

In addition, two special status invertebrates, one federally listed amphibian, and three special status reptiles are thought to occur or were historically recorded: San Emigdio Butterfly, Victorville Shoulderband, California Red-legged Frog, Common Chuckwalla and the Western Pond Turtle, many of which are associated with the Mojave River and Upper Narrows which border the Town. The 2009 EIR also identified Desert Tortoise as having the potential to occur, particularly in Creosote Bush Scrub habitat.

Fourteen sensitive bird species were identified as having the potential to occur in Town, and would lose foraging and nesting habitat as a result of General Plan build out. These included, but were not limited to Bendire's thrasher, burrowing owl, Cooper's hawk, Least Bell's vireo, LeConte's thrasher, Southwestern willow flycatcher and Swainson's hawk. Four sensitive mammal species: Mojave River vole, Pallid San Diego pocket mouse, Hoary bat and Mojave ground squirrel were expected to occur within and surrounding the Town.

The 2009 EIR concluded that the potential direct and indirect impacts to sensitive species in both the Town limits and the two Annexation areas would be significant without the implementation of multiple mitigation measures. These measures, listed below, included the Town's participation in, and implementation of the West Mojave and Town Habitat Conservation Plans (1 and 2); requirements for biological resource surveys for development projects, including their conformance with State and federal protocols (3); migratory bird, burrowing owl and Prairie falcon and bat surveys for lands where development was to be proposed and habitat occurred (5 and 6); and the preservation of open space and conservation lands, including the Mojave River

area (7 through 11). The 2009 EIR found that with implementation of these mitigation measures, impacts to sensitive species would be reduced to less than significant levels.

Impacts to Riparian Habitats and Sensitive Natural Communities

The 2009 EIR identified several potential riparian areas, including the Mojave River, Knolls Wash and Bell Mountain Wash. Sensitive native communities identified in the 2009 EIR included Mojave Riparian Forest and Joshua Tree Woodland, as well as native communities associated with a number of dry washes identified throughout the Town. The Mojave River area was designated as Open Space in the General Plan, and would not be developed as part of the General Plan's build out. Several other areas of Town are designated Open Space to protect locally important features and resources. In the northern portion of the Town, dry washes and streambeds flow into Bell Mountain Wash. The biological resource study demonstrated that although no riparian vegetation or water occurs in the Town's dry washes, they should still be considered State streambeds. The 2009 EIR identified potential impacts to waters of the State, and included mitigation measure 13, requiring that appropriate studies and permits be obtained projects impacting waters of the State or the US. The 2009 EIR concluded that with the implementation of mitigation measure 13, and the required State and federal permits, impacts to riparian habitats and sensitive natural communities would be reduced to less than significant levels.

Impacts to Wetlands

The 2009 EIR determined that wetlands in Apple Valley were limited to the western edge of Town and associated with the Mojave River. As the river was placed in Open Space under the General Plan Land Use Element, development in this area is not permitted, and its long term preservation was expected, resulting in less than significant impacts.

Impacts to Wildlife Movement or Nursery Sites

As was the case with wetlands, wildlife movement and nursery sites in Town are primarily associated with the Mojave River area. A number of bird species, including Swainson's hawk and several warbler and flycatcher species use the River as part of their migratory pathway. Its dense riparian vegetation provides habitat for a number of species traveling through the High Desert. As identified in the 2009, there could be impacts to migratory species, particularly nesting birds. As a result, mitigation measure 4 was provided to assure that nesting surveys be conducted prior to disturbance for future development projects.

Impacts Associated with Conflicts to Local Policies or adopted Habitat Conservation Plans

The 2009 EIR identified several local and regional plans and policies relating to biological resources, including the Town's draft Multiple Species Habitat Conservation Plan, the West Mojave Habitat Conservation Plan and the Town's native plant ordinance. The 2009 EIR identified that the Town would continue to participate in and implement these plans and policies by including mitigation measures 1, 2, 3, 14 and 15 below.

Summary of Impacts

The 2009 EIR found that although the build out of the General Plan within Town limits and within both Annexation areas could significantly impact biological resources, the mitigation measures imposed on the Town and all future development within it would reduce these impacts to less than significant levels.

Mitigation Measures

The following Mitigation Measures are from pages III-68 through -71 of the 2009 EIR.

1. (a) The Town shall aid the County of San Bernardino and other participating federal, state, and local agencies in the preparation of a private lands counterpart to the West Mojave Habitat Conservation Plan.
   (b) The Town shall participate in the provision of biological resources data and/or surveys relevant to open space areas within its jurisdiction and sphere of influence that may have biological resources value, and shall participate in the preparation of a Habitat Conservation Plan that addresses the needs of the Town with regard to regional biological resources.
   (c) If a Habitat Conservation Plan is formulated by the participating federal, state, and local agencies that allows for the conservation of biological resources, the Town shall implement it.
2. The Town shall complete the preparation of the Apple Valley MSHCP, in conjunction with the California Department of Fish & Game ("CDFG") and the U.S. Fish and Wildlife Service ("USFWS"). Upon the completion of the MSHCP to the satisfaction of all three parties, the Town shall proceed to implement it according to its terms and the authorization for take of special status species granted by CDFG and USFWS.

3. (a) The Town shall require that biological resources evaluations be performed prior to development actions, including site-specific surveys utilizing specified survey parameters as required for all special status species in identified habitat areas, and especially within or adjacent to linkage corridors or special survey areas and potential jurisdictional areas.
   (b) As required by CEQA, if biological resources are present that would be significantly impacted by a project, mitigation shall be imposed on the project to reduce the impact to a level of less than significant, to the extent feasible.
   (c) At the General Plan-level, it is not practical to formulate or list the entire range of specific mitigation measures that can be required for individual projects. Therefore, this identification can only be done at the project-level, based on the Town's judgment of the individual circumstances of the project before it as a lead agency under CEQA. However, it can be generally stated that the Town shall require mitigation pursuant to species- or resource-specific protocols established by CDFG, USFWS, and/or the U.S. Army Corps of Engineers. The Town can also require, as appropriate, transplantation or seed collection programs, trapping and removal of wildlife, preservation of offsite habitat, recreation of habitat, or participation in a mitigation bank.

4. The Town shall ensure that land actions require site-specific nest surveys for the presence of migratory birds in accordance with established protocols and requirements of the

Migratory Bird Treaty Act, prior to site disturbance. If protected migratory birds and/or raptors are found to be nesting onsite, construction activities will not be allowed within a radius of the nest determined by a qualified biologist, until the young have fledged and left the nest.

5. Biological surveys for Burrowing Owls and Prairie Falcons shall be performed for any site proposed for development wherever sufficient open space and suitable habitat is present. Coordination with California Department of Fish and Game is required when survey results are positive.

6. Biological surveys for bats shall be performed prior to disturbance on projects involving reconstruction of bridges, demolition of abandoned buildings, and/or have the potential to contain old mines, in order to determine if significant roosts are present. If roosts are present, projects shall comply with applicable protocols of the Department of Fish and Game or US Wildlife Service, and the recommendations of qualified biologists.

7. The Town shall utilize land use designations that provide for Open Space in order to protect viable habitat within the Town. On lands not already designated as Open Space where viable habitat occurs, such lands shall be considered for an open space land use designation as appropriate. Open Space lands shall be managed as warranted for the preservation and protection of their biological and natural resources.

8. The Town shall retain the Open Space designation along the Mojave River to ensure that important riparian habitat and linkages are conserved.

9. To conserve the natural state of existing hillsides and slopes, land greater than 15% slope shall not be built upon and shall be used as open space.

10. Open space land shall be protected in perpetuity.

11. Development proposals adjacent to open space lands shall provide buffers and linkages to maintain natural resource values.

12. Groundwater shall be conserved to reduce overdraft and retain or increase the depth of the water table along the Mojave River, which will help to preserve and restore plant communities within and adjacent to the waterway.

13. Development projects proposing to alter or impact major drainages (blueline streams) including ephemeral streams, shall consult with the appropriate state and/or federal regulatory agency. Such alteration may require permits from the U.S. Army Corps of Engineers, Lahonton Regional Water Quality Control Board, and/or the California Department of Fish and Game. Compliance with such permits will ensure that impacts to riparian habitat are mitigated by either restoration or replacement, and that impacts to water quality are avoided by compliance with Section 401 of the Clean Water Act requirements.

14. The Town shall promote the use of native vegetation for landscaping to enhance and create viable habitat for local species. The Town shall periodically update a comprehensive list of plant materials that are complementary with the local environment. This list shall include native and non-native, drought tolerant trees, shrubs and groundcover. The Town shall also maintain a list of prohibited plant materials. Both lists shall be made available to developers and residents. The use of native vegetation in project submissions shall be given preference over water-intensive landscaping during project design review.

15. The Town shall require developers to recover, preserve, or utilize native vegetation within their project or shall require that viable vegetation is transplanted to other appropriate sites in conformance with its Native Plant Ordinance. The Town shall make information on salvaging and transplanting native species available to developers.

16. The Town shall provide and maintain a comprehensive interconnected recreational trail system suitable for bicycles, equestrians and/or pedestrians. This will encourage the reduction of vehicle miles traveled and also provide corridors for animal migration between habitat areas. The Town shall encourage multiple use corridors through the drainage channels and utility easements, thereby encouraging the connectivity of natural communities.

17. The Town shall continue to promote biodiversity by protecting natural communities with high habitat value, protecting habitat linkages to prevent further fragmentation, and encouraging an appreciation for the natural environment and bio resources.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with biological resources based on build out of the General Plan based on the Land Use Element and its distribution of land uses. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses , and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. Therefore, the impacts to biological resources as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The proposed Project will result in the disturbance of 90± acres of land in the northern portion of the NAVISP, as well as the extension of utilities and paving within existing roadways. These lands have been within Town limits for a number of years, and were included in the analysis area covered in the EIR for the General Plan. The Project proposes the development of the entire site, and consistent with 2009 EIR mitigation measure 14, has been designed to incorporate native and drought tolerant landscaping.

As required by the General Plan EIR, biological resource surveys were prepared in October, 2023 for the proposed Project, following field surveys completed in August of that year. These included a Biological Resources Assessment (Appendix C), a Desert Tortoise Report (Appendix C) and a Jurisdictional Assessment (Appendix D).

Current Conditions

The Project site is currently vacant, and consists of four soil types: Cajon sand, Helendale-Byman loamy sands, Mirage-Joshua complex, and Nebona-Cuddeback complex.

- The Cajon series consists of very deep, somewhat excessively drained soils on alluvial fans, fan aprons, fan skirts, inset fans and river terraces. Slopes are 0 to 15 percent. The average annual precipitation is about 6 inches and the mean annual temperature is about 65 degrees F.
- The Helendale series consists of very deep, well drained soils that are on fan piedmonts, fan remnants, alluvial fans and terraces. Slopes range from 0 to 15 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 62.5 degrees F.
- The Mirage series consist of deep, well drained soils that are on old terraces with well-developed erosion pavement and have slopes of 2 to 5 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees.
- The Nebona series consists of shallow, well drained soils that are on terraces and have slopes of 2 to 9 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees F.

The Project site is dominated by creosote bush (*Larrea tridentata*) but also contains Nevada ephedra (*Ephedra nevadensis*), burrobush (*Ambrosia salsola*), sandpaper plant (*Petalonyx thurberi*) and Anderson thornbush (*Lycium andersonii*). Non-native species identified on the site included Russian thistle (*Salsola tragus*), red stemmed filaree (Erodium cicutarium), old han schismus (*Schismus barbatus*). The Project biologist also identified nine Joshua trees on the Project site, and one outside the Project boundary but immediately adjacent to the southeast corner of the site. Several species were detected on the property, either by direct observation or sign (scat, tracks), including burrowing owl (*Athene cunicularia*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), black-throated sparrow (*Amphispiza bilineata*), black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope squirrel (*Ammospermophilus leucurus*) and kit fox (*Vulpes velox*).

Impacts to Sensitive Species

The literature review for the Project Biological Resources Assessment identified 59 special status species as having the potential to occur on or near the Project site, as shown in Tables 19 and 20.

Table 19
Special Status Plant Species

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		
Androsace elongata ssp *acuta*	California androsace	None	S3S4	CRPR 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. 150-1305 meters (m). Blooms (B): March-June.	Absent Suitable habitat not present.
Canbya candida	white pygmy poppy	None	S3S4	CRPR 4.2, MSHCP /NCCP	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland on granitic, gravelly, sandy soils. 600-1460 m. B: March-June.	Moderate Suitable habitat, but nearest records approximately four miles southwest
Cymopterus deserticola	desert cymopterus	None	None	CRPR 1B.2, MSHCP /NCCP	Joshua tree woodland and Mojavean desert scrub in sandy areas. 630-1500 m. B: March - May.	Moderate Habitat suitable, nearest record is over four miles to the south-southwest.
Diplacus (Mimulus) mohavensis	Mojave monkeyflower	None	None	CRPR 1B.2, MSHCP /NCCP	Joshua tree woodland and Mojavean desert scrub. Most often in washes; sometimes in gravely and sandy areas. 6001200 m. B: April - June.	Moderate Habitat suitable, nearest record approximately four miles to the east-northeast.
Eremothera boothii ssp *boothii*	Booth's evening primrose	None	S3	CRPR 2B.3, MSHCP /NCCP	Joshua tree "woodland", pinyon and juniper woodland.	Absent Site below elevational range of subspecies.

Table 19
Special Status Plant Species

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		
					815-2400 m. B: April-September.	Dried remains of *Eremothera boothii* detected on site, subspecies undeterminable. Town of Apple Valley region far outside of expected geographic range of ssp. *boothii* (Jepson Flora Project 2022)
Eriophyllum mohavense	Barstow woolly sunflower	None	S2	CRPR 1B.2, MSHCP /NCCP	Chenopod scrub, Mojavean desert scrub, playas. 500-960 m. B: March-May.	Moderate Habitat suitable, nearest records is approximately 4 miles northeast
Lycium torreyi	Torrey's boxthorn	None	S3	CRPR 4.2	Mojavean & Sonoran Desert scrub in rocky, sandy places; streambanks, washes. -50-1220 m. B: (January-February) March-June (September-November).	Absent Although there are CNPS records for *L. torreyi* in the Apple Valley North and Victorville quadrangles, CNPS also states "plants in California outside vicinity of Colorado River are likely misidentifications."
Mentzelia eremophila	solitary blazing star	None	S3S4	CRPR 4.2	Mojavean desert scrub. 7001220m. B: March-May.	Moderate Suitable habitat, nearest occurrence is over four miles west-southwest
Pediomelum castoreum	Beaver Dam breadroot	None	S2	CRPR 1B.2, MSHCP /NCCP	Joshua tree "woodland", Mojavean desert scrub on roadsides, in sandy places, and in washes. 610-1525 m. B: April-May.	Moderate Suitable habitat. No records in immediate project area, but occurrences in all surrounding directions.

Table 19
Special Status Plant Species

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		
Sclerocactus polyancistrus	Mojave fishhook cactus	None	S3	CRPR 4.2	Great Basin scrub, Joshua tree "woodland", Mojavean desert scrub usually on carbonate soils. 640-2320 m. B: April-July.	Absent Suitable habitat, nearest occurrence approximately 2 miles west, but this small cactus was not seen during site visit.
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	None	S3	CRPR 1B.2, MSHCP /NCCP	Mesic areas in chaparral, cismontane woodland, lower montane coniferous forest. 425-2000 m. June-August.	Absent Suitable habitat not present.
Symphyotrichum defoliatum	San Bernardino aster	None	S2	CRPR 1B.2, MSHCP /NCCP	Streambanks in cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, meadows and seeps, valley and foothill grassland. 2-2040 m. B: July-November.	Absent Suitable habitat not present.
Yucca brevifolia	western Joshua tree	None	SCT	CRPR None	Mojavean desert scrub, Joshua tree "woodland." 750 - 2,100 m, but individuals slightly lower or higher. B: January - May, rarely as early as November (CDFW 2022c).	Present

Table 19
Special Status Plant Species

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		

KEY

Definitions of occurrence probability:

Occurs: Observed on the site by WSP biologists, or recorded on-site by other qualified biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.

Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.

Absent: A focused study failed to detect the species, or, no suitable habitat is present.

Unknown: Distribution and habitat use has not been clearly determined.

Federal designation: = F

State designation: = C

State rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point (if any) represents a threat designation attached to the rank:

S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant
SX = Presumed extinct

California Native Plant Society (CNPS) designations:

Primary Categories
LIST 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
LIST 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
LIST 2A: Plants Presumed Extirpated in California, But Common Elsewhere
LIST 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
LIST 3: Plants About Which More Information is Needed - A Review List
LIST 4: Plants of Limited Distribution - A Watch List

Subdivisions within Categories
0.1: Seriously threatened in California
0.2: Moderately threatened in California
0.3: Not very threatened in California

As shown in the Table above, a total of 13 special status plants have the potential to occur on the Project site. Five of the 14 are absent either because it was not detected, or there is a lack of habitat (California androsace, Booth's evening-primrose, Torrey's boxthorn, southern mountains skullcap, and San Bernardino aster). Habitat is present for white pygmy poppy, desert

cymopterus, Mojave monkeyflower, Barstow woolly sunflower, solitary blazing star, beaver dam breadroot, and Mojave fish-hook cactus, but they were not detected during the biological field survey. None of the species are federally or State listed as endangered or threatened. The white pygmy-poppy, desert cymopterus, Mojave monkeyflower, Barstow woolly sunflower, and beaver dam breadroot are proposed for coverage under the Town's MSHCP/NCCP. However, since the survey was conducted in August, outside of the blooming season for these species, and the MSHCP has not been adopted, their presence or absence cannot be determined. Since impacts to these species could be significant if they were to be present on the site in significant numbers, mitigation is required to assure that none of these species will be significantly impacted by the proposed Project. To that end, Project-specific Mitigation Measure BIO-1 is provided below, requiring the preparation of a Spring sensitive plant survey, and transplantation if significant populations of the species are identified. With implementation of this mitigation measure, impacts to sensitive plants will be reduced to less than significant levels.

In addition to the plants described above, the site contains nine Joshua trees which range between 1 and 5 meters in height, and which are protected under the Western Joshua Tree Conservation Act (WJTCA) passed in July 2023 to conserve western Joshua tree and its habitat. The Town's native plant ordinance also applies to Joshua trees. Development of the site will result in the need for their removal. The WJTCA creates a streamlined permitting framework for certain development activities and directs the California Department of Fish and Wildlife (CDFW) to collect mitigation fees for the acquisition and conservation of western Joshua tree and its habitat. The WJTCA fees are based on the total number of individual trees at specific height intervals. The Project will be required to secure a CDFW permit and pay the fees (reduced fee structure applies) to mitigate its impacts on Joshua trees to less than significant levels, as provided in Project-specific Mitigation Measure BIO-2. With implementation of this mitigation measure, impacts to western Joshua tree will be reduced to less than significant levels.

Table 20, below identifies 29 special status animal species as having the potential to occur in the Project area, including insects, reptiles, birds and mammals.

Insects

The monarch butterfly and Crotch bumblebee have a low probability of occurring on the Project site. Monarchs are not expected to winter, but a few individual adults may forage in the warmer months, if milkweed, the larval foodplant, occur on the Project site. No milkweeds were identified on the Project site.

One occurrence of Crotch bumblebee was reported 1-2 miles north of the project site. The flight period for this species occurs from late February to late October. These bees require flowering plants for nectar and potential nest sites, both of which occur on site, albeit in low abundance. Should the species occur on the site, grading could impact it. In order to avoid impacts to Crotch bumblebee, Mitigation Measure BIO-3 is provided below, which requires that concurrently with the implementation of BIO-6, bumblebee nests should be identified if they occur. Any occupied bumblebee nest should be avoided, and if avoidance is not possible, the CDFW should be consulted for guidance and potential incidental take permits. With the implementation of BIO-3, impacts to Crotch bumblebee will be reduced to less than significant levels.

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Invertebrates						
Bombus crotchii	Crotch Bumblebee	None	S1S2	Not applicable (N/A)	Open grassland & scrub habitats. Occurs primarily in California, in coastal slope areas, western desert, great valley, and adjacent foothills.	Low Nectar sources scarce, is present and other flowering species utilized by this bumblebee are likely to occur in season.
Danaus plexippus	Monarch Butterfly	**FC**	S2S3	N/A	Western winter roost sites primarily occur along the coast from northern Mendocino to Baja California, Mexico, located in wind protected tree groves (*Eucalyptus* species, Monterey pine (*Pinus radiata*), cypress), with nectar and water sources nearby. During breeding season, adults widespread but scarce in the desert. Larvae require milkweed.	Low Seldom seen in the desert, no milkweed detected.
Fish						
Siphateles bicolor mohavensis	Mohave tui chub	FE	SE	MSHCP /NCCP	Found in the Mojave river as well as drainage and sewer systems with year-round water.	Absent No year-round water available

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Reptiles						
Gopherus agassizii	desert tortoise	**FT**	**ST**, S2S3	MSHCP /NCCP	Prefers Joshua tree, desert wash & scrub, especially creosote bush (*Larrea tridentata*) habitats; but in most desert habitats. Large wildflower blooms preferred. Burrows & nests require friable soil.	Absent Not found by August focused survey, but habitat is appropriate and there are records in the area so future occupation is possible.
Birds						
Aquila chrysaetos	golden eagle	MBTA, BGEPA, BCC	S3, WL, FP, FGC	MSHCP /NCCP	Mountainous/hilly areas with cliffs and open fields required for habitat. Jackrabbits are primary food source.	Low No nesting habitat on site. Could potentially nest on rocky peaks in the general area and forage on site. Not found during July or August site visits.
Athene cunicularia	burrowing owl	MBTA, BCC	SC, S3, FGC	MSHCP /NCCP	Open, dry grasslands, deserts & scrublands with low-growing vegetation. Depends on burrowing mammals.	Present Owl pellets and whitewash were observed at kit fox burrow. Unknow if occupied at the time of survey.

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Buteo swainsoni	Swainson's hawk	MBTA, BCC	SE, S3, FGC	MSHCP /NCCP	Open plains, grasslands, dry grasslands. Migrates through Mojave Desert.	Low No nesting habitat on site. Could potentially nest in the general area and forage on site. May also occur during migration. Not found during July or August site visits.
Calypte costae	Costa's hummingbird	MBTA, BCC	S4, FGC	N/A	Primary habitats desert wash; edges of desert & valley foothill riparian; coastal, desert, & desert succulent scrub; palm oasis; & low elevation chaparral.	Moderate Nesting and foraging habitat present.
Falco mexicanus	prairie falcon	MBTA, BCC	SC, S3, FGC	MSHCP /NCCP	Breeding sites located on cliffs, but forages far afield.	Low No nesting habitat on site. Could potentially nest on rocky peaks in the general area and forage on site. Not found during July or August site visits.
Gymnogyps californianus	California condor	FE, MBTA	SE, FGC	N/A	Forages widely for carrion. Ledges and cliffs are used as roost and nest sites.	Absent Identified only by the IPaC report. Although

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
						capable of very long foraging flights from breeding and nesting areas, all members of the population are closely monitored. There is no nesting habitat on site and condors rarely, if ever, visit this area.
Lanius ludovicianus	loggerhead shrike	MBTA, BCC	SSC, S4, FGC	MSHCP /NCCP	Found in open habitats with widely spaced vegetation.	Moderate Not found during site visits. Suitable nest sites, habitat present.
Spinus lawrencei	Lawrence's goldfinch	MBTA, BCC	None	N/A	Pine forests, chaparral typically but breeds in other habitats. Can be found in dry open land in migration.	Absent Identified only by the IPaC report. Project lacks breeding and typical foraging habitat.
Toxostoma redivivum	California thrasher	BCC	N/A	N/A	Chaparral & foothill habitats. Sometimes well vegetated deserts.	Absent No suitable habitat. Identified only by the IPaC report.
Toxostoma lecontei	Le Conte's thrasher	MBTA, BCC	S3, FGC	MSHCP /NCCP	Desert: open washes, scrub; commonly nests in a dense, spiny shrub or cactus.	Low Not found on July or August site visits.

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
						Suitable habitat & nesting sites present.
Mammals						
Vulpes macrotis arsipus	desert kit fox	None	FGC	MSHCP /NCCP	Annual grasslands or open areas with scattered brush, shrubs, & scrub. Dens in open, level areas with loose textured, soils (CDFW 2016b)	Occurs Scat and dens detected onsite. Regulated as a furbearing mammal.
Xerospermophilus mohavensis	Mojave ground squirrel	None	ST	MSHCP /NCCP	Suitable habitat is sandy and gravelly soils. Burrows found at the base of shrubs.	Absent CNDDB record five miles to the west; site within historic range of species. Site, however, not in or near current known range of species (Leitner 2008).

KEY
Definitions of occurrence probability:
Occurs: Observed on the site by WSP USA biologists or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present.
Unknown: Distribution and habitat use has not been clearly determined.
Federal designation =F
State designation =C
CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:
S1 = Critically Imperiled. Less than (<) 6 EOs OR < 1,000 individuals OR < 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened

Table 20
Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
S2.2 = threatened **S2.3** = no current threats known **S3** = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres **S3.1** = very threatened **S3.2** = threatened **S3.3** = no current threats known **S4** = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern. **S5** = Secure. Common, widespread, and abundant in the state. **SH** = All known California sites are historical, not extant ***Western Bat Working Group (WBWG) designations:*** H = High: Species which are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats. M: = Medium: Species which warrant a medium level of concern and need closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat. L: = Low: Species for which most of the existing data support stable populations, and for which the potential for major changes in status in the near future is considered unlikely. There may be localized concerns, but the overall status of the species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on High and Medium status species. P: = Periphery: This designation indicates a species on the edge of its range, for which no other designation has been determined.						

Reptiles

The literature search identified desert tortoise as having the potential to occur on the Project site. The Mojave population of the desert tortoise is listed as threatened by the USFWS and CDFW. The desert tortoise is most common in desert scrub, desert wash, and Joshua tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Creosote bush scrub, the predominant vegetation community on the Project site, is a habitat typically utilized by desert tortoises. There is no desert tortoise critical habitat designated on the project site, and no desert tortoises or their sign were detected during wither the general biological reconnaissance survey or the focused survey conducted for the species. The focused survey found no desert tortoises, desert tortoise burrows, or desert tortoise sign. However, there have been four occurrences within a 5-mile radius of the Project site, including records within three miles or less to the north and southwest, and desert tortoise are mobile and could move onto the Project site prior to development.

Impact to any desert tortoise would be significant, and requires mitigation. To that end, Mitigation Measure BIO-4 is provided below, which requires the implementation of a worker environmental awareness program (WEAP) prior to any ground disturbance on the Project site; the inspection of vehicles and monitoring of Project construction activities by a qualified biologist; and the covering of open trenches or their inspection if they are left uncovered overnight. If the species is identified on the site, only the qualified biologist, in consultation with the wildlife agencies and after securing all necessary permits, will have the authority to determine whether it is to be avoided or relocated. With implementation of this mitigation

measure, impacts to desert tortoise, should they move onto the site, will be reduced to less than significant levels.

Birds

The literature review identified golden eagle, burrowing owl, Swainson's hawk, Costa's hummingbird, prairie falcon, loggerhead shrike and Le Conte's thrasher as having the potential to occur on the Project site. Six of the seven (golden eagle, burrowing owl, Swainson's hawk, prairie falcon, loggerhead shrike and Le Conte's thrasher) are included in the Town's proposed MSHCP. Golden eagle, Swainson's hawk and prairie falcon are not expected to nest on the Project site, but may forage on the property. Burrowing owl, Costa's hummingbird, loggerhead shrike and Le Conte's thrasher have the potential to nest on the site, and are discussed below.

Burrowing Owl

The burrowing owl is protected under the Migratory Bird Treaty Act (MBTA) and the State Fish and Game Code (FGC), and is also federally designated as a Bird of Conservation Concern and state designated as a Species of Concern. It typically utilizes pre-existing burrows or drain pipes and culverts. Threats include habitat loss, degradation and modification.

No burrowing owls were observed during the site survey, but sign, including pellets and old whitewash was observed. It is possible that the species could return to the site prior to its development, and that site disturbance could impact the species in that case, which would represent a significant impact. Therefore, the CDFW Staff Report on Burrowing Owl Mitigation requires a survey for potential burrows followed by four breeding season surveys of those areas found to have potential for burrowing owl occupation. The burrow survey can be conducted at any time, but breeding season focused surveys are being conducted in 2024, and cannot begin sooner than February 1 of any given year. These requirements are included in Mitigation Measure BIO-5, which will reduce impacts to burrowing owl to less than significant levels.

Nesting Birds

Costa's hummingbird, loggerhead shrike and Le Conte's thrasher have the potential to occur on the Project site, although they were not identified during the field survey. All three species, as well as many other migratory and local birds, are covered under the requirements of the MBTA, which protects most birds during the nesting season. In Apply Valley, that season generally occurs between January 15 and August 31 of any year. Since impacts to nesting birds would be considered significant under MBTA and Fish and Game Code, Mitigation Measure BIO-6 is provided below, requiring pre-construction nesting surveys to assure that nests are not disturbed if occupied. With implementation of this mitigation measure, impacts to Costa's hummingbird, loggerhead shrike and Le Conte's thrasher, as well as other species covered under the MBTA will be reduced to less than significant levels.

Mammals

Mojave ground squirrel and desert kit fox were identified as having the potential to occur on the Project site. In the case of the Mojave ground squirrel, the last occurrence was in 1977, 5 miles west of the Project site. The species is considered extirpated from the Town, and no impact will occur.

In the case of desert kit fox, which is not a special status species but is a fur-bearing mammal regulated by the Fish and Game Code, both scat and potential den locations were observed during the site survey, but the species was not observed. It is possible, however, that desert kit fox could occupy the property prior to site disturbance. Should this occur, it would represent a potentially significant impact and requires mitigation. To that end, Mitigation Measure BIO-7 is provided below, which requires pre-construction surveys for desert kit fox. With implementation of this mitigation measure, impacts to the species will be reduced to less than significant levels.

Impacts to Wetlands, Riparian Habitats and Sensitive Natural Communities

A Jurisdictional Delineation was conducted on the Project site to determine whether riparian areas or waters of the State were present (Appendix D). The qualified biologist conducted a literature review, a review of aerial photographs, and an intensive field investigation to determine whether any wetland features, hydrophytic plants, hydric soils of wetland hydrology was present, including the digging of soil pits in potential features on the Project site and adjacent to it. No such plants, soil or hydrology was identified.

The field investigation, which was conducted after several days of rain and would have delineated any active wash features, found no Ordinary High Water Mark (OHWM) or defined bed and bank on the Project site. The biologist determined that the features on the site may be upland erosional features, but that they do not meet any of the standards for waters of the US, waters of the State or CDFW jurisdictional areas. Therefore, there will be no impacts to wetlands or riparian habitats.

As shown in the Table below, the Southern Cottonwood Willow Riparian Forest is the only sensitive vegetation community occurring in the area of the proposed Project. This community occurs adjacent to the Mojave River, which is located 8 miles southwest of the Project site. The Project will have no impact on this sensitive native community.

Table 21
Special Status Vegetation Community Potential for Occurrence

Community	Status	Habitat	BSA Occurrence Probability
Southern Cottonwood Willow Riparian Forest	F: None C: S3.2	This vegetation community occurs along streams and rivers, occupying relatively broad drainages and floodplains. It consists of trees that are generally greater than 20 feet high. Dominated by mature winter deciduous trees, including Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and several species of tree willows (*Salix* spp.), this community often has a dense understory of shrubby willows, mule fat, and mugwort (*Artemisia douglasiana*). The dominant species require moist, bare mineral soil for germination and establishment, an environment that is provided after flood waters recede.	**Absent**
KEY **Definitions of occurrence probability:** *Occurs:* Observed on the site by WSP USA biologists or recorded on-site by other qualified biologists.			

Table 21
Special Status Vegetation Community Potential for Occurrence

Community	Status	Habitat	BSA Occurrence Probability
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species. *Moderate:* Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species. *Low:* Site is within the known range of the species but habitat on the site is rarely occupied by the species. *Absent:* A focused study failed to detect the species, or, no suitable habitat is present. *Unknown*: Distribution and habitat use has not been clearly determined. ***Federal designation:*** = F ***State designation:*** = C ***State rankings*** are a reflection of the overall condition of an element throughout its California range. The number after the decimal point (if any) represents a threat designation attached to the rank: **S1** = Critically Imperiled. Less than (<) 6 EOsOR < 1,000 individuals OR < 2,000 acres **S1.1** = very threatened **S1.2** = threatened **S1.3** = no current threats known **S2** = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres **S2.1** = very threatened **S2.2** = threatened **S2.3** = no current threats known **S3** = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres **S3.1** = very threatened **S3.2** = threatened **S3.3** = no current threats known **S4** = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern. **S5** = Secure. Common, widespread, and abundant in the state. **SH** = All known California sites are historical, not extant			

Impacts to Wildlife Movement or Nursery Sites

The Project site is occurs in an undeveloped area dominated by creosote bush scrub, and surrounded by open and undeveloped desert lands. The nearest development occurs 1400 feet west and north of the Project site. Development of the site will incrementally limit the ability of various species to use the site as a movement corridor. However, given the existence of dirt roads, paved Quarry road, and the private railroad along the site's boundaries, these impacts will be limited.

The Project site may serve as a migratory corridor or nursery site for migratory bird species protected by the MBTA. As discussed above, there is potential for special status birds protected by the MBTA to nest on the site. Nesting bird surveys will therefore be conducted prior to construction as discussed in mitigation measure BIO-6. The nesting bird surveys, and resulting impact avoidance measures, will ensure that impacts to migratory birds are less than significant.

The Project site is not located in or near the Mojave River corridor, which is more than 8 miles southwest of the site. No migratory fish occur on the Project site, nor could they occur given the lack of flowing or standing water.

Project-related impacts to migratory wildlife, native or migratory wildlife corridors or nursery sites will be less than significant.

Impacts Associated with Conflicts to Local Policies or adopted Habitat Conservation Plans

The Project is consistent with the manufacturing and warehousing uses permitted in the within the NAVISP. The NAVISP does not include any policies that pertain specifically to the protection of biological resources.

The Project will also comply with applicable goals, policies, and programs in the Open Space and Conservation Element as well as the Biological Resources Element of the Town's General Plan. The Town's ability to conserve natural resources in perpetuity will not be impeded by the Project. Additionally, through its compliance with the landscaping policies in the NAVISP, the Project will also comply with the 2009 EIR's mitigation measure 15, which requires the use of native plants in development landscaping.

The Project will be subject to the Town's native plant ordinance, including the preservation and translocation of native species whenever possible. The Town's Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan is currently under review. Once adopted, the Project will adhere to any applicable policies and guidelines in the MSHCP.

Summary of Impacts

The proposed Project could potentially impact sensitive biological resources occurring on the property. However, like the 2009 EIR, the mitigation measures imposed on the Project address impacts from the Project, and would reduce these impacts to less than significant levels, including impacts to burrowing owl, migratory birds, desert tortoise and desert kit fox. The Project area does not contain riparian or wetland areas, and no impacts to waters of the US or waters of the State will occur.

The proposed Project will result in impacts to biological resources which are equivalent to those identified in the 2009 EIR. No species not known to occur at the time that the 2009 EIR was prepared occur or are expected to occur on the Project site. Mitigation measures proposed for the Project are consistent with the findings of the 2009, and would have been imposed on the Project as they were recommended in the 2009 EIR. No changes to the environment that result in any new or more significant impacts would result from development of the proposed Project. The conditions requisite for the preparation of a subsequent or supplemental EIR under CEQA Section 15162 do not occur, and as allowed under Section 15164, this Addendum is appropriate for the analysis of biological resources for the proposed Project.

Mitigation Measures

BIO-1 Focused plant surveys for white pygmy poppy, desert cymopterus, Mojave monkeyflower, Barstow woolly sunflower, solitary blazing star, beaver dam breadroot, and Mojave fish-hook cactus shall be conducted during the appropriate season and prior to any ground disturbance on the Project site. Two surveys by a qualified biologist would be required in spring (March/April) and two additional surveys in the summer (June/July).

If significant populations are found, biological monitoring by a qualified biologist may be required near their populations. If disturbance is unavoidable, they should be transplanted and/or have seeds/topsoil collected with guidance from the CDFW. If white pygmy-poppy, desert cymopterus, Mojave monkeyflower, Barstow woolly sunflower, and beaver dam breadroot, which are proposed for coverage under the MSHCP/NCCP are detected, the Town must also be consulted.

BIO-2 Prior to any ground disturbance on the Project site, a permit shall be secured from the CDFW, in compliance with the WJTA, for the removal of western Joshua trees. The permit shall include whether trees are to be transplanted, and the payment of required mitigation fees for the preservation of habitat for the species. The applicant shall furnish the Town with a copy of the permit prior to the issuance of a grubbing or grading permit.

BIO-3 Concurrent with the implementation of Mitigation Measure BIO-5, a pre-construction survey for Crotch bumblebee nests shall be conducted. Any occupied Crotch bumblebee nest must be avoided. If avoidance is not feasible, occupied Crotch bumblebee nests shall be removed following consultation with the CDFW for guidance and potential incidental take permit.

BIO-4 In order to assure that no impacts to desert tortoise occur, the following measures shall be undertaken as part of the Project's construction:

1) A worker's environmental awareness program (WEAP) will be implemented to educate the construction crew of potential special status species present on the Project site prior to the initiation of any grading or construction on the site.
2) Construction and maintenance personnel will be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it will not be moved until the desert tortoise had left of its own accord. All desert tortoise observations will be reported to a qualified biologist, the CDFW and the US Fish and Wildlife Service.
3) A qualified biologist will monitor construction to ensure that tortoises do not enter the work area and that they are not disturbed if present. Isolating the site with tortoise-proof fencing could reduce or eliminate this need.
4) Any open trenches adjacent to habitat will be monitored by a qualified biologist daily. If left open overnight or at any time when not monitored, they must be fenced and/or covered to prevent entry by desert tortoises. Exit ramps will be present within open trenches.
5) If a desert tortoise is identified on the Project site, it shall not be disturbed until the qualified biologist has determined what actions, including avoidance or relocation, are to be safely undertaken, and all necessary permits have been secured with the State and federal wildlife agencies.

BIO-5 A four-visit breeding season survey of those areas found to have potential for burrowing owl occupation shall be conducted in conformance with CDFW protocols contained in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Breeding season focused surveys

cannot begin sooner than February 1 of any given year. If burrowing owls are found and are unavoidable, guidelines in CDFG's Staff Report for burrowing owls (2012), including avoidance or passive relocation will need to be followed and consultation with the CDFW may be required.

Furthermore, where potential habitat is present, CDFG (2012) also requires less extensive preconstruction take avoidance surveys for owls whether or not found by the focused surveys in case the site has been occupied in the interim between the focused surveys and initiation of construction. A pre-construction survey shall be completed between 14 days to 24 hours before groundbreaking, and can be conducted in conjunction with Mitigation Measure BIO-6. Since the burrowing owl is proposed for coverage under the MSHCP/NCCP, the Town must also be consulted if they are detected onsite.

BIO-6 Any vegetation removal or grading occurring during the nesting season (January 15 through August 31) would require at least one nesting bird survey to be conducted by a qualified biologist no more than three days prior to such activity. If no nests are found, construction may proceed. If active nests are found, impact avoidance measures (e.g. 'no work' buffers; sound and/or visual barriers) will be put in place around the nest until young have fledged. Additionally, if offsite nests are identified, then the CDFW recommended buffers of 500 feet for birds-of-prey and 100 to 300 feet for other birds should be applied.

BIO-7 In conjunction with the survey for potential burrows required under BIO-5, the Project biologist shall also inspect for the presence of desert kit fox. Should a den be discovered during this survey, the Project biologist shall recommend avoidance and mitigation measures consistent with CDFW consultation and requirements.

3.5. CULTURAL AND TRIBAL RESOURCES

Summary of Findings in the 2009 EIR (Section III.E, page III-72 et.seq.)

Background

The 2009 EIR analyzed both historic and archaeological resources occurring within the Town, including lands in the NAVISP and the Annexation areas. The Cultural Resources Technical Report prepared for the General Plan determined that about 30% of land within Town had been previously surveyed for cultural resources. The 2009 EIR identified potentially significant impacts to cultural resources, and provided mitigation measures, reproduced below, to reduce these impacts to less than significant levels.

The 2009 EIR found that the Town and its surroundings were occupied by the Vanyume and Serrano peoples. Little is known about the Vanyume, who are thought to have disappeared by the early 1900s. The Mojave River would have provided water and other resources for Native American populations, and served as a trade route for them. Resources have been identified along the River, including habitation debris, rock shelters and rock art. The Spanish relocated the

Vanyume and Serrano peoples to missions when they arrived in the area in the 1770s, and the Serrano are now primarily associated with the San Manuel and Morongo Reservations.

Apple Valley was first settled by Europeans in the 1860s, and a land boom occurred in the 1880s. Consistent with its name, apple orchards were established in the area in the 1890s, after the Appleton Land and Water Company built an irrigation system to support them. Agriculture and ranching remained the primary economic activities through the 1940s. Following World War Two, the Apple Valley Ranchos company began development of modern-day Apple Valley by developing a western-themed town.

It is noted that at the time of its writing, paleontological resources were also analyzed under the cultural resources issue area, and have been addressed in this sub-section. The 2009 EIR identified areas of Pleistocene-age soils, which are most likely to contain paleontological resources due to their age, adjacent to the Mojave River and within the Apple Valley Dry Lake. Most of the valley floor on which the Town is located consists of younger alluvium, and is not thought to harbor fossilized remains.

Impacts to Historic Resources

The 2009 EIR determined that of the 48 previously recorded sites identified in the Town 32 were historic period sites. As shown in Exhibit III-4 of the EIR, sensitive areas for historic resources occur primarily adjacent to Highway 18, in the center of Town, and in the southern end of Town. Historic and prehistoric sites have also been recorded in the vicinity of the Mojave River. The northern portion of Town, including the NAVISP and Annexation areas, were determined to have low sensitivity for historic resources.

The 2009 EIR determined that build out of the General Plan had the potential to impact historic resources, both directly and indirectly, as development occurs and lands are disturbed. As a result, the 2009 EIR included Mitigation Measure 1, requiring the preparation of cultural resource studies for projects located in areas of high potential sensitivity for historic resources. In addition, Mitigation Measures 3 and 4 were provided, mandating the Town's maintenance of a confidential inventory of historic sites, and the protection of historic sites from vandalism by the Town, respectively. The 2009 EIR concluded that with implementation of these mitigation measures, impacts to historic resources would be reduced to less than significant levels.

Impacts to Prehistoric and Tribal Resources

The 2009 EIR identified 16 recorded prehistoric sites, and seven pending sites which had yet to be recorded within the Town's boundary and the Annexation areas. Of these, six of the recorded sites and all of the pending sites represented habitation sites adjacent to or near the Mojave River, which as described above was an important part of Native American trading and lifeways. There were also 28 isolates previously identified within the General Plan area. The 2009 EIR's Exhibit III-4 identified the northern end of Town, and the two Annexation areas, as having elevated sensitivity for prehistoric/archaeological resources. This area occurs north of Johnson Road to the Town's northern limit. The Mojave River is also considered sensitive for these resources.

The 2009 EIR determined that due to the low percentage of previous site coverage (30%) in the past, build out of the General Plan would have the General Plan would have the potential to significantly impact prehistoric, and therefore Tribal resources. This was supported by comments received from the Morongo Band of Mission Indians during the consultation process for the Technical Report, which reported that resources were known to the south and southeast of the Town, and encouraged protection of resources within the General Plan area. Because of the potential for significant impacts, Mitigation Measure 1 was included, which requires the preparation of cultural resource studies for projects located in areas of high potential sensitivity for prehistoric resources. The 2009 EIR determined that with implementation of this mitigation measure, as well as Mitigation Measures 3 and 4, impacts to prehistoric and Tribal resources would be reduced to less than significant levels.

Impacts to Buried Remains

As identified in the 2009 EIR, buried remains, particularly cremated remains, have been found along the Mojave River, and are associated with the habitation sites previously identified in this area. It did not, however, identify any area where buried remains were known to occur outside of formal cemeteries. The 2009 EIR found that impacts associated with buried remains would be identified, if they occurred, through the implementation of Mitigation Measure 1, when site-specific surveys would be conducted for development projects as they occurred.

Impacts to Paleontological Resources

The 2009 EIR determined that areas of the Town that contained Mesozoic rock and younger Quaternary alluvium had low potential for paleontological resources. These areas include the hills in and surrounding the Town and the surface soils on the valley floor, respectively. Conversely, the 2009 EIR identified the older soils along the Mojave River and the deeper soils on the valley floor, which are of unknown age, as having the potential to yield fossil remains. The 2009 EIR concluded that disturbance of the surface soils had low potential to disturb paleontological resources as the General Plan was built out, but that areas of higher sensitivity, including the western boundary of Town south of Johnson Road, and the areas surrounding the Mojave River had a high potential for these resources, and impact to these resources would be significant. In order to mitigate these impacts, the 2009 EIR included Mitigation Measure 2, which requires the preparation of paleontological resource studies for areas of high sensitivity for these resources, as identified in Exhibit III-5 of the EIR. The EIR concluded that with implementation of this mitigation measure, impacts associated with paleontological resources would be reduced to less than significant levels.

Mitigation Measures

The following Mitigation Measures are from page III-80 of the 2009 EIR.

1. Cultural resource studies shall be required prior to development for all lands identified as having high potential for historic or archaeological resources, as identified in Exhibit III-4 (in the 2009 EIR). The studies shall be reviewed and approved by the Town Planning Division prior to the issuance of any ground disturbing permit. The recommendations of the studies shall be made conditions of approval of the ground disturbing permits.

2. Paleontological resource studies shall be required prior to development for all lands identified as having high potential for paleontological resources, as identified in Exhibit III-5 (in the 2009 EIR). The studies shall be reviewed and approved by the Town Planning Division prior to the issuance of any ground disturbing permit. The recommendations of the studies shall be made conditions of approval of the ground disturbing permits.

3. The Town shall establish and maintain a confidential inventory of archaeological and historical resources within the Planning area, including those identified in focused cultural resources studies.

4. The Town shall protect sensitive archaeological and historic resources from vandalism and illegal collection, to the greatest extent possible.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with cultural resources based on build out of the General Plan based on the Land Use Element and its distribution of land uses. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses , and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. Therefore, the impacts to cultural resources as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

A Cultural Resources Report was prepared for the proposed Project in November of 2023 (Appendix E), consistent with General Plan EIR Mitigation Measure 1, because the Project site is located in an area identified as having the potential to harbor prehistoric resources. The study included a records search of the South Central Coastal Information Center (SCCIC), the designated records depository for San Bernardino County. SCCIC records indicate that there have been 11 other studies conducted within a one mile radius of the site, but the site itself had not been studies, except as part of the overall analysis conducted for the NAVISP, which did not include site specific field investigations. A historic period site had been previously recorded, and is shown as occurring partially on the Project site. Six other sites and one isolate have been recorded as part of these previous studies. One site and the isolate are prehistoric in nature, and the other five sites are historic in nature.

In addition, a sacred lands file search was requested of the State's Native American Heritage Commission, historic research of published literature and maps was conducted, and an intensive field survey was completed. The results of these activities are described below.

It should also be noted that at the time the General Plan and its EIR were prepared, neither SB 18 nor AB 52 had been enacted. The Town has, however, conducted Tribal Consultation under the requirements of AB 52 for this Project. The results of that consultation, and any requests made by local tribes are discussed below.

Impacts to Historic Resources

The field survey of the Project site identified no historic structures or features on the property. As described above, the records search for the Project specific analysis identified one historic site as occurring partially within the Project site. The site consisted of a refuse deposit recorded in 2009, and consisted of 12 loci, two of which (loci 11 and 12) occur on the Project site. The field survey could not locate either loci. Scattered cans, including church-key beverage cans, were consistent with the report recorded in 2009. In addition, the field survey identified three new historic period sites, all consisting of refuse. Two historic isolates, consisting of single metal beverage cans were found in the southwestern portion of the Project site. In addition, a new historic site, identified as a 1950s era refuse scatter, was found in the center of the Project site. This refuse scatter consists of cans, ceramic and glass fragments and similar domestic items. The items appear to have been scattered by wind and water over time. Therefore, the site harbors two sites (one previously recorded and one newly identified) and three isolates (one previously recorded and two newly identified) that had the potential to be historic resources.

The CEQA guidelines provide guidance that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history (PRC §5024.1(c))."

The archaeologist determined that the isolates, by definition, do not meet the criteria for a historic site, because they consist of single items not provided a context to assure integrity. Further, the two sites consist of 1950s domestic refuse, which is the single most common material found in the deserts of southern California. Neither site contains unique items or items of historic interest. Neither site contains any item that can be associated with a particular person or event of historic interest, and both sites appear to have been scattered over an broad area after having been dumped by wind or water erosion. The archaeologist concluded that neither site meets the CEQA definition of a historic resource, and that development of the Project will have no impact on historic resources.

Impacts to Prehistoric and Tribal Resources

As described above, the Project archaeologist conducted both a records search and an intensive field investigation of the Project site. Neither the records search nor the field survey identified any archaeological resources on the property. The archaeologist did determine that there is a potential that archaeological resources could occur below the ground surface, and that Project grading could uncover them. This would represent a potentially significant impact which requires mitigation, specifically that all work should stop and an archaeological monitor should be brought

onto the site to inspect the resource, should grading activities uncover resource(s). This is reflected in Mitigation Measure CUL-1, which will reduce these impacts to less than significant levels.

Tribal Consultation

The Town conducted Tribal Consultation for this Project under the requirements of AB 52. Emails and letters requesting consultation were send to the Tribes that had previously requested consultation with the Town: the Cabazon Band of Mission Indians, the Cahuilla Band of Indians, the Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians), the Morongo Band of Mission Indians and the Twentynine Palms Band of Mission Indians on February 23, 2024. The Town received two responses: one from the Morongo Band of Mission Indians, and one from the Yuhaaviatam of San Manuel Nation. In addition, the Project Cultural Resources Report was emailed to all the Tribes on March 26, 2024.

The Yuhaaviatam of San Manuel Nation (YSMN) indicated in an email on March 15, 2024 that they did not require consultation, but requested the inclusion of mitigation measures, which consistent with the archaeologist's recommendation, require the stoppage of work should a resource be identified, and consultation with the Tribe. These mitigation measures assure that should buried resources be identified, both cultural and Tribal cultural resources will be protected, as the Tribe will be afforded the opportunity to participate in monitoring if it elects to do so, as provided in CUL-2.

The Morongo Band of Mission Indians requested consultation in an email on March 15, 2024. They also requested the cultural resource report prior to initiating the consultation meeting, and it was provided to them on March 26, 2024. On April 26, the Band provided the Town with a letter, outlining its recommended mitigation measures. These are provided below.

Impacts to Buried Remains

Neither the records search nor the field investigation provided any evidence of human remains, human burials or cremations, or signs of a cemetery on the Project site. Nonetheless, should any human remains be encountered during site excavation, California Health and Safety Code Section 7050.5 requires that all excavation stop, and that the County Coroner inspect the site.

Should the remains be identified as Native American by the coroner, the NAHC is required to contact the most likely descendant, and that descendant may recommend appropriate burial. In addition, in its email of March 15, 2024, the YSMN requested that a mitigation measure be included that reflects the requirements of Section 7050.5. This requirement of law, reflected in Mitigation Measure CUL-4, will assure that impacts associated with human remains are less than significant. Finally, the Morongo Band requested that the Town include conditions of approval relating to the identification of Native American remains on the Project site, should they occur. This requirement will be included by the Town in its conditions of approval for the Project.

Impacts to Paleontological Resources

As described above, Pleistocene-age (1,808,000 to 11,550 years ago) soils have a high potential to contain scientifically valuable paleontological resources. The older sediments along the

Mojave River over seven miles southwest of the Project site, and at unknown depth below the surface are expected to have a higher sensitivity for paleontological resources. According to the General Plan and its EIR, the area in which the Project is located is located in an area of low sensitivity for these resources (2009 EIR Exhibit 111-5). Grading of the shallow excavations required for the Project in the younger Quaternary alluvium exposed throughout the Project area is unlikely to uncover significant fossil remains.

Since research indicates that most of the surface deposits in this area have a low potential for containing significant fossil remains due to their young age of these deposits and no reports of fossilized remains have been made in the Project area or Town-wide, the Project will have less than significant impacts on paleontological resources.

Summary of Impacts

With implementation of CUL-1 through CUL-3, the impacts associated with archaeological and Tribal cultural resources will be reduced to less than significant levels. However, as required in the 2009 EIR, the mitigation measures imposed on the Project address impacts from the Project, and would reduce these impacts to less than significant levels, including impacts to archaeological and Tribal resources.

The proposed Project will result in impacts to cultural and Tribal resources which are equivalent to those identified in the 2009 EIR. No resources are known to occur on the Project site, nor were any identified in the 2009 EIR. Mitigation measures proposed for the Project are consistent with the findings of the 2009 EIR, and would have been imposed on the Project as they were recommended in the 2009 EIR. No changes to the environment that result in any new or more significant impacts would result from development of the proposed Project. The conditions requisite for the preparation of a subsequent or supplemental EIR under CEQA Section 15162 do not occur, and as allowed under Section 15164, this Addendum is appropriate for the analysis of cultural resources for the proposed Project.

Mitigation Measures

CUL-1 In the event that cultural resources are discovered during project activities, all work within a 60-foot radius shall cease and a qualified archaeologist meeting Secretary of the Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation (YSMN) Cultural Resources Department shall be contacted regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

The following mitigation measures are to be imposed consistent with the YNSM's request:

CUL-2 If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the draft of which shall be provided to YSMN for review and comment. This Plan shall allow for a monitor to be present that represents YSMN for

the remainder of the project, should YSMN elect to place a monitor on-site. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CUL-3 Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Town for dissemination to YSMN. The Town shall, in good faith, consult with YSMN throughout the life of the project.

CUL-4 If human remains or funerary objects are encountered during any activities associated with the project, work within a 100-foot radius of the find shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

The following mitigation measures are to be imposed consistent with the Morongo Band's request:

CUL-5 Prior to the issuance of grading permits, the applicant shall enter into a Tribal Monitoring Services Agreement with the Morongo Band of Mission Indians (MBMI) for the Project. The Tribal Monitor shall be on-site during all ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post placement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind). The Tribal Monitor shall have the authority to temporarily divert, redirect, or halt the ground-disturbing activities to allow identification, evaluation, and potential recovery of cultural resources.

CUL-6 Prior to any ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post replacement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind), and prior to the issuance of grading permits, the Applicant shall retain a Qualified Archaeologist who meets the U.S. Secretary of the Interior Standards (SOI). The Archaeologist shall be present during all ground- disturbing activities to identify any known or suspected archaeological and/or cultural resources. The Archaeologist will conduct a Cultural Resource Sensitivity Training, in conjunction with the Tribe[s] Tribal Historic Preservation Officer (THPO), and/or designated Tribal Representative. The training session will focus on the archaeological and tribal cultural resources that may be encountered during ground-disturbing activities as well as the procedures to be followed in such an event.

CUL-7 Prior to any ground-disturbing activities the project Archaeologist shall develop a Cultural Resource Management Plan (CRMP) and/or Archaeological Monitoring and Treatment Plan (AMTP) to address the details, timing, and responsibilities of all archaeological and cultural resource activities that occur on the project site. This Plan shall be written in consultation with the consulting Tribe[s] and shall include the following: approved Mitigation Measures (MM)/Conditions of Approval (COA), contact information for all

pertinent parties, parties' responsibilities, procedures for each MM or COA, and an overview of the project schedule.

CUL-8 The retained Qualified Archeologist and Consulting Tribe[s] representative shall attend the pre-grade meeting with the grading contractors to explain and coordinate the requirements of the monitoring plan.

CUL-9 During all ground-disturbing activities the Qualified Archaeologist and the Tribal Monitor shall be on-site full-time. The frequency of inspections shall depend on the rate of excavation, the materials excavated, and any discoveries of Tribal Cultural Resources as defined in California Public Resources Code Section 21074. Archaeological and Tribal Monitoring will be discontinued when the depth of grading and the soil conditions no longer retain the potential to contain cultural deposits. The Qualified Archaeologist, in consultation with the Tribal Monitor, shall be responsible for determining the duration and frequency of monitoring.

CUL-10 In the event that previously unidentified cultural resources are unearthed during construction, the Qualified Archaeologist and the Tribal Monitor shall have the authority to temporarily divert and/or temporarily halt ground-disturbance operations in the area of discovery to allow for the evaluation of potentially significant cultural resources. Isolates and clearly non- significant deposits shall be minimally documented in the field and collected so the monitored grading can proceed.

If a potentially significant cultural resource(s) is discovered, work shall stop within a 60-foot perimeter of the discovery and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. All work shall be diverted away from the vicinity of the find, so that the find can be evaluated by the Qualified Archaeologist and Tribal Monitor[s]. The Archaeologist shall notify the Lead Agency and consulting Tribe[s] of said discovery. The Qualified Archaeologist, in consultation with the Lead Agency, the consulting Tribe[s], and the Tribal Monitor, shall determine the significance of the discovered resource. A recommendation for the treatment and disposition of the Tribal Cultural Resource shall be made by the Qualified Archaeologist in consultation with the Tribe[s] and the Tribal Monitor[s] and be submitted to the Lead Agency for review and approval. Below are the possible treatments and dispositions of significant cultural resources in order of CEQA preference:

A. Full avoidance.
B. If avoidance is not feasible, Preservation in place.
C. If Preservation in place is not feasible, all items shall be reburied in an area away from any future impacts and reside in a permanent conservation easement or Deed Restriction.
D. If all other options are proven to be infeasible, data recovery through excavation and then curation in a Curation Facility that meets the Federal Curation Standards (CFR 79.1)

3.6. GEOLOGY AND SOILS

Summary of Findings in the 2009 EIR (Section III.F, page III-81 et.seq.)

Background/Geologic Setting

As described in the 2009 EIR, the geological characteristics of the Town are primarily representative of the Mojave Desert geomorphic province, containing arid climatic conditions, alluvial fans, desert plains, dry lakebeds, and scattered mountain ranges. The Town is generally bounded by the Turtle Mountains on the north, the Fairview Mountains and Granite Mountains on the east, and the Ord Mountains on the south. The Town of Apple Valley is situated on gently sloping alluvial fans that range in elevation from approximately 3,400 feet above sea level near the base of the Fairview Mountains in the northeast to nearly 2,700 feet above sea level along the Mojave River in the west.

The geological character of Apple Valley and the surrounding region has been formed by its proximity to large active fault systems, including the Helendale Fault, San Andreas Fault, and the North Frontal Fault. Fault activity in the region results in ground rupture, major groundshaking, subsidence, uplift and mountain building, landform compression, and extension.

Soils and Geologic Units

The 2009 EIR identified six types of geologic deposits that underlie the Town of Apple Valley and vicinity. These consist of:

1. Artificial or man-made fill, typically associated with infrastructure (too small to identify on map);
2. Very young or recent alluvium deposits;
3. Young deposits;
4. Older alluvial fan deposits;
5. Sedimentary rocks; and
6. Crystalline Rocks.

Geologic Hazards

The 2009 EIR described six geologic hazards that affect the Town and it's vicinity, including landslide and slope instability, compressible soils, collapsible soils, expansive soils, ground subsidence, and soil erosion.

- **Landslide and Slope Instability**: In the Town of Apple Valley an estimated 1,792.4 acres consist of hillside terrain and mountains. Development in the Town has occurred at the base of steep slopes, and scattered residential, commercial, and other land uses are at risk of slope failure, landslides, and rockfalls. Consequently, slope instability is a potential hazard in the Town and vicinity. Alluvial fan sediments, composed primarily of granular soils, underlie the low-lying areas of the Town may be susceptible to collapse and the expansion potential ranges from very low to moderately low.

- **Compressible Soils**: Geologic units that could compress under the weight of proposed fill embankments and structures are known as compressible soils. In the Town of Apple Valley, compressible soils are most likely to occur where Holocene-age deposits are present, as well as active and recently active stream channels.

- **Collapsible Soils**: Soil collapse or hydroconsolidation can occur under relatively light loads and is generally associated with recently deposited Holocene-age soils that have accumulated in arid or semi-arid environments. In Apple Valley young and very young alluvial sediments that are granular in nature may be susceptible to collapse.

- **Expansive Soils**: Expansive soils are those that contain significant amounts of clay minerals resulting in the ability to give up water (shrink) or absorb water (swell), which allows these soils to expand (or shrink) as a result of changes in moisture content. In the Town of Apple Valley and the vicinity, expansive soils are primarily associated with areas underlain by older fan deposits.

- **Ground Subsidence:** Ground subsidence is the gradual settling or sinking of the ground surface with minimal horizontal movement and is generally associated with oil, gas, or ground water extraction from below the ground surface. Subsidence can result in earth fissures, sinkholes or depressions, and disrupt surface drainage patterns. The closest subsidence area to the Town of Apple Valley is located approximately seven miles northwest. In 2009, subsidence had not been detected within Apple Valley's town limits.

- **Soil Erosion**: The Town of Apple Valley and vicinity are subject to erosion, runoff, and sedimentation due to the extreme topographic relief between the valley and the surrounding hills and mountains. Human activities such as agricultural or land development accelerate natural erosion by disturbing the ground surface, which can expose sediment deposits to wind and water transport, alter natural drainage patterns, and increase the potential for erosion and sedimentation. Wind erosion commonly occurs in flat, bare areas where dry, sandy soils are present, or anywhere the topsoil is loose, dry, and finely granulated. Strong winds combined with sandy surface soils commonly found in Apple Valley has the potential to result in wind erosion that poses an environmental hazard.

Major Faults

The Town of Apple Valley is located near the boundary of two tectonic plates: the North American and Pacific plates. It is the San Andreas fault that separates the two tectonic plates. While there are no faults zoned by the State of California within the corporate limits of the Town of Apple Valley, two faults are zoned within the Town's Sphere of Influence including an Alquist-Priolo Earthquake Fault Zone. The 2009 EIR lists and describes major faults including the North Frontal fault, Helendale fault, San Andreas fault, Lenwood – Lockhart – Old Woman Springs faults, Cleghorn fault, Cucamonga fault, Landers fault, Sierra Madre fault, Gravel Hills – Haper Lake fault, Calico – Hidalgo fault, San Jacinto fault, Johnson Valley fault, Puente Hills Thrust fault, Blackwater fault, Pinto Mountain fault, Pisgah-Bullion Mountain- Mesquite Lake fault, and Emerson South-Copper Mountain fault zone.

Although there are no Alquist-Priolo Earthquake Fault Zones located within the Town, two such zones are mapped within the Sphere and a third is located immediately southeast of the sphere. In order to limit impacts associated with surface ruptures, the Town is mandated by law to require that geological investigations, including but not limited to fault trenching, be performed if residential development is proposed in proximity to these zones.

The 2009 EIR determined that the San Andreas Fault Zone and associated faults in the area have the potential to cause moderate to extreme ground shaking and significant ground acceleration in the Town of Apple Valley and Sphere of Influence. Seismic activity of this magnitude has the potential to result in direct damage to structures, property, and infrastructure, and/or generate indirect hazards such as slope instability, liquefaction, settlement, landslides, and flood inundation, and can cause a variety of localized, but no less destructive hazards such as urban fires, dam failures, and toxic chemical releases.

The Town requires all new buildings to utilize reinforced masonry, as well as comply with the Uniform Building Code (UBC), which is expected to enable structures to resist major earthquakes without collapsing, although structural damage could occur. The Town requires site-specific soils and/or geotechnical analysis that include an evaluation of seismic and soil conditions and provide recommendations that mitigate soils and geotechnical hazards or constraints.

Seismically Induced Geological Hazards

The 2009 EIR described six geologic hazards that affect the Town and it's vicinity, including ground shaking, liquefaction, seismically induced settlement, seismically induced rockfalls and landslides, deformation of sidehill fills, ridgetop fissures and shattering, and seiches and seismically induced inundation. Seismically induced ground shaking the most significant geotechnical hazard facing the Apple Valley area.

As previously stated, the Town requires all new buildings to utilize reinforced masonry, as well as comply with the Uniform Building Code (UBC), which is expected to enable structures to resist major earthquakes without collapsing, although structural damage could occur. The Town requires site-specific soils and/or geotechnical analysis that include an evaluation of seismic and soil conditions and provide recommendations that mitigate geotechnical hazards.

Summary of Impacts

Overall, the 2009 EIR found the potential impacts related to geology and soils would be less than significant with implementation of mitigation measures. The Town requires compliance with the Uniform Building Code (UBC), which is expected to enable structures to resist major earthquakes without collapsing, although structural damage could occur. The Town also requires site-specific soils and/or geotechnical analysis that include an evaluation of seismic and soil conditions and provide recommendations that mitigate geotechnical hazards.

Mitigation Measures

The following Mitigation Measures are from pages III-105 through -108 of the 2009 EIR.

1. The Town shall establish and maintain an information database containing maps and other information that describes seismic and other geotechnical hazards occurring within the General Plan Area. Consult and coordinate with surrounding communities, the California Division of Mines and Geology, San Bernardino County, other applicable state and federal agencies, and professional engineering geologists to establish, improve, and routinely update the database.

2. Future development proposals shall require the preparation of a site-specific soils and/or geotechnical analysis that include an evaluation of seismic and soil conditions and provide recommendations that mitigate soils and geotechnical hazards or constraints.

3. Proper structural engineering, which takes into account the forces that will be applied to structures by anticipated ground motions, shall provide mitigation for ground shaking hazards. Seismic design shall be in accordance with the most recently adopted editions of the Uniform Building Code and the seismic design parameters of the Structural Engineers' Association of California.

4. Establish a cooperative agreement with the County Geologist, State Geologist, contract state-certified geologist, or contract geological engineer, to review and determine the adequacy of geotechnical and fault hazard studies prepared within the Town.

5. Design elements, such as baffles, shall be required to reduce the potential for seiches in tanks, open reservoirs, and ponds where overflow or structural failure may cause damage to nearby properties. Criteria for seismic design of water tanks shall be in accordance with the American Water Works Association (AWWA) Standards for Design of Steel Water Tanks.

6. New development shall not be placed within natural flow paths or result in substantial changes to drainage patterns offsite. (Also see Hydrology Section III-D)

7. Development on wind or stream-deposited sediment or young alluvium on the valley floor should include site-specific subsurface geotechnical investigations that address the potential for seismic settlement, collapsible and expansive soils, and liquefaction. These hazards can be mitigated by proper excavation, compaction, backfilling, and foundation design.

8. Site-specific geotechnical analyses shall be conducted where new development is proposed adjacent to or in close proximity to steep slopes. Analyses shall evaluate the potential for landslides, rock falls, and/or slope failure, and set forth mitigation measures to minimize these hazards such as the use of set backs, retaining walls, and vegetation buffers.

9. Retaining walls shall be constructed to adopted building code standards, include an adequate sub-drain system at the base to prevent excessive hydrostatic pressure, and be evaluated by the Building Inspector.

10. All existing vegetation and debris shall be removed from areas that are to receive compacted fill. Removal of trees shall include a minimum of 95% of the root systems. Excavation to depths ranging from 2 to 4 feet or more below the existing site grade may be required.

11. Encourage consultation and coordination between the Town of Apple Valley Public Works Division, Apple Valley Ranchos Water Company, Mojave Water Agency, U.S. Geological Survey, and other appropriate agencies in order to routinely monitor groundwater levels and surface elevations in the Town.

12. The Town shall actively support and participate in local and regional efforts to conserve water in an effort to mitigate potential ground subsidence resulting from over extraction of groundwater. Preventive measures include the use of water efficient appliances and faucets indoors, desert tolerant landscaping, and increased use of reclaimed water, storm water, or imported water. (Also see Water Resources in Section III-I)

13. Maintain working relationships and strategies between the Public Works Division, Apple Valley Fire Protection District, and other appropriate agencies to strengthen or relocate utility or service facilities including the expedient retrofitting of weak or damaged service structures, enforce fire and building codes, and take other appropriate measures to safeguard major utility distribution systems in preparation of a seismic event.

14. The Town shall coordinate and cooperate with public and quasi-public agencies to encourage education and earthquake preparedness so that residents can be self-sufficient after a seismic event.

15. All grading permit requests shall include a soil erosion prevention plan. Blowing dust and sand during grading operation shall be mitigated by maintaining moist surface soils, limiting the area of dry exposed soils, planting stabilizing vegetation, establishing windbreaks with non-invasive vegetation or perimeter block walls, applying chemical soil stabilizers, and adequately watering construction sites prior to and during grading and site disturbance. (Also see Air Quality in Section III-C)

16. Proposed development within a designated Alquist-Priolo Earthquake Fault Zone shall require site-specific geotechnical investigation including fault trenching and other Alquist-Priolo Fault Zoning Act guidelines.

17. The Town shall require that development applications include plans indicating the location of leach fields, seepage pits, drainage facilities, and water-dependent landscaping so that staff may evaluate the potential for ground saturation and assure that structural foundation are located an appropriate distance away to minimize the potential for localized soil collapse.

18. Imported and onsite fill soils for future development shall be approved by the project's soils engineer. Prior to placement as compaction fill the soils engineer shall assure that all fill materials are free of vegetation, organic material, cobbles and boulders greater than 6 inches in diameter, and other debris. Approved soil shall be placed in horizontal lifts or appropriate thickness as prescribed by the soils engineer and watered or aerated as necessary to obtain near-optimum moisture-content.

19. Fill materials shall be uniformly compacted to no less than 90% of the laboratory maximum density, by either over-filling and cutting back to expose a compacted core or by approved mechanical methods, as determined by American Society for Testing and Materials (ASTM) test method D-1557-78. The project soils engineer shall observe the placement of fill and take sufficient tests to verify the moisture content, uniformity, and degree of compaction obtained. In-place soil density measurements should be determined by the sand-cone method, in accordance with ASTM Test Method D-1556-64 (74), or equivalent test method acceptable to the Town's Building and Safety Department.

20. In general, finish cut slopes shall not be inclined steeper than 2:1 (horizontal to vertical). Attempts to excavate near-vertical temporary cuts for retaining walls or utility installations in excess of 5 feet may result in failure of the slope, which has the potential to damage equipment and injure workers. All cut slopes must be inspected by the project engineer during grading to provide additional recommendations for safe construction.

21. Foundation systems that utilize continuous and spread footings are recommended for the support of one and two-story structures. Foundations for higher structures must be evaluated based on structure design and on-site soil conditions.

22. Positive site drainage shall be established during finish grading. Finish lot grading shall include a minimum positive gradient of 2% away from structures for a minimum distance of three (3) feet and a minimum gradient of 1% to the street or other approved drainage course.

23. Utility trench excavations in slope areas or within the zone of influence of structures should be properly backfilled in accordance with the following recommendations:

    (a) Pipes shall be bedded with a minimum of 6 inches of pea gravel or approved granular soil. Similar material shall be used to provide a cover of at least 1 foot over the pipe. This backfill shall then be uniformly compacted by mechanical means or jetted to a firm and unyielding condition.

    (b) Remaining backfill may be fine-grained soils. It shall be placed in lifts not exceeding 6 inches in thickness or as determined appropriate, watered or aerated to near optimum moisture content, and mechanically compacted to a minimum of 90% of the laboratory maximum density.

    (c) Pipes in trenches within 5 feet of the top of slopes or no the face of slopes shall be bedded and backfilled with pea gravel or approved granular soils as described above. The remainder of the trench backfill shall comprise typical on-site fill soil mechanically compacted as described in the previous paragraph.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with geological hazards based on build out of the General Plan and the annexation areas. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the

requirements of site-specific geotechnical and soil investigations to prevent impacts from geological hazards. Therefore, the impacts from geological hazards as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The Project will result in development of the proposed Development at Cordova Project and is therefore subject to project-level CEQA review and site-specific analysis. The proposed development is consistent with the 2009 land use designation for the site (Specific Plan Industrial) analyzed in the EIR.

The Project, as with all projects in the City, will be required to adhere to the policies of the General Plan, including the preparation of site-specific geotechnical analysis to accompany grading plans. A project-specific Geotechnical Investigation Report was prepared by Merrell Johnson Geotechnical, Inc. in December 2023 (Appendix F).

Impacts Related to Soil Conditions

Per the Report, existing surface soils are medium dense to a depth of about 3 feet. Below 3 feet, the native soils are generally dense and are considered adequate for support of the new facilities.

Expansive soils are those with a relatively high clay content, which expands when wetted. On-site soils have a very low potential for expansion due to low moisture content. The potential for dynamically induced settlement of the granular soils is also very low.

The potential for wind erosion of soils on the Project site is considered low to moderate. The undisturbed soil surface has a “desert pavement” that protects the surface from wind erosion. In addition, the Town will require the implementation of a dust control plan, consistent with MDAQMD Rule 403 (please see Section 3.3 Air Quality and Greenhouse Gas). This standard requirement will assure that impacts associated with soil erosion are reduced to less than significant levels.

Liquefaction Impacts

The Geotechnical Report reviewed groundwater data provided by the California Department of Water Resources (2023) and found the closest measured well is approximately 1,300± feet to the west (State Well No. 06N03W16C001S), which had a water level of 39 feet in 1957 (only measurement). Other wells in the nearby vicinity show groundwater depth around 87 feet in depth (State Well No. 06N03W16D001S) located approximately 2,400± feet to the west, and 52 feet in depth (State Well No. 06N03W09N001S) located approximately 2,400± feet to the northwest. While the Project site could be subject to strong ground shaking in the event of a nearby earthquake of sufficient size, the lack of high groundwater reduces the liquefaction hazard significantly. The potential for liquefaction-related ground failure is also low and this hazard is less than significant.

Faults and Strong Seismic Groundshaking

The site is not within an Alquist Priolo Earthquake Fault Zone. The nearest mapped "active" fault zoned by the State of California is for the Helendale-South Lockhart Fault, located approximately 2.5±-miles to the northeast.

The Project will be subject to potentially strong ground shaking. However, the Project will be subject to building standards incorporated by reference in the Municipal Code (Chapter 8.12), including those on seismic safety design, as well as the Uniform Building Code/International Building Code and California Building Code (Municipal Code Title 8), which require building construction to withstand ground shaking and avoid or reduce structural and non-structural damage. Because of these requirements, impacts were expected to be less than significant.

Landslide Impacts

Landslide hazards in the Project vicinity are associated with the upper slopes of Bell Mountain, the remnant volcanic cinder cone located 1± mile to the southwest. Distance alone reduces this local landslide threat to less than significant for the subject property. No other hillside occurs in the Project area. The potential for landslides to adversely impact the Project site are less than significant.

Summary of Impacts

The project-specific Geotechnical Investigation Report provides recommendations and needed techniques to assure building integrity. The site is not located in an area susceptible to liquefaction, landslide or fault rupture. The Project site will require traditional construction methods governed by the Uniform Building Code and the Town's Municipal Code as it relates to seismic hazards. The Project, consisting of a two-story industrial building, will not require extensive excavation or other special building techniques. Adherence to the recommendations set forth in the project-specific Geotechnical Report will ensure all soil and geotechnical hazards are avoided or reduced to less than significant levels. The Geotechnical Report and Project plans shall be reviewed and approved by the Town prior to the issuance of building permits.

The Project would not generate new significant impacts or a substantial increase in previously identified impacts associated with geology and soils. There is no new information of substantial importance which was not known and could not have been known when the EIR was certified. Adherence to the Town's Municipal Code, General Plan policies, and other applicable requirements would result in less than significant impacts. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

3.7. HAZARDS AND HAZARDOUS MATERIALS

Summary of Findings in the 2009 EIR (Section III.G, page III-110 et.seq.)

Background

As described in the 2009 EIR, hazardous materials are under the jurisdiction of various federal and state regulations and programs which regulate the use, storage, and transportation of

hazardous materials. Regulations can be used to reduce or mitigate the danger that hazardous substances may pose to Apple Valley residents, businesses, and visitors, both in normal day-to-day conditions and as a result of a regional disaster, such as an earthquake or major flood.

Handling, Storage, and Disposal of Hazardous Waste

The Medical Waste Management Program (California Health and Safety Code, Section 117600) protects the public and the environment from potentially hazardous medical waste by regulating the generation, handling, storage, and disposal of medical hazardous waste through the implementation of the Medical Waste Management Act (MWMA). County of San Bernardino is the local enforcement agency for Apple Valley's medical hazardous waste generators.

The County Fire Department coordinates and facilitates household hazardous waste disposal. Under the authority of the County Fire Department's Household Hazardous Waste program, the Town operates a collection center located at the Town's Public Works Yard at 22411 South Outer Highway 18. Materials accepted for disposal at this location include pesticides, wood preservatives and solvents, automobile batteries, and small electronic items such as television sets and computer monitors, as well as other materials.

The Town of Apple Valley's Development Code includes standards and regulations to ensure that the use, handling, storage, and transportation of hazardous materials comply with all applicable requirements of the State Government Code Section 65850.2 and Health and Safety Code Section 25505, and Article 80 of the Uniform Fire Code.

The Town's Multi Hazard Functional Planning Guidance Document (Multi Hazard Plan) establishes contingency plans when an incident involving hazardous materials occurs. The Town works with the Hazardous Materials Division (HMD) of the San Bernardino County Fire Department, which has been designated by the State as the Certified Unified Program Agency for handling hazardous waste and materials in the High Desert. HMD performs compliance inspections of facilities that handle hazardous materials, which are defined by the California Code of Regulations (Title 22). The Apple Valley Fire District Duty Chief acts as the liaison with HMD in the event of a hazardous materials spill or leak.

There are three hazardous materials transportation corridors in the Town of Apple Valley: the Atchison Topeka & Santa Fe Railroad, U.S. Interstate 15, and State Route 18. These routes have the potential to be involved in the transport of hazardous materials and could thus be subject to the associated risks.

The 2009 EIR determined the demolition of older buildings for redevelopment could expose people and the environment to hazardous materials such as asbestos and lead-based paint. The General Plan includes policies and programs to assure that activities which require the handling of hazardous building materials are properly undertaken, with the appropriate agencies' oversight, thus reducing potential impacts to less than significant levels.

The EIR reiterated that hazardous materials transport, storage and handling are highly regulated at the federal, state, regional and local level. The long-term build out of the General Plan and annexation areas was expected to continue to be regulated by multiple agencies, ensuring potential impacts related to the transport, storage and handling of hazardous materials would be less than significant.

Areas with Potential Hazardous Materials Contamination

According to the 2009 EIR, there were no large quantity generators of hazardous waste and there were a limited number of small quantity generators that used or produced hazardous materials in Apple Valley and surrounding areas. However, no material releases were reported on these properties and significant hazardous material releases into the underlying soil and groundwater were not suspected.

Approximately 560 acres within the NAVISP were previously used as a practice bombing range by the U.S. Army Air Force during World War II. Potential hazards exist due to the presence of known or suspected military munitions and explosives of concern. The EIR found that further Investigation of the former bombing range is required prior to development. Such investigation, and associated disposal of any identified ordinance, will reduce the potential impacts at this location to less than significant levels.

Government Code Section 65962.5 requires the California Department of Toxic Substances Control (DTSC) to compile and regularly update a list of hazardous waste sites, known as the Cortese List. No properties in the Planning Area were identified on the DTSC's Hazardous Waste and Substances Site List (Cortese List).

Emergency Response and Evacuation Routes

Major emergency routes in the Town include Central Road, Highway 18, and Interstate 15. In 2009, the County was in the process of developing mass evacuation plans within each region. The high desert region plan, which included Apple Valley, had not yet been completed. The Town was coordinating with Caltrans, the Federal Highway Administration, adjoining cities and communities and San Bernardino County to provide the highest functional reliability of major roadways and the public transportation system serving the Town and the region.

Airports

The San Bernardino County Department of Airports provides for the management, maintenance, and operation of the Apple Valley Airport. The EIR determined that hazardous land uses should be prohibited in all designated airport overlay zones, including those which would cause smoke, water vapor, or light interference impeding the pilot's ability to see the airfield. Uses which cause electrical interference with aircraft navigational and communications equipment also should be prohibited in the airport vicinity. Other inappropriate uses include those attracting large numbers of birds, including landfills and some types of food processing plants involving outdoor storage of grant and other raw materials or food by-products.

Wildfire

At the time the 2009 EIR was prepared, wildfire was not a standalone topic required by the CEQA Guidelines. The EIR included brief discussions of wildland fires under Section III-G Hazards and Hazardous Materials and Section III-M Public Services. While the 2009 would facilitate new development that may increase community exposure to wildland fires, the EIR determined that careful emergency planning under the 2009 General Plan and compliance with the Apple Valley Fire Protection District (AVFPD) would reduce fire-related impacts to less than significant levels. 2009 EIR mitigation measures related to emergency evacuation plans are provided in Section III-G Hazards and Hazardous Materials, and mitigation measures to reduce impacts associated with provision of fire protection services are provided in Section III-M Public Services.

Summary of Impacts

The 2009 EIR found that uses and activities proposed or undertaken within the Town of Apple Valley as a result of the 2009 General Plan update could result in the use of hazardous materials or create a hazardous condition within the Town or annexation areas. Hazardous materials transport, storage and handling are highly regulated at the federal, state, regional and local level. The long-term build out of the General Plan and annexation areas was expected to continue to be regulated by multiple agencies.

While businesses are required by federal, state, and local regulations to properly transport, use, and dispose of hazardous materials in the Town and its Sphere of Influence, it is possible that upset or accidental conditions may arise which result in the release of hazardous materials into the environment. However, compliance with the Town's Multi Hazard Plan and the implementation of the uniform regulations to manage the risk associated with transportation of hazardous materials will function to minimize the hazard risks that may occur.

The EIR set forth the following mitigation measures to reduce the number and severity of hazardous materials incidents within the Town of Apple Valley and its Sphere of Influence, and to ensure the protection of future residents, visitors and lands from exposure to such materials. Impacts will be less than significant.

Mitigation Measures

The following Mitigation Measures are from pages III-121 through -122 of the 2009 EIR.

1. The Town will cooperate with regulators and encourage the enforcement of laws that require all users, producers, and transporters of hazardous materials and wastes to clearly identify such materials, and notify the appropriate county, state and/or federal agencies as required by law.

2. The Town shall maintain appropriately managed access routes to facilitate the transport of hazardous and toxic materials.

3. The Town will work with the County Sheriff's Department, Caltrans, and CHP, to regulate the transport of hazardous materials along local roadways, state highways and routes, and interstates in the Town or the vicinity.

4. The Town will coordinate with the Apple Valley Fire Protection District and the San Bernardino County Environmental Health Department to assure improved response to, and capability for, handling hazardous materials incidents.

5. Future development within the General Plan area shall be required to comply with all applicable federal, state, and regional permitting requirements for hazardous and toxic materials generation and handling, including but not limited to the following:

    a. If it is determined that hazardous wastes are, or will be, generated by any proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If so, the proposed facility shall obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942.

    b. If hazardous wastes are (a) stored in tanks or containers for more than ninety days, (b) treated onsite, or (c) disposed of onsite, then a permit from the Department of Toxic Substances Control (DTSC) may be required. If so, the proposed facility shall contact DTSC at (818) 551-2171 to initiate pre-application discussions and determine the permitting process applicable to the facility.

6. Developers shall submit for approval a detailed description of any hazardous materials use, as well as detailed plans for location of any hazardous materials storage and management facilities to the Apple Valley Fire Protection District.

7. The Town shall thoroughly evaluate development proposals for lands directly adjacent to sites known to be contaminated with hazardous or toxic materials or sites that use or contain potentially hazardous or toxic materials.

8. During project construction and implementation, the handling, storage, transport, and disposal of all chemicals, including herbicides and pesticides, runoff, hazardous materials and waste used on, or at, the project site, shall be in accordance with a project's BMP/Integrated Pest Management Plan, other relevant regulatory plans, and applicable County, state, and federal regulations.

9. The Town shall require all business that use, store, or produce hazardous material to comply with the County's Business Plan in addition to all Town regulations.

10. The Town shall annually update the SEMS Multihazard Functional Plan to ensure that emergency shelters and emergency evacuation routes are responsive to changing community needs.

11. The Town shall maintain documentation of known hazards to public health and safety and shall make this information available to government officials and organizations, emergency response personnel, and the general public.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with various hazards and hazardous materials due to build out of the General Plan and Annexation areas based on the Land Use Element. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or increase the risk of hazards. Therefore, the impacts related to hazards and hazardous materials as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The Project proposes the development of a 1.373 million square foot warehouse and distribution facility.

Phase 1 Environmental Site Assessment

A Phase 1 Environmental Site Assessment was prepared for the Project by Northgate Environmental Management, Inc. in May 2023 (Appendix G). The Phase I found no hazardous substances or petroleum products in, on, or at the site, and no hazardous substances have been previously reported on the site.

Handling, Storage, and Disposal of Hazardous Waste

Construction of the Project could involve the use of some hazardous and flammable substances, such as vehicle fuels and oils for the operation of heavy equipment. Other materials required for the potential emergency maintenance of heavy equipment may also be required on-site during construction, however such materials would not be in quantities or stored in a manner that would pose a significant hazard to the public. All potentially hazardous materials used during construction of the proposed development must be stored, used, and disposed of in accordance with manufacturers' instructions and handled in compliance with applicable federal, State, and local regulations.

Once operational, the Project will likely use cleaners and solvents as part of daily cleaning and maintenance operations, but is not expected to transport, use or dispose of large quantities of hazardous materials. However, given the cold storage component of the proposed warehouse facility, the Project will likely require the use, storage, and potential transport of refrigerants. According to the U.S. EPA, while most refrigerants are toxic, flammable, and/or highly reactive, system design, engineering controls, and other strategies mitigate the risks associated with these substances, which are governed by County, State and federal law and regulations.[21] In order to ensure the safe use and handling of refrigerants, the Project will be required to comply with Title

[21] United States Environmental Protection Agency, Significant New Alternatives Policy (SNAP), Refrigerant Safety, https://www.epa.gov/snap/refrigerant-safety.

24 §605 Mechanical Refrigeration of the California Fire Code, in addition to applicable federal, State and local regulations, including the Hazardous Materials Transport Act, the Resource Conservation and Recovery Act (RCRA), California Occupational Safety and Health Administration, California Fire Code and Division 20, Chapter 6.5, of the Health and Safety Code, described above. Compliance with standard requirements and requirements of law will assure that impacts remain less than significant.

Evacuation Routes and Emergency Response

According to the Town's Local Hazard Mitigation Plan, interstates serve as major emergency response and evacuation routes.[22] Quarry Road would connect the Project to Dale Evans Parkway on to Interstate 15 and Interstate 18 (Happy Trails Highway). The proposed development would not impede access to major evacuation routes and impacts would be less than significant.

Apple Valley's Emergency Operations Plan integrates with the Town's General Plan, zoning regulations, and other plans. Given that the Project's proposed industrial land uses align with the policies established in the NAVISP, it can be assumed that the Project will not interfere with the Emergency Operations Plan and impacts would be less than significant.

Hazardous Material Sites

The subject property is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The nearest hazardous materials site is located 0.5 miles south of the subject site. No impact will occur.

Proximity to Schools

The subject property is not located in proximity to a school. The nearest school is Sycamore Rocks Elementary school, located 4.6 miles southeast of the site. No impact will occur.

Wildfire

The California Department of Forestry and Fire Protection (CalFire) has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP). There are no state responsibility areas or very high fire hazard severity zones in the Project vicinity. The nearest fire hazard severity zones are located miles away to the south, near Bear Valley Road and Central Road. Buildout of the site is subject to the same General Plan policies and fire department requirements on fire safety and emergency access. There would be no impact as a result of the proposed Project relating to wildfires. No new or increased severity of impacts would occur compared to those identified in the EIR.

Summary of Impacts

Implementation of proposed Project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed in the EIR. Overall impacts are expected to be comparable to those previously identified in the EIR. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

[22] Town of Apple Valley Local Hazard Mitigation Plan 2017 Update, p.4-76.

3.8. HYDROLOGY AND WATER QUALITY

Summary of Findings in the 2009 EIR (Section III.H & III-I, page III-123 et.seq.)

Background

The 2009 EIR described the hydrologic conditions of the planning area and the regulatory agencies responsibilities for flood plain management and hazards mitigation. Apple Valley is located in the southern portion of the Mojave Desert with a climate characteristic of a high desert ecosystem, which experiences extreme fluctuations of daily temperature, strong seasonal winds, and receives less than 5 inches of annual precipitation. The region and the Town are impacted by winter storms, local thunderstorms, and summer tropical storms, all of which have the potential to produce substantial precipitation. The Town has historically been subject to flooding and associated hazards, such as mudflows, during severe summer storm events.

The San Bernardino Flood Control District ("Flood Control District") implements broad management functions, including flood control planning, construction of drainage improvements for regional flood control facilities, and watershed and watercourse protection related to those facilities. The Town is responsible for local drainage management and requires development projects integrate on-site stormwater management and detention facilities to reduce the needed size of downstream facilities, creates opportunities for groundwater recharge, and provide for enhanced open space and/or recreation areas.

Drainage and Stormwater Management

The 2009 EIR found that future development under the General Plan update had the potential to alter existing drainage patterns and, in some areas, to result in the accumulation of a significant amount of debris during large storms. The General Plan update included goals, policies and programs designed to limit flood hazards and protect natural watersheds as well as lives and properties in areas subject to flooding. General provisions for flood hazard reduction are also provided in the Apple Valley Development Code, Grading Ordinance, and Subdivision Ordinance and apply to all lands in Areas of Special Flood Hazard.

The EIR set forth mitigation measures that requires site-specific analyses be conducted prior to development that identify potential hazards, and set forth effective mitigation measures and development standards that minimize impacts from structural failure and promote the health and safety of residents. With implementation of these mitigation measures, impacts would be reduced to less than significant levels.

Water Resources/Demand

The 2009 EIR described several domestic water purveyors with distribution facilities in the Town as well as its Sphere of Influence. The Apple Valley Ranchos Water Company (AVRWC) provides domestic water services to most of the Town of Apple Valley. There are several other water purveyors, including Golden State Water Company (Golden State), Apple Valley Foothill County Water District, Apple Valley Heights County Water District, Apple Valley View Mutual Water Company, County Service Area 64, Juniper Rivera County Water District, Mariana Ranchos County Water District, Rancheritos Mutual Water Company, Thunderbird County Water District, and Navajo Mutual Water Company.

Section III-I, Water Resources/Quality, of 2009 EIR determined that the General Plan Update would directly increase water consumption with the addition of 64,749 dwelling units. This represented an increase of approximately 13,696 units, or 27.4% over the previous General Plan, which planned for 50,053 units. Residential development in the General Plan area is expected to generate a population of approximately 194,931. The proposed Plan will also result in a proportional increase in commercial, industrial, public and other types of development.

Adoption and implementation of the proposed Annexations 2008-001 and 2008-002 would facilitate the development of approximately 4,236 dwelling units, and a population of approximately 13,238, along with commercial and industrial development.

All land uses within the Town limits and Annexation areas were expected to result in total water demand of 95,999.8 acre-feet per year at build out. Residential development associated with implementation of the proposed General Plan and the Annexations was estimated to result in water demand of 45,396.2 acre-feet per year at build out. Commercial, industrial and other land uses were expected to result in water demand of 50,603.6 acre-feet per year at build out. It was concluded that the 2005 AVRWC UWMP demonstrated that AVRWC has sufficient water supplies for its service area through year 2025 under normal and drought conditions. Nonetheless, the 2009 EIR determined that build out of the General Plan area, including the Annexations areas, would result in significant impacts to water resources without mitigation.

The 2009 EIR provided domestic water mitigation measures in Section I Water Resources/Quality and Section M Public Services. These mitigation measures are listed, below, and reduce impacts to less than significant levels.

Water Quality

The 2009 EIR determined that as the proposed General Plan and Annexation areas build out, the potential for groundwater contamination would increase. The 2009 EIR determined the General Plan goals, policies and programs would reduce impacts to water resources to less than significant levels, as well as to ensure that federal, state, local and all other applicable pollution control standards continue to be implemented.

Mitigation Measures

The following Hydrology Mitigations Measures are from Section H, Hydrology, pages III-142 through -144 of the 2009 EIR.

1. The Town shall monitor its Master Plans of Drainage every five years to ensure that it reflects changes to local and regional drainage and flood conditions.

2. The Town shall upgrade its local and regional drainage system through proactive planning and coordination with other responsible agencies to ensure the provision of a comprehensive system of flood control facilities throughout the Town.

3. The Town shall continue to implement flood-warning systems, and shall maintain its public outreach and information programs to educate and inform the public of potential flood hazards and provide potential solutions made available to them.

4. The Town shall develop evacuation plans in the 100-year and 500-year flood zones where critical facilities, including but not limited to schools, hospitals and nursing homes are located.

5. To ensure that water storage tanks retain their structural integrity during an earthquake, and so that water demands after the earthquake can be met, the Town shall coordinate with all water purveyors in the planning area to evaluate and retrofit all above-ground water tanks in the Town as necessary, based on their vulnerability to seismic hazards, to ensure compliance with the most current water tank design criteria.

6. Major drainage facilities, including debris basins and flood control channels, shall be designed to maximize their use as multi-purpose recreational or open space sites, consistent with the functional requirements of these facilities.

7. The Town shall assure that adequate, safe all-weather crossings over drainage facilities and flood control channels are provided where necessary, and are maintained for passage during major storm events.

8. The Town shall continue to restrict development in those areas that are FEMA-mapped as being subject to flooding, and shall require site-specific hydrologic studies for future development to determine flooding potential for other areas.

9. Future development proposals shall be required to submit a hydrology study and mitigation plan which conforms to the Apple Valley Master Plan of Drainage or the Apple Valley West/Desert Knolls Master Plan of Drainage and other regional and local requirements, policies, and programs.

10. All new development shall be required to incorporate, at the developer's expense, adequate flood control mitigation, such as grading that prevents adverse drainage impacts to adjacent properties, on-site retention of runoff, and the adequate siting of structures located within flood plains and to, as part of project development.

11. Future flood control plans required of developers shall include specific recommendations and/or designs regarding pollution control techniques to be applied to keep pollutants, including herbicides, pesticides, and other hydrocarbons out of surface and groundwaters. Mitigation measures may include specifically designed open space areas such as artificial wetlands where nuisance and otherwise contaminated on-site runoff shall be retained separate from channels conveying off-site flows.

12. Bridging of General Plan roadways within new development projects shall be the responsibility of the developer on whose project the bridge occurs, and shall be included as a condition of approval.

13. Stormwater retention shall be enforced through the development review process and routine site inspection.

14. The Town shall pursue all credible sources of funding and continue to explore County funding, Cobey-Alquist Flood Plain Management Act, other State programs, and Federal funding options for local and regional drainage improvements needed for adequate flood control protection.

15. Capital Improvement Plans for drainage management and control shall be developed, updated and maintained and shall be based upon the Apple Valley Master Plan of Drainage and the Apple Valley West/Desert Knolls Master Plan of Drainage.

16. The Town shall consider the establishment of Fair Share Cost Allocations or Assessment Districts for purposes of funding necessary drainage improvements in particular geographic areas throughout Apple Valley.

17. In conjunction with SBFCD the Town shall coordinate and cooperate in the filing of appropriate FEMA application materials to incrementally secure amendments to the Flood Insurance Rate Maps of the Town, consistent with existing and proposed improvements.

The following Mitigations Measures are from Section I, Water Resources/Quality, pages III-166 through -168 of the 2009 EIR.

Water Conservation

Water conservation is an essential short and long-term resource management strategy, given increasing demands on water supplies in the General Plan area, including the Annexation lands. Efforts to reduce per capita consumption are a priority. The implementation of water-efficient landscaping design and management is among the best conservation opportunities. The Town's Water Conservation Plan ordinance includes water regulations that prohibit wasteful water practices, including washing driveways and walkways with water and excessive runoff of landscape irrigation water and washing driveways , and establishes penalties for violation of these regulations. MWA has established a goal of 10% municipal conservation by 2020. The proposed General Plan recommends that the Town follow the recently adopted MWA UWMP.

The Town will continue its involvement in the Alliance for Water Awareness and Conservation (AWAC). As noted previously, the AWAC has set goals to reduce regional water use by 10% gross per capita by 2010 and by 15% gross per capita by 2015.

General Mitigation Measures

Groundwater depletion and contamination are regional and local issues that affect groundwater subareas, which are not defined by jurisdictional boundaries. Conservation and efficient use of water will continue to be foundational to community planning and development in Southern California. Further, to help assure and optimize long-term natural recharge of the Mojave River Basin and the respective subareas, the region's major mountain watersheds must be protected.

Effective stormwater management can also preserve and protect groundwater quality. The Town has an integral role in the protection and management of this finite, essential resource.

The General Plan update includes a variety of goals, policies, and programs that are intended to provide and maintain a dependable supply of safe, high-quality domestic water to meet the needs of all segments of the community. To reduce potential impacts to water resources associated with implementation of the General Plan and subject Annexations to less than significant levels, the following mitigation measures shall be implemented:

1. The Town shall coordinate and cooperate with the Mojave Water District, the Apple Valley Ranchos Water Company, Golden State Water Company and other water purveyors within the Town to strengthen and expand educational and public relations programs that convey the importance of water conservation and water-efficient landscaping.

2. The Town shall promote, encourage and participate in the development of water management and conservation strategies through the Alliance for Water Awareness and Conservation, the San Bernardino Association of Governments (SANBAG) and its member jurisdictions, as well as the Mojave Water Agency, Apple Valley Ranchos Water Company, Golden State Water Company, and other water purveyors in the Town, on water supply and conservation programs.

3. The Town shall continue to implement its Water Conservation Plan ordinance and comply with State Assembly Bill 325 (AB 325) by limiting turfed areas in new projects, and requiring the use of native and other drought-tolerant planting materials, installing efficient irrigation systems and monitoring existing systems to ensure maximum efficiency and conservation.

4. The Town shall require that all new developments use water conserving appliances and fixtures, including low-flush toilets and low-flow showerheads and faucets. The Town shall require the application of water-conserving technologies in conformance with Section 17921.3 of the Health and Safety Code, Title 20, California Administrative Code Section 1601(b), and applicable sections of Title 24 of the State Code.

5. The Town shall encourage the use of faucets, showerheads and appliances in new development that exceed Title 20 and Title 24 water efficiency requirements.

6. The Town shall require that future development in the General Plan area has an adopted Water Supply Assessment in compliance with AB 610 and 221 prior to approval of development plans.

7. The Town shall actively support and encourage the continuation and expansion of groundwater recharge efforts, and shall confer and coordinate with MWA and AVRWC regarding the possible future use of tertiary treated wastewater as a means of reducing demand for groundwater resources. To the greatest extent practicable, the Town shall

direct new development to provide irrigation systems that are able to utilize reclaimed water, when available, for use in common area and streetscape landscaping.

8. The Town shall consider approaches and mechanisms that facilitate financing and construction of expanded wastewater collection facilities.

9. To the greatest extent practicable, the Town shall continue to require new development to connect to the community sewer system. Where sewer service is not available and lots are created of less than one (1) acre in size, the Town shall require the installation of "dry sewers" and the payment of connection fees for future sewer main extensions.

10. Consistent with community design standards and local and regional drainage plans, the Town shall provide development standards and guidelines for the construction of on-site storm water retention facilities.

11. The Town shall require that the development and maintenance of project-specific on-site stormwater retention/detention basins that implement the NPDES program, enhance groundwater recharge, complement regional flood control facilities, and address applicable community design policies subject to all applicable regulations, standards and guidelines.

12. The Town shall evaluate the potential of all proposed land use and development plans to create groundwater contamination hazards from point and non-point sources. The Town shall confer and coordinate as necessary with appropriate water agencies and water purveyors to ensure adequate review.

13. The Town shall coordinate with Apple Valley Ranchos Water Company, Golden State Water Company, and other water purveyors that serve the Town and its Sphere of Influence to establish/continue incentive programs to encourage that existing development be retrofitted to utilize water conserving fixtures, and landscaping and irrigation materials and controllers.

14. The Town shall restrict the amount of turf planted on all new commercial, industrial, public facilities, multi-family and front yards of single-family residential projects to reduce the amount of water used for irrigation.

15. Irrigation design that reduces overspray and uses conservation techniques shall be required for all new commercial, industrial, public facilities and multi-family projects which will reduce the amount of water used and wasted on irrigation.

16. The Town shall confer and coordinate with the Victor Valley Wastewater Reclamation Authority to explore the possible future provision of recycled/reclaimed wastewater that can serve new and existing development.

17. The Town shall consider incentive programs for the removal of existing turf and replacing the turf with drought tolerant desert landscaping that requires less water.

18. The Town shall proceed with the agreement entered into with the City of Hesperia to design two (2) wastewater reclamation plants that will enable reclaimed water to be used to irrigate Town parks and the Apple Valley Country Club Golf Course.

The following Mitigations Measures are from Section M Public Services, page III-250 of the 2009 EIR.

1. All future development projects shall be subject to review by the Town and the applicable water purveyor to assess their potential impact on local groundwater supplies.

2. The Town and applicable water purveyor shall coordinate for the extension of infrastructure to serve future development in Annexations 2008-001 and 2008-002.

3. The use of drought tolerant landscaping shall be encouraged in public and private development.

4. Future development shall required to conform to standards set forth in Section 17921.3 of the Health and Safety Code, Title 20, California Administrative Code Section 1601(b), and applicable sections of Title 24 of the State Code. These measures include the installation of low-flush toilets, low-flow showerheads and faucets in all new construction.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the impacts associated with hydrology, water resources and water quality from build out of the General Plan and Annexation areas based on the Land Use Element. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development. Therefore, the impacts related to hydrology and water quality as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

A water demand analysis was conducted for two General Plan buildout scenarios. Scenario 1 is buildout of industrial lands under the 2009 EIR, and Scenario 2 is buildout of industrial lands under current land use conditions (2024), including planned industrial projects. Consistent with CEQA requirements for an EIR Addendum, the Project must not result in new or substantially more significant environmental impacts compared with the impacts disclosed in the previously certified EIR. Therefore, Scenario 2 water demands must not exceed Scenario 1 water demands.

<u>Scenario 1: 2009 General Plan Buildout</u>

Table 22 provides the projected water demand for all industrial land uses based on the Town of Apple Valley 2009 General Plan EIR. It accounts for Planned Industrial (IP) zoned lands in the 2009 GP EIR, all lands in the North Apple Valley Industrial Specific Plan (NAVISP) as provided in the

NAVISP, and all industrial zoned lands in Annexation areas 1 and 2 as defined in the 2009 GP EIR. The total acreage of industrial land, as defined in the 2006 and 2009 EIRs, was 7,114.2 acres. The associated water demand was projected based on the industrial water demand factor used in calculating water demand at General Plan buildout, per Table III-34 of the GP EIR.[23]

Based on a total of 7,114.2 acres of industrial lands and a water demand factor of 1.61 acre-feet/acre/year, Table 22 shows the total projected water demand for 2006/2009 conditions.

Table 22
Scenario 1: Projected Total Water Demand

LAND USE	ACRES	WATER DEMAND FACTOR	WATER DEMAND (AFY)
General Plan EIR (2009): IP	645.3	1.61 acre-feet/acre/year	1,038.93
NAVISP	4,855.8		7,817.83
Annexation Area 2008-001 &-002	1,613.1		2,597.09
Total GP Acreage	**7,114.2**	**1.61 acre-feet/acre/year**	**11,453.85**

Source: Industrial factor based on Coachella Valley Water District (CVWD) (2004) factor for Commercial and Industrial parks, based on 35% return flow. Source: Water System Backup Facilities Charge Study, prepared by Engineering Dept, Coachella Valley Water District, Sept 2004.

As shown in the above table, the total industrial area accounted for in the 2009 EIR are estimated to generate demand for 11,453.85 acre-feet of water per year.

Scenario 2: Current (2024) Developed, Vacant, and Planned Development

Table 23, 24 and 25 provide the projected water demand for all existing, vacant, and planned industrial uses within the Town of Apple Valley in 2024. According to GIS parcel data there are 6,575.6 acres of existing and planned industrial lands in the Town. Based on this acreage, there is a total of 60,996,260 square feet of industrial buildings possible on both the IP and NAVISP designated lands. For existing industrial developments, total square footage is based on GIS measurements of each building footprint. For vacant industrial lands, a potential site coverage of 22 percent is assumed, as described in Section 1. For planned industrial projects, the square footage provided in the project application materials is used.

Water demand for 2024 conditions was calculated using separate demand factors for indoor, industrial water use and outdoor landscape irrigation water use. Based on an indoor demand factor of 3.4 gallons per square foot per year from the U.S. Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey, Table 23 shows the water demand projected for the 60,996,260 square feet of current and future industrial building area within the Town limits, based on the 2024 Industrial Lands Build Out established in Table 1.

[23] Town of Apple Valley, General Plan and Annexations 2008-001 & 2008-002/Environmental Impact Report (August 2009), Table III-34 Estimated Future Water Service Demands at General Plan Build Out.

Table 23
Scenario 2: Indoor Commercial and Industrial Water Demand

Planning Area	Indoor Area (ft^2)	Water Demand Factor(gal/SF/year)[1]	Water Demand (gpd)	Water Demand (AFY)
Total IP 2024	6,909,972	3.4	64,366.86	72.10
Total NAVISP 2024	54,086,288	3.4	503,817.47	564.35
TOTAL	**60,996,259.65**	**--**	**568,184.34**	**636.45**

[1] Source: warehouse water demand factor from U.S. Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey, Water Consumption in Large Buildings Summary. The warehouse water demand factor was used because it was the category that most accurately described general industrial land uses. Separate factors were not available for "general industrial" or "industrial park" uses.

Water demand associated with landscaped area was calculated assuming that 15 percent of total lot area would be landscaped.[24] Reference evapotranspiration, evapotranspiration adjustment factor, and conversion factors used to calculate water demand are based on the Town of Apple Valley Water Conservation/Landscaping Regulations (Ordinance No. 479). Based on these parameters, Table 24 provides the projected water demand associated with the estimated 42,964,970 square feet of existing and future landscaped area on industrial sites based on the 2024 Industrial Lands Build Out established in Table 1.

Table 24
Scenario 2: Outdoor Irrigation Water Demand

Planning Area	Landscaped Area (ft^2)	ETo (in/yr)[1]	ETAF[2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
Total IP 2024	4,817,518.20	66.2	0.45	0.62	243,776.98	273.07
Total NAVISP 2024	38,147,452.20	66.2	0.45	0.62	1,930,344.69	2,162.26
TOTAL	**42,964,970.4**	**--**	**--**	**--**	**2,174,121.67**	**2,435.33**

[1] Reference Evapotranspiration (ETo) from Town of Apple Valley Ordinance No. 479.
[2] Evapotranspiration Adjustment Factor (ETAF) from Town of Apple Valley Ordinance No. 479.
[3] Conversation Factor from Town of Apple Valley Ordinance No. 479.

As shown in Table 25, the existing, vacant, and planned industrial projects in the Town of Apple Valley are estimated to have a total water demand of 3,071.78 acre-feet per year including indoor and outdoor irrigation demand for build out of the 2024 Industrial Lands Build Out established in Table 1.

[24] The Town of Apple Valley General Plan EIR does not provide an assumed landscaped area for industrial sites, and the Town of Apple Valley Development Code does not provide a landscape are requirement based on total lot coverage. Therefore, landscaped area is assumed based on §83.10.060 of the San Bernardino County Development Code, which requires that landscaped area must be 15% of total lot area for industrial/warehouse developments.

Table 25
Scenario 2: Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Total IP 2024	737.30	72.10	273.07	345.17
Total NAVISP 2024	5,838.30	564.35	2,162.26	2,726.61
TOTAL	**6,575.60**	**636.45**	**2,435.33**	**3,071.78**

Comparison of Scenario 1 and Scenario 2

As shown in Table 22, the industrial lands accounted for in the 2009 GP EIR and 2006 NAVISP EIR would generate demand for 11,453.85 acre-feet of water per year. As shown in Table 25, the 2024 estimate of existing, vacant, and planned industrial projects would generate demand for 3,071.78 acre-feet of water per year. The current estimate of industrial lands and associated water demand therefore represents a 73 percent decrease from the water demand estimated for 2009 EIR conditions. This decrease is primarily due to the more recent water demand factors, which are based on currently approved methodologies for calculation.

Analysis of the Proposed Project

The Project proposes a 1,373,150 square foot distribution warehouse building to be located on 90 acres of currently vacant, undeveloped land. The Project site is located within the FEMA Zone D (area in which flood hazards are undetermined) and outside a 100-year flood zone (Apple Valley General Plan Exhibit IV-4).

Drainage and Stormwater Management

A project-specific Preliminary Hydrology Study was prepared by Merrell Johnson Companies in January 2024 (Appendix H).

The Hydrology Study reported tributary off-site flows enter the site as sheet flows along the site's eastern boundary. On-site runoff flows will be intercepted within two drainage grate and storm drain systems within the on-site parking areas. These flows will be conveyed through the Project site and into two separate vortex pre-treatment systems which will outlet into a retention basin located along the southern boundary of the project. The retention basin will be approximately 150,000 square feet and approximately 4 feet in depth, to accommodate 220,000 cubic feet of storm flow with freeboard. Treated on-site runoff will be allowed to infiltrate within the retention basin. Off-site runoff and on-site runoff flows will not comingle. The increased on-site runoff flow due to development of the site will flow to the retention basin along the southern frontage of the project and allowed to infiltrate.

Water Resources/Demand

A Water Supply Assessment was prepared for the Project by Terra Nova Planning and Research in December 2023 (Appendix I). The proposed industrial building will include approximately 1,319,390 square feet of warehouse area, and 53,760 square feet of supporting office space. During construction, water use will be temporary and limited to site watering as required by the Project dust control plan (MDAQMD Rule 403), and the water would return to the aquifer via absorption. The projected indoor commercial (office) operational water usage factor is based on the American Water Works Associated Research Foundations (AWWARF's) Commercial and Industrial End Uses of Water. The operational water demand factor for the proposed warehouse area is based on the factor of 3.4 gallons per square foot per year provided in the U.S. Energy Information Administration 2012 Commercial Buildings Energy Survey. As shown in Table 26, the total projected indoor commercial and industrial water demand for the Project is projected to be 19.54 AFY.

Table 26
Project Indoor Commercial and Industrial Water Demand

Use	Indoor Area (ft^2)	Water Demand Factor(gal/SF/year)[1]	Water Demand (gpd)	Water Demand (AFY)
Office	53,760	35	5,155.07	5.77
Warehouse	1,319,390	3.4	12,290.21	13.77
TOTAL	**1,373,150**	**--**	**17,445.28**	**19.54**

[1] Office water demand factor from AWWA Commercial and Industrial End Uses of Water; Warehouse water demand factor from U.S. Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey, Water Consumption in Large Buildings Summary.

The projected outdoor irrigation water usage is based on the Maximum Applied Water Allowance (MAWA) equation from the Town of Apple Valley Ordinance No. 479, which is compliant with the Department of Water Resources Code of Regulations Title 23, Division 2, Chapter 2.7 "Model Water Efficient Landscape Ordinance". The projected outdoor irrigation water demand for the Project is 45.59 AFY as shown in Table 27 below.

Table 27
Project Outdoor Irrigation Water Demand

Planning Area	Landscaped Area (ft^2)	ETo (in/yr)[1]	ETAF[2]	Conversion Factor (gal/ft^2)[3]	Water Demand (gpd)	Water Demand (AFY)
Landscaping	669,235	66.2	0.45	0.62	13,036.14	37.93
Detention	135,036	66.2	0.45	0.62	6,833.12	7.65
TOTAL	**804,271**				**19,869.25**	**45.59**

[1] Reference Evapotranspiration (ETo) from Town of Apple Valley Ordinance No. 479.
[2] Evapotranspiration Adjustment Factor (ETAF) from Town of Apple Valley Ordinance No. 479.
[3] Conversation Factor from Town of Apple Valley Ordinance No. 479.

Table 28
Project Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Warehouse	30.29	13.77		13.77
Office	1.23	5.77		5.77
Landscaping	5.91		37.93	37.93
Detention	3.10		7.65	7.65
Hardscape	49.61			0.00
TOTAL	**90.15**	**19.54**	**45.59**	**65.13**

As shown in the table, above, the total projected water demand for the Project is 65.13 AFY, which accounts for approximately 1.69 percent of Liberty Utilities' total planned increases in demand of 3,881 AF by 2045. The WSA approved by the water purveyor demonstrates that sufficient water supplies will exist to meet the projected demands of the Project, in addition to current and future water demands within Liberty Utilities' service area in normal, single-dry, and multiple-dry years over a 20-year projection. This WSA has been prepared in compliance with the requirements of SB 610. This WSA does not relieve the Project from complying with all applicable state, county, city, and local ordinances, and performance standards provided in the CWC, which are designed to reduce water consumption to the greatest extent possible.

Based upon a comprehensive review of the Liberty Utilities 2020 Urban Water Management Plan and the approved Water Supply Assessment prepared for the Project, which found that Liberty has sufficient water supplies to serve the Project in normal, single dry and multiple dry years, it will not substantially decrease groundwater supplies or interfere with groundwater recharge, nor will it otherwise substantially impede sustainable groundwater management of the basin serving the Project and area. Impacts will be less than significant.

Water Quality

A project would normally have a significant impact on surface water quality if discharges associated with its development would create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code (CWC) or would cause regulatory standards to be violated, as defined in the applicable National Pollution Discharge Elimination System (NPDES) stormwater permit or Water Quality Control Plan for the receiving water body. The proposed Project site is located in the Apple Valley Dry Lake watershed which drains into the terminal Apple Valley Dry Lake located approximately two miles to the south. All water providers in the watershed, including Liberty Utilities, are required to comply with the State Regional Water Quality Control Board (SWRCB) standards for the protection of water quality.

Town and Regional Water Quality Control Board reviews will ensure that construction and operational best management practices (BMPs) satisfy local, state, and federal standards. In addition, the Town will require preparation of a Storm Water Pollution Prevention Plan (SWPPP) in conformance with the National Pollutant Discharge Elimination System (NPDES) prior to the issuance of grading permits.

A final Water Quality Management Plan will be prepared for the proposed Project. The Project will be required to connect to the existing municipal sewer system in compliance with applicable standards that minimize impacts to regional groundwater quality. The implementation of existing regulations and standards will ensure that development in the Project will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Impacts are expected to be less than significant.

Summary of Impacts

Implementation of the proposed Project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed in the EIR. Development of the site would increase the amount of impervious surfaces in the Town under both existing and proposed buildout scenarios. The Project will be required to comply with all Town regulations under the MS4 permit, including the implementation of Best Management Practices and erosion control to prevent surface and ground water pollution. Buildout of the site is required to comply with applicable regulations, and policies set forth in the General Plan on protection of local hydrology and water quality. Implementation of the same regulatory framework and policies as analyzed in the EIR will ensure that overall impacts are similar to those previously identified in the EIR. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts identified in the EIR.

3.9. LAND USE PLANNING, POPULATION AND HOUSING

Summary of Findings in the 2009 EIR (Section III.J, page III-169 et.seq.)

Land Use

The EIR described the previous General Plan land use allocations and compared them to the proposed 2009 General Plan update. Prior to the 2009 update, the previous General Plan for the Town of Apple Valley allocated land uses for all incorporated areas, resulting in a total potential 50,053 residential units 28,608,875 square feet of commercial land uses, and 37,848,814 square feet of industrial land uses at build out. Buildout of Annexation 2008-001 under the previous land use designations would result in a total of 2,067 residential units and 53,192 square feet of commercial space. Buildout of Annexation 2008-002 under the previous land use designations would result in a total of 398 residential units and 3,101,376 square feet of industrial space.

Build out of the 2009 General Plan and Annexation areas would result in an increase in residential units, commercial and industrial square footage. The 2009 General Plan included 34,576.6 acres of residentially designated lands within the existing Town limits, and 1,091.6 acres in the Annexation areas, for a total of 35,668.2 acres of residentially designated lands within the planning area. This represented a decrease of 4,213.6 acres in residential lands, or 10.6 increase. The 2009 General Plan also resulted in a total of 63,749 dwelling units, 59,513 of which would occur within the Town, and 4,236 in Annexation 2008-001. This represented an increase of 11,230 residential units, or an increase of 21.4 percent over the previous General Plan residential units due to increased residential densities.

The 2009 General Plan update resulted in a total of 51,860,766 square feet of commercial space, or 23,198,699 square feet more than under the previous General Plan designations. 7,135,369 square feet of this increase occurred in Annexation 2008-001. In total, 2009 General Plan commercial square footage increased by 81% over the previous General Plan designations.

The 2009 General Plan and Annexations resulted in a total of 58,051,428 square feet of industrial space, an increase of 17,101,238 square feet over the previous General Plan potential. Almost all of this increased industrial space occurred in the Annexation areas (14,929,042 square feet).

The 2009 General Plan and Annexations also resulted in an increase from 324.7 to 472.5 acres in Public Facility land uses, primarily associated with the addition of schools and other previously undesignated public lands in the previous General Plan; and an increase from 3,013.6 to 3,053.9 acres in Open Space lands.

The EIR determined the changes in the land use pattern within the General Plan area would not be significant, and would not significantly affect the pattern of development which has already occurred.

Annexation 2008-001 was found to experience the greatest change in land use patterns. The 2009 land use plan for Annexation 2008-001 increased residential densities and added 773 acres of commercially designated lands, and 812.1 acres of industrial designated lands that were previously designated Rural Living. The EIR determined that the character of the existing rural residential development in this annexation area would be changed significantly by the 2009 land use designations. Although the General Plan included policies and programs designed to provide buffers between residential and non-residential uses, and the Town's Development Code included standards to protect surrounding residential development, the EIR determined that changes in land use designations could not be mitigated to less than significant levels. As a result, the anticipated changes in land use designations within Annexation 2008-001 were declared significant and unavoidable, as they relate to land use.

Annexation 2008-002 was vacant in 2009 and was previously designated for a mix of rural residential and industrial land uses. The 2009 General Plan update resulted in all lands being designated industrial. Because the lands in this annexation were vacant, and the area was bordered on the west by lands designated for industrial development, the EIR determined the land use designations proposed under Annexation 2008-002 would have no impact on the character of the area.

Population

The 2009 EIR described the buildout population of the previous General Plan and compared it to the 2009 General Plan update. The previous General Plan would result in a build out population of 152,813 within Town limits, based on a 2008 Department of Finance household size of 3.053 persons per household. Buildout of Annexations 2008-001 and 2008-002 under the previous land use designations would result in a build out population of 6,459 persons and 1,245 persons, respectively, based on a 2008 Department of Finance household size of 3.125 persons per household in unincorporated San Bernardino County.

The 2009 EIR determined the proposed land use changes, specifically the increase in Medium Density Residential land uses in the 2009 General Plan update, would increase the build out population from 160,517 to 194,931 residents within the General Plan area, including both Annexation areas. Less than significant impacts were expected.

Summary of Impacts

The 2009 General Plan and annexations resulted in an increase in residential units, commercial and industrial square footage. Within the existing Town limits, the EIR determined the changes in the land use pattern within the General Plan area would not be significant, and would not significantly affect the pattern of development which has already occurred.

Annexation 2008-001 was found to experience the greatest change in land use patterns. The 2009 land use plan for Annexation 2008-001 increased residential densities and added 773 acres of commercially designated lands, and 812.1 acres of industrial designated lands that were previously designated Rural Living. The EIR determined that the character of the existing rural residential development in this annexation area would be changed significantly by the 2009 land use designations. Although the General Plan included policies and programs designed to provide buffers between residential and non-residential uses, and the Town's Development Code included standards to protect surrounding residential development, the EIR determined that changes in land use designations could not be mitigated to less than significant levels. As a result, the anticipated changes in land use designations within Annexation 2008-001 were declared significant and unavoidable, as they relate to land use.

Annexation 2008-002 was vacant in 2009 and was previously designated for a mix of rural residential and industrial land uses. The 2009 General Plan update resulted in all lands being designated industrial. Because the lands in this annexation were vacant, and the area was bordered on the west by lands designated for industrial development, the EIR determined the land use designations proposed under Annexation 2008-002 would have no impact on the character of the area. The impacts associated with land use in Annexation 2008-002 were found to be insignificant.

Mitigation Measures

The General Plan includes policies and programs to address and mitigate land use incompatibilities. Even with these policies and programs, however, the impacts associated with land use in Annexation 2008-001 will remain significant and unavoidable. The following mitigation measures are offered to help reduce impacts to the extent possible (page III-184 of 2009 EIR).

1. Individual project proposals, especially those involving a mix of residential and other uses, as well as those located near sensitive lands or uses, shall be fully evaluated during the project review process to assure that all land use compatibility issues are addressed and mitigated.

2. Development in currently undeveloped areas shall be controlled to assure that adequate infrastructure, including roadways, water and wastewater systems.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed the land use, population and housing impacts associated with build out of the General Plan and Annexation areas based on the Land Use Element. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses, and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. Residential uses are not permitted on industrial lands, therefore there would be no direct impacts to population or housing. Overall, the impacts related to land use, population and housing as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The proposed Project would result in the development of a warehouse distribution center providing 1.37± million square feet of building area in a single building.

Land Use Planning

The proposed use is permitted under the NAVISP and is consistent with that plan's development standards and guidelines. Development of the proposed Project will be in accordance with the General Plan guidelines, Municipal Code, and other applicable regulations. The Project also provides and adds to planned local infrastructure, including improvements to existing roadways, the improvement of currently unpaved roadways, and connection to the local sewage collection/treatment system.

The Project site is vacant and undeveloped and surrounded by vacant lands designated for industrial uses. The nearest existing industrial use occurs approximately 1,400 feet south of the Project, on the east side of Dachshund Avenue. Buildout of the Project site will not physically divide an established community.

Population and Housing

According to the 2020 Census, Apple Valley had a population of 75,789 in 2020.[25] In 2023, Apple Valley has an estimated population of 74,996 people.[26] The Southern California Association of Governments (SCAG) projects that the Apple Valley population will reach 101,400 by 2045, representing approximately 35.2 percent growth beyond the Town's 2023 population.[27]

According to the California Employment Development Department, the Town of Apple Valley has an estimated labor force of 30,900 people in 2024, and an unemployment rate of 6.4 percent. San Bernardino County is estimated to have an unemployment rate of 5.4 percent in 2024.[28]

---

[25] United States Census Bureau, Population Estimates https://www.census.gov/quickfacts/fact/table/applevalleytowncalifornia/PST045221 (Accessed April 2024).

[26] Table E-5 Population and Housing Estimates for Cities, Counties, January 2021-2023. California Department of Finance.

[27] Southern California Association of Governments, Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS).

[28] California Employment Development Department, Labor Force and Unemployment Rate for Cities and Census Designated Places – January 2024.

In 2018, the three industries employing the most residents in Apple Valley were 'educational services, health care, social assistance' (24.6 percent), 'retail trade' (15.9 percent), and 'transportation, warehousing, utilities'(10.3 percent).[29] According to the Housing Element, only 16.6 percent of the Town's population works in Apple Valley, with the remaining 83 percent of employed residents commuting to work elsewhere, suggesting a possible jobs-housing imbalance in the Town.[30]

The Town's housing stock comprises 27,077 dwelling units, 76.8 percent of which are single-family detached units.[31] As cited in the 2021-2029 Housing Element Update, Apple Valley had 1,958 units of vacant housing in 2022.

The proposed Project would not directly induce growth through the building of new homes. However, the jobs generated by the Project may induce growth by attracting new residents to the Town. According to the Southern California Association of Governments (SCAG), the employment density factor for warehouse uses is 1 employee per 1,195 square feet.[32] Applying this factor, the proposed 1,373,150 square foot warehouse distribution facility would generate approximately 1,150 jobs.

While the jobs generated by the Project could require that additional housing in the Town be built at a faster rate than previous years, this accelerated growth should not be considered unplanned. The Town estimated that buildout of the 2009 General Plan would support the creation of an addition 60,877 housing units.[33] There have been no changes in the residential development patterns, and development is expected to occur in similar densities. Given that planning at the local level has anticipated increased population growth in the Town, the Project is unlikely to induce substantial unplanned growth in the area. Furthermore, with the existing demand for more local jobs, and the ability for neighboring jurisdictions to share the provision of housing, impacts are anticipated to be less than significant.

Summary of Impacts

Implementation of the proposed Project would not result in any new significant impacts or increase the severity of a previously identified significant impact as previously analyzed in the EIR. Overall impacts are expected to be similar to those previously identified in the EIR. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the EIR.

---

29 Town of Apple Valley Housing Element (August 2022), Table 6, Employment by Industry.

30 Ibid., p.22.

31 Ibid., p. 26.

32 Employment Density Study Summary Report, Southern California Association of Governments. Prepared by The Natelson Company Inc. October 31, 2001.

33 Town of Apple Valley General Plan, Community Development, p. II-12.

3.10. MINERAL RESOURCES

Summary of Findings in the 2009 EIR (Section III.K, page III-185 et.seq.)

Background

The 2009 EIR described mineral resources within the planning area. Mineral resources located within the Town and Sphere of Influence are found primarily along or near the Mojave River or in the surrounding mountains, and include sand, gravel and stone deposits that are suitable as sources of concrete aggregate. The 2009 General Plan included policy which requires the Town to establish formal relationships with county and state agencies to assure the long term protection of quarries, and their proper reclamation.

Impacts to Mineral Resources

According to the 2009 EIR, the Town of Apple Valley had designated 452.5 acres as mineral resource land use. Of this, approximately 111.56 acres were developed for mining and processing of aggregate materials, and an additional 340.95 acres were designated for the use and production of mineral resources. The EIR found mining activities may be incompatible with surrounding land uses, as for example, dust, noise, and heavy truck traffic may create conflicts with residential and commercial uses. The designation of mineral resources land use therefore had some impact on the potential uses of adjacent lands and development proposals could be submitted to the Town that may generate land use conflicts with aggregate and limestone quarries. However, the 2009 EIR determined that thoughtful application of the Town's land use policies, and adherence to the following mitigation measures, would reduce potential impacts from adjacent conflicting land uses to less than significant levels.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impacts resulting from mineral resource extraction to acceptable levels (page III-190 to -191 of 2009 EIR).

1. The Town will allow aggregate, limestone and other mineral resource extractions only in cases where all residual hazards to public health and safety are effectively mitigated.

2. Development proposals adjacent to lands designated for Mineral Resources shall be reviewed to assure the inclusion of adequate buffering.

3. The Town shall cooperate with the Mojave Desert Air Quality Management District to ensure mineral extraction operations' compliance with air quality standards.

4. The Town shall coordinate closely with San Bernardino County and the State Department of Mines and Geology to assure that reclamation plans are current and adequately implemented at existing mining operations.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed impacts to mineral resources associated with build out of the General Plan and annexation areas based on the Land Use Element. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses, and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. Therefore, the impacts related to mineral resources as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The proposed distribution warehouse is a permitted use under the industrial land use designation for the site in the 2009 General Plan and NAVISP. The Project does not propose mining activities and there are no mining land uses or activities in the vicinity. The development of the site will be in accordance with the requirements of the General Plan, Town Development Code, and other applicable regulations.

Implementation of proposed Project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed in the EIR. Overall impacts are expected to the same those previously identified in the EIR. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

3.11. NOISE

Summary of Findings in the 2009 EIR (Section III.L, page III-192 et.seq.)

Background

The 2009 EIR described the existing noise environment in Town as generally quiet. The primary noise source was found to be traffic noise, particularly on I-15 and SR-18, as well as that emanating from major arterial roadways. Noise generated by aircraft at the Apple Valley Airport was also a source of noise in the Town's northeastern section, and rail lines in the south end of Town and along Quarry Road also generated noise within the General Plan boundary and the Annexation areas.

The 2009 EIR identified the Community Noise Equivalent Level (CNEL) as the noise metric most commonly used in General Plan evaluations and standards, a method which averages noise levels over a 24 hour period by weighting evening and nighttime noise to account for the added sensitivity of receivers during these time periods. CNEL was identified as the standard used by the Town to measure noise compatibility in the General Plan. As shown in Table 29, for industrial noise levels, the CNEL scale identified 50 to 70 dBA CNEL as normally acceptable, 65 to 75 dBA CNEL as conditionally acceptable, and 70 to 80 dBA CNEL as clearly unacceptable for these land uses.

Table 29
Land Use Compatibility for Community Noise Environments

Land Uses	CNEL (dBA)						
	50	55	60	65	70	75	80
Residential – Single family dwellings, duplex, mobile homes	A						
		B					
					C		
						D	
Residential – multiple family	A						
			B				
					C		
						D	
Transient lodging: hotels and motels	A						
			B				
					C		
							D
School classrooms, libraries, churches, hospitals, nursing homes and convalescent hospitals	A						
			B				
					C		
							D
Auditoriums, concert halls, amphitheaters	B						
				C			
Office buildings, business, commercial, professional	A						
					B		
					D		
Industrial, manufacturing, utilities, agriculture	A						
					B		
						D	

Source: Town of Apple Valley General Plan (2009) Noise Element Table IV-4 Land Use Compatibility for Community Noise Environments.
A = Normally Acceptable: With no special noise reduction requirements assuming standard construction
B = Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.
C = Normally Unacceptable: New construction is discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
D = Clearly Unacceptable: New construction or development should generally not be undertaken.

The 2009 EIR also addressed the Town's Noise Ordinance, which establishes standards for exterior noise limits at 70 dBA for light industrial uses and 75 dBA for heavy industrial uses for a period of 30 minutes within an hour as the limit of permissible noise. The Noise Ordinance also

established an exemption from noise for construction activities occurring between 7 AM and 7 PM weekdays and Saturdays.

Noise monitoring was conducted for the General Plan EIR to establish ambient noise levels, including both short-term and 24 hour noise levels at multiple locations. Four 24 hour monitoring locations were identified, and 30 short-term locations were monitored. Noise levels ranged from 60.5 dBA CNEL to 69.7 dBA CNEL at the 24 hour count locations, with the highest noise levels identified at Apple Valley Road and Yucca Loma Road.

Seven of the 30 short-term monitoring locations were in the northern portion of Town, in and around the NAVISP and the Annexation areas. At these locations, noise levels ranged from 58.0 dBA CNEL to 63.1 dBA CNEL, with the monitoring location immediately south of the centerline of Quarry Road, in the immediate vicinity of the Project site registering 62.6 dBA CNEL (see Table III-48 in the 2009 EIR).

The 2009 EIR also estimated ambient noise levels along Town roadways. In the northern section of Town, the 65 dBA noise contour was identified within the right of way along Central Road north of Lafayette Street, on Dale Evans Parkway south of Quarry Road, and on Stoddard Wells Road between Quarry Road and Dale Evans Parkway, indicating a quiet noise environment below Town noise standards in this area.

Excessive Noise Beyond Noise Standards

Permanent Noise Increases

The 2009 EIR considered noise levels at General Plan build out, and found that noise levels would increase substantially over the ambient noise levels at the time, particularly along major Town roadways. In the northern section of Town, the 65 dBA CNEL noise levels would occur 242 feet from centerline on Central Road north of Lafayette Street; 402 feet from centerline at Dale Evans Parkway south of Quarry Road; and 258 feet from centerline on Stoddard Wells Road between Quarry Road and Dale Evans Parkway (see Table III-50), representing increases of 14.2 dBA, 12.0 dBA and 11.0 dBA respectively. Noise levels on Quarry Road east of Navajo Road were predicted to be 68.7 dBA CNEL at 100 feet from centerline (Table III-51).

Overall increases were determined to be significant, and required mitigation. Mitigation Measures 6, 7 and 8, which required the preparation of site-specific noise analyses for projects proposed adjacent to residential land uses, the siting of sensitive receptors away from noise generators, and the routing of traffic to major roadways to preserve residential neighborhoods' quiet environment, respectively.

The 2009 EIR also analyzed the location of truck routes, and found that the majority of these routes were proposed in the area of the NAVISP, where land uses are proposed to be industrial and commercial, and thus less sensitive. Less than significant impacts were identified for truck routes.

Although no substantial change in rail traffic volume was anticipated as a result of General Plan build out, due to their being private rail lines for specific users, rail noise impacts were analyzed, and rail volume assumed to double by General Plan build out, to provide a conservative analysis. The results found that for the rail line adjacent to Quarry Road, noise levels of 49 dBA CNEL at 100 feet would be expected 4 to 8 times a day at build out of the General Plan. This level is below the Town's acceptable noise standards for all land uses.

Temporary Noise Increases

The 2009 EIR found that heavy construction equipment can generate noise levels of up to 100 dBA at 100 feet from the source, and that noise levels decrease at a rate of about 6 dBA with every doubling of distance. The 2009 EIR also found that noise reducing methods were available to reduce construction noise impacts, particular that noise generated adjacent to sensitive receptors. The 2009 EIR included Mitigation Measures 10 through 12, which required that construction equipment be equipped with mufflers, that stationary equipment be located away from sensitive receptors, and that construction hour limitations be enforced, respectively. The EIR found that with the implementation of these mitigation measures, construction impacts associated with build out of the General Plan would be reduced to less than significant levels.

Airport or Airstrip Noise Impacts

The 2009 EIR determined that there were no private airstrips in the General Plan area, but that the Apple Valley Airport would generate noise in the NAVISP area. The 2009 EIR analyzed the findings of the Airport's expansion plans, and found that the 65 and 60 dBA CNEL noise levels were all contained within the Airport property. In addition, the land uses proposed around the Airport in the NAVISP were less sensitive commercial and industrial uses. The 2009 EIR concluded that the Apple Valley Airport would have less than significant impacts on the Town's noise environment.

Mitigation Measures

The following Mitigation Measures shall be implemented within the General Plan area to ensure the reduction of potential noise impacts to less than significant levels. Additional site-specific noise mitigation measures may also be required as appropriate for future development.

General Mitigation Measures

1. The Town shall continue to maintain and enforce its noise ordinance to ensure that noise impacts throughout the General Plan area are maintained at acceptable levels.

2. The Town shall continue to require that all project designs comply with Title 25 (California Noise Insulation Standards) by ensuring that interior noise levels for residential development do not exceed 45 dBA.

3. Final site plans for all proposed development projects in the General Plan area shall consider potential noise impacts, including residential site-orientation to shield outdoor living areas, incorporating additional setbacks from roadways, and constructing additional noise barriers where necessary.

4. All development shall be designed to include and comply with requirements of State Code for lateral and vertical unit-to-unit airborne sound isolation. For multi-family residential and hotel development, design shall include vertical impact sound isolation.

5. Project-specific development shall prepare construction drawings to determine exact specifications for window glass in buildings with unshielded first and second story windows.

6. The Town shall require an acoustical analysis for all commercial and industrial projects that are proposed adjacent to residential land uses or land use designations. The acoustical analysis shall evaluate potential noise impacts of the project and provide mitigation measures that are adequate to meet Town noise standards for residential land uses.

7. Sensitive receptors, which include schools, libraries and hospitals, shall, to the greatest extent feasible, be located always from major noise generators.

Off-Site Traffic Noise

8. The Town shall encourage a planning area-wide circulation pattern that loads primary traffic onto major arterials in order to limit local roadway traffic to the greatest extent feasible and thereby preserve local neighborhood noise environments.

9. The Town shall evaluate and monitor noise impacts associated with the addition of bus routes and bus stops near noise sensitive uses, in particular stops to be located along collector and local roads.

Construction Noise

10. All construction equipment operating in the General Plan area shall be equipped with properly operating and well-maintained mufflers to limit noise emissions.

11. To the greatest extent feasible, earth moving and hauling routes, and stockpiling and vehicle staging areas shall be situated away from existing residences.

12. Construction activities shall be conducted in compliance with the Town's Noise Ordinance to ensure that acceptable noise levels are achieved during sensitive time periods.

On-Site Stationary Noise Sources

13. Mechanical equipment for various buildings within the General Plan area shall be designed, selected and placed in consideration of the potential noise impacts on nearby residences within any development and in the surrounding community.

14. Appropriate sound barriers shall surround all public facilities generating disturbing levels of noise, such as water pumping stations.

15. Outdoor equipment such as cooling towers, air cooled condensers and refrigeration compressors and/or condenser units, as well as at air intake and discharge openings for building ventilation systems, shall be provided with silencers and/or barriers at or surrounding them, where necessary.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The noise levels associated with build out of the NAVISP and I-P designations in the General Plan are expected to be consistent or slightly reduced from that identified in the General Plan and its EIR, primarily due to the reduction in overall square footage and associated vehicle trips. These reductions will translate to less traffic noise on area roadways, and reduced noise from stationary sources such as HVAC units. In addition, the noise levels identified for the NAVISP and I-P land areas in the 2009 EIR all are expected to experience noise levels below the maximum conditionally permissible level of 75 dBA CNEL for industrial uses, as described in Table III-51 of the 2009 EIR. As a result, the mitigation measures provided in the 2009 EIR are sufficient and applicable to the proposed Project and all development projects in these areas to reduce impacts to less than significant levels.

Analysis of the Proposed Project

The proposed Project occurs on an Secondary roadway, south of Quarry Road and its associated rail line, in an area planned for industrial land uses. Lands within the NAVISP surround the Project site on all sides. There are no residential land use designations in the vicinity of the Project site, and therefore no sensitive receptors possible in the future. The closest existing residential unit is located approximately 1,400 feet west of the Project site on Cordova Road.

Excessive Noise Beyond Noise Standards

As described above, the current noise levels immediately south of Quarry Road are 62.6 dBA CNEL in the vicinity of the proposed Project. Anticipated noise levels from the rail line adjacent to Quarry Road and the proposed Project at General Plan build out are expected to be 49 dBA CNEL at General Plan build out.

The Town's standard for exterior noise levels at industrial land uses is up to 75 dBA CNEL.

Permanent Noise Increases

Operation of the proposed Project would occur within the enclosed building, with the exception of traffic movement, parking lot vehicle movements, as well as truck loading and unloading at designated loading bays. The Project building is proposed to be located 309 feet east of Dachshund and 397 feet north of Cordova. HVAC units would be located on the roof of the proposed building and would be screened by a 4 to 7 foot parapet. The parapet would be sufficiently tall to exceed the height of typical commercial HVAC and refrigeration units, and would block these units from line of sight from adjacent properties.

As described above, the 2009 EIR determined that the noise levels at build out of this area of the NAVISP would result in noise levels along Quarry Road east of Navajo Road at 68.7 dBA CNEL at 100 feet from centerline. Given the land use distribution in the area, the large-lot configuration

of parcels along Cordova Road, and the "dead end" of Dachshund Avenue which precludes through traffic and its associated increased noise levels at the Project location, noise levels in this area are expected to be consistent with those predicted for Quarry Road. Within 100 feet of the centerline of Cordova and Dachshund, the only Project improvements will be landscaping and parking lots. Workers may be exposed to noise levels between 70 and 65 dBA in these areas, but their presence will be temporary, and the noise levels are acceptable for industrial uses. Impacts associated with noise from area traffic on the Project site are therefore expected to be less than significant.

The Project will generate traffic noise, and increase traffic noise as a result. However, the Project is consistent with the land uses allowed in the NAVISP, and those noise levels were therefore accounted for in the General Plan and its EIR. Noise from Project traffic would therefore contribute to the noise levels anticipated at General Plan build out on adjacent Project streets, and on roadways approaching the Project, including Dale Evans Parkway and Stoddard Wells Road. However, since the land use proposed for the Project is consistent with that analyzed in the General Plan EIR and has therefore been included in the future noise projections for the area, the Project would not increase build out noise levels, and impacts would be consistent with those analyzed in the EIR. Projects developed under the General Plan, including projects along surrounding roadways, will be required to comply with the Town's CNEL standards and Noise Ordinance, to assure that their on-site noise levels would not exceed Town standards. These requirements would be implemented with or without the proposed Project, based on development type and CNEL noise standard. Per Program 1.A.2 in the General Plan, the Town recommends design techniques to alleviate noise including building setbacks, sound walls, and earthen berms. Noise barriers, including walls and berms can provide noise level reductions ranging from approximately 5 dBA to 20 dBA,[34] depending on factors such as size, position, and material. The Project will conform to the Town's standards, and include the required setbacks and berms in the perimeter landscaping.

The Project will also generate noise from stationary equipment such as HVAC units. As described above, these units are proposed to be located on the roof of the building, and will be screened by a solid masonry parapet. Solid walls generally provide up to 20 dBA in noise attenuation, and commercial-grade HVAC units generate about 80 dBA. Therefore, the noise generated by roof-mounted HVAC units would be 60 dBA immediately outside the building envelope, 40 feet above ground. Noise levels from HVAC units at ground level would be further reduced by distance. Therefore, the primary source of stationary noise on the project site will be substantially less than the acceptable 75 dBA level for industrial uses, and impacts will be less than significant.

Town standards and requirements and Project design will assure that impacts associated with Project noise remain less than significant.

Temporary Noise Increases

Construction activities on the Project would include site preparation, grading, excavation, paving, and related activities that may generate elevated noise levels due to the use of heavy equipment.

[34] Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

For analysis purposes, it is assumed that a mix of the following equipment may be used: rubber tire dozers, tractors/loaders/backhoes, excavators, graders, scrapers, cranes, forklifts, generators, welders, pavers and paving equipment, rollers, and air compressors.[35] Data compiled by the US Environmental Protection Agency (USEPA), shown in Table 30, shows the noise generated by common construction equipment.

Table 30
Construction Equipment Noise Levels

Construction Equipment	Noise Level in dBA Leq at 50 Feet[1]
Front Loader	73 - 86
Truck	82 - 95
Saw	72 - 82
Jackhammer	81 - 98
Pump	68 - 72
Generator	71 - 83
Compressor	75 - 87
Concrete Mixer	75 - 88
Back Hoe	73 - 95
Tractor	77 - 98
Scraper/Grader	80 - 93
Paver	85 - 88

Source: US Environmental Protection Agency, Noise from Construction Equipment and Operations, building Equipment and Home Appliances (1971).
[1] dBA = A-weighted decibel; Leq = equivalent energy noise level

The noise levels shown in the above table would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA at 50 feet from a front loader would reduce to 80 dBA at a distance of 100 feet. Given that there are no sensitive receptors closer than 1,400 feet from the Project site, the noise generated by construction would have less than significant impacts on surrounding development.

In addition, the Town Noise Ordinance (§9.73.060(f)) restricts allowable construction hours to between 7:00 AM and 7:00 PM on weekdays (with exceptions). These restrictions, muffling of construction equipment, and other measures, will reduce construction noise impacts on surrounding land uses. Impacts associated with construction will be less than significant.

Airport or Airstrip Noise Impacts

The proposed Project is located northwest of the Apple Valley Airport, 8.380 feet from the northern edge of the closest runway. As described above, the 60 and 65 dBA noise contours for the airport occur entirely within its property boundary. Therefore, the proposed Project will not be impacted by airport noise.

[35] Based on equipment mix used in CalEEMod for air quality analysis (see Appendix B).

Conclusion

Noise generated at and from the Project will not exceed acceptable noise levels for industrial uses. Implementation of the proposed Project would not result in any new significant impacts or increase the severity of a previously identified significant impact as previously analyzed in the 2009 EIR. Overall noise impacts are expected to be similar to those previously identified in the EIR. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the EIR.

3.12. PUBLIC SERVICES AND FACILITIES

Summary of Findings in the 2009 EIR (Section III.M, page III-229 et.seq.)

In this section the 2009 EIR described public services, utilities and service systems in the 2009 General Plan area and the vicinity. The following summaries impacts to schools, libraries, law enforcement, fire protection, health care services, electricity, natural gas, telephone/internet/television, domestic water services, wastewater collection and treatment, and solid waste management.

School Impacts

The Apple Valley Unified School District (AVUSD) is the public school District in the Town of Apple Valley and portions of its Sphere of Influence, including the proposed annexation areas.

The 2009 EIR found implementation and buildout of the General Plan and Annexation areas had the potential to generate a substantial increase in student enrollment in public schools and thereby have a significant impact on AVUSD schools in the area. According to the 2009, AVUSD facilities planning provides for new school sites as population within the District increases, based on tract map approvals within the Town. Further, AVUSD would continue to receive developer's impacts fees for residential, commercial and industrial development. While these measures are expected to minimize impacts to AVUSD schools, the 2009 EIR set forth mitigation measures to ensure that any potential adverse effects to public schools are reduced to less than significant levels

School Mitigation Measures

The following mitigation measures shall be implemented to ensure that impacts to schools in the Apple Valley Unified School District are reduced to less than significant levels (2009 EIR page III-235-236).

1. Statutory school mitigation fees for residential and commercial development shall continue to be assessed to developers.

2. Should developers in the General Plan study area use Mello-Roos or other types of public facilities financing districts, AVUSD shall be included in discussions to determine how the developer may cooperate with the District in its funding mechanism. The following alternatives are available to AVUSD to mitigate significant impacts to District schools:

- Leroy F. Green State School Building Lease-Purchase Law: Under an agreement between the school district and the State of California, this Act provides for construction, reconstruction or replacement of school facilities by the State Allocation Board. Districts with 1) substantial enrollment in year-round schools, 2) the ability to raise a percentage of project costs, and 3) opening a new facility as a year-round school receive first priority for future State funding.

- Lease-Purchase Arrangements: Lease-purchase agreements may be made between school districts and private builders of portable classrooms, as authorized under Sections 39240 and 39290 of the State Education Code. Under this method, school districts can also finance capital outlay. Lease-purchase agreements also provide the benefit of offering long-term financing without the need for voter approval of special taxes or benefit assessments.

- Developer Fees: Assembly Bill 2926 (Chapter 887) was approved by the State Legislature in 1986, authorizing school districts to assess development fees to fund school construction or reconstruction. Currently these fees are $3.60 per square foot of residential construction and $0.47 per square foot of commercial construction. Under Government Code Section 53080, proof of compliance with the school district's resolution may be required prior to issuance of building permits.

- Mello-Roos Community Facilities Act: Government Code Section 55311, et. seq., establishes provisions for this funding option. In order to benefit from this Act, a school district is responsible to initiate proceedings to declare itself a "Community Facilities District" (CFD), which is defined as a government entity created to perform specific activities within set boundaries. It provides for the CFD to purchase, construct or rehabilitate real or tangible property with an estimated useful life of five years or longer.

Library Impacts

The 2009 EIR described the existing library facilities serving the town, which is part of the San Bernardino County Library System. The Newton T. Bass Apple Valley Library is a 19,142 square foot facility located adjacent to Town Hall off of Dale Evans Parkway.

The 2009 EIR determined that an approximately 87,719 square feet of library facilities would be needed to serve the General Plan and Annexation areas build out population. Although development facilitated by the General Plan and the Annexation areas was expected to occur gradually and therefore not result in immediate impacts to County library services, the EIR concluded that impacts would be significant without mitigation.

Library Mitigation Measures

The following mitigation measures will ensure that impacts to libraries are reduced to less than significant levels (2009 EIR page III-237).

1. The Town and the County of San Bernardino shall, by continuing to monitor and evaluate library usage rates and the level of service provided at County libraries in the General Plan area, determine the need for additional services and facilities.

2. In order to determine appropriate mitigation fees necessary to provide adequate library services, the Town shall continue to consult and coordinate with San Bernardino County, and consider the addition of library facilities to Developer Impact Fees in the future.

Law Enforcement Impacts

The 2009 EIR described the Town's contract with the San Bernardino County Sheriff's Department for law enforcement services within the Town limits. To maintain the target ratio of 1 deputy per 1,500 residents at General Plan build out, the EIR determined it would require a total of 130 deputies, which is an increase of 81 deputies as compared with existing (2009) staffing levels. The 2009 determined this was a potentially significant increase in the number of deputies and level of police protection and could result in substantial costs to the Town. Actual demand for police protection will be dependent upon future levels of development, and demand for additional police protection services will increase gradually. Nonetheless, the 2009 EIR set forth mitigation measures to ensure that impacts to police are reduced to less than significant levels

Law Enforcement Mitigation Measures

The following mitigation measures will ensure that impacts to police are reduced to less than significant levels (2009 EIR page III-238-237).

1. New development projects shall be reviewed by the Sheriff's Department to ensure the Department's ability to provide adequate police protection. New developments shall comply with established Sheriff's Department standards.

2. The Town shall continue to monitor Town population and Sheriff's Department staffing levels to insure that sufficient levels of police protection are afforded.

Fire Protection Impacts

The 2009 EIR described the Apple Valley Fire Protection District (AVFPD) services to the Town and unincorporated areas of San Bernardino County. The EIR determined that the increased population from buildout of the 2009 General Plan and Annexation areas would increase demand for fire protection services over current staffing that was commensurate with the previously projected population growth in the planning area. The EIR concluded that without mitigation, build out of the General Plan would result in significant impacts associated with the provision of fire protection services.

Fire Protection Mitigation Measures

The following mitigation measures will reduce impacts associated with provision of fire protection services to less than significant levels (2009 EIR page III-241).

1. The Town shall continue to coordinate closely with the Apple Valley Fire Protection District to assure the timely expansion of facilities and services.

2. The Town and Apple Valley Fire Protection District shall continue to enforce fire codes and other applicable standards and regulations as part of building plan review and conducting building inspections.

3. Industrial facilities that involve the storage of hazardous, flammable or explosive materials shall be sited so as to ensure the highest level of safety in strict conformance with Uniform Fire Code and other applicable codes and regulations.

4. The Apple Valley Fire Protection District shall continue to review new development proposals and evaluate project plans to assure that it can provide adequate fire protection.

5. The Town and Apple Valley Fire Protection District shall coordinate with the Apple Valley Ranchos Water Company, Golden States Water Company, and all other water purveyors serving the General Plan and annexation areas, to ensure adequate water supplies and pressure for existing and proposed development.

Health Care Services Impacts

The 2009 EIR described the existing health care services in the Town, including the St. Mary Medical Center, private practices, and hospitals in the vicinity of the planning area. The EIR found that buildout of the General Plan and Annexation areas would impact the demand for health care services. However local and regional medical care facilities are privately operated and would continue to plan for growth. Therefore, no mitigation measures were necessary in the 2009 EIR.

Electricity Impacts

Southern California Edison (SCE) provides electrical service to the General Plan and annexation areas and had four major electric transmission corridors in the region, each with 115kV lines, at the time the 2009 EIR.

The 2009 found that build out of the proposed General Plan and Annexation areas was estimated to result in electrical consumption of 1,807,978,891 kilowatt-hours per year (kwh/year). Of this amount, 353,683,749 kwh/year would be for residential uses, 924,262,572 kwh/year would be for commercial uses, and 525,032,571 kwh/year would be used by industrial establishments.

The 2009 EIR determined the expansion of electricity services was expected to occur over time, and SCE's rate structures include expansion of facilities, therefore no significant impact would occur and no mitigation measures were required.

Natural Gas Impacts

Southwest Gas Company provides natural gas service to the Town and its planning area through a series of pipelines of differing sizes and pressure capabilities. In 2009, natural gas was not provided in some areas within the planning area; these include those without existing facility extensions, undeveloped areas, or extreme rural areas. Southwest Gas Company had indicated that it would accommodate new development in the planning area by working closely with developers to build extensions for build out areas. Where natural gas services and facilities were not available, propane was utilized as an alternative source of fuel.

The 2009 EIR found that total development at General Plan build out is projected to consume about 779,089,325 cubic feet per month, including residential, commercial and industrial uses. This figure represented both existing and future development in the General Plan and annexation areas in 2009.

The 2009 EIR determined the expansion of natural gas services was expected to occur over time, and Southwest Gas Company's rate structures include expansion of facilities, therefore no significant impact would occur and no mitigation measures were required.

Telephone, Internet and Television Services Impacts

The 2009 EIR described how build out of the General Plan and Annexation areas would result in increased demand for telephone, internet and television services and thereby the facilities and equipment owned and maintained by Verizon and Charter Communications. As expansion of telephone service is expected to occur over time, and Verizon's and Charter's rate structure includes expansion of facilities. Therefore, the EIR determined no significant impact is expected, and no mitigation measures are required.

Domestic Water Services Impacts

As discussed in Section III-I, Water Resources/Quality, of the 2009 EIR, build out of the proposed General Plan and Annexation areas would result in water demand associated with increased residential, commercial, industrial and other types of development, such as open space amenities, street rights-of-way, etc. The EIR estimated General Plan build out would generate a water demand of 95,999 acre-feet per year for all types of development.

The 2009 EIR noted there areas are not currently served by local water purveyors, including the Annexation areas, and thus implementation would require the extension of infrastructure as necessary to provide domestic water service to future development. The 2009 EIR set forth mitigation measures requiring that the Town and applicable water purveyors monitor growth in these areas and plan for extension of future infrastructure.

Domestic Water Services Mitigation Measures

The following mitigation measures will reduce impacts associated with domestic water services to less than significant levels (2009 EIR page III-250).

1. All future development projects shall be subject to review by the Town and the applicable water purveyor to assess their potential impact on local groundwater supplies.

2. The Town and applicable water purveyor shall coordinate for the extension of infrastructure to serve future development in Annexations 2008-001 and 2008-002.

3. The use of drought tolerant landscaping shall be encouraged in public and private development.

4. Future development shall required to conform to standards set forth in Section 17921.3 of the Health and Safety Code, Title 20, California Administrative Code Section 1601(b),

and applicable sections of Title 24 of the State Code. These measures include the installation of low-flush toilets, low-flow showerheads and faucets in all new construction.

Wastewater Collection and Treatment Impacts

The EIR described the Town's existing wastewater collection system and the wastewater treatment plant operated by the Victor Valley Wastewater Treatment Authority (VVWRA) in Victorville. In 2009, approximately 30 percent of development in the Town was connected to sewer facilities. Costs associated with transport of wastewater from many areas of the Town to the VVWRA had been cost-prohibitive, and the Town and VVWRA identified the need for sub-regional wastewater treatment plants to serve existing and future development.

The 2009 EIR estimated domestic wastewater flows would average approximately 100 gallons per capita per day. Applying this factor to the estimated build out population of 194,931, wastewater generation in the General Plan and Annexation areas would be approximately 19,493,069 gallons per day. While development would occur gradually over time, the EIR determined the Town would need to continue to monitor growth trends in the planning area to ensure the adequate provision of wastewater treatment facilities and to secure funding for their construction through connection fees.

Wastewater Collection and Treatment Mitigation Measures

The following mitigation measures will reduce impacts associated with wastewater collection and treatment services to less than significant levels (2009 EIR page III-252).

1. To the greatest extent feasible, all new development shall connect to the existing wastewater treatment collection system, or otherwise comply with the Town's Sewer Connection Policy.

2. The Town shall cooperate and coordinate with VVWRA to ensure that there are adequate wastewater collection and treatment facilities to serve development in the General Plan study area.

3. The Town shall continue to confer and coordinate with VVRWA to secure funding for sub-regional wastewater treatment facilities to serve development in the Town.

4. The Town shall continue to confer and coordinate with VVWRA to secure funding for tertiary treated water facilities to serve development in the Town.

Solid Waste Management Impacts

The 2009 EIR described Burrtec Waste Industries solid waste management and the collection and disposal of solid waste practices within the Town. The EIR also describes recycling, landfill capacities and hazardous waste handling and disposal requirements. The EIR estimated that build out of the General Plan and Annexation areas could generate a total of approximately 950,712 tons of solid waste per year, or 2,603 tons per day. The EIR found that implementation and build out of the proposed General Plan and Annexation areas would increase the generation of solid waste and the need additional disposal sites.

Solid Waste Management Mitigation Measures

The following mitigation measures will aid in reducing the amount of waste generated, thereby mitigating the impacts to landfills and promoting the Town's compliance with AB 939. (2009 EIR page III-257).

1. The Town and its solid waste disposal service provider shall continue to consult and coordinate to maintain and surpass, where possible, the provisions of AB 939 by means of expanded recycling programs to divert resources from the waste stream that can be returned to productive use.

2. To the greatest extent feasible, the Town shall encourage commercial and industrial establishments to minimize the amount of packaging and potential waste associated with product manufacturing and sales.

3. Recycling provisions for single-family and multi-family residential dwelling units shall continue to be included in the Town's solid waste disposal contracts.

4. Recycling provisions for commercial and business establishments should include separate recycling bins. Items to be recycled at commercial establishments may include white paper, computer legal paper, cardboard, glass, and aluminum cans.

5. As landscaping debris comprises a significant percentage of residential solid waste, developers shall contract for professional landscaping services from companies which compost green waste. Several landscaping companies in the Apple Valley/Victorville area are currently composting for waste disposal. On-site composting and grass recycling (whereby grass clippings are left on the ground) is also encouraged wherever possible.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

The 2009 EIR analyzed impacts to public services as a result of build out of the General Plan and Annexation areas based on the Land Use Element. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses, and the Annexation areas, which had assigned land uses, have for the most part been added to the Town limits. In fact, impacts are less intense under current conditions because the industrial land use build out assumptions in the 2009 General Plan were marginally higher than those currently (2024) anticipated. Therefore, the impacts related to public services as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project

The Project proposes the development of a 1,373,150 square foot warehouse distribution facility. For the purposes of analysis, it is assumed that 85 percent of the warehouse space (1,167,177 square feet) will be used for dry warehousing, and 15 percent (205,973 square feet) will be used for cold storage.

Schools

The Project proposes industrial uses and is located on land zoned for Specific Plan Industrial in accordance with the NAVISP. The Project does not propose the development of any residential units. The proposed industrial development thus will not directly generate additional demand on schools. New employees at the Project site may be existing residents, or may be new residents who come to the Town for the job opportunity, creating households that may require schools. However, the Project will be required to pay the State mandated school fees, which are designed to mitigate any project's impacts on school facilities and assure that impacts are less than significant.

Libraries

According to the 2001 County Master Library Facility Plan, the County's target library allocation for communities with populations between 35,000 and 100,000 residents is 0.5 to 0.6 square feet per capita. The Plan estimates that the national average is 0.46 square feet of library space per capita.[36] The Town's Newton T. Bass Branch Library is 19,142 square feet. With the Apple Valley's current population of 74,996, the Town's currently provides approximately 0.255 square feet of library space per capita.

If 100% of jobs created by the proposed Project were to be filled by new residents of the Town, Apple Valley would have a total population of 76,146 people.[37] These additional residents would result in a library allocation of 0.251 square feet per capita, which is a marginal change from the existing rate. Project related impacts to library facilities would be less than significant.

Law Enforcement

The Project area is served by the Apple Valley Station of the San Bernardino County Sheriff's Department. The proposed Project will not directly increase the population of the Town, however the jobs created by the Project could draw new residents. As discussed in Land Use, Population and Housing, the Project will generate an estimated 1,150 new jobs. With 51 officers for a Town population of 74,996,[38] the current officer-to-population ratio is approximately 1:1471, which is consistent with the target set in the General Plan for a ratio of 1:1500.[39] The addition of new residents to the Town would lower the officer-to-population ratio by a marginal degree. In the unlikely scenario that 100% of the Project's staff are new residents of the Town, the resulting officer-to-population ratio would be approximately 1:1493.

Per the Town's development impact fees, the Project will be required to pay $0.001 per square feet, or a total of $1,373.15, towards law enforcement facilities. The Project will also increase property tax revenues in the Town, some of which goes towards funding police services. In addition, residential development built for Project employees would contribute to property tax

---

36 Town of Apple Valley General Plan Environmental Impact Report (August 2009).

37 Per the VMT analysis for the Project, at a density factor of 1,195 square feet per employee for logistics land uses, the proposed 1,373,150 square foot warehouse distribution facility would generate approximately 1,150 jobs.

38 Table E-5 Population and Housing Estimates for Cities, Counties, January 2021-2023. California Department of Finance.

39 Town of Apple Valley General Plan, V-39.

revenues as well. These fees and tax revenues would help offset any increase in demand on the police force, helping to ensure that adequate police protection services can be provided and that impacts remain less than significant.

Fire Protection

The AVFPD provides fire protection services to the Project area. Development of the Project would impact fire services by increasing demand on existing fire protection resources as a result of an increase in employees and an additional structure in the AVFPD's service area. The Project will be served by the Bureau of Land Management fire station at 18809 Central Road and Station 332. It is not anticipated that the Project would require the construction of new fire protection facilities.

Population growth associated with the jobs created by the Project, as well as fire protection for the proposed Project facility, would be offset in part by additional funding from tax revenue. Furthermore, in accordance with the Municipal Fee Schedule J, the Project will be required to pay the development impact fee (DIF) of $0.089 per square foot, a total of $122,210.35, for fire protection services.

Adherence to standard fire safety practices, review of Project plans by the AVFPD, and payment of taxes and fees will ensure that Project-related impacts to fire protection services will be less than significant.

Health Care Services

All health care facilities inside and outside the planning area plan for regional growth. The Project is consistent with the land use designation, and therefore would not increase the demand for health care services beyond anticipated growth within the planning area. Impacts will be less than significant.

Electricity

The Project will require off-site improvements and involve the installation of electrical connections in order to serve the proposed development. The Project proposes to extend an existing overhead powerline (OHP) along Dale Evans Parkway approximately 0.5 miles east along Cordova Road. The proposed OHP will connect to a proposed electricity vault at the corner of Cordova Road and Dachshund Road. From the vault, the powerlines will be buried and extend underground approximately 250 north along Dachshund Road where it will connect to the Project site. Construction of these off-site improvements will be required to comply with SCE's guidelines and requirements to ensure that the Project takes the appropriate steps in installing the infrastructure and limiting any environmental impacts associated with grading, construction and development within SCE easements.

Construction Electricity Demand

Construction of the Project would consume electricity for activities such as powering outdoor security or worksite lighting, hand tools and other equipment, operation and charging of electronic equipment, and powering temporary worksite office/trailers(s). The levels of electricity consumed during construction would fluctuate throughout the process depending on

the activities being performed. Electricity is not the primary energy source used during construction – equipment fuels such as diesel and gasoline will be the primary sources during this phase. Overall, electricity demand during the construction of the Project would be temporary, nominal, and would cease upon Project buildout. Compliance with guidelines and requirements from SCE as well as the Town's General Plan and CAP will ensure that the use of electricity during Project construction would not be wasteful, inefficient, or unnecessary. Impacts related to the Project's electricity use during construction would therefore be less than significant.

Operational Electricity Demand

CalEEMod default energy demand factors for parking lot lighting, refrigerated and unrefrigerated warehouse uses were used to calculate electricity usage at buildout. As shown in Table 31, the Project is estimated to consume a total of 10,644,805 kilowatts per year of electricity.

Table 31
Project Operational Electricity Consumption

Land Use	Electricity Use (kWh/yr)
Refrigerated Warehouse	4,509,869
Unrefrigerated Warehouse	5,390,844
Parking Lot Lighting	744,092
Total	**10,644,805**

Source: CalEEMod 2022.1 (see Appendix B for full detailed output reports).

The Project's estimated annual use of 10,644,805 kilowatts per year of electricity represents approximately 3.22 percent of the total 329,848,695 kilowatt-hours used by the Town in 2019.[40] Per the Town's CAP, the Project will be required to comply with applicable standards in the California Building Code and Energy Code Title 24 Energy Efficiency Standards. This includes meeting or exceeding the state performance standards for water heating and space heating and cooling. Furthermore, in accordance with §140.10 of Part 6 of Title 24, the Project will be required to install a photovoltaic system on the building's roof, and will also be required to have a battery storage system. Given that the Project will be generating and storing electricity on-site, it can be assumed that its electricity consumption from external sources will be significantly lower than estimated above. Furthermore, the Renewables Portfolio Standard requires that electricity providers procure 60 percent of electricity from renewable sources by 2030 and 100 percent by 2045.[41] As a result, any operational electricity needs not met by the Project's on-site photovoltaic system will be sourced from an increasing share of renewable sources. Overall, compliance with state requirements will ensure that the Project's electricity consumption is not wasteful, inefficient, or unnecessary.

In addition to standard warehouse and office energy uses, such as space heating and cooling, the refrigerated warehouse component of the proposed development will be considerably more energy intensive. While the cold storage portion of the warehouse is assumed to occupy 15 percent of the floorspace, it will be responsible for approximately 42 percent of the building's

[40] Town of Apple Valley 2019 Climate Action Plan Update.

[41] Senate Bill 100 Joint Agency Report, Achieving 100 Percent Clean Electricity in California (2021).

electricity consumption. However, the Project will be required to comply with §120.6 of the Title 24 Energy Efficiency Standards, which provides mandatory requirements for refrigerated warehouses, including insulation, evaporator, and condenser design and performance standards. Compliance with these requirements will ensure that electricity use is not wasteful, inefficient, or unnecessary.

Summary of Impacts - Electricity

The proposed Project would be designed, built, and operated in accordance with all applicable state and local regulations that would reduce the energy demand of the Project. Compliance with these regulations would ensure that the Project does not conflict with any applicable energy standards efficiency and conservation standards. Such standards and regulations include the Part 6 and Part 11 of Title 24 of the California Code of Regulations. As stated above, the Project will be required to comply with §140.10 of the Energy Code, which requires the installation of photovoltaic systems and batteries, and §120.6 which imposes performance requirements for refrigerated warehouses. The Project would also be subject to all applicable policies in the Town of Apple Valley General Plan Energy and Mineral Resources Element, as well as the Town's 2019 Climate Action Plan. Adherence to the applicable state standards and compliance with Town policies would ensure that the Project does not conflict with or obstruct any applicable plans for renewable energy or energy efficiency. Impacts would be less than significant.

Buildout of the site would be subject to the same General Plan policies and programs analyzed in the EIR. The Project must also comply with the current Energy and Building Codes which impose more stringent energy efficiency performance standards than those imposed in 2009. Implementation of the proposed Project would not result in any new impacts or increase the severity of a previously identified significant impacts as analyzed in the EIR. Overall impacts are expected to be less than those identified in the EIR due to the increased energy efficiency resulting from current energy and building codes. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

<u>Natural Gas</u>

The Project will require off-site improvements and involve the installation of new natural gas connections in order to serve the proposed development. The Project would connect to the existing gas line located along Johnson Street, approximately 0.5 miles south of the subject site. Construction impacts associated with the installation of natural gas line and connections are expected to be limited to the trenching required to lay the lines underground. Prior to ground disturbance, the Project contractors will notify and coordinate with Southwest Gas to identify the location and depth of any existing gas lines to avoid impacts to these and other underground infrastructure.

Construction Natural Gas Demand

Construction of the Project would not involve the consumption of natural gas. It will therefore not be wasteful, inefficient, or unnecessary in its use of natural gas during the construction phase, and no impact would result.

Operational Natural Gas Demand

CalEEMod default energy demand factors for parking lot lighting, refrigerated and unrefrigerated warehouse uses were used to calculate natural gas usage at buildout. As shown in Table 32, the Project is estimated to consume a total of 27,615,029 kBTU (276,216 therms) per year of natural gas.

Table 32
Project Operational Natural Gas Consumption

Land Use	Natural Gas Use (kBTU/yr)
Refrigerated Warehouse	22,188,828
Unrefrigerated Warehouse	5,426,201
Parking Lot Lighting	0
Total	**27,615,029**

Source: CalEEMod 2022.1 (see Appendix B for full detailed output reports).

Operation of the proposed Project is estimated to use approximately 27,615,029 kBTU, or 276,216 therms per year of natural gas. This represents approximately 1.78 percent of the Town's total 2019 natural gas usage of 15,526,732 therms.[42] As previously stated, compliance with the Title 24 Energy Efficiency Standard will ensure that the Project is not wasteful, inefficient, or unnecessary in its consumption of natural gas during operations. Impacts would therefore be less than significant.

In addition to standard warehouse and office energy uses, such as space heating and cooling, the refrigerated warehouse component of the proposed development will be considerably more energy intensive. While the cold storage portion of the warehouse is assumed to occupy 15 percent of the floorspace, it will be responsible for approximately 80 percent of the natural gas consumption. However, the Project will be required to comply with §120.6 of the Title 24 Energy Efficiency Standards, which provides mandatory requirements for refrigerated warehouses, including insulation, evaporator, and condenser design and performance standards. Compliance with these requirements will ensure that energy use is not wasteful, inefficient, or unnecessary.

Summary of Impacts

The proposed Project would be designed, built, and operated in accordance with all applicable state and local regulations that would reduce the energy demand of the Project. Compliance with these regulations would ensure that the Project does not conflict with any applicable energy standards efficiency and conservation standards. Such standards and regulations include the Part 6 and Part 11 of Title 24 of the California Code of Regulations. As stated above, the Project will be required to comply with §120.6 of the Energy Code, which imposes performance requirements for refrigerated warehouses. The Project would also be subject to all applicable policies in the Town of Apple Valley General Plan Energy and Mineral Resources Element, as well as the Town's 2019 Climate Action Plan. Adherence to the applicable state standards and compliance with Town policies would ensure that the Project does not conflict with or obstruct any applicable plans for renewable energy or energy efficiency. Impacts would be less than significant.

[42] Town of Apple Valley 2019 Climate Action Plan Update, Table 5.

Buildout of the site would be subject to the same General Plan policies and programs analyzed in the EIR. The Project must also comply with the current Energy and Building Codes which impose more stringent energy efficiency performance standards than those imposed in 2009. Implementation of the proposed Project would not result in any new impacts or increase the severity of a previously identified significant impacts as analyzed in the EIR. Overall impacts are expected to be less than those identified in the EIR due to the increased energy efficiency resulting from current energy and building codes. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

Telephone/Internet/Television

Frontier and Charter Communications provide the Town of Apple Valley with telephone, internet, cable television, and other telecommunication services. An existing fiber optic line runs along the Dale Evans Parkway right of way.

Domestic Water Services

The Project site is located within the water service area boundary for Liberty Utilities – Apple Valley (public water system CA3610003), a retail water purveyor that receives supplies from the Mojave Water Agency (MWA). During construction, water use will be temporary and limited to site watering as required by the Project dust control plan (MDAQMD Rule 403), and the water would return to the aquifer via absorption. As calculated in the Water Supply Assessment (WSA) prepared for the Project (see Appendix I), the total projected operational water demand for the proposed development is 65.13 acre-feet per year. Table 33, below, shows the estimated water demand broken down by Project land use.

Table 33
Project Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Warehouse	30.29	13.77		13.77
Office	1.23	5.77		5.77
Landscaping	5.91		37.93	37.93
Detention	3.10		7.65	7.65
Hardscape	49.61			0.00
TOTAL	**90.15**	**19.54**	**45.59**	**65.13**

Liberty Utilities' actual domestic water demand (water delivered) for 2020 was 10,067 acre-feet (AF), and the projected water demand in 2045 is 13,948 AF.[43] The Project's water demand of 65.13 AFY therefore accounts for approximately 0.47 percent of the expected total planned increase in demand by 2045.

[43] "Water Supply Assessment for the Development at Cordova" prepared by Terra Nova Planning and Research (December 2023).

Analysis of the water provider's projected water supplies and demand for normal, single-dry, and multiple dry years indicate that Liberty Utilities will be able to meet demand in those conditions for the next 25 years.[44] Given the small increment of Liberty Utilities' projected water supply for that would be used by the proposed Project, it can be assumed that adequate water supplies would be available to serve the Project. Furthermore, the Project proposes an extension of a 16 inch water line in Dachshund Road, from Johnson Road to the Project's northwest corner, a distance of approximately 5,300 linear feet. Given that Liberty Utilities has adequate supplies to meet the Project's demand, and that the subject site has access to existing infrastructure, it is not anticipated that the Project would require the relocation or construction of new or expanded water facilities. Impacts are thus anticipated to be less than significant.

Wastewater Collection and Treatment

Table 34 shows that, based on the wastewater generation factor of 1,500 gallons per day per acre for industrial land uses, operation of the proposed Project would generate 135,225 gallons of wastewater per day. During construction, temporary restroom facilities will be provided on-site for construction workers and waste will be collected, transported, and properly disposed of per local waste management requirements. Wastewater generated during construction is temporary and is not included in the annual generation estimates below.

Table 34
Project Wastewater Generation

Land Use	Daily Wastewater Generation Factor[1]	Proposed Development	Projected Wastewater Generated
Industrial	1,500 GPD/Acre*	90.15 Acres	135,225 GPD

[1] Source: Town of Apple Valley Sewer System Management Plan (2019).
* GDP = Gallons Per Day

A lift station will be constructed within the Project at its southern boundary and force main will be constructed in Cordova Road and Navajo Road. A proposed 10-inch line in Navajo will extend south and connect to Johnson Road. Upon connection to the existing sewer system, wastewater will be conveyed to the new Apple Valley Sub-Regional Wastewater Treatment Plant as well as the Regional Wastewater Reclamation Facility (RWWRF), both operated by the Victor Valley Wastewater Reclamation Authority (VVWRA). The Apple Valley Sub-Regional Plant has a 1 mgd (million gallons per day) capacity, treating a portion of local wastewater for irrigation use, while the remainder and all solids will continue to the main RWWRF.[45] The RWWRF has a design capacity of 18 mgd and currently treats approximately 10.7 mgd.[46] As shown in Table 34, the Project is estimated to produce 135,225 gallons per day, or 0.135 million gallons per day, of wastewater. The Project's wastewater generation would therefore represent approximately 13.5% of the Apple Valley Sub-Regional Plant's capacity or 1.26% of the RWWRF's total capacity.

[44] Ibid.
[45] W.M. Lyles Co., Victor Valley Wastewater Reclamation Authority, Subregional Water Reclamation Plans Project, https://wmlylesco.com/project/victor-valley-subregional-water-reclamation-plants/ (accessed April 2024).
[46] FINAL Interceptor Risk Analysis, prepared for Victor Valley Water Reclamation Authority (June 2021).

The Project would marginally increase the amount treated at RWWRF from 10.7 mgd to 10.8 mgd, which remains far below the facility's design capacity.

Based on the above analysis, it is not anticipated that new or expanded wastewater facilities would be required for the proposed Project. However, the Project would require the extension of a sanitary sewer force main in Cordova Road to Navajo Road, and a 10-inch line in Navajo Road southerly to Johnson Road, a total distance of approximately 4,700 linear feet. The Project also includes installation of a lift station to be located at the southern boundary of the site. Sewer construction plans must be designed based on and will be reviewed for compliance with the San Bernardino County Special District Department Standards for Sanitary Sewers. Sewer system plans will also be reviewed by the Town. The Town's plan check process includes thorough review of plans for development projects to ensure that sewers are properly designed. Based on existing facilities and capacities, and improvements to be constructed by the developer, impacts of the proposed Project on the existing sewer system will be less than significant.[47]

Solid Waste Management

The proposed Project would generate solid waste during the construction and operations phases. Solid waste generation associated with construction of the Project would be short-term and local landfills have sufficient capacity to accommodate it. All construction debris must be disposed of in accordance with local and state requirements. Per the County of San Bernardino IWM Plan, construction material must be disposed of at an appropriate CDI debris processing facility. As required by CalGreen, a minimum of 65 percent of construction waste materials will be reused or recycled, and a construction waste management plan must be prepared and submitted to the Town during the building permit application process.

Table 35 shows the estimated waste that the Project would generate daily once operational. Using solid waste generation factors provided by CalRecycle, operation of the proposed Project is estimated to result in the generation of approximated 19,498.73 pound of solid waste per day.

Table 35
Project Operations Estimated Solid Waste Generation

Land Use	Daily Generation Rate	Proposed Development	Total (pounds per day)
Industrial	1.42 lbs / 100 sq ft / day	1,373,150 sq ft	19,498.73
		With 50% solid waste diversion:	**9,749.37**

Source: Estimated Solid Waste Generation Rates for Warehouse/Manufacturing (May 1997), CalRecycle https://www2.calrecycle.ca.gov/wastecharacterization/general/rates (accessed April 2024).

Assembly Bill 939 requires a 50% diversion of solid waste from landfills. Accounting for this diversion, the Project is estimated to generate 9,749.37 pounds of solid waste per day, or 1,779.26 tons per year. Victorville Sanitary Landfill, which serves the Project area, has a remaining capacity of about 79,400,000 cubic yards as of 2020. The Project would contribute approximately

[47] Town of Apple Valley Sewer System Management Plan (2019).

0.04% annually to the remaining capacity.[48] Based upon estimates of the Project operational waste stream, it would not exceed the landfill capacity or constitute a significant demand for remaining landfill capacity. Recyclable materials generated by the Project will be transported to Burrtec's material recovery facility in Victorville for recycling and reuse.

The Project, well as the Town of Apple Valley, Burrtec, and the Victorville Landfill are required to comply with all applicable solid waste management statutes and regulations. The Project will also comply with all applicable solid waste policies in the County of San Bernardino Integrated Waste Management Plan and the Town of Apple Valley General Plan. The proposed Project will not interfere with the County's compliance with AB 939 or other applicable regulations. Project impacts related to solid waste would be less than significant.

Summary of Impacts

Implementation of proposed Project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed in the EIR. Overall, impacts are expected to be comparable to those previously identified in the EIR due to the Project's consistency with the NAVISP industrial land use designation. Therefore, implementation of the proposed Project would not result in any new adverse impacts or increase the severity of previously identified significant impacts in the Certified EIR.

3.13. RECREATION

Summary of Findings in the 2009 EIR (Section III.N, page III-258 et.seq.)

The 2009 EIR described the existing condition of recreational resources within the planning area and vicinity. In 2009, the Town had 438.87 acres of developed or developable parklands that provided a range of recreational amenities both locally, within neighborhoods and regionally, within the Parks and Recreation service boundary.

Build out of the 2009 General Plan and Annexation areas would introduce approximately 38,824 dwelling units and 194,931 new residents who will have a need for recreational opportunities. The EIR found that implementation of the 2009 General Plan and Annexation areas would require approximately 975 acres of total parkland to serve the increased build out population. Therefore, the EIR determined the Town would need to provide an additional 536.13 acres within the planning area prior to build out of the General Plan and Annexation areas. The 2009 EIR concluded that implementation of the Quimby Act would require the necessary fees and dedication of land to mitigate the potential impacts to recreational resources generated by new development. Impacts were found to be less than significant with mitigation.

Mitigation Measures

The following Mitigation Measures shall be implemented within the General Plan area to ensure the reduction of potential recreation impacts to less than significant levels. (2009 EIR page III-260).

[48] Assumes that 1 CY of commercial and residential recyclable solid waste is equivalent to 100 lbs. (averaged). "Volume to Weight Conversion Factors," US EPA Office of Resource. Conversion and Recovery (April 2016).

1. The Town will require developers to participate in the Town's parkland fee programs/Quimby requirements.

2. The Town will actively pursue a range of supplementary funding sources to acquire additional parklands.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout
The 2009 EIR analyzed the impacts associated with recreational resources based on build out of the General Plan based on the Land Use Element and its distribution of land uses. Since that time, development has occurred consistent with that plan. There have been no substantial General Plan Amendments that would change the intensity of development or the mix of land uses. Therefore, the impacts to recreational resources as described in the 2009 EIR have not substantially changed, and no new conditions or more significant impacts that were not known, or could not have been known have occurred.

Analysis of the Proposed Project
The Project does not propose any residential development and will not directly increase the Town's population. The proposed industrial development will not include any on-site recreational facilities, nor will it directly require the construction or expansion of additional recreational facilities. The Project may indirectly require the construction of new housing units for Project employees, if these employees are new to the Town. Should this occur, the number of potential new households would be well within that anticipated by the General Plan for build out of the Town. These units will be required to pay the Quimby and Park Development Fees for the impacts of new residential units which may be needed to house Project employees.

Overall, implementation of the proposed Project is consistent with the industrial land uses previously analyzed in the 2009 EIR, and would not result in any new adverse impacts or increase the severity of previously identified significant impacts to recreational resources in the 2009 EIR

3.14. TRANSPORTATION

The focus of transportation analysis under CEQA has shifted since the preparation of the 2009 EIR. As this Addendum compares the proposed Project's impacts to those analyzed for build out of the General Plan, however, the following discussion addresses those issues considered in 2009, as they relate to the Town's policies regarding transportation issues.

Summary of Findings in the 2009 EIR (Section III.O, page III-261 et.seq.)

Background
The 2009 EIR described the existing traffic conditions in Town, and disclosed that the circulation network in the Town was comprised of 500 miles of paved roadways on a one-mile grid framework. Approximately 80% of the roads in Apple Valley were local streets that served existing residential neighborhoods. Other local roadways provide connection between areas of Town to larger roadways in the planning area.

The Town is bordered on its west by Interstate 15 (I-15) and State Route 18 (SR 18). I-15 connects the Town to the Inland Empire to the south, and Las Vegas to the north, and is a 6 lane facility (3 lanes in each direction) along the Town's boundary. Two freeway interchanges, at Stoddard Wells Road and Dale Evans Parkway occur within Town limits, both of which occur in the northern portion of the Town, providing access to NAVISP and Annexation lands. SR 18 occurs in the center of Town, and runs generally east-west, connecting the Town to Lucerne Valley to the east, and Victorville to the west. It is a 4 lane facility through Town.

The Town's General Plan roadway network included a hierarchy of roadways ranging from Major Divided Parkways (142 foot right of way) to Secondary roads (88 foot right of way). The General Plan expanded the range of roadway types, and added Collectors (60-66 foot right of way) and Industrial and Commercial Local Street (66 foot right of way) to the circulation plan which assigned roadway designations throughout the Town. The General Plan also designated a route for the High Desert Corridor, a proposed regional roadway that would extend in an east-west direction through Town, generally north of Falchion and Waalew Roads.

In the northern portion of the Town, in the area of the NAVISP and Annexation areas, General Plan roadways included Dale Evans Parkway, Navajo Road and Central Road on a north-south axis; Saugus Road, Johnson Road and Quarry Road on an east-west axis; and Stoddard Wells Road why occurs diagonally through the northern part of Town and the Annexation areas.

The Town used Level of Service (LOS) to analyze traffic impacts, which provides a qualitative means to measure the efficiency of traffic flow (mid-block travel), and/or quantitatively by the number of seconds of delay for a vehicle passing through an intersection. To describe roadway-operating conditions, LOS values are indicated over a range of alphabetical designations from "A" through "F." LOS A represents the best, free flow conditions, and LOS F indicates the worst conditions and system failure.

The 2009 EIR analyzed a total of 46 intersections, which were operating at acceptable levels, with the exception of 8 intersections which were operating at LOS D or worse:

Apple Valley Road (NS) at:

- State Route 18 (EW) operates at LOS D in both the AM and PM peak hours
- Yucca Loma Road (EW) operates at LOS D in the PM peak hour
- Bear Valley Road (EW) operates at LOS D in the PM peak hour
- Sitting Bull Road (EW) operates at LOS D in both the AM and PM peak hours

Deep Creek Road (NS) at:

- Bear Valley Road (EW) operates at LOS F in both the AM and PM peak hours

State Route 18 (NS) at:

- Bear Valley Road (EW) operates at LOS D in the PM peak hour

Kiowa Road (NS) at:

- Sitting Bull Road (EW) operates at LOS E in the PM peak hour

Navajo Road (NS) at:

- Nisqually Road (EW) operates at LOS D in the AM peak hour

The configurations and LOS operations for all 46 studied intersections under 2009 conditions are shown in Table36 below.

The 2009 EIR described traffic conditions in the Annexation areas, and found that with the exception of Dale Evans Parkway, Stoddard Wells Road and Johnson Road adjacent to Annexation No. 1, and Central Road adjacent to Annexation No. 2, limited paved and complete streets occurred in these areas.

Table 36
Existing 2008 Conditions
Intersection Operations Analysis Summary

Intersection		Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (sec.)		Level of Service		LOS Criteria
			Northbound			Southbound			Eastbound			Westbound							
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	I-15 SB Ramps (NS) at: • Dale Evans Pkwy. (EW)	CSS	0	0	0	0.5	0	0.5	0	1	0	0	1	0	9.2	9.9	A	A	C
2	I-15 NB Ramps (NS) at: • Dale Evans Pkwy. (EW)	CSS	0.5	0	0.5	0	0	0	0	1	0	0	1	0	9.1	9.5	A	A	C
3	Dale Evans Pkwy. (NS) at: • Quarry Rd. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	10.3	10.2	B	B	C
5	Dale Evans Pkwy. (NS) at: • Corwin Rd. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	10.1	11.1	B	B	C
6	Corwin Rd. (NS) at: • Waalew Rd. (EW)	CSS	0	1	0	0	1	0	0	0	0	1	0	1	10.5	10.0	B	B	C
7	Dale Evans Pkwy. (NS) at: • Waalew Rd. West (EW)	CSS	0.5	0	0.5	0	0	0	0	1	0	0	1	0	10.4	13.0	B	B	C
8	Dale Evans Pkwy. (NS) at: • Waalew Rd. East (EW)	CSS	0	0	0	0.5	0	0.5	0	1	0	0	1	0	11.2	12.3	B	B	C
9	Central Rd. (NS) at: • Waalew Rd. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	8.1	8.5	A	A	C
10	Apple Valley Rd. (NS) at: • State Route 18 (EW)	TS	1.5	0.5	1	1	1	1	2	2	1>>	1	2	1	37.3	40.8	D	D	C
11	Corwin Rd. (NS) at: • State Route 18 (EW)	TS	0	0	0	1	0	2>	1	2	0	0	2	1	11.9	8.1	B	A	C
12	Rancherias Rd. (NS) at: • State Route 18 (EW)	TS	1	1	0	1	1	1	1	2	1	1	2	1	34.9	25.8	C	C	C

Table 36
Existing 2008 Conditions
Intersection Operations Analysis Summary

Intersection		Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (sec.)		Level of Service		LOS Criteria
			Northbound			Southbound			Eastbound			Westbound							
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
13	Dale Evans Rd. (NS) at: • Thunderbird Rd. (EW)	AWS	1	1	1	1	1	1	1	1	1	1	1	1	12.3	11.4	B	B	C
14	Navajo Rd. at: • Thunderbird Rd. (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	9.4	10.3	A	B	C
15	Central Rd. (NS) at: • Thunderbird Rd. (EW)	CSS	0	1	0	0	1	0	0.5	0	0.5	0	0	0	13.2	11.7	B	B	C
16	Dale Evans Pkwy. (NS) at: • State Route 18 (EW)	TS	0	1	1	1	1	1	1	2	1	1	2	1	20.0	23.0	B	C	C
17	Kiowa Rd. (NS) at: • State Route 18 (EW)	TS	1	1	0	1	1	0	1	2	1	1	2	1	20.2	18.2	C	B	C
18	Apple Valley Rd. (NS) at: • Yucca Loma Rd. (EW)	TS	1	1	1	1	1	1	1	1	1	1	1	1	34.8	36.2	C	D	C
19	Kiowa Rd. (NS) at: • Yucca Loma Rd. (EW)	AWS	0	1	0	0	1	0	1	1	0	1	1	0	9.5	12.8	A	B	C
20	Navajo Rd. (NS) at: • State Route 18 (EW)	TS	1	1	1	1	1	1	1	2	1	1	2	1	19.8	20.9	B	C	C
21	Central Rd. (NS) at: • State Route 18 (EW)	TS	0	1	1	0	1	1	1	2	1	1	2	1	15.9	16.2	B	B	C
22	Joshua Rd. (NS) at: • State Route 18 (EW)	CSS	0	1	0	0	1	1	1	1	0	1	1	0	13.8	22.5	B	C	C
23	Apple Valley Rd. (NS) at: • Bear Valley Rd. (EW)	TS	2	2	1	2	1	2>	2	2	1	1	2	1>	33.0	35.5	C	D	C

Table 36
Existing 2008 Conditions
Intersection Operations Analysis Summary

Intersection		Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (sec.)		Level of Service		LOS Criteria
			Northbound			Southbound			Eastbound			Westbound							
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
24	Deep Creek Rd. (NS) at: • Bear Valley Rd. (EW)	CSS	0	1	0	0	0	0	0	2	1	1	2	0	80.0	--	F	F	C
25	Kiowa Rd. (NS) at: • Bear Valley Rd. (EW)	TS	1	2	1	1	2	1	1	2	1	1	2	1	36.8	38.8	D	D	C
26	Navajo Rd. (NS) at: • Bear Valley Rd. (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	22.9	26.7	C	C	C
27	Central Rd. (NS) at: • Bear Valley Rd. (EW)	TS	1	1	1	1	1	0	1	1	1	1	1	1	25.7	24.9	C	C	C
28	State Route 18 (NS) at: • Bear Valley Rd. (EW)	CSS	1	1	0	0	1	0	1	0	1>>	0	0	0	8.3	28.9	A	D	C
29	Central Rd. (NS) at: • Tussing Ranch Rd. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	10.0	9.8	B	A	C
30	Deep Creek Rd. (NS) at: • Rock Springs Rd. (EW)	TS	0	1	0	0	1	0	1	1	0	1	1	0	15.4	15.8	B	B	C
31	I-15 SB Ramps (NS) at: • Stoddard Wells Rd. (EW)	CSS	0	0	0	0	1	0	0	1	0	0	1	0	8.7	9.2	A	A	C
32	I-15 NB Ramps (NS) at: • Stoddard Wells Rd. (EW)	CSS	0	1	0	0	1	0	0	1	0	0	1	0	9.4	11.3	A	B	C
33	Outer Highway 15 (NS) at: • Stodddard Wells Rd. (EW)	CSS	0	1	0	0	1	0	0	1	1	0	1	0	10.3	24.4	B	C	C
43	Tao Rd. (NS) at: • State Route 18 (EW)	TS	1	1	0	1	1	1	1	2	1	1	2	1	19.2	20.2	B	C	C

Table 36
Existing 2008 Conditions
Intersection Operations Analysis Summary

Intersection		Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (sec.)		Level of Service		LOS Criteria
			Northbound			Southbound			Eastbound			Westbound							
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
44	Apple Valley Rd. (NS) at:																		
	• Sitting Bull Rd. (EW)	TS	1	2	1	1	2	1	1	1	0	1.5	0.5	1	36.4	38.9	D	D	C
45	Kiowa Rd. (NS) at:																		
	• Sitting Bull Rd. (EW)	AWS	1	1	0	1	1	0	0	1	0	0	1	0	12.8	37.1	B	E	C
46	Navajo Rd. (NS) at:																		
	• Nisqually Rd. (EW)	TS	1	2	1	1	2	1	0	1	1	0	1	1	38.8	33.5	D	C	C

[1]When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; >> = Free Right Turn Lane

[2]Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R3 (2008). Per the 2000
Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.
CSS = Cross Street Stop; AWS = All Way Stop; TS = Traffic Signal

Traffic Impacts

The 2009 EIR analyzed the General Plan's build out impacts on the circulation system, including changes proposed to the Town's circulation plan, in particular that some roadways in the northerly part of the Town were reclassified as Major and Secondary to provide needed parallel capacity to key north-south routes and to improve access to the Annexation areas, as follows:

Pauma Street

- between Saugus Road and Norco Street – new Secondary Road
- between Norco Street and Falchion Road – new Secondary Road

Alembic Street

- between Stoddard Wells Road and Saugus Road – upgrade from Secondary Road to Major Road
- between Saugus Road and Norco Street – upgrade from Secondary Road to Major Road

Rincon Road

- between Seneca Road and Yucca Loma Road – upgrade to Collector

Kiowa Road

- between SR-18 and Yucca Loma Road – upgrade to Collector
- between Bear Valley Road and Sandia Road – change from Major Divided Arterial to Major Road
- between Sandia Road and Del Oro Road - change from Major Divided Arterial to Major Road
- between Del Oro Road and Tussing Ranch Road - change from Major Divided Arterial to Major Road
- between Tussing Ranch Road and Ocotillo Way - change from Major Divided Arterial to Major Road

Dakota Road

- between Fresno Road and Corwin Road – upgrade to Collector

Navajo Road

- between Waalew Road and Otoe Road – upgrade to Collector
- between Otoe Road and Thunderbird Road – upgrade to Collector

Stoddard Wells Road

- between I-15 Freeway and Alembic Street – upgrade from Major Road to Major Divided Arterial
- between Alembic Street and Johnson Street - upgrade from Major Road to Major Divided Arterial

Quarry Road

- between I-15 Freeway and Stoddard Wells Road – upgrade from Secondary Road to Major Divided Arterial
- between Stoddard Wells Road and Dale Evans Road - upgrade from Secondary Road to Major Divided Arterial

Johnson Road

- east of Central Road – change from Major Road to Secondary Road

Falchion Road

- between Apple Valley Road and Tao Road – upgrade from Secondary Road to Major Road

Corwin Road

- between Dakota Road and Dale Evans Parkway – new Major Road

Yucca Loma Road

- west of Apple Valley Road – upgrade from Major Road to Major Divided Arterial

Ottawa Road

- between Rincon Road and Kiowa Road – upgrade to Collector

Pah-Ute Road

- between Kiowa Road and Navajo Road – upgrade to Collector
- between Navajo Road and Central Road - upgrade to Collector
- between Central Road and Mesquite Road – upgrade to Collector

Sandia Road

- between Kiowa Road and Navajo Road - upgrade to Collector

Rancherias Road

- between Hwy 18 and Thunderbird Road – upgrade from a Secondary to a Major Road.

Thunderbird Road

- between Navajo and Central Roads – upgrade to a Major Road.

Based on these changes in the Town's circulation plan, the 2009 EIR evaluated the anticipated LOS at General Plan build out, as shown in EIR Table III-63 below. The 2009 EIR considered the General Plan's policy that Town intersections and segments should maintain LOS C whenever possible, and must maintain LOS D or better during morning and evening peak hours. As shown in EIR Table III-63, the only intersection that would not meet this standard was Dale Evans Parkway/Corwin Road, which would operate at LOS E during the morning peak hour at General Plan build out.

The 2009 EIR included a number of mitigation measures, provided below, to reduce impacts and improve traffic flow. They included the imposition of roadway standards for each roadway classification; the balancing of land uses to provide employment and housing and reduce vehicle trips; the preparation of project-specific traffic impact analyses for future projects to assure compliance with Town requirements and LOS; the inclusion of alternative transportation in new development projects, including sidewalks, bus facilities, trails and bicycle routes; and multiple mitigation measures requiring coordination between the Town and other agencies to assure coordinated development and roadway improvements.

Based on the analysis, the 2009 EIR found that traffic impacts in Town and in the Annexation areas would be significant and unavoidable because of the LOS E anticipated at Dale Evans Parkway/Corwin Road.

EIR Table III-63
Intersection Operations Analysis Summary

Intersection		Traffic Control [1]	Northbound			Southbound			Eastbound			Westbound			Delay[2] (sec.)		Level of Service	
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	I-15 SB Ramps (NS) at:																	
	• Dale Evans Pkwy. (EW)	**TS**	0	0	0	**2**	0	**1**	0	**3**	**1**	**3**	**3**	0	16.8	20.0	B	B
2	I-15 NB Ramps (NS) at:																	
	• Dale Evans Pkwy. (EW)	**TS**	**1**	0	**1>>**	0	0	0	**1**	**3**	0	0	**3**	**1**	10.7	14.4	B	B
3	Dale Evans Pkwy. (NS) at:																	
	• Quarry Rd. (EW)	**TS**	**2**	**4**	**1**	**2**	**4**	**1**	**2**	**2**	**1**	**2**	**2**	**1>**	51.6	49.5	D	D
4	Outer Hwy. 15 (NS) at:																	
	• Stoddard Wells Rd. (EW)	**TS**	0	0	0	**2**	0	**1>>**	**2**	**3**	0	0	**3**	**1**	24.7	26.0	C	C
5	Dale Evans Pkwy. (NS) at:																	
	• Corwin Rd. (EW)	**TS**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**1.5**	**0.5**	**2**	**2**	**1>**	68.6	52.8	E	D
6	Corwin Rd. (NS) at:																	
	• Waalew Rd. (EW)	**TS**	0	**2**	**1**	**1**	**2**	0	0	0	0	1	0	1	24.3	30.1	C	C
8	Dale Evans Pkwy. (NS) at:																	
	• Waalew Rd. (EW)	**TS**	**1**	**2.5**	**0.5**	**1**	**3**	**1**	**1**	**2.5**	**0.5**	**1**	**2.5**	**0.5**	47.5	32.7	D	C
9	Central Rd. (NS) at:																	
	• Waalew Rd. (EW)	**TS**	**1**	**2.5**	**0.5**	**1**	**3**	**1>**	**2.5**	1	**0.5**	**1**	**2**	**1**	53.2	39.5	D	D
10	Apple Valley Rd. (NS) at:																	
	• State Route 18 (EW)	TS	**2**	**1.5**	**0.5**	1	**2**	1	2	**3**	1>>	**2**	**3**	1	54.5	48.0	D	D
11	Corwin Rd. (NS) at:																	
	• State Route 18 (EW)	TS	0	0	0	**2**	0	**1>>**	**2**	**3**	0	0	**3**	**1>**	43.6	34.3	D	C
12	Rancherias Rd. (NS) at:																	
	• State Route 18 (EW)	TS	1	**1.5**	**0.5**	1	**1.5**	**0.5**	**2**	**2.5**	**0.5**	1	**3**	1	43.4	45.1	D	D
13	Dale Evans Rd. (NS) at:																	
	• Thunderbird Rd. (EW)	**TS**	1	**1.5**	**0.5**	**2**	**2.5**	**0.5**	1	**1.5**	**0.5**	1	**1.5**	**0.5**	42.2	31.7	D	C

EIR Table III-63
Intersection Operations Analysis Summary

Intersection		Traffic Control [1]	Northbound			Southbound			Eastbound			Westbound			Delay[2] (sec.)		Level of Service	
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
14	Navajo Rd. at:																	
	• Thunderbird Rd. (EW)	**TS**	**1**	**1.5**	**0.5**	**1**	**0.5**	**0.5**	**1**	**2**	**2**	**2**	**1.5**	**0.5**	29.0	33.8	C	C
15	Central Rd. (NS) at:																	
	• Thunderbird Rd. (EW)	**TS**	**1**	**4**	**1**	**1**	**3**	**2**	**3**	**0.5**	0.5	**1**	**0.5**	**0.5**	52.5	44.5	D	C
16	Dale Evans Pkwy. (NS) at:																	
	• State Route 18 (EW)	TS	**1**	**0.5**	**0.5**	**2**	**1.5**	**0.5**	1	**3**	1	1	**3**	**1>**	43.1	54.4	D	D
17	Kiowa Rd. (NS) at:																	
	• State Route 18 (EW)	TS	**2**	**0.5**	**0.5**	1	**0.5**	**0.5**	1	**3**	**1>**	1	**2.5**	**0.5**	29.5	26.6	C	C
18	Apple Valley Rd. (NS) at:																	
	• Yucca Loma Rd. (EW)	TS	**2**	**2.5**	**0.5**	**2**	**2**	1	1	**3**	**1>**	**2**	**2**	1	43.9	54.9	D	D
19	Kiowa Rd. (NS) at:																	
	• Yucca Loma Rd. (EW)	**TS**	**1**	**1.5**	**0.5**	**1**	**0.5**	**0.5**	1	**2**	**1**	**2**	**1.5**	**0.5**	39.4	50.6	D	D
20	Navajo Rd. (NS) at:																	
	• State Route 18 (EW)	TS	**2**	**2**	**2>**	1	**2**	1	1	**3**	1	**2**	**3**	1	52.9	54.7	D	D
21	Central Rd. (NS) at:																	
	• State Route 18 (EW)	TS	**2**	**2.5**	**0.5**	**1**	**2.5**	**0.5**	**2**	**3**	**1>**	1	**2.5**	**0.5**	51.8	39.6	D	D
22	Joshua Rd. (NS) at:																	
	• State Route 18 (EW)	**TS**	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	1	**2.5**	**0.5**	1	**2.5**	**0.5**	12.9	13.0	B	B
23	Apple Valley Rd. (NS) at:																	
	• Bear Valley Rd. (EW)	TS	2	**3**	**1>**	2	**3**	2>	2	**3**	1	**2**	**3**	**1**	49.1	53.3	D	D
24	Deep Creek Rd. (NS) at:																	
	• Bear Valley Rd. (EW)	**TS**	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	**1**	**2.5**	**0.5**	1	**2.5**	**0.5**	27.9	34.3	C	C
25	Kiowa Rd. (NS) at:																	
	• Bear Valley Rd. (EW)	TS	**2**	**1.5**	**0.5**	1	2	1	**2**	**3**	**1>**	1	**3**	1	43.2	41.9	D	D
26	Navajo Rd. (NS) at:																	
	• Bear Valley Rd. (EW)	TS	1	**1.5**	**0.5**	**2**	2	1	**2**	**2.5**	**0.5**	1	**2.5**	**0.5**	42.4	54.6	D	D

EIR Table III-63
Intersection Operations Analysis Summary

Intersection		Traffic Control [1]	Northbound			Southbound			Eastbound			Westbound			Delay[2] (sec.)		Level of Service	
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
27	Central Rd. (NS) at:																	
	• Bear Valley Rd. (EW)	TS	1	**2.5**	**0.5**	1	**3**	**1>**	**2**	**2.5**	**0.5**	1	**2.5**	**0.5**	43.6	44.0	D	D
28	State Route 18 (NS) at:																	
	• Bear Valley Rd. (EW)	**TS**	**2**	**3**	0	0	**2.5**	**0.5**	1	0	**1**	0	0	0	17.7	24.8	B	C
29	Central Rd. (NS) at:																	
	• Tussing Ranch Rd. (EW)	**TS**	**1**	**1.5**	**0.5**	**1**	**3**	**1>**	**2**	**2.5**	**0.5**	**1**	**1.5**	**0.5**	27.2	23.8	C	C
30	Deep Creek Rd. (NS) at:																	
	• Rock Springs Rd. (EW)	TS	**1**	**0.5**	**0.5**	**1**	**0.5**	**0.5**	1	**1.5**	**0.5**	1	**1.5**	**0.5**	25.9	24.3	C	C
31	I-15 SB Ramps (NS) at:																	
	• Stoddard Wells Rd. (EW)	TS	**1**	**1**	**2>**	**2**	**0.5**	**0.5**	**1**	**2**	**1**	**3**	**2**	**2**	37.7	48.8	D	D
32	I-15 NB Ramps (NS) at:																	
	• Stoddard Wells Rd. (EW)	TS	**2**	1	**1>>**	**3**	**2**	**2**	**2**	**3**	**1>**	**2**	**4**	**1**	51.6	48.8	D	D
33	Outer Highway 15 (NS) at:																	
	• Stodddard Wells Rd. (EW)	TS	**2**	**2**	0	0	**2**	**1>>**	**2**	**0**	**1>>**	0	**0**	0	52.3	29.5	D	C
34	Outer Highway 15 (NS) at:																	
	• Saugus Rd. (EW)	TS	0	**1.5**	**0.5**	**2**	**2**	0	0	0	0	**1**	0	**1>>**	21.1	30.5	C	C
35	Choco Rd. (NS) at:																	
	• H. D. C. WB Ramps (EW)	TS	**2**	**3**	0	0	**3**	**1>>**	0	0	0	**2**	0	**1**	16.4	14.4	B	B
36	Choco Rd. (NS) at:																	
	• H. D. C. EB Ramps (EW)	TS	0	**3**	**1**	**2**	**3**	0	**2**	0	**2**	0	0	0	51.2	28.3	D	C
37	Dale Evans Pkwy. (NS) at:																	
	• H. D. C. WB Ramps (EW)	TS	0	**3**	**1>>**	0	**3**	**1>>**	0	0	0	**1**	0	**2>**	22.3	8.8	C	A
38	Dale Evans Pkwy. (NS) at:																	
	• H. D. C. EB Ramps (EW)	TS	0	**3**	**2**	0	**3**	**1>>**	**2**	0	**1**	0	0	0	14.4	8.1	B	A
39	H.D.C. EB Ramps (NS) at:																	
	• Waalew Rd. (EW)	TS	0	0	0	**2**	0	**2**	0	**1.5**	**0.5**	**1**	**2**	0	20.5	15.5	C	B

EIR Table III-63
Intersection Operations Analysis Summary

Intersection		Traffic Control [1]	Northbound			Southbound			Eastbound			Westbound			Delay[2] (sec.)		Level of Service	
No.	Name		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
40	H.D.C. WB Ramps (NS) at:																	
	• Waalew Rd. (EW)	TS	**1**	0	**1**	0	0	0	**1**	**2**	0	0	**2**	**2**	12.7	12.6	B	B
41	Central Rd. (NS) at:																	
	• H.D.C. WB Ramps (EW)	TS	**2**	**3**	0	0	**2.5**	**0.5**	0	0	0	**1**	0	**1**	12.8	22.1	B	C
42	Central Rd. (NS) at:																	
	• H.D.C. EB Ramps (EW)	TS	0	**2.5**	**0.5**	**1**	**3**	0	**2**	0	**2**	0	0	0	21.1	24.2	C	C
43	Tao Rd. (NS) at:																	
	• State Route 18 (EW)	TS	1	**0.5**	**0.5**	1	**1.5**	**0.5**	1	**2.5**	**0.5**	1	**2.5**	**0.5**	21.0	33.3	C	C
44	Apple Valley Rd. (NS) at:																	
	• Sitting Bull Rd. (EW)	TS	1	**2.5**	**0.5**	1	**2.5**	**0.5**	1	**0.5**	**0.5**	**1**	0.5	**0.5**	30.1	29.2	C	C
45	Kiowa Rd. (NS) at:																	
	• Sitting Bull Rd. (EW)	**TS**	1	**1.5**	**0.5**	1	**1.5**	**0.5**	1	**1.5**	**0.5**	1	**1.5**	**0.5**	22.5	23.2	C	C
46	Navajo Rd. (NS) at:																	
	• Nisqually Rd. (EW)	TS	1	**1.5**	**0.5**	1	**1.5**	**0.5**	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	24.4	38.6	C	D

[1]When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-turn Overlap Phasing; >> = Free Right Turn Lane; **1** = Improvement

[2]Delay and level of service calculated using the following analysis software: Traffix, Version 7.9 R3 (2008). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic, traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3]TS = Traffic Signal

Air Traffic Impacts

As described in the 2009 EIR, the Apple Valley Airport is a general aviation airport located in the northern portion of Town, within the NAVISP. It serves fixed wing aircraft and helicopters. Currently airport operations were generally limited to small, private aircraft and flight schools. In addition, the California Highway Patrol and the San Bernardino County Sheriff's Department share a hangar at the airport. There are two runways: runway 18/36 is approximately 6,500 feet wide by 150 feet long, and runway 8/26 is approximately 4,100 feet wide by 60 feet long. The airport operated approximately 103 flights daily, or 38,000 operations annually. The 2009 EIR found no significant impacts associated with air operations at the airport, given its limited size and location in an industrially designated area. Because the airport is a County facility, the 2009 EIR included Mitigation Measure 13, which requires continued coordination between the Town and the County to assure that the Town's needs are met as the community builds out.

Traffic Hazard and Emergency Access Impacts

The 2009 EIR found that emergency access throughout Town and the Annexation areas would not be impacted by build out of the General Plan because the street system, Municipal Code access and roadway design requirements and the requirements of service providers had been considered in the General Plan's land use, policies and programs. In addition, the 2009 EIR disclosed that all future projects would continue to be reviewed for conformance with these standards, thereby assuring continued compliance.

Alternative Transportation Impacts

At the time the 2009 EIR was prepared, there were a total of 16 regional bus routes operated by the Victor Valley Transit Authority (VVTA), of which three operate regularly :

- Route 40 (Apple Valley North);
- Route 41 (Apple Valley/Victorville);
- Route 43 (Apple Valley/Victor Valley College).

The 2009 EIR found that transit service was an important part of the Town's alternative transportation system, and that as a regional service operated by the VVTA, continued coordination between the Town and VVTA was required to assure that services continued to meet Town needs. The 2009 included potential extensions for bus services (Exhibit III-30) to allow for planning of expansion routes as build out occurred. To that end, Mitigation Measure 5 was included, to assure collaboration between in Town and VVTA for expansion of bus routes and services; and Mitigation Measures 6 and 8, which required the incorporation of bus stops into development projects, and the retrofitting of existing bus stops, respectively.

Non-motorized access to schools, commercial services, workplaces and recreational facilities were included in the policy framework of the General Plan. Therefore, the 2009 EIR addressed master planning of sidewalks, bicycle lanes, and off-street trails along major roadways to be considered in circulation analysis. The 2009 EIR included an analysis of the Town's comprehensive bike path system, and the need to include Class I, II and III bike paths in the design of the Town's street system. As shown in Exhibit III-32 of the EIR, the General Plan proposed an expanded bike

path system along General Plan roadways, and the coordination of bike paths and transit connections. The 2009 EIR also found that the General Plan's upgrading of some bike routes on higher volume roadways would reduce safety concerns and conflicts.

Similar to its system of bike routes, the General Plan also included a comprehensive system of multi-purpose trails, which were illustrated in Exhibit III-33. As described in the 2009 EIR, the Town's multi-use trails serve pedestrians, bicyclists and equestrians, and prohibits motorized vehicles except emergency response vehicles.

In order to assure that build out of the General Plan continued to support bike routes and trails, the 2009 EIR included Mitigation Measure 9, which required the continued expansion of bike routes and trails as development occurs through build out of the General Plan.

Mitigation Measures

With the incorporation of mitigation measures listed below, the overall traffic and circulation impacts resulting from buildout of the Proposed General Plan and annexations would be reduced to less than significant levels and the required levels of service will be maintained at all intersections except Dale Evans Parkway and Corwin Road, which will operate at LOS E. This intersection's impacts could not be mitigated to less than significant levels, and impacts remained significant and unavoidable.

1. The Town shall establish and maintain a master plan of roadways that sets forth detailed improvement plans and priority schedules for implementation. The plan shall ensure that roadway segments and intersections generally operate at level of Service C or better, wherever feasible, and that all intersections maintain a Level of Service D or better during both morning and evening peak hours.

2. Street rights-of-way shall be provided as follows:
    - 142 feet for a Major Divided Parkway
    - 128 feet for Major Divided Arterials
    - 104 feet for Major Roadways
    - 88 feet for Secondary Roadways
    - 60 to 66 feet for Collector Streets
    - 66 feet for Industrial and Commercial Local Streets
    - 60 feet for Local Streets
    - 50 feet for Rural Streets and Cul-de-Sacs

3. All Town streets shall be designed to have a minimum lane width of 12 feet.

4. To minimize the number and length of vehicle trips travelled within the planning area, the General Plan Land Use Plan shall provide for a balance and mix of employment and housing opportunities.

5. The Town shall encourage the use of mass/public transit, and collaborate with the Victor Valley Transit Authority (VVTA) to ensure the ongoing operation and expansion of fixed route bus and demand responsive systems.

6. The Town shall require that new development projects on arterial roadways incorporate bus pullouts, to allow buses to leave the flow of traffic and reduce congestion.

7. The Town shall encourage the use of multi-occupant modes of transportation, and shall encourage employers to utilize telecommuting opportunities, home-based employment, and part-time or non-peak hour work schedules.

8. The Town shall develop a program to retrofit bus pullouts on built-out streets, wherever possible, and shall implement them through the Capital Improvement Program.

9. The Town shall enhance and expand its comprehensive Master Plan of continuous, convenient multi-use trails and bicycle routes that connect residential, commercial, schools, parks and other community activity centres.

10. The Town shall consult and coordinate with the County of San Bernardino and the California Department of Transportation to ensure the provision of adequate all-weather crossings along critical roadways.

11. The Town shall ensure that sidewalks are provided on all roadways that are 88 feet wide or wider. In Rural Residential land use areas, the Town shall ensure that designated pathways are provided

12. The Town shall confer and coordinate with the Apple Valley Unified School District to develop and implement safe routes to school.

13. The Town shall proactively consult and coordinate with the County of San Bernardino to ensure that the local airport continues to meet the Town's existing and future transportation, commercial and emergency response needs.

14. The Town shall require, as necessary, project-specific and/or phase-specific traffic impact analyses for subdivision and other project approvals. Such analyses may be required to identify build out and opening year traffic impacts and service levels, and may need to exact mitigation measures required on a cumulative and individual project or phase basis.

15. Concurrent with construction, all new development proposals located adjacent to public roadways shall be required to install all improvements to their ultimate General Plan half-width.

16. The Town shall continue to monitor roadway segments where the daily Volume to Capacity ratio analysis indicates that build out traffic volume will "potentially exceed capacity."

17. The Town shall review traffic volumes resulting from General Plan build out to coordinate, program and if necessary, revise road improvements. This review shall take place every five years.

18. All new development shall be required to pay a "fair share" of improvements to surrounding roadways, bridges and signals that are impacted by and are located within and surrounding the development project.

19. The Town shall ensure that pedestrian access is preserved and enhanced by means of the following: improved sidewalks, pedestrian walkways, lighting and landscaping designs and connections to existing sidewalks and trails.

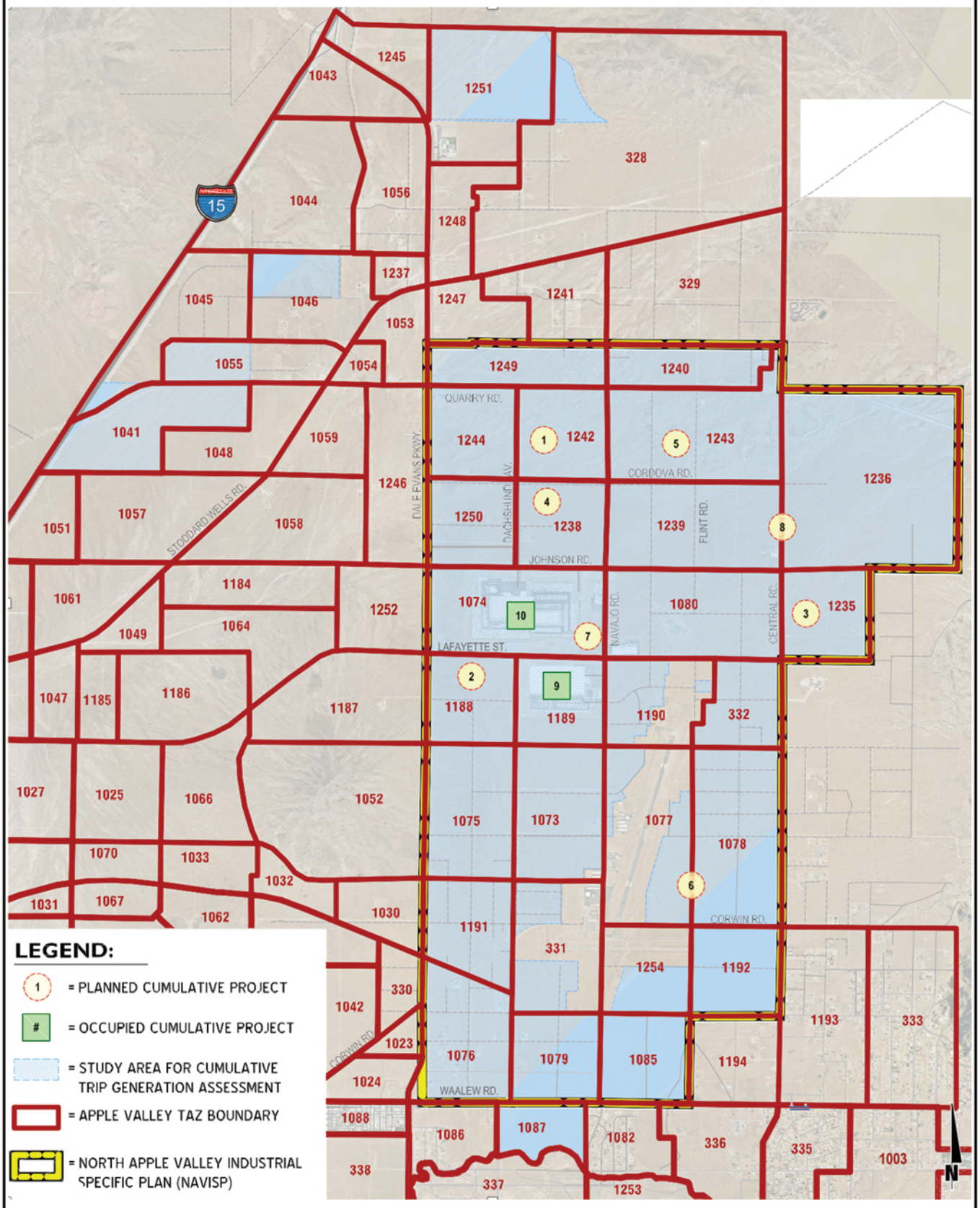
20. New development proposals shall be required to construct bicycle lanes in conjunction with off-site improvements.

21. New development proposals shall be required to construct recreational trails in conjunction with off-site improvements.

Comparison of 2009 GP EIR vs 2024 Industrial Lands Buildout

In order to determine whether the traffic analysis contained in the General Plan EIR was consistent with current conditions and that an Addendum to the General Plan EIR was appropriate for the proposed Project, an analysis of the General Plan and current conditions for lands designated I-P and NAVISP was conducted. As described above, these lands all occur in north Apple Valley. In the General Plan Land Use Map, NAVISP designated lands were entirely in the Town limits, while I-P lands were also located in the Annexation areas. Immediately following adoption of the General Plan, all of Annexation Area No. 2 was incorporated into the Town and appended to the NAVISP, and portions of Annexation Area No. 1 were also annexed, including some I-P lands. Please see Section 1.3 for a detailed description of the land use distribution of industrially designated lands.

In order to determine whether build out of the industrial lands within the Town would result in comparable, less intense or more intense traffic impacts, a Trip Generation Summary was prepared to consider the potential differences in trips that could be generated under 2009 EIR build out conditions and current conditions (Appendix J). The analysis used the land use calculations in Table 1, Industrial Land Use – General Plan and Current, provided in Section 1.3, and the General Plan Traffic Analysis Zones (TAZ) used in 2009, as shown in Exhibit 7.



Source: Urban Crossroads, 02.15.2024

04.12.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
North Apple Valley Industrial Areas
General Plan Traffic Analysis Zones
Apple Valley, California

Exhibit

7

The General Plan industrial land use quantities shown for each TAZ in Table 38 below were those utilized in the traffic impact analysis (TIA) prepared for the Town of Apple Valley General Plan in 2008.

Industrial uses in the General Plan TIA included both General Light Industrial and Industrial Park categories. Industrial Park was generally used throughout the NAVISP area, except in the area bounded by Quarry Road, Johnson Road, Flint Road, and Central Road, and within the Annexation areas. General Light Industrial was applied to the northeast corner of the NAVISP and the Annexation areas, resulting in a total of 8,522,660 square feet of General Light Industrial, 48,562,700 square feet of Industrial Park.

For the analysis of comparative current conditions, 10 cumulative projects, currently constructed, approved or under review by the Town replaced the baseline (General Plan) conditions for the parcels on which these projects are proposed.

Based on these assumption, buildout traffic volumes and peak hour level of service (LOS) was calculated. As shown in Table 38, industrial land uses in the General Plan Town boundary and Annexation Area TAZs would generate a total of 243,973 daily trips as analyzed in the 2009 EIR, whereas currently anticipated build out would generate 209,358 daily trips. This represents a reduction of 35,615 daily trips in North Apple Valley. The analysis further found that although there are changes in trip distribution by TAZ, these changes are within the scope of the General Plan analysis. Specifically, 20 TAZs experience no change, four TAZs experience a decrease in trips, and seven TAZs experience an increase in trips, when compared to the 2009 conditions. Therefore, traffic generated by industrial land uses within the Town, and specifically in the area of the NAVISP and its surroundings, will be less at build out than that which was anticipated in the 2009 EIR.

Table 37
General Plan Land Use and Trip Generation by TAZ

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
328 Part	Planned Industrial	Industrial Park	289.67 TSF	26	20	46	17	32	50	660
331	Planned Industrial	Industrial Park	982.00 TSF	88	69	157	59	108	167	2,239
332	Planned Industrial	Industrial Park	1,413.00 TSF	128	99	226	85	155	241	3,221
1041	Planned Industrial	Industrial Park	1,715.18 TSF	155	120	275	103	188	292	3,911
1046 Part	Planned Industrial	Industrial Park	747.82 TSF	67	52	120	44	82	127	1,705
1055 Part	Planned Industrial	Industrial Park	457.38 TSF	41	32	73	28	51	77	1,043
1073	Planned Industrial	Industrial Park	2,088.00 TSF	188	146	334	125	230	355	4,760
1075	Planned Industrial	Industrial Park	2,088.00 TSF	188	146	334	125	230	355	4,760
1076	Planned Industrial	Industrial Park	2,008.00 TSF	180	140	321	120	221	341	4,578
1079	Planned Industrial	Industrial Park	1,908.00 TSF	171	133	305	114	210	324	4,350
1080	Planned Industrial	Industrial Park	2,684.00 TSF	241	188	429	161	296	456	6,120
1085	Planned Industrial	Industrial Park	1,333.00 TSF	120	94	213	80	147	226	3,039
1087	Planned Industrial	Industrial Park	724.19 TSF	65	50	115	43	80	123	1,651
1190	Planned Industrial	Industrial Park	1,080.00 TSF	97	76	173	65	118	183	2,462
1191	Planned Industrial	Industrial Park	882.00 TSF	79	62	141	53	97	150	2,011
1240	Planned Industrial	Industrial Park	1,034.60 TSF	93	73	165	62	114	175	2,358
1244	Planned Industrial	Industrial Park	1,150.00 TSF	104	81	184	70	127	196	2,623

Table 37
General Plan Land Use and Trip Generation by TAZ

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
1249	Planned Industrial	Industrial Park	1,149.07	TSF	103	80	184	68	126	195	2,620
1250	Planned Industrial	Industrial Park	1,533.00	TSF	138	108	245	92	169	260	3,495
1251	Planned Industrial	Industrial Park	1,722.80	TSF	155	120	275	103	190	293	3,928
1254	Planned Industrial	Industrial Park	2,995.84	TSF	270	210	480	180	330	509	6,830
1188	Lafayette Street Logistics site	Former Industrial Park	1,207.54	TSF	108	84	193	72	133	205	2,753
1188	Lafayette Street Logistics (Source: Urban Crossroads 2022)	Logistics	1,207.54	TSF	176	53	229	85	216	301	4,052
1188	Remainder Industrial Park	Remainder Industrial Park	805.03	TSF	72	56	129	48	88	137	1,835
1188	**GP Baseline**	**TAZ Total**	**2,012.57**	**TSF**	**180**	**140**	**322**	**120**	**221**	**342**	**4,588**
1188	**W/Cumulative Project**	**TAZ Total**	**2,012.57**	**TSF**	**248**	**109**	**358**	**133**	**304**	**438**	**5,887**
1235	1M Warehouse site	Former General Light Industrial	1,462.34	TSF	789	716	1,507	322	526	848	21,793
1235	1M Warehouse (Source: Dudek - 2023 Study)	**Logistics**	1,462.34	TSF	187	44	231	96	150	246	2,784
1235	Remainder Industrial Park	Remainder Industrial Park	1,313.50	TSF	119	92	210	79	144	224	2,995
1235	**GP Baseline**	**TAZ Total**	**2,775.84**	**TSF**	**908**	**808**	**1,717**	**401**	**670**	**1,072**	**24,788**
1235	**W/Cumulative Project**	**TAZ Total**	**2,775.84**	**TSF**	**306**	**136**	**441**	**175**	**294**	**470**	**5,779**
1238	Cordova Quarry Complex site	Former Industrial Park	1,559.95	TSF	140	109	250	94	172	265	3,557
1238	Cordova Quarry Complex (Source: Apple Valley NOP 2023)	Logistics	1,559.95	TSF	226	68	294	109	278	387	5,234
1238	**GP Baseline**	**TAZ Total**	**1,559.95**	**TSF**	**140**	**109**	**250**	**94**	**172**	**265**	**3,557**
1238	**W/Cumulative Project**	**TAZ Total**	**1,559.95**	**TSF**	**226**	**68**	**294**	**109**	**278**	**387**	**5,234**
1242	Cordova Road Logistics site	Former Industrial Park	1,144.33	TSF	103	80	183	68	126	195	2,609
1242	Cordova Road Logistics (Source: Urban Crossroads 2023)	Logistics	1,144.33	TSF	125	39	164	60	152	212	2,864
1242	Remainder Industrial Park	Industrial Park	388.67	TSF	35	27	62	23	43	67	887
1242	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**91**	**169**	**262**	**3,496**
1242	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**160**	**66**	**226**	**83**	**195**	**279**	**3,751**
1243	Quarry at Pawnee site	Former Industrial Park	1,462.34	TSF	131	102	234	88	161	248	3,335
1243	Quarry at Pawnee NOP (Source: Apple Valley NOP 2023)	Logistics	1,462.34	TSF	211	64	275	103	261	364	4,908
1243	Remainder Light Industrial	Remainder General Light Industrial	2,162.66	TSF	1,167	1,059	2,228	476	779	1,254	32,231
1243	**GP Baseline**	**TAZ Total**	**3,625.00**	**TSF**	**1,298**	**1,161**	**2,462**	**564**	**940**	**1,502**	**35,566**
1243	**W/Cumulative Project**	**TAZ Total**	**3,625.00**	**TSF**	**1,378**	**1,123**	**2,503**	**579**	**1,040**	**1,618**	**37,139**
1077	Apple Valley Logistics Ctr. Site	Former Industrial Park	649.00	TSF	58	45	104	38	71	110	1,480
1077	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	649.00	TSF	117	35	152	56	144	200	2,742
1077	Remainder Industrial Park	Remainder Industrial Park	531.00	TSF	48	38	85	32	58	90	1,211
1077	**GP Baseline**	**TAZ Total**	**1,180.00**	**TSF**	**106**	**83**	**189**	**70**	**129**	**200**	**2,691**
1077	**W/Cumulative Project**	**TAZ Total**	**1,180.00**	**TSF**	**165**	**73**	**237**	**88**	**202**	**290**	**3,953**
1078	Apple Valley Logistics Ctr. Site	Former Industrial Park	2,831.74	TSF	255	199	453	170	312	481	6,457
1078	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	2,831.74	TSF	553	188	741	234	600	834	10,518
1078	**GP Baseline**	**TAZ Total**	**2,831.74**	**TSF**	**255**	**199**	**453**	**170**	**312**	**481**	**6,457**
1078	**W/Cumulative Project**	**TAZ Total**	**2,831.74**	**TSF**	**553**	**188**	**741**	**234**	**600**	**834**	**10,518**
1074	Green Trucking & WalMart Sites	Former Industrial Park	1,585.07	TSF	142	111	254	95	175	269	3,614
1074	WalMart Distribution Center (Source: Urban Crossroads estimates)	Logistics	1,200.00	TSF	128	57	186	67	149	215	2,435

Table 37
General Plan Land Use and Trip Generation by TAZ

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
1074	Green Trucking Solutions (Source: LSA TG Memo - 2022)	Logistics	385.07	TSF	44	18	62	27	43	70	1,196
1074	Remainder Industrial Park	Remainder Industrial Park	306.00	TSF	27	21	49	18	33	52	698
1074	**GP Baseline**	**TAZ Total**	**1,891.07**	**TSF**	**169**	**132**	**303**	**113**	**208**	**321**	**4,312**
1074	**W/Cumulative Projects**	**TAZ Total**	**1,891.07**	**TSF**	**199**	**96**	**297**	**112**	**225**	**337**	**4,329**
1236	Apple Valley 3PL Center site	Former General Light Industrial	1,640.00	TSF	885	804	1,689	360	590	952	24,441
1236	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	1,640.00	TSF	16	17	33	16	22	38	633
1236	Remainder Light Industrial	Remainder General Light Industrial	3,257.66	TSF	1,759	1,596	3,356	716	1,173	1,890	48,548
1236	**GP Baseline**	**TAZ Total**	**4,897.66**	**TSF**	**2,644**	**2,400**	**5,045**	**1,076**	**1,763**	**2,842**	**72,989**
1236	**W/Cumulative Project**	**TAZ Total**	**4,897.66**	**TSF**	**1,775**	**1,613**	**3,389**	**732**	**1,195**	**1,928**	**49,181**
1239	Apple Valley 3PL Center site	Former Industrial Park	494.00	TSF	267	242	509	109	178	287	7,362
1239	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	494.00	TSF	318	114	432	163	326	489	5,762
1239	Remainder Industrial Park	Remainder Industrial Park	2,766.00	TSF	249	193	443	166	304	471	6,307
1239	**GP Baseline**	**TAZ Total**	**3,260.00**	**TSF**	**516**	**435**	**952**	**275**	**482**	**758**	**13,669**
1239	**W/Cumulative Project**	**TAZ Total**	**3,260.00**	**TSF**	**567**	**307**	**875**	**329**	**630**	**960**	**12,069**
1189	Big Lots Dist site	Former Industrial Park	1,360.88	TSF	122	95	218	82	150	231	3,103
1189	Big Lots Dist (Source: Urban Crossroads 2015)	Logistics	1,360.88	TSF	145	65	211	76	169	244	2,761
1189	Remainder Industrial Park	Remainder Industrial Park	172.13	TSF	16	12	27	11	19	29	393
1189	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**93**	**169**	**260**	**3,496**
1189	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**161**	**77**	**238**	**87**	**188**	**273**	**3,154**
Town General Plan Baseline Land Use and Trip Generation Total			57,085.36	TSF	**9,189**	**7,780**	**16,978**	**4,864**	**8,536**	**13,400**	**243,973**
Baseline Plus Cumulative Logistics Projects Trip Generation Total			57,085.36	TSF	**8,435**	**5,955**	**14,394**	**4,458**	**8,452**	**12,909**	**209,358**

[1] **Remainder** = Town GP land use within TAZ but outside of the footprint of an existing or planned cumulative project;
Former = Town GP land use within the footprint of an existing or planned cumulative project

[2] **TSF** = Thousand Square Feet of building floor area either (1) evaluated in the 2008 Town GP Traffic Study, or (2) evaluated in conjunction with an existing or planned cumulative project

Analysis of the Proposed Project

A Traffic Analysis was prepared for the proposed Project, to analyze its consistency with Town General Plan policies (Appendix K). The following discussion is based, in part, on its findings.

Existing Conditions

The Town General Plan policies relating to traffic are found in its Circulation Element, which have not substantially changed since its adoption. The Town continues to require that roadway segments and intersections maintain an LOS C standard, except during morning and evening peak hours, when an LOS D is acceptable (Policy 1.A.4).

The Project area currently includes both paved and unpaved General Plan roadways, as was the case when the 2009 EIR was prepared. In the immediate Project area, the following roadways occur:

Major Divided Parkway: Dale Evans Parkway is designated Major Divided Parkway in the General Plan. It is paved, but in the Project area is not improved to its ultimate 142 foot right of way. Which requires three travel lanes in each direction, a bike/parking lane, and a 15 foot parkway, including curb, gutter and sidewalk.

Major Divided Arterial: Stoddard Wells Road southwest of Johnson Road is designated a Major Divided Arterial. It is paved, but not fully improved. Its ultimate design will include three travel lanes in each direction, a bike/parking lane, and a 12 foot parkway with curb, gutter and sidewalk within a 128 foot right of way.

Major Road: Johnson Road and Corwin Road are designated Major Roads. Both are paved but not fully improved. Their ultimate 104 foot right of way will include two lanes in each direction, a bike/parking lane, and a 12 foot parkway with curb, gutter and sidewalk.

Secondary Road: Quarry Road, Dachshund Avenue, Cordova Road and Lafayette Street are all Secondary Roads in the General Plan. Quarry Road is paved, but Dachshund, Cordova and Lafayette are currently unpaved in the Project area, and would be improved as part of the Project. All will ultimately contain two lanes in each direction, a bike/parking lane, and a 12 foot parkway within an 88 foot right of way.

In order to establish current traffic conditions (baseline) in the Project area, traffic counts were conducted for the Project Traffic Analysis. These traffic counts resulted in development of current traffic conditions for 8 existing project area intersections, as shown in Table 39. As shown in the Table, all intersections are currently operating at acceptable levels of service during the morning and evening peak hour.

Table 38
Current Intersection Analysis

#	Intersection	Traffic Control	Intersection Approach Lanes[2]												Delay[3] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
1	Dachshund Av. / Johnson Rd.	CSS	0.5	0.5	1	0	0	0	0	1	0	0.5	0.5	0	10.6	17.8	B	C
2	Dale Evans Pkwy. / Johnson Rd.	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	9.2	18.8	A	C
3	Stoddard Wells Rd. / Johnson Rd.	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	10.7	14.0	B	B
4	I-15 NB Ramps / Stoddard Wells Rd.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	13.2	33.8	B	D
5	Quarry Rd. / Stoddard Wells Rd.	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	9.5	10.4	A	B
6	Quarry Rd. / I-15 SB Ramps	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	9.3	10.0	A	B
7	Dale Evans Pkwy. / Lafayette St.	CSS	0	1	1	1	1	0	0	0	0	0	1!	0	9.9	10.4	A	B
8	Dale Evans Pkwy. / Corwin Rd.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.8	9.5	A	A

[1] CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane; >> = Free-Right Turn

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

Under current conditions, none of the Project area intersections meet warrants for signalization.

There is currently no transit service in the Project area. The Project would include sidewalks along its property frontage on Cordova Road and Dachshund Avenue, and would provide bike/parking lanes on these street frontages, but no contiguous sidewalks occur in the area.

Traffic Impacts

Neither the Town nor the County have established standards for studying traffic impacts associated with construction. In the case of the proposed Project, construction traffic would be limited to construction workers and materials deliveries, which will be limited in both number and duration. Existing street systems operate at acceptable levels on streets that have capacities of thousands of vehicles per day, and the addition of construction worker trips will not reduce those levels perceptibly. Less than significant impacts are expected.

Based on the Town's and the County's standard requirements for the analysis of traffic impacts, the Traffic Analysis included 15 intersections, 8 of which are Town street intersections, and 6 of which are intersections of Town streets with Project driveways that do not yet exist. As such, existing traffic conditions for these driveway intersections were not analyzed.

In order to determine the trip generation for the proposed Project, the TUMF High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) was used because it represents regionally accurate trip generation for warehouse facilities. In addition, the SCAQMD recommendation of 0.64 truck trips per 1,000 square feet was considered, and the Institute of Transportation Engineers (ITE) land use code for High Cube Cold Storage Warehouse for the 15% of the proposed Project which might contain cold storage facilities. Calculation for vehicle mix and truck mix were also made, and are described in detail in Appendix J. Trip generation for the Project was calculated both on the basis of actual trips, and factored to provide passenger car equivalents (PCE). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. Table 40 shows the trips generated by the proposed Project with actual vehicles, and Table 41 provides PCE equivalent trip generation.

Table 39
Project Trip Generation – Actual Trips

Proposed Project Trip Generation Rates[1]										
	ITE LU		AM Peak Hour			PM Peak Hour			
Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks			0.028	0.008	0.036	0.014	0.036	0.050	0.640
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.085	0.025	0.110	0.034	0.086	0.120	2.12
Passenger Cars (69.2% AM, 78.3% PM, 67.8% Daily)			0.059	0.017	0.076	0.026	0.068	0.094	1.437
2-Axle Trucks (10.69% AM, 7.53% PM, 11.17% Daily)			0.009	0.003	0.012	0.003	0.006	0.009	0.237
3-Axle Trucks (3.39% AM, 2.39% PM, 3.54% Daily)			0.003	0.001	0.004	0.001	0.002	0.003	0.075
4-Axle+ Trucks (16.72% AM, 11.78% PM, 17.49% Daily)			0.014	0.004	0.018	0.004	0.010	0.014	0.371

Proposed Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (Actual)			32	10	42	16	41	57	732
High Cube Warehouse Subtotal			107	33	140	53	135	188	2,436
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	4	16	5	14	19	290
- Truck Trips									
		2-axle:	*2*	*1*	*3*	*1*	*1*	*2*	*48*
		3-axle:	*1*	*0*	*1*	*0*	*0*	*0*	*15*
		4+-axle:	*3*	*1*	*4*	*1*	*2*	*3*	*75*
- Net Truck Trips (Actual Vehicles)			6	2	8	2	3	5	138
High Cube Cold Storage Warehouse Subtotal			18	6	24	7	17	24	428
Passenger Cars Subtotal			87	27	114	42	108	150	1,994
Truck Trips Subtotal			38	12	50	18	44	62	870
PROJECT TOTAL TRIPS (ACTUAL VEHICLES)[7]			125	39	164	60	152	212	2,864

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).
[2] TSF = Thousand Square Feet; DU = Dwelling Units
[3] Source: *TUMF High-Cube Warehouse Trip Generation Study*. Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center* .Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.
[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).
[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).
[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks
[7] Total Net Trips (Actual Vehicles) = Passenger Cars + Net Truck Trips (Actual Trucks).

Table 40
Project Trip Generation – PCE

Project Trip Generation Rates[1]

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.150	0.045	0.195	0.075	0.190	0.265	3.409
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks (PCE = 3.0)			0.084	0.025	0.109	0.042	0.108	0.150	1.920
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.121	0.036	0.157	0.045	0.111	0.156	3.06
		Passenger Cars	0.059	0.017	0.076	0.026	0.068	0.094	1.437
		2-Axle Trucks (PCE = 1.5)	0.014	0.005	0.019	0.005	0.009	0.014	0.356
		3-Axle Trucks (PCE = 2.0)	0.006	0.002	0.008	0.002	0.004	0.006	0.150
		4-Axle+ Trucks (PCE = 3.0)	0.042	0.012	0.054	0.012	0.030	0.042	1.113

Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (PCE = 3.0)			96	29	125	48	124	172	2,197
High Cube Warehouse Subtotal			171	52	223	85	218	303	3,901

Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	3	15	5	14	19	290
- Truck Trips									
		2-axle (PCE = 1.5):	*3*	*1*	*4*	*1*	*2*	*3*	*72*
		3-axle (PCE = 2.0):	*1*	*0*	*1*	*0*	*1*	*1*	*30*
		4+-axle (3.0):	*8*	*2*	*10*	*2*	*6*	*8*	*225*
- Net Truck Trips (PCE)			12	3	15	3	9	12	327
High Cube Cold Storage Warehouse Subtotal			24	6	30	8	23	31	617
Passenger Cars Subtotal			87	26	113	42	108	150	1,994
Truck Trips Subtotal			108	32	140	51	133	184	2,524
PROJECT TOTAL EXTERNAL TRIPS (PCE)[7]			195	58	253	93	241	334	4,518

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).
[2] TSF = Thousand Square Feet; DU = Dwelling Units
[3] Source: *TUMF High-Cube Warehouse Trip Generation Study* . Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center*.
Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.
[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).
[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).
[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks
[7] Total Net Trips (PCE) = Passenger Cars + Net Truck Trips (Passenger Car Equivalent).

As shown in the Tables, the proposed Project will generate 2,864 actual trips, and 4,518 PCE trips. This trip generation was factored into the traffic model, along with trip distribution and assignment (please see Appendix J for full methodology relating to distribution and assignment). In addition, the traffic model considered an annual ambient growth rate and cumulative projects known to be under review or approved in Town, and generated anticipated impact analyses for a 2025 opening year without and with the Project during the morning and evening peak hour.

Table 41
Intersection Opening Year 2025 Conditions
(with Cumulative)

#	Intersection	Traffic Control[1]	Intersection Approach Lanes[2] Northbound L	T	R	Southbound L	T	R	Eastbound L	T	R	Westbound L	T	R	2025 w/o Project Delay[3] (secs.) AM	PM	2025 w/o Project Level of Service AM	PM	2025 w/Project Delay[3] (secs.) AM	PM	2025 w/Project Level of Service AM	PM
1	Dachshund Av. / Johnson Rd.																					
	- With Cross-Street Stop	CSS	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	>80	>80	F	F	>80	>80	F	F
	- With Traffic Signal	**TS**	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	9.3	29.3	A	C	14.6	52.2	B	D
2	Dale Evans Pkwy. / Johnson Rd.																					
	- Without Improvements	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	1	1	1	1	1	0	**1**	1	0	**1**	1	1>>	43.3	38.4	D	D	51.8	52.6	D	D
3	Stoddard Wells Rd. / Johnson Rd.																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	1	**1>**	**1**	1	0	0	0	0	**1**	1	0	8.9	26.0	A	C	10.1	52.4	B	D

Table 41
Intersection Opening Year 2025 Conditions
(with Cumulative)

#	Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												2025 w/o Project Delay[3] (secs.)		2025 w/o Project Level of Service		2025 w/Project Delay[3] (secs.)		2025 w/Project Level of Service	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM	AM	PM	AM	PM
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	1!	0	**1**	1!	0	**1**	1	0	**1**	**2**	0	41.3	35.5	D	D	45.3	53.7	D	D
5	Quarry Rd. / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	19.8	>80	C	F	20.5	>80	C	F
	- With Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	**1**	11.6	17.6	B	C	11.8	19.9	B	C
6	Quarry Rd. / I-15 SB Ramps																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	14.3	>80	B	F	14.6	>80	B	F
	- With Improvements	CSS	0	1	**1**	0.5	0.5	0	0	0	0	0	1!	0	9.8	16.3	A	C	9.9	18.4	A	C
7	Dale Evans Pkwy. / Lafayette St.	CSS	0	1	1	1	1	0	0	0	0	0	1!	0	11.9	14.9	B	B	12.7	16.5	B	C
8	Dale Evans Pkwy. / Corwin Rd.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.5	20.1	A	C	10.1	34.0	B	D
9	Dachshund Av. / Cordova Rd.	**CSS**	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.2	9.3	A	A	12.0	14.9	B	B
10	Dachshund Av. / Dwy. 1	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.6	8.7	A	A
11	Dachshund Av. / Dwy. 2	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.8	8.9	A	A
12	Dachshund Av. / Dwy. 3	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	9.0	9.3	A	A
13	Dachshund Av. / Dwy. 4	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	9.2	9.6	A	A
14	Dwy. 5 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.7	9.4	A	A
15	Dwy. 6 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.7	9.1	A	A

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane; >> = Free-Right Turn; **1** = Improvement

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

As shown in Table 42, without the proposed Project, six Project area intersections operate at unacceptable levels in 2025:

- Dachshund Av. / Johnson Rd. (#1) - LOS F AM and PM peak hours
- Dale Evans Pkwy. / Johnson Rd. (#2) – LOS F AM and PM peak hours
- Stoddard Wells Rd. / Johnson Rd. (#3) – LOS F AM and PM peak hours
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd. (#4) – LOS F AM and PM peak hours
- Quarry Rd. / Stoddard Wells Rd. (#5) – LOS F PM peak hour
- Quarry Rd. / I-15 SB Ramps (#6) – LOS F PM peak hour

The Project will not, however, cause any additional intersections to fail, although it will add to the deficiencies at these intersections. Therefore, although the Project will not have a significant impact on these intersections, Mitigation Measure TRA-1 is provided below which requires that the Project contribute its fair share to the improvements required at these locations, which primarily consist of signalization. With implementation of TRA-1, impacts associated with maintenance of acceptable levels of service will be reduced to less than significant levels.

In addition to opening year impacts, the Traffic Analysis considered year 2040 impacts, to determine whether the Project would have significant impacts at General Plan build out. The results of the analysis of morning and evening peak hour traffic in 2040 are presented in Table 42.

Table 42
Intersection General Plan Build Out 2040 Conditions

#	Intersection	Traffic Control[1]	Intersection Approach Lanes: Northbound			Southbound			Eastbound			Westbound			2040 w/o Project: Delay[3] (secs.)		Level of Service		2040 w/ Project: Delay[3] (secs.)		Level of Service	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	AM	PM	AM	PM
1	Dachshund Av. / Johnson Rd.	CSS	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	>80	>80	F	F	>80	>80	F	F
	- With Cross-Street Stop	**TS**	1	1	0	**1**	**1**	0	**1**	**2**	0	**1**	**1**	0	11.7	31.1	B	C	12.8	38.2	B	D
	- With Traffic Signal																					
2	Dale Evans Pkwy. / Johnson Rd.																					
	- Without Improvements	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	1	**2**	**1>**	1	**2**	0	**1**	**2**	0	**1**	**2**	1>>	50.0	48.8	D	D	54.1	54.3	D	D
3	Stoddard Wells Rd. / Johnson Rd.																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	**2**	**1>**	**1**	**2**	0	0	0	0	**1**	1	0	15.6	22.4	B	C	16.0	24.3	B	C
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	**1**	1	0	**1**	1!	0	**1**	**2**	0	**1**	**2**	0	35.4	37.1	D	D	37.3	38.7	D	D
5	Quarry Rd. / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	25.0	>80	C	F	26.3	>80	D	F
	- With Improvements	CSS	0	0	0	0	1!	0	0.5	**1.5**	0	0	**2**	**1**	12.0	13.1	B	B	12.0	14.1	B	B
6	Quarry Rd. / I-15 SB Ramps	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	15.8	>80	C	F	16.2	>80	C	F
	- Without Improvements	CSS	0	1	**1**	0.5	0.5	0	0	0	0	0	1!	0	10.2	17.4	B	C	10.2	19.7	B	C
	- With Improvements																					
7	Dale Evans Pkwy. / Lafayette St.																					
	- With Cross-Street Stop	CSS	**1**	1	0	1	1	0	0	**1!**	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Traffic Signal	**TS**	**1**	**2**	0	1	**2**	0	**1**	**2**	0	**1**	**2**	0	51.4	52.9	D	D	52.0	54.0	D	D
8	Dale Evans Pkwy. / Corwin Rd.																					
	- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	17.8	14.5	B	B	19.2	15.2	B	B
9	Dachshund Av. / Cordova Rd.																					
	- With Cross-Street Stop	**CSS**	0	**1!**	0	0	**1!**	0	0	**1!**	0	0	**1!**	0	23.3	>80	C	F	77.1	>80	F	F
	- With Traffic Signal	**TS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	17.2	18.9	B	B	7.4	42.4	A	D
10	Dachshund Av. / Dwy. 1	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.6	8.7	A	A
11	Dachshund Av. / Dwy. 2	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.8	8.9	A	A
12	Dachshund Av. / Dwy. 3	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	10.5	12.1	B	B
13	Dachshund Av. / Dwy. 4	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	10.8	12.6	B	B
14	Dwy. 5 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	9.0	9.4	A	A
15	Dwy. 6 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.9	9.1	A	A

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane; >> = Free-Right Turn; **1** = Improvement

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

As shown in the Table, under General Plan build out conditions, no additional intersections are negatively impacted by traffic, with or without the proposed Project. The same six intersections as under opening year conditions will be affected, and unable to meet the Town's requirement

for LOS D during the morning and evening peak hour, without or with the Project. Therefore, as is provided for opening year conditions, the Project will contribute its fair share to required improvements, as provided in Mitigation Measure TRA-1, which will assure that impacts to Town LOS policies are reduced to less than significant levels at General Plan build out.

Traffic Signal Warrants

The Traffic Analysis also considered the need for traffic signals by preparing a warrant analysis for opening year and General Plan build out conditions based on peak hour volumes. The following intersections are anticipated to meet peak hour volume warrants in 2025 without the Project:

- Dachshund Av. / Johnson Rd.
- Dale Evans Pkwy. / Johnson Rd.
- Stoddard Wells Rd. / Johnson Rd.
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.
- Quarry Rd. / Stoddard Wells Rd.
- Quarry Rd. / I-15 SB Ramps
- Dale Evans Pkwy. / Lafayette St.

The intersection of Dale Evans / Lafayette experiences acceptable LOS operations and a signal may not be required for 2025 conditions. The traffic signal warrant analysis for General Plan build out conditions would result in the need for three additional traffic signals:

- Dale Evans Pkwy. / Lafayette St. (#7)
- Dale Evans Pkwy. / Corwin Rd. (#8)
- Dachshund Av. / Cordova Rd. (#9)

Therefore, the Project will contribute to the need for traffic signals in opening year and under General Plan build out conditions, but they will be needed whether the Project is implemented or not. As a result, the implementation of Mitigation Measure TRA-1, which requires that the Project contribute its fair share to improvements at impacted intersections, will be required to reduce impacts associated with signalization of these intersections. With its implementation, the Project's impacts on traffic signalization will be reduced to less than significant levels.

Air Traffic Impacts

The Apple Valley Airport is governed by the Comprehensive Airport Land Use Compatibility Plan. The Project site occurs outside the airport's Overlay Districts, A-1 and A-2, where development conflicts are regulated. Therefore, development of the proposed Project would have no impact on air traffic.

Traffic Hazard and Emergency Access Impacts

Construction activities will result in the potential for obstructions to dirt roads which currently surround the Project site. As these roadways are improved to Town standards, as the Town will require in its conditions of approval, these roadways may be temporarily blocked or narrowed. The Town, however, requires the preparation of traffic control plans with improvement plans for

Town streets. These plans must include provisions for temporary access, circulation signage and other methods necessary to maintain access on Town roadways. Given the site's location surrounded by vacant lands, and the Town's standard requirements for traffic management planning, impacts associated with construction traffic on hazards and emergency access will be less than significant.

The development of the proposed Project will result in the expansion of the Town's circulation system, including the extension of area roadways which are currently in an unpaved or partly paved condition. The Project will be required, through the Town's conditions of approval, to make half-width General Plan build out improvements along its property frontage on Cordova Road and Dachshund Avenue, consistent with the Town's standard requirements for all projects Specifically, the Project will be conditioned by the Town to make the following off-site improvements:

- Cordova Road from Dachshund Road to Dale Evans Parkway, 24 foot wide paving; no curb and gutter, a distance of approximately 2,600 linear feet.
- Dachshund Road from Cordova Road to Johnson Road, 24 foot wide paving, no curb and gutter, a distance of approximately 2,600 linear feet.

These improvements will be the Project's responsibility, and will allow for adequate and safe access for Project and regional traffic movements. As other projects occur on Cordova and Dachshund, they will be required to make half-width improvements on their property frontages, thereby completing the Town's roadway system within the NAVISP. The off-site improvements provide sufficient paved width to allow one lane of traffic in each direction, and will be constructed to meet Town and Fire District standards, to assure that emergency vehicles can safely access the site. These improvements will assure that impacts associated with safe traffic flow and emergency access remain less than significant with Project implementation.

The Traffic Analysis also considered whether intersections in the Project area required signalization for safe operation at the Project site. To that end, a queuing analysis was performed for Project access intersections, which found that left turn pockets are needed at the intersection of Dachshund Avenue & Cordova Road in all directions, at a length of 200 feet, to accommodate turning movements. This requirement has been provided in Mitigation Measure TRA-2, to assure safe turning movements at the Project site.

In addition, the Traffic Analysis considered the Project's design, and made the following recommendations, which will be incorporated into conditions of approval by the Town:

1. Project to construct Dachshund Avenue at its ultimate easterly half-section width plus 10' as a Secondary Road (88-foot right-of-way) with the Town's standard, from Quarry Road to Cordova Road.
2. Project to construct Cordova Road at its ultimate northerly half-section width plus 10' as a Secondary Road (88-foot right-of-way) with the Town's standard, from Dachshund Avenue to the easterly Project boundary.

3. Dachshund Avenue & Driveway 1: Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. Project Driveway 1 is to be restricted to passenger cars only (no large trucks).
4. Dachshund Avenue & Driveway 2: Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. To accommodate large trucks, assure the Driveway 2 / Dachshund Avenue on-site curb returns are 50' radii.
5. Dachshund Avenue & Driveway 3: Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. To accommodate large trucks, assure the Dachshund Avenue / Driveway 3 on-site curb returns are 50' radii.

Finally, the access onto and from the Project site has been and will continue to be analyzed by the Town through the entitlement process. This includes the circulation of Project plans to the Fire District, which provided comments on access driveway widths, which were incorporated into the Project plans. Similarly, truck turning movements have been analyzed to assure that they can safely be completed on-site. Further, the site plan includes separated driveways for employee vehicles and heavy trucks, to assure separation and safe vehicle movements on-site. As a result, on-site traffic safety impacts are expected to be less than significant.

In conclusion, with implementation of conditions of approval and Mitigation Measure TRA-2, impacts associated with traffic hazards and emergency access will be reduced to less than significant levels.

Alternative Transportation Impacts

Public transit is not currently provided to the Project site. As the area develops, the VVTA will continue to monitor demand, and would expand its service in this area when warranted. The expansion of routes is funded by a combination of funds, including fares received from passengers, and would be implemented when sufficient demand exists. The Project will have no impact on the provision of transit service in Town.

Cordova Road and Dachshund Avenue are both Secondary roadways in the General Plan. This roadway cross-section includes requirements for sidewalks and a bike/parking lane. The Project will improve its frontage on both these roadways to include half-width General Plan build out improvements, and will thus provide sidewalks and a bike/parking lane as part of Project construction. As projects build out in the area, these improvements will also be required of new projects, and the pedestrian and bike system will expand. The Project will therefore have a positive impact on the provision of pedestrian and bike facilities in the area.

Summary of Impacts

With implementation of TRA-1 and TRA-2, the impacts associated with traffic and circulation will be reduced to less than significant levels. As required in the 2009 EIR the mitigation measures imposed on the Project address impacts from the Project, and would reduce these impacts to less than significant levels, including impacts to traffic.

As described above, the overall traffic volumes within the NAVISP and I-P lands analyzed in the General Plan EIR are expected to be less under current plus build out conditions, and the

proposed Project will not increase impacts to traffic that would occur because of other cumulative (without Project) conditions. Mitigation measures proposed for the Project are consistent with the findings of the 2009 EIR as they relate to build out of area roadways to Town standards to assure adequate capacity during the morning and evening peak hour. No changes to the environment that result in any new or more significant impacts would result from development of the proposed Project. The conditions requisite for the preparation of a subsequent or supplemental EIR under CEQA Section 15162 do not occur, and as allowed under Section 15164, this Addendum is appropriate for the analysis of traffic for the proposed Project.

Mitigation Measures

TRA-1 In order to assure the safe and efficient movement of traffic in the Project area at a level consistent with Town policy during the morning and evening peak hour, the Project shall pay fair share contributions for regional improvements consistent with Table 43 below.

Table 43
Project Fair Share Contributions to Impacted Intersections

#	Intersection	Existing (2023) Traffic	HY (2040) w/ Project Traffic	Project Only Traffic	Total New Traffic[1]	Project Fair Share (%)[2]
1	Dachshund Av. / Johnson Rd.					
	• AM Peak Hour	510	2,324	145	1,814	8.0%
	• PM Peak Hour	771	3,023	189	2,252	**8.4%**
2	Dale Evans Pkwy. / Johnson Rd.					
	• AM Peak Hour	268	3,429	144	3,161	4.6%
	• PM Peak Hour	411	3,659	189	3,248	**5.8%**
3	Stoddard Wells Rd. / Johnson Rd.					
	• AM Peak Hour	288	1,424	66	1,136	5.8%
	• PM Peak Hour	426	1,692	89	1,266	**7.0%**
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.					
	• AM Peak Hour	277	1,184	115	907	**12.7%**
	• PM Peak Hour	406	1,632	150	1,226	12.2%
5	Quarry Rd. / Stoddard Wells Rd.					
	• AM Peak Hour	317	1,069	115	752	15.3%
	• PM Peak Hour	477	1,322	150	845	**17.8%**
6	Quarry Rd. / I-15 SB Ramps					
	• AM Peak Hour	182	427	27	245	11.0%
	• PM Peak Hour	258	841	108	583	**18.5%**
8	Dale Evans Pkwy. / Corwin Rd.					
	• AM Peak Hour	130	1,756	18	1,626	1.1%
	• PM Peak Hour	197	1,819	24	1,622	**1.5%**
9	Dachshund Av. / Cordova Rd.					
	• AM Peak Hour	68	1,558	18	1,490	1.2%
	• PM Peak Hour	121	1,432	24	1,311	**1.8%**

[1] Total New Traffic = (Horizon Year 2040 with Project - Existing Traffic)

[2] Project Fair Share % = (Project Only Traffic / Total New Traffic)

TRA-2 The Project shall construct 200 foot long left turn pockets in all directions at the intersection of Cordova Road and Dachshund Avenue.

With implementation of these mitigation measures, impacts associated with traffic will be reduced to less than significant levels.

Appendix A
Technical Memorandum
Historic Analysis and Current Anticipated Build Out
Planned Industrial and North Apple Valley Industrial Specific Plan
Apple Valley General Plan
March 12, 2024

TECHNICAL MEMORANDUM

Historic Analysis and Current Anticipated Build Out
Planned Industrial and North Apple Valley Industrial Specific Plan
Apple Valley General Plan
March 12, 2024

The purpose of this analysis is to determine whether the assumptions and impacts identified for Planned Industrial (I-P) and North Apple Valley Industrial Specific Plan (NAVISP) designated lands in the Apple Valley General Plan EIR are consistent with current conditions and anticipated build out.

The analysis was conducted by first analyzing land use designations, their assigned acreages, and existing and anticipated development. Based on the land use assumptions, a comparison of General Plan EIR impacts and current anticipated build out impacts was conducted for three major CEQA issue areas: air quality/emissions, greenhouse gas emissions, and water demand; and traffic as it relates to Town policy. These four issue areas represent the most likely areas where impacts could change over time, and result in significantly greater or lesser impacts than those originally analyzed.

The following discussion and tables first consider the analysis in the General Plan EIR, then current conditions and anticipated build out, and finally the project-specific impacts of the Development at Cordova.

Land Use

The Apple Valley General Plan and its EIR included lands within Town limits and within two potential annexation areas: Annexation Area 1 was located in the northwest corner of Town, and Annexation Area 2 was south of Quarry Road, east of Town limits (Exhibit 1). Following adoption of the General Plan, the Town proceeded with the annexations. Area 2 was successful. Annexation of Area 1 failed, but a portion of Area 1 was successfully annexed in 2019/2020.

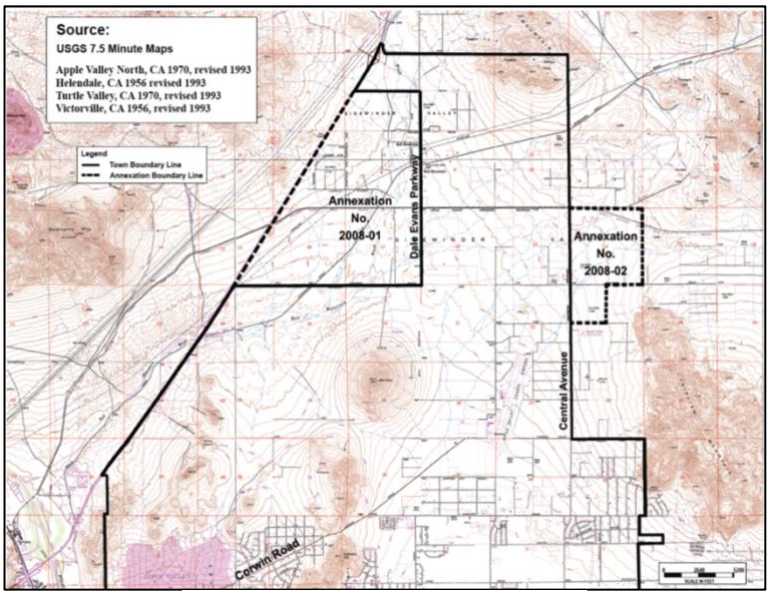


Exhibit 1
Annexation Areas

The General Plan assigned industrial land use designations, I-P and NAVISP, only in the North Apple Valley area, as shown in Exhibit 2. Within Town limits, there were 645.3 acres designated I-P and 4,937.5 acres designated NAVISP. In addition, Annexation Area 1 contained 812.1 acres of I-P designated lands, and Annexation Area 2 contained 801 acres of I-P designated lands. Only limited development had occurred, and it was estimated that there were 205,080 square feet of developed I-P space, and 3.1 million square feet of developed space in the NAVISP.

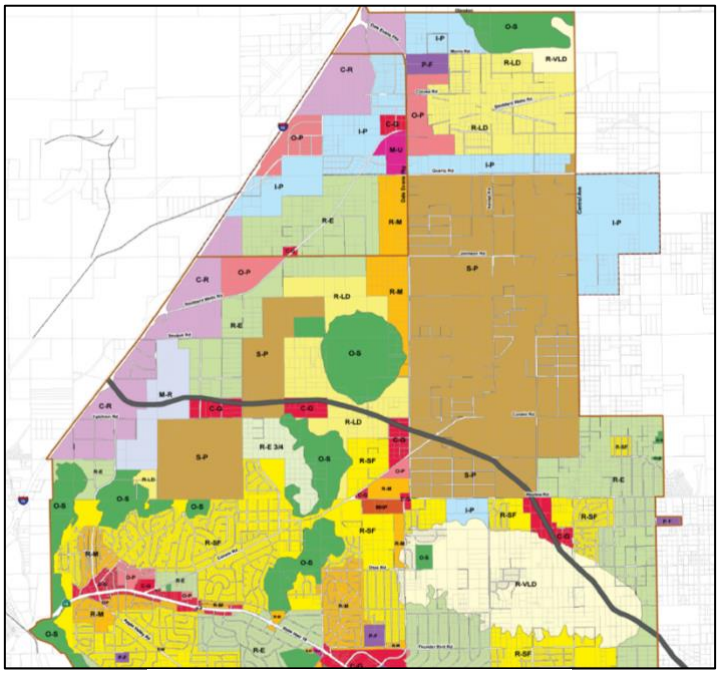


Exhibit 2
General Plan I-P and NAVISP

After completion of the General Plan, the Town amended the NAVISP to include all of the 801 acres of land in Annexation Area 2, as well as the I-P designated land north of Quarry Road, west of Central Road, and east of Dale Evans Parkway, thereby decreasing the I-P designated lands within the Town. The Town also annexed a portion of Annexation Area 1, thereby increasing the I-P designated lands within the Town. Currently there are 737.3 acres of I-P designated land within the Town, and 5,838.3 acres of land designated NAVISP[1] and depicted in Exhibit 3.

[1] Net of 94.4 acres of dedicated right of way, which is undevelopable for industrial purposes.

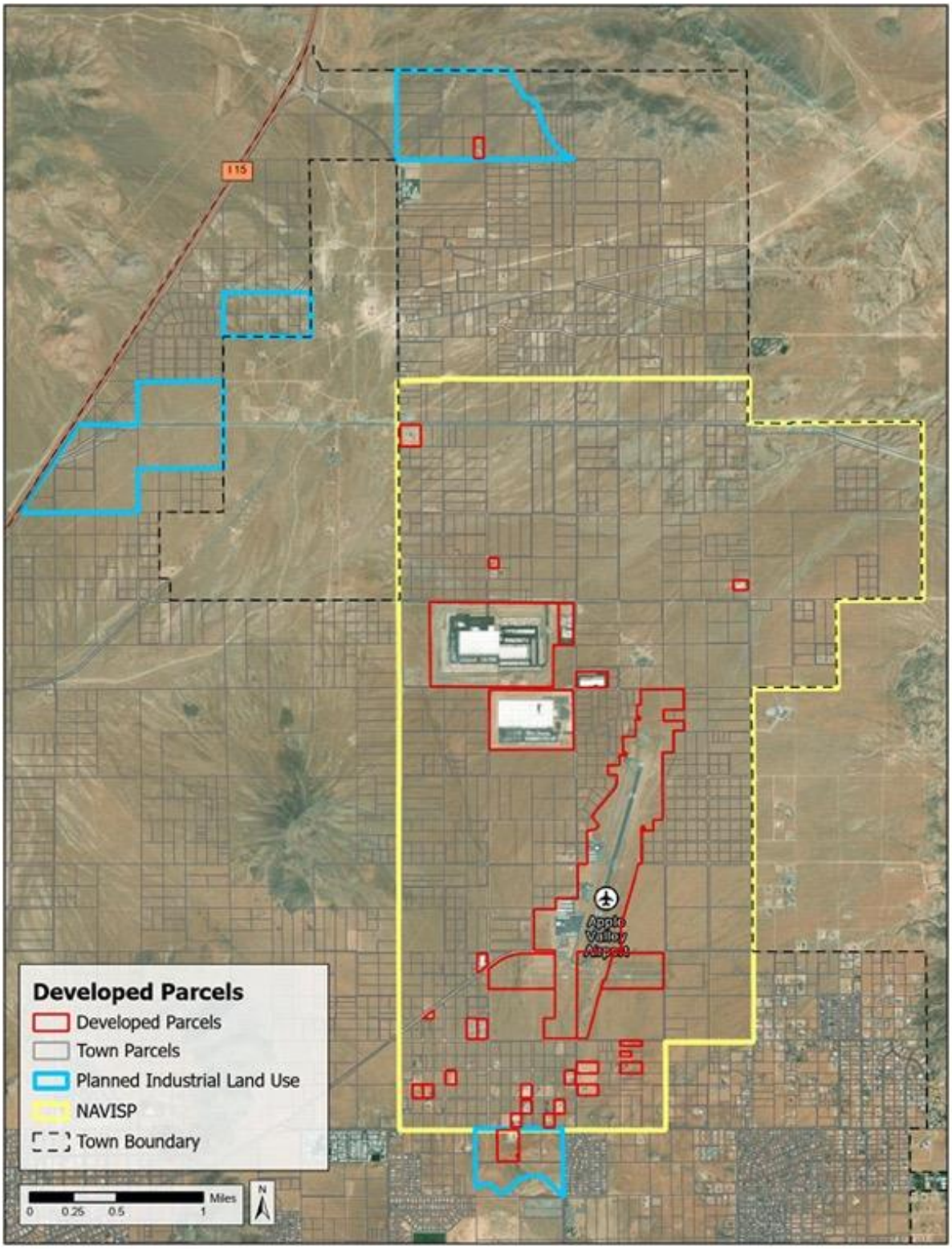


Exhibit 3
Current Land Use and Development Patterns

In order to analyze whether the impacts associated with build out of the General Plan remained consistent under current conditions, the analysis consisted of two parts. First, General Plan 2009 conditions were calculated. Current conditions were then evaluated. Under this scenario, a GIS analysis of vacant and developed parcels in each of the two land use designations was conducted, and current projects under review or approved by the Town within the I-P and NAVISP boundaries were added. Calculations of vacant and developed land and development potential were based on the following assumptions:

1. General Plan 2009 acreage for I-P lands are based on General Plan EIR Table 1-18.
2. General Plan 2009 acreage for NAVISP lands are based on NAVISP EIR, because the SP lands in the General Plan EIR were aggregated, and the NAVISP had not changed its boundaries in 2009.
3. Development potential for General Plan 2009 conditions was calculated at 22% building coverage, consistent with the General Plan EIR assumptions.
4. Current I-P and NAVISP acreage was calculated in GIS based on current San Bernardino County Assessor data.
5. Development potential for vacant lands with no current proposed project were calculated at 22% building coverage, consistent with the General Plan assumptions.
6. Development potential for known proposed projects was calculated based on project proposed square footage.

Table 1 represents the result of the land use analysis. As shown in the Table, the land use build out assumptions in the General Plan were marginally higher than those currently anticipated.

Table 1
Land Use – General Plan and Current

	General Plan 2009 (Build Out)		2024 Conditions (Build Out)	
Land Use	**Acres (Parcels)**	**Actual/Potential Building Area (SF)**	**Acres (Parcels)**	**Actual/Potential Building Area (SF)**
IP Vacant	623.9	5,978,958	718.5	6,885,561
IP Developed	21.4	205,080	18.8	24,412
Total IP	**645.3**	**6,184,039**	**737.3**	**6,909,972**
NAVISP Vacant	4,195.3	36,338,536*	4,243	40,665,432
NAVISP Developed	742.2	3,100,165*	924.2	2,872,007*
Total NAVISP	**4,937.5**	**39,438,701**	**5,838.3**	**54,086,288**
Annex 1 (Vacant)	812.1	7,782,517		
Annex 2 (Vacant)	801	7,676,143		
Total Annexation Areas	**1,613.1**	**15,458,659.92**		
Planned Projects 2024			670.7	10,548,849
Total Build Out Potential	**7,195.9**	**61,081,400**	**6,575.6**	**60,996,260**

* No development potential assigned to Apple Valley Airport lands.

These land use calculations are the basis for the following impact analysis.

Traffic Trip Generation Comparison

A Trip Generation Summary was prepared to consider the potential differences in trips that could be generated under General Plan build out conditions and current conditions to provide an "apples to apples" comparison. The analysis used the land use calculations in Table 1, and the General Plan Traffic Analysis Zones (TAZ) in 2009. The same TAZs were assigned trips based on current anticipated buildout. As shown in Table 1 of Appendix A, industrial land uses in the General Plan Town boundary and Annexation Area TAZs would generate a total of 243,973 daily trips, whereas existing development, plus planned projects, plus vacant development potential would generate 209,358 daily trips. This represents a reduction of 35,615 daily trips in North Apple Valley. The analysis further found that although there are changes in trip distribution by TAZ, these changes are within the scope of the General Plan analysis.

Air Quality and Greenhouse Gases

The General Plan air quality and GHG analysis was completed using a model that no longer exists. As a result, air quality and GHG emissions were recalculated for General Plan build out, using the current model, and also run using that model for current build out conditions. The results are shown in Tables 2 and 3.

Table 2
2009 General Plan Build Out
Maximum Daily Operational-Related Emissions Summary (pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO2e
Daily Max (w/o mobile)	2,881	982	2,423	6	85	100	362,129
Mobile (All Ind. Park + Warehouse Passenger Car)	31,380	4,155	2,970	24	1,642	464	333,166
Mobile (Warehouse Trucks)	11,140	28,003	1,699	35.5	2,136	1,297	643,947
Daily Max. (Total)	**45,401**	**33,140**	**7,092**	**66**	**3,863**	**1,861**	**1,339,242**
MDAQMD Threshold	548	137	137	137	82	65	**100,000**

Table 3
2024 Current Conditions Build Out
Maximum Daily Operational-Related Emissions Summary (pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO2e
Daily Max (w/o mobile)	3,001.0	437.4	1,840.8	2.65	36.22	35.07	246,459
Mobile (All Ind. Park + Warehouse Passenger Car)	7,694	867	922	16.3	1,344	349	230,469
Mobile (Warehouse Trucks)	1,014	3,237	37.3	29.3	975	244	531,894
Daily Max. (Total)	**11,709**	**4,541.4**	**2,800.1**	**48.25**	**2,355.22**	**628.07**	**1,008,082**
MDAQMD Threshold	548	137	137	137	82	65	**100,000**

As shown in the Tables, emissions are reduced for all criteria pollutants, but with the exception of SO2, exceed MDAQMD thresholds. However, the General Plan EIR required Findings and a Statement of Overriding Conditions for air quality and GHG emissions, on which we can tier when analyzing air quality impacts.

The air quality model was also run for the proposed Project on its own. In this case, as shown in Table 4, the Project does not exceed thresholds.

Table 4
Proposed Project
Maximum Daily Operational-Related Emissions Summary (pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Daily Max (w/o mobile)	64.71	7.76	40.9	0.04	0.65	0.63
Mobile (Passenger Car)	97.8	4.75	5.40	0.28	27.5	6.99
Mobile (Trucks)	26.5	92.5	2.35	0.90	31.9	9.77
Daily Max. (Total)	**189.01**	**105.01**	**48.65**	**1.22**	**60.05**	**17.39**
MDAQMD Threshold	548	137	137	137	82	65
Exceeds?	No	No	No	No	No	No

Water Demand

The last area of comparison is water demand. As was the case with air quality, standards and factors have changed since the preparation of the General Plan EIR. In this case, the assumptions shown in the EIR were compared to current standards. As shown in Tables 5 and 6, water demand is expected to be substantially less under current conditions.

Table 5
AV GP EIR Buildout – Industrial Uses
Total Water Demand

Land Use	**Acres**	**Water Demand Factor**	**Water Demand (AFY)**
Total GP IP	645.3	1.61 acre-feet/acre/year	1,038.93
Total NAVISP	4,937.5		7,949.38
Total Annexation	1,613.1		2,597.09
Total GP Acreage	7,195.9	1.61 acre-feet/acre/year	**11,585.40**

Table 6
Current Conditions Build Out – Industrial Uses
Total Water Demand

Planning Area	**Land Area (Acres)**	**Indoor Commercial and Industrial Demand (AFY)**	**Outdoor Irrigation Demand (AFY)**	**Total Water Demand (AFY)**
Total IP 2024	737.30	72.10	273.07	345.17
Total NAVISP 2024	5,838.30	564.35	2,162.26	2,726.61
TOTAL	**6,575.60**	**636.45**	**2,435.33**	**3,071.78**

Finally, water demand was calculated for the Project for the approved Water Supply Assessment. The Project, as shown in Table 7, will use a small fraction of total water demand.

Table 7
Proposed Project
Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Warehouse	30.29	13.77		13.77
Office	1.23	5.77		5.77
Landscaping	5.91		37.93	37.93
Detention	3.10		7.65	7.65
Hardscape	49.61			0.00
TOTAL	**90.15**	**19.54**	**45.59**	**65.13**

APPENDIX A

TRIP GENERATION COMPARISON

MEMORANDUM

URBAN | CROSSROADS

DATE: February 15, 2024
TO: Nicole Criste, Terra Nova Planning & Research, Inc.
FROM: John Kain and Marlie Whiteman, Urban Crossroads
JOB NO: 15504-04 TG Memo

NORTH APPLE VALLEY INDUSTRIAL AREAS CUMULATIVE TRIP GENERATION ASSESSMENT

Urban Crossroads, Inc. is pleased to submit the following Cumulative Trip Generation Assessment for the North Apple Valley Industrial Areas, (Study Area) shown on Exhibit 1. The study area includes the North Apple Valley Industrial Specific Plan (NAVISP) and four other industrial areas west and south of the NAVISP.

Two scenarios are compared in this cumulative trip generation assessment, as follows:

- **Town General Plan Baseline** with industrial development included in the Town of Apple Valley General Plan Circulation Element Traffic Study (November 24, 2008, referred to as the **2008 Town GP Traffic Study**), which is part of the Environmental Impact Report (**EIR**) (SCH No. 2008091077) for the Apple Valley General Plan and Annexations 2008-001 & 2008-002 (certified August 11, 2009, referred to as the 2009 EIR).
- **Baseline Plus Cumulative Logistics Projects** with existing and planned high-cube warehouse/distribution facilities in the study area which generate traffic somewhat differently than the underlying industrial uses analyzed in the 2008 Town GP Traffic Study.

Exhibit 1 shows the traffic analysis zones (TAZs) used in the 2008 Town GP Traffic Study. Within each TAZ, Urban Crossroads has identified the underlying industrial land uses which were utilized in the 2008 Town GP Traffic Study.

TOWN GENERAL PLAN BASELINE

The General Plan Baseline industrial land use quantities shown for each TAZ in Table 1 were utilized in the 2008 analysis of Town of Apple Valley General Plan buildout traffic volumes and peak hour level of service (LOS).

The NAVISP encompasses the area bounded by Quarry Road to the north, Waalew Road to the south, Dale Evans Parkway to the west, and Central Road to the east, as well as an annexation area extending east from Central Road to Joshua Road (with Quarry Road to the north and Johnson Road / Lafayette Street to the south).

EXHIBIT 1: NORTH APPLE VALLEY INDUSTRIAL AREAS, WITH TOWN GENERAL PLAN TRAFFIC ANALYSIS ZONES (TAZs)

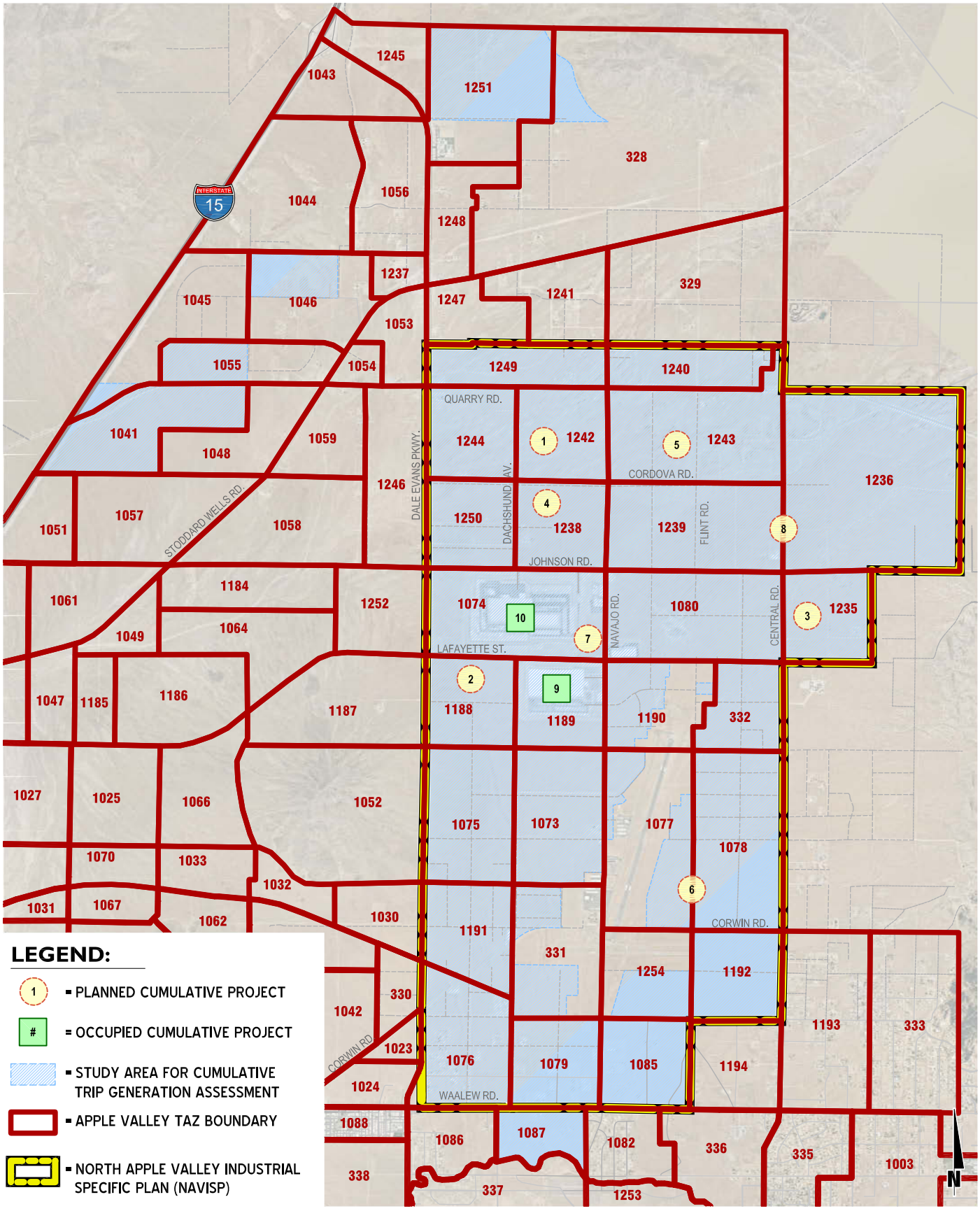


TABLE 1: NORTH APPLE VALLEY INDUSTRIAL AREA
LAND USES AND TRIP GENERATION BY TRAFFIC ANALYSIS ZONE, PAGE 1 OF 2

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
328 Part	Planned Industrial	Industrial Park	289.67	TSF	26	20	46	17	32	50	660
331	Planned Industrial	Industrial Park	982.00	TSF	88	69	157	59	108	167	2,239
332	Planned Industrial	Industrial Park	1,413.00	TSF	128	99	226	85	155	241	3,221
1041	Planned Industrial	Industrial Park	1,715.18	TSF	155	120	275	103	188	292	3,911
1046 Part	Planned Industrial	Industrial Park	747.82	TSF	67	52	120	44	82	127	1,705
1055 Part	Planned Industrial	Industrial Park	457.38	TSF	41	32	73	28	51	77	1,043
1073	Planned Industrial	Industrial Park	2,088.00	TSF	188	146	334	125	230	355	4,760
1075	Planned Industrial	Industrial Park	2,088.00	TSF	188	146	334	125	230	355	4,760
1076	Planned Industrial	Industrial Park	2,008.00	TSF	180	140	321	120	221	341	4,578
1079	Planned Industrial	Industrial Park	1,908.00	TSF	171	133	305	114	210	324	4,350
1080	Planned Industrial	Industrial Park	2,684.00	TSF	241	188	429	161	296	456	6,120
1085	Planned Industrial	Industrial Park	1,333.00	TSF	120	94	213	80	147	226	3,039
1087	Planned Industrial	Industrial Park	724.19	TSF	65	50	115	43	80	123	1,651
1190	Planned Industrial	Industrial Park	1,080.00	TSF	97	76	173	65	118	183	2,462
1191	Planned Industrial	Industrial Park	882.00	TSF	79	62	141	53	97	150	2,011
1240	Planned Industrial	Industrial Park	1,034.60	TSF	93	73	165	62	114	175	2,358
1244	Planned Industrial	Industrial Park	1,150.00	TSF	104	81	184	70	127	196	2,623
1249	Planned Industrial	Industrial Park	1,149.07	TSF	103	80	184	68	126	195	2,620
1250	Planned Industrial	Industrial Park	1,533.00	TSF	138	108	245	92	169	260	3,495
1251	Planned Industrial	Industrial Park	1,722.80	TSF	155	120	275	103	190	293	3,928
1254	Planned Industrial	Industrial Park	2,995.84	TSF	270	210	480	180	330	509	6,830
1188	Lafayette Street Logistics site	Former Industrial Park	1,207.54	TSF	108	84	193	72	133	205	2,753
1188	Lafayette Street Logistics (Source: Urban Crossroads 2022)	Logistics	1,207.54	TSF	176	53	229	85	216	301	4,052
1188	Remainder Industrial Park	Remainder Industrial Park	805.03	TSF	72	56	129	48	88	137	1,835
1188	**GP Baseline**	**TAZ Total**	**2,012.57**	**TSF**	**180**	**140**	**322**	**120**	**221**	**342**	**4,588**
1188	**W/Cumulative Project**	**TAZ Total**	**2,012.57**	**TSF**	**248**	**109**	**358**	**133**	**304**	**438**	**5,887**
1235	1M Warehouse site	Former General Light Industrial	1,462.34	TSF	789	716	1,507	322	526	848	21,793
1235	1M Warehouse (Source: Dudek - 2023 Study)	**Logistics**	1,462.34	TSF	187	44	231	96	150	246	2,784
1235	Remainder Industrial Park	Remainder Industrial Park	1,313.50	TSF	119	92	210	79	144	224	2,995
1235	**GP Baseline**	**TAZ Total**	**2,775.84**	**TSF**	**908**	**808**	**1,717**	**401**	**670**	**1,072**	**24,788**
1235	**W/Cumulative Project**	**TAZ Total**	**2,775.84**	**TSF**	**306**	**136**	**441**	**175**	**294**	**470**	**5,779**
1238	Cordova Quarry Complex site	Former Industrial Park	1,559.95	TSF	140	109	250	94	172	265	3,557
1238	Cordova Quarry Complex (Source: Apple Valley NOP 2023)	Logistics	1,559.95	TSF	226	68	294	109	278	387	5,234
1238	**GP Baseline**	**TAZ Total**	**1,559.95**	**TSF**	**140**	**109**	**250**	**94**	**172**	**265**	**3,557**
1238	**W/Cumulative Project**	**TAZ Total**	**1,559.95**	**TSF**	**226**	**68**	**294**	**109**	**278**	**387**	**5,234**
1242	Cordova Road Logistics site	Former Industrial Park	1,144.33	TSF	103	80	183	68	126	195	2,609
1242	Cordova Road Logistics (Source: Urban Crossroads 2023)	Logistics	1,144.33	TSF	125	39	164	60	152	212	2,864
1242	Remainder Industrial Park	Industrial Park	388.67	TSF	35	27	62	23	43	67	887
1242	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**91**	**169**	**262**	**3,496**
1242	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**160**	**66**	**226**	**83**	**195**	**279**	**3,751**
1243	Quarry at Pawnee site	Former Industrial Park	1,462.34	TSF	131	102	234	88	161	248	3,335
1243	Quarry at Pawnee NOP (Source: Apple Valley NOP 2023)	Logistics	1,462.34	TSF	211	64	275	103	261	364	4,908
1243	Remainder Light Industrial	Remainder General Light Industrial	2,162.66	TSF	1,167	1,059	2,228	476	779	1,254	32,231
1243	**GP Baseline**	**TAZ Total**	**3,625.00**	**TSF**	**1,298**	**1,161**	**2,462**	**564**	**940**	**1,502**	**35,566**
1243	**W/Cumulative Project**	**TAZ Total**	**3,625.00**	**TSF**	**1,378**	**1,123**	**2,503**	**579**	**1,040**	**1,618**	**37,139**

TABLE 1: NORTH APPLE VALLEY INDUSTRIAL AREA
LAND USES AND TRIP GENERATION BY TRAFFIC ANALYSIS ZONE, PAGE 2 OF 2

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
1077	Apple Valley Logistics Ctr. Site	Former Industrial Park	649.00	TSF	58	45	104	38	71	110	1,480
1077	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	649.00	TSF	117	35	152	56	144	200	2,742
1077	Remainder Industrial Park	Remainder Industrial Park	531.00	TSF	48	38	85	32	58	90	1,211
1077	**GP Baseline**	**TAZ Total**	**1,180.00**	**TSF**	**106**	**83**	**189**	**70**	**129**	**200**	**2,691**
1077	**W/Cumulative Project**	**TAZ Total**	**1,180.00**	**TSF**	**165**	**73**	**237**	**88**	**202**	**290**	**3,953**
1078	Apple Valley Logistics Ctr. Site	Former Industrial Park	2,831.74	TSF	255	199	453	170	312	481	6,457
1078	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	2,831.74	TSF	553	188	741	234	600	834	10,518
1078	**GP Baseline**	**TAZ Total**	**2,831.74**	**TSF**	**255**	**199**	**453**	**170**	**312**	**481**	**6,457**
1078	**W/Cumulative Project**	**TAZ Total**	**2,831.74**	**TSF**	**553**	**188**	**741**	**234**	**600**	**834**	**10,518**
1074	Green Trucking & WalMart Sites	Former Industrial Park	1,585.07	TSF	142	111	254	95	175	269	3,614
1074	WalMart Distribution Center (Source: Urban Crossroads estimates)	Logistics	1,200.00	TSF	128	57	186	67	149	215	2,435
1074	Green Trucking Solutions (Source: LSA TG Memo - 2022)	Logistics	385.07	TSF	44	18	62	27	43	70	1,196
1074	Remainder Industrial Park	Remainder Industrial Park	306.00	TSF	27	21	49	18	33	52	698
1074	**GP Baseline**	**TAZ Total**	**1,891.07**	**TSF**	**169**	**132**	**303**	**113**	**208**	**321**	**4,312**
1074	**W/Cumulative Projects**	**TAZ Total**	**1,891.07**	**TSF**	**199**	**96**	**297**	**112**	**225**	**337**	**4,329**
1236	Apple Valley 3PL Center site	Former General Light Industrial	1,640.00	TSF	885	804	1,689	360	590	952	24,441
1236	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	1,640.00	TSF	16	17	33	16	22	38	633
1236	Remainder Light Industrial	Remainder General Light Industrial	3,257.66	TSF	1,759	1,596	3,356	716	1,173	1,890	48,548
1236	**GP Baseline**	**TAZ Total**	**4,897.66**	**TSF**	**2,644**	**2,400**	**5,045**	**1,076**	**1,763**	**2,842**	**72,989**
1236	**W/Cumulative Project**	**TAZ Total**	**4,897.66**	**TSF**	**1,775**	**1,613**	**3,389**	**732**	**1,195**	**1,928**	**49,181**
1239	Apple Valley 3PL Center site	Former Industrial Park	494.00	TSF	267	242	509	109	178	287	7,362
1239	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	494.00	TSF	318	114	432	163	326	489	5,762
1239	Remainder Industrial Park	Remainder Industrial Park	2,766.00	TSF	249	193	443	166	304	471	6,307
1239	**GP Baseline**	**TAZ Total**	**3,260.00**	**TSF**	**516**	**435**	**952**	**275**	**482**	**758**	**13,669**
1239	**W/Cumulative Project**	**TAZ Total**	**3,260.00**	**TSF**	**567**	**307**	**875**	**329**	**630**	**960**	**12,069**
1189	Big Lots Dist site	Former Industrial Park	1,360.88	TSF	122	95	218	82	150	231	3,103
1189	Big Lots Dist (Source: Urban Crossroads 2015)	Logistics	1,360.88	TSF	145	65	211	76	169	244	2,761
1189	Remainder Industrial Park	Remainder Industrial Park	172.13	TSF	16	12	27	11	19	29	393
1189	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**93**	**169**	**260**	**3,496**
1189	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**161**	**77**	**238**	**87**	**188**	**273**	**3,154**
	Town General Plan Baseline Land Use and Trip Generation Total		57,085.36	TSF	**9,189**	**7,780**	**16,978**	**4,864**	**8,536**	**13,400**	**243,973**
	Baseline Plus Cumulative Logistics Projects Trip Generation Total		57,085.36	TSF	**8,435**	**5,955**	**14,394**	**4,458**	**8,452**	**12,909**	**209,358**

[1] **Remainder** = Town GP land use within TAZ but outside of the footprint of an existing or planned cumulative project;
Former = Town GP land use within the footprint of an existing or planned cumulative project

[2] **TSF** = Thousand Square Feet of building floor area either (1) evaluated in the 2008 Town GP Traffic Study, or (2) evaluated in conjunction with an existing or planned cumulative project

Industrial land uses utilized in the 2008 Town GP Traffic Study for the Study Area included both General Light Industrial and Industrial Park categories. Industrial Park is generally used throughout the NAVISP area, except in the northeast corner (bounded by Quarry Road, Johnson Road, Flint Road, and Central Road) and within the annexation area. The NAVISP northeast corner and annexation areas were analyzed as General Light Industrial in the 2008 GP Traffic Study. General Light Industrial uses were evaluated within portions of TAZs 1243, 1235, and 1236.

In 2008, the Industrial Park uses were analyzed with Passenger Car Equivalent (PCE) trip generation rates per thousand square feet of gross floor area of 0.09 in the AM peak hour inbound, 0.07 PCE in the AM peak hour outbound, 0.06 PCE in the PM peak hour inbound, 0.11 PCE in the PM peak hour outbound, and 2.28 PCE daily.

The General Light Industrial uses were analyzed with (PCE) trip generation rates per thousand square feet of gross floor area of 0.54 in the AM peak hour inbound, 0.49 PCE in the AM peak hour outbound, 0.22 PCE in the PM peak hour inbound, 0.48 PCE in the PM peak hour outbound, and 14.90 PCE daily.

As shown on Table 1, the total quantity of General Light Industrial within the Study Area amounts to 8,522,660 square feet, whereas the total quantity of Industrial Park is 48,562,700 square feet.

CUMULATIVE PROJECTS

Within the study area, ten existing and planned high-cube warehouse / distribution projects are addressed in this trip generation comparison as indicated on Exhibit 1. Each of these cumulative logistics projects are described below.

1. Cordova Road Logistics (within TAZ 1242)
   - 1,144,330 sf logistics located north of Cordova Road and east of Dachshund Avenue.
2. Lafayette Street Logistics (within TAZ 1188)
   - 1,207,540 square feet (sf) logistics located south of Lafayette Street and east of Dale Evans Parkway.
3. 1M Warehouse (within TAZ 1235)
   - 1,462,340 sf logistics located south of Johnson Road and east of Central Road.
4. Cordova Quarry Complex (within TAZ 1238)
   - 1,559,950 sf logistics located south of Cordova Road and east of Dachshund Avenue.
5. Quarry at Pawnee (within TAZ 1243)
   - 1,462,340 sf logistics located north of Cordova Road and west of Flint Road.
6. Apple Valley Logistics Center (within TAZ 1077/1078)
   - 649,000 sf logistics within TAZ 1077 and 2,831,740 sf industrial park within TAZ 1078 (cumulative total of 3,480,740 sf) located north of Corwin Road and west of Central Road.

7. Green Trucking Solutions (within TAZ 1074)
   - 385,070 sf logistics located north of Lafayette Street and west of Navajo Road.

8. Apple Valley 3PL Center (within TAZ 1236/1239)
   - 1,640,000 sf logistics within TAZ 1236 located north of Johnson Road and east of Central Road and 494,000 sf industrial park within TAZ 1239 (cumulative total of 2,134,000 sf) located north of Johnson Road and west of Central Road.

9. Big Lots Distribution (within TAZ 1189)
   - 1,360,880 sf logistics currently built and occupied, located south of Lafayette Street and west of Navajo Road.

10. WalMart Distribution Center (within TAZ 1074)
    - Approximately 1,200,000 sf logistics currently built and occupied, located south of Johnson Road and east of Dale Evans Parkway.

In each case, where a traffic study or trip generation analysis was available, trip generation data from the available source is used in Table 1.

TRIP GENERATION DIFFERENCES

Table 1 includes the trip generation comparison between **Town General Plan Baseline** industrial land uses previously studied in the 2008 Town GP Traffic Study, and the **Baseline Plus Cumulative Logistics Projects** land uses. As shown, the General Plan Baseline trip generation is greater overall than the Baseline Plus Cumulative Logistics Projects trip generation. The Baseline Plus Cumulative Logistics Projects trip generation is anticipated to be 34,615 fewer two-way PCE trip ends per day with 2,584 fewer PCE AM peak hour trips and 491 fewer PCE PM peak hour trips as compared to the Town General Plan Baseline industrial land uses.

For the following TAZ's, there are no trip generation differences since there are no cumulative projects included in this assessment:

328 Partial	1073	1087	1250
331	1075	1190	1251
332	1076	1191	1254
1041	1079	1240	
1046 Partial	1080	1244	
1055 Partial	1085	1249	

For the following TAZ's, the Baseline Plus Cumulative Logistics Projects daily trip generation decreased in comparison to the Town General Plan Baseline:

- For TAZ 1235, which contains 1M Warehouse, there is a decrease in daily trip generation of 19,009 daily trips.
- For TAZs 1236 & 1239, which contain Apple Valley 3PL Center, there is a decrease in daily trip generation of 25,408 daily trips.
- For TAZ 1189, which contains Big Lots Distribution, there is a decrease in daily trip generation of 342 daily trips.

For the following TAZ's, there is an estimated increase in daily trip generation for the Baseline Plus Cumulative Logistics Projects, in comparison to the Town General Plan Baseline. However, in each instance, updated cumulative project Level of Service studies would address any potential LOS issues in the Study Area:

- For TAZ 1188, which contains Lafayette Street Logistics, there is an increase in daily trip generation of 1,299 daily trips.
- For TAZ 1238, which contains Cordova Quarry Complex, there is an increase in daily trip generation of 1,677 daily trips.
- For TAZ 1242, which contains Cordova Road Logistics, there is an increase in daily trip generation of 255 daily trips.
- For TAZ 1243, which contains Quarry at Pawnee, there is an increase in daily trip generation of 1,573 daily trips.
- For TAZs 1077 & 1078, which contain Apple Valley Logistics Center, there is an increase in daily trip generation of 5,323 daily trips.
- For TAZ 1074, which contains Green Trucking Solutions and WalMart Distribution Center, there is an increase in daily trip generation of 17 daily trips.

Based on the overall comparison with Baseline Plus Cumulative Logistics Projects to the Town General Plan Baseline, the logistics land uses included in the ten existing and planned high-cube warehouse/distribution facilities in the study area fall within the overall envelope of analysis included in the Town of Apple Valley General Plan Circulation Element Traffic Study (November 24, 2008, referred to as the 2008 Town GP Traffic Study), which is part of the Environmental Impact Report (EIR) (SCH No. 2008091077) for the Apple Valley General Plan and Annexations 2008-001 & 2008-002 (certified August 11, 2009, referred to as the 2009 EIR).

If you have any questions regarding this traffic assessment, please contact us at (949) 375-2435 for John or (714) 585-0574 for Marlie.

Appendix B

Air Quality and Greenhouse Gas Report

AIR QUALITY AND GREENHOUSE GAS REPORT

DEVELOPMENT AT CORDOVA

Apple Valley, San Bernardino County, California

Prepared by:
Terra Nova Planning & Research, Inc.®
42635 Melanie Place, Suite 101
Palm Desert, California 92211

April 2024

Table of Contents

ES EXECUTIVE SUMMARY 4

ES.1 Air Quality 4
ES.2 Greenhouse Gases 4

1 INTRODUCTION 5

1.1 Site Location 5
1.2 Project Description 5

2 AIR QUALITY SETTING 10

2.1 Atmospheric Setting 10
2.2 Criteria Pollutants 11
2.3 Current Conditions 13
2.4 Regulatory Background 17

3 PROJECT AIR QUALITY IMPACT 22

3.1 Introduction 22
3.2 Standards of Significance 22
3.3 Methodology 22
3.4 Construction Emissions 23
4.5 Operational Emissions 24
4.6 Localized Impacts 25
3.7 Air Quality Management Plan Consistency 26
3.8 Odors 27
3.9 Cumulative Impacts 27
3.10 CEQA Determination 28
3.11 Air Quality Mitigation Measures 30

4 CLIMATE CHANGE SETTING 31

4.1 Introduction to Greenhouse Gases and Climate Change 31
4.2 Regulatory Setting 36

5 PROJECT GREENHOUSE GAS IMPACT 43

5.1 Introduction 43
5.2 Standards of Significance 43
5.3 Methodology 43
5.4 Construction Emissions 43
5.5 Operational Emissions 44
5.6 CAP Consistency 45
5.7 Cumulative Impacts 46
5.8 CEQA Determination 47
5.9 GHG Mitigation Measures 48

6 REFERENCES 49

7 APPENDICES 51

Table List

Table 2-1 Criteria Pollutants and Health Impacts 11
Table 2-2 Ambient Air Quality Standards 13

Table 2-3 Regional Attainment Status – West Mojave Desert 14
Table 2-4 Ozone Monitoring Data 16
Table 2-5 Particulate Matter 10 Monitoring Data 16
Table 2-6 MDAQMD Significant Emissions Thresholds 19

Table 3-1 Land Use Summary for CalEEMod 23
Table 3-2 Maximum Daily Construction-Related Emissions Summary (pounds per day) 23
Table 3-3 Fleet Mix – For Passenger Vehicle Run and Truck 24
Table 3-4 Maximum Daily Operational-Related Emissions Summary (pounds per day) 25

Table 4-1 Sources of GHGs from Human Activities 32
Table 4-2 MDAQMD Significance Thresholds 40
Table 4-3 Apple Valley CAP Emissions Reduction Targets 42

Table 5-1 Projected GHG Emissions Summary (Metric Tons) 44
Table 5-2 Project emissions and CAP reduction target 46
Table 5-3 Project consistency with CAP reduction measures 46

Exhibit List

Exhibit 1-1 Vicinity Map 7
Exhibit 1-2 Location Map 8
Exhibit 1-3 Site Plan 9

Figure List

Figure 2-1 Boundaries of the Mojave Desert Air Basin 10
Figure 2-2 MDAQMD Monitoring Stations 15

Figure 4-1 Annual Statewide GHG Emissions Compared to the 2020 GHG Limit 34
Figure 4-2 2020 GHG emissions by economic sector (% of total California emissions) 34

ES EXECUTIVE SUMMARY

This Air Quality and Greenhouse Gas Report was prepared to accompany the Addendum to the Apple Valley General Plan and Annexations 2008-001 & 2008-002 Environmental Impact Report (EIR) for the proposed Development at Cordova (referred to as the Project). The purpose of this report is to assess the potential air quality and greenhouse gas (GHG) impacts associated with the construction and operation of the proposed Project in accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

Section 1 of this report introduces the proposed Project. Sections 2 and 4 provide background information on air quality and climate change. Sections 3 and 5 analyze the potential impacts of the Project on air quality and greenhouse gas emissions, respectively.

ES.1 Air Quality

The Project is located in the Mojave Desert Air Basin, within the jurisdictional boundary of the Mojave Desert Air Quality Management District (MDAQMD). The Project would comply with the strategies and rules established in the MDAQMD's applicable air quality plans.

The emissions of criteria air pollutants expected to result from the Project were calculated using the California Emissions Estimator Model (CalEEMod) Version 2022.1. Analysis found that criteria pollutant emissions from construction and operation of the Project would not exceed the thresholds established by the MDAQMD. This report also determined that the Project would not expose sensitive receptors to substantial pollutant concentrations, nor would it result in other emissions (such as odors) that would adversely affect sensitive receptors. Overall, the Project's impacts on air quality were determined to be less than significant, and no mitigation measures were required.

ES.2 Greenhouse Gases

The Project's GHG emissions are subject to the MDAQMD as well as the Town of Apple Valley's 2019 Climate Action Plan (CAP) Update. CalEEMod Version 2022.1 was used to project the GHG emissions expected to result from construction and operation of the proposed Project. The combined emissions were found to be within the MDAQMD's GHG emissions threshold of 100,000 MTCO2e per year. Based on the Project's compliance with the Town's CAP, the proposed development was also found the comply with the South Coast Air Quality Management District's Tier 2 significance criterion (see Section 5 of this document), which requires compliance with a GHG reduction plan consistent with the goals of Assembly Bill 32.

Overall, this report determined that the Project's impacts on GHG emissions would be less than significant with the implementation of mitigation measures from the Town's CAP. Specifically, the Project must establish an employee carpooling program and provide employees with free or discounted public transit passes.

1 INTRODUCTION

1.1 Site Location

The Project proposes the development of an approximately 90-acre parcel of land in the Town of Apple Valley (Exhibit 1). The site is bounded by Quarry Road to the north, vacant lands to the east, Cordova Road to the south, and Dachshund Avenue to the west (Exhibit 2). The site is currently surrounded by vacant lands, with scattered single-family residences a quarter mile to the north, south and west. Further south, about 0.5 miles, is a Walmart warehouse and distribution center The subject property is within the boundary of the 2006 North Apple Valley Industrial Specific Plan (NAVISP).

1.2 Project Description

The Project proposes 1.37 million square feet of distribution warehouse on 90± acres of currently vacant, undeveloped land located at the northeast corner of Cordova Road and Dachshund Road. The Project proposes on building consisting of 1,319,390 square feet of warehouse space and 53,760 square feet of office space for a total of 1,373,150 square feet of building space. The building includes a 26,880 square foot mezzanine with a maximum building height of 50 feet. The building has been designed to include 224 docks with roll-up doors, and 4 man-doors. The site will provide 1,422 parking stalls that includes 28 accessible stalls, and 739 trailer stalls. The trailer stalls would be utilized for temporary parking of semi-truck trailers between distribution trips. Landscaping is proposed along the perimeter of the site on all sides, as well as in the vehicular parking areas. The landscaped area totals 819,232± square feet, or 20 percent of the site. A stormwater detention basin is proposed at the southern boundary of the site, approximately 3.10 acres in size.

Table 1
Proposed Project Summary

Acres	90.15 AC
Building Footprint	1,346,270 SF
Building Square Footage	1,373,150 SF
Warehouse	*1,319,390 SF*
Office	*53,760 SF*
Parking Stalls	1,422 stalls
Trailer Parking	739 stalls
Landscaping	819,232 SF/ 18.81 AC
Retention Basin	135,036 SF/ 3.10 AC
Off-Site Paving Improvements	124,800 SF/ 2.87 AC

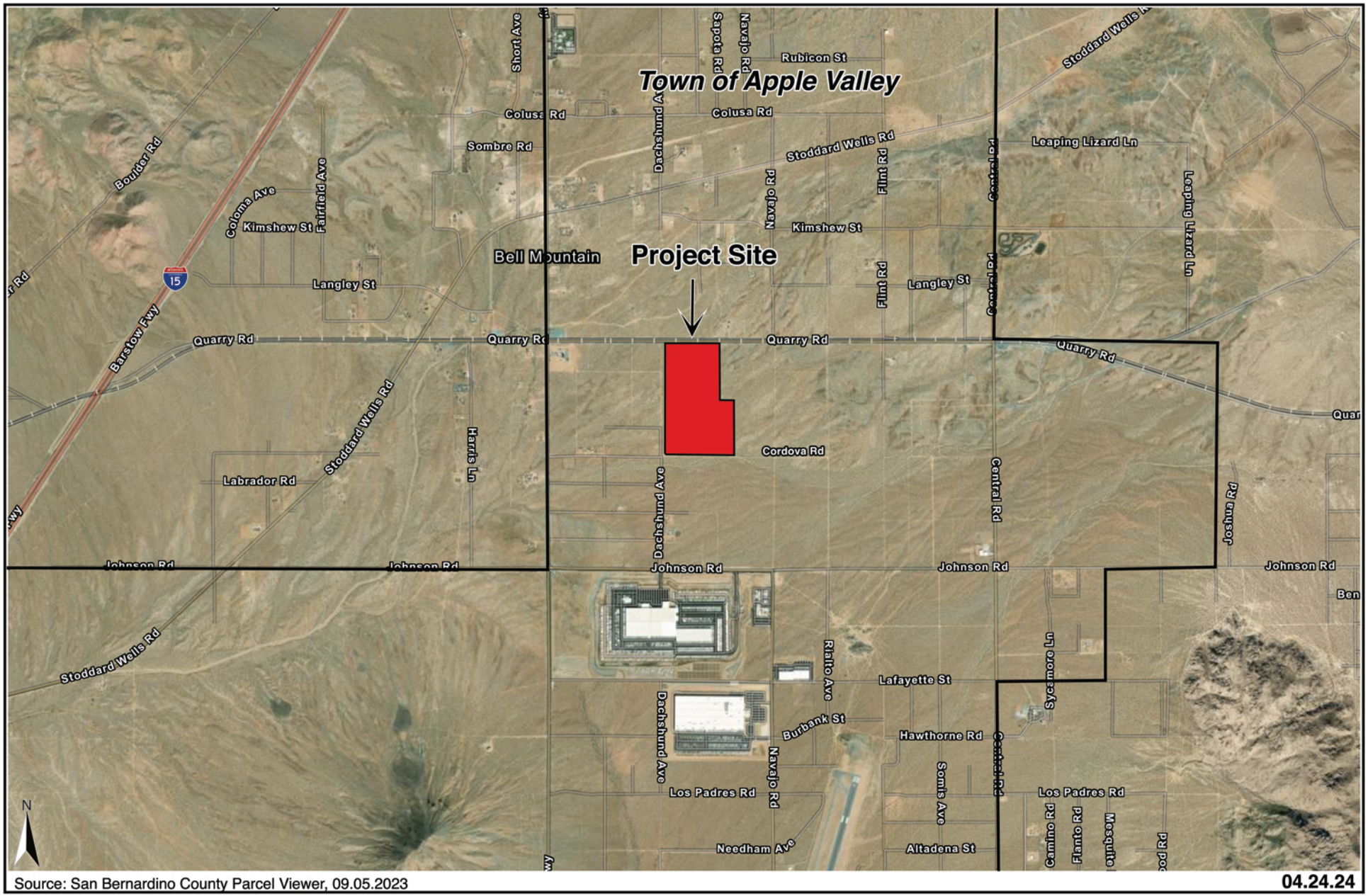
The Project will include six points of access including four on Dachshund and two on Cordova. Three of the driveways (two on Dachshund and one on Cordova) are truck accessible, and the other three are access for vehicles only.

A specific user has not been identified, but it is expected that the ultimate use will consist of warehousing and distribution. In order to provide a conservative (worst-case) analysis, it has been assumed that up to 15 percent of the building's square footage, or about 206,000 square feet, could be occupied by cold storage.

Both Dachshund Road and Cordova Road exist as unpaved roadways currently. The Project will be required to improve Dachshund Road to a General Plan build out half-width of 40 feet, and Cordova Road to its build out half-width of 44 feet along the project boundary. These improvements will include parkway, sidewalk, curb and gutter in addition to roadway paving.

- Cordova Road from Dachshund Road to Dale Evans Parkway, 24-foot-wide paving; no curb and gutter, a distance of approximately 2,600 linear feet.
- Dachshund Road from Cordova Road to Johnson Road, 24-foot-wide paving, no curb and gutter, a distance of approximately 2,600 linear feet.

Internal water, sanitary sewer, electric power lines, and natural gas connections to the building will also be constructed. Additional improvements will be required off-site, including the extension of electrical, natural gas, sewer lines and water lines. All off-site improvements are proposed in existing, paved and unpaved roadways.



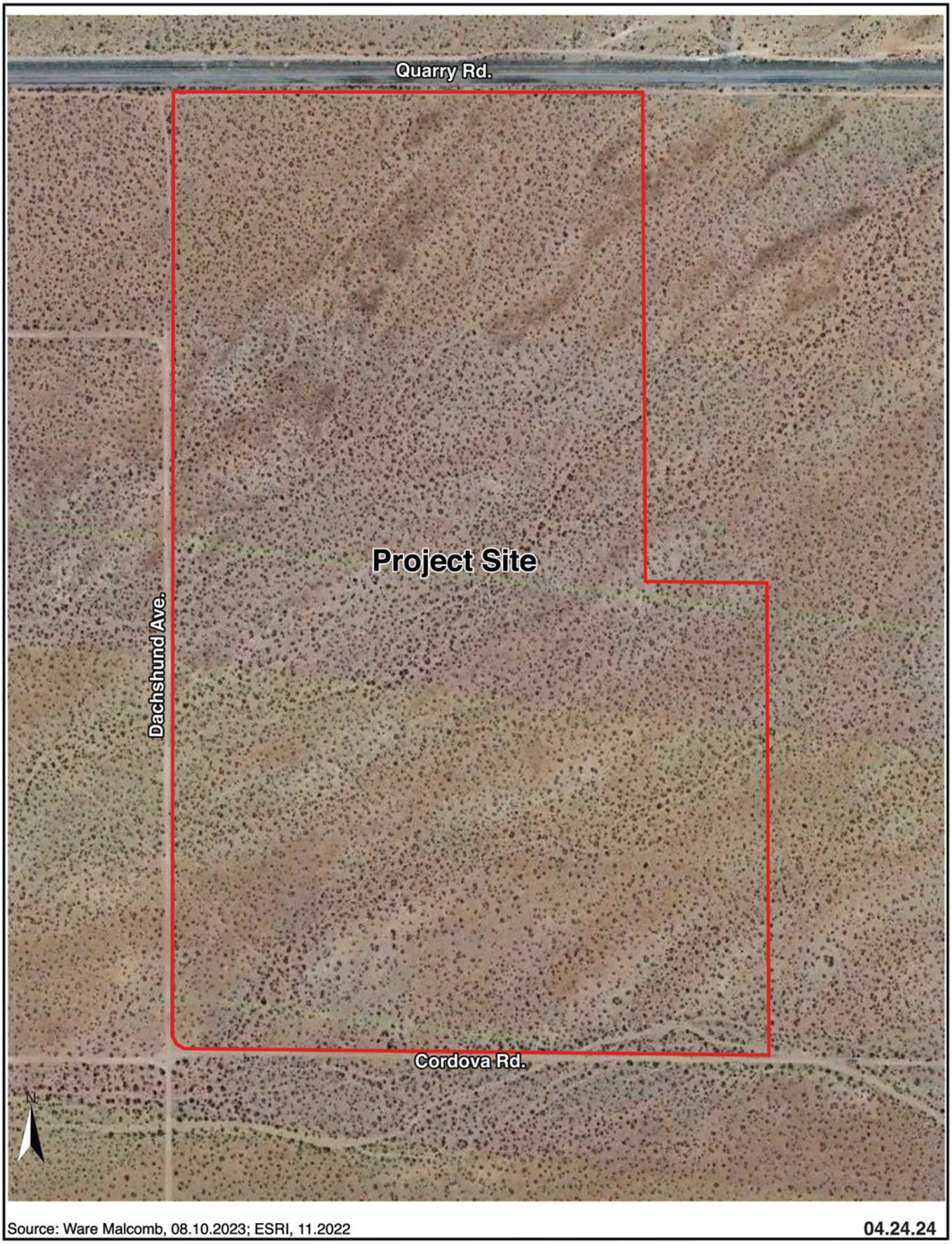
Source: San Bernardino County Parcel Viewer, 09.05.2023

04.24.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Vicinity Map
Apple Valley, California

Exhibit
1-1



Source: Ware Malcomb, 08.10.2023; ESRI, 11.2022

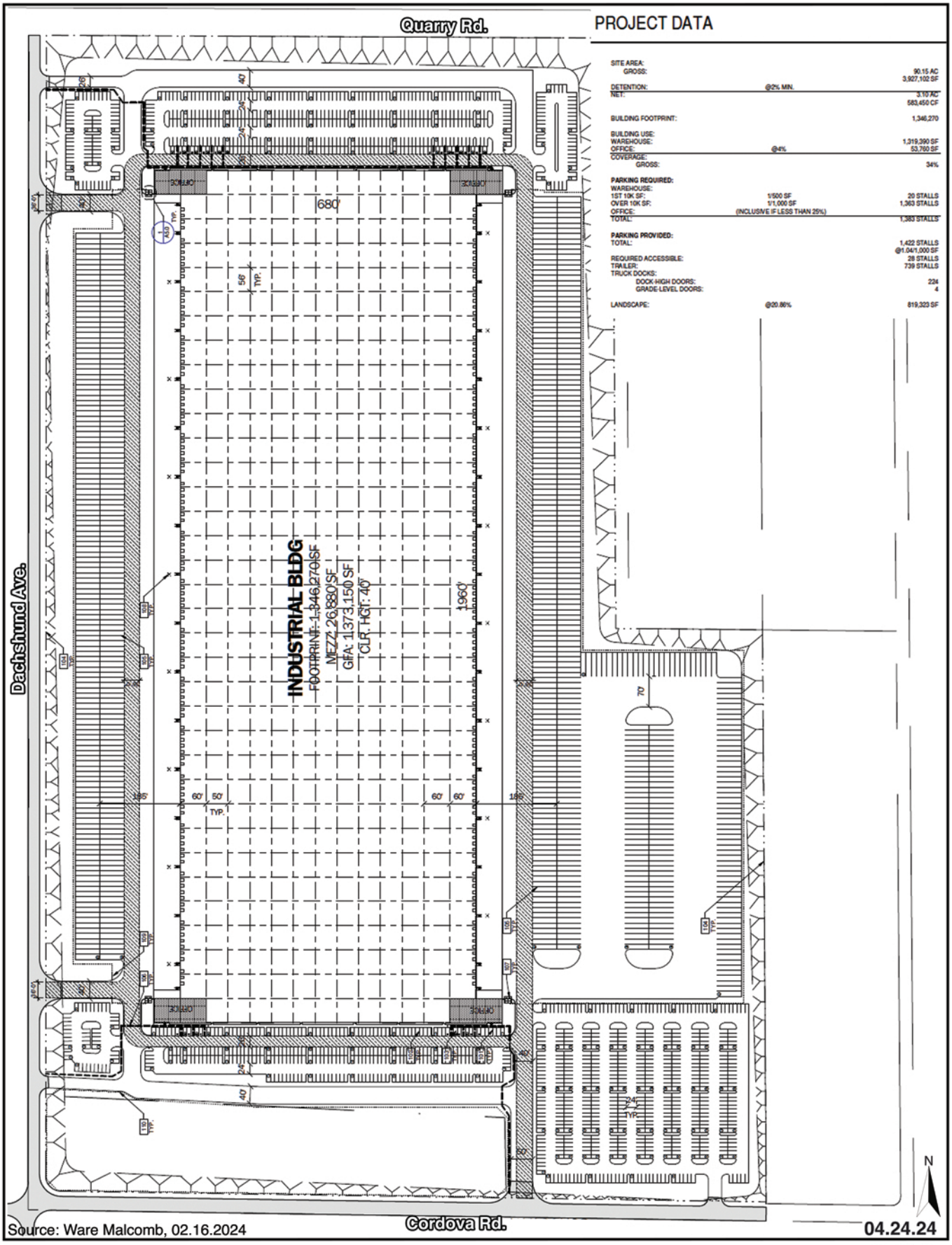
04.24.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Location Map
Apple Valley, California

Exhibit

1-2



Source: Ware Malcomb, 02.16.2024

04.24.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Site Plan
Apple Valley, California

Exhibit
1-3

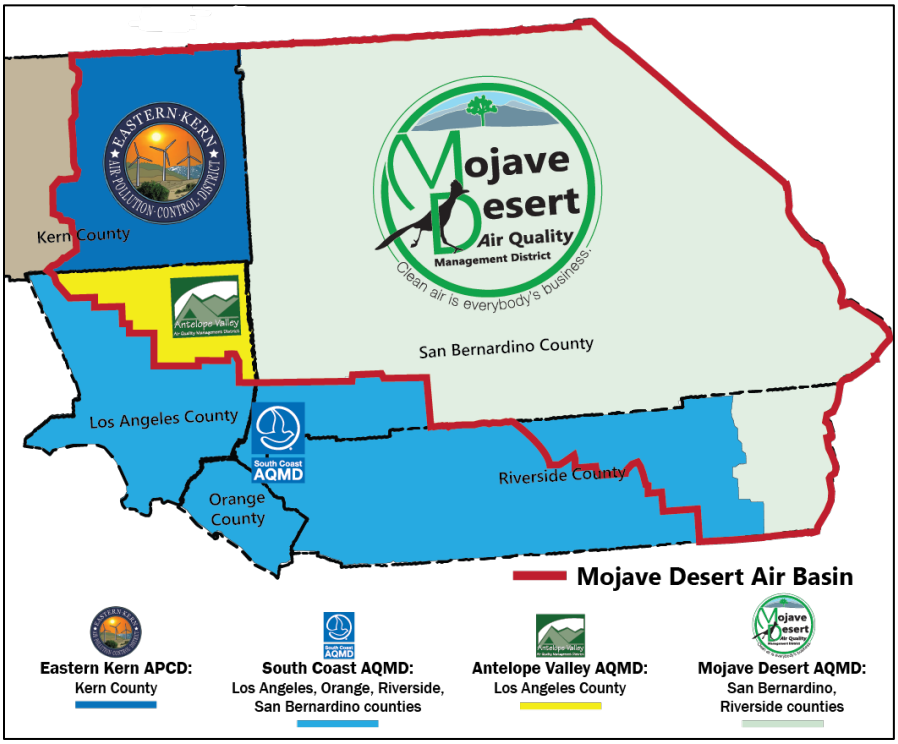
2 AIR QUALITY SETTING

2.1 Atmospheric Setting

The Project site is within the Mojave Desert Air Basin (MDAB). As shown in Figure 1, the MDAB encompasses the high desert portion of San Bernardino County, as well as portions of eastern Kern County, northeastern Los Angeles County, and eastern Riverside County. The basin reaches from the Cajon Pass and Palo Verde Valley, in the southwest and southeast, respectively, north to the unincorporated community of Trona and the state border with Nevada. The topography of the MDAB is defined by a series of mountain ranges and long broad valleys. Mountain ranges with elevations of up to 10,000 feet separate the MDAB from central California and coastal southern California.

Prevailing winds in the basin area are from the west and southwest, channeled from the coast and through the MDAB by the mountains. The high desert receives infrequent moisture from warm and moist air masses from the south. It averages between three and seven inches of precipitation per year.[1] The MDAB is mostly classified as a dry-hot desert climate, with portions classified as very-dry hot, with temperatures averaging over 100.4° F during at least three months of the year.[2]

Figure 2-1: Boundaries of the Mojave Desert Air Basin



Source: Mojave Desert Air Quality Management District, https://www.mdaqmd.ca.gov/about-us

[1] San Bernardino Countywide Plan Draft PEIR, Environmental Analysis, Air Quality (June 2019).
[2] Mojave Desert Air Quality Management District CEQA Guidelines (February 2020).

2.2 Criteria Pollutants

Criteria air pollutants are air pollutants for which acceptable levels of exposure have been determined, and which regulated by Ambient Air Quality Standards (AAQS). The AAQS were established through the federal Clean Air Act (first enacted in 1963) and the California Clean Air Act (1988). The current criteria air pollutants are: ozone (O_3), carbon monoxide (CO), particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), lead (Pb), sulfur dioxide (SO_2), and hydrogen sulfide (H_2S).

Air pollution contributes to a wide variety of health impacts, including heart and lung illnesses, chronic health conditions, increased cancer rates, and premature death. For example, $PM_{2.5}$ pollution is linked with hundreds of emergency room visits for respiratory and cardiovascular disease annually, as well as brain health and adverse birth outcomes. Elevated ozone levels in California are also associated with hospitalizations, lost school days, and premature death.[3] These health impacts disproportionately impact residents of low-income and disadvantaged communities.

Table 2-1 below outlines the primary human-caused emissions sources of criteria pollutants, as well as the effects of these pollutants on human health.

Table 2-1
Criteria Pollutants and Health Impacts

Criteria Pollutant	Source	Health Effects
Ozone (O_3)	A secondary pollutant resulting from hydrocarbons and oxides of nitrogen, emitted by cars, solvents, factories and pesticides, reacting in the presence of sunlight.	Difficulty breathing, chest pains, aggravate lung diseases such as asthma, emphysema, and chronic bronchitis. Shortness of breath, coughing, and lung damage with prolonged and chronic exposure.
Carbon Monoxide (CO)	Fossil fuel combustion by vehicles, as well as household sources such as some appliances, fireplaces, portable generators, charcoal grills.	Headaches, dizziness, vomiting, and nausea. Risk of loss of unconsciousness or death.
Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)	Fugitive dust from construction projects and vehicles on unpaved roads. Industrial smokestacks and wildfires. Atmospheric formation from SO_2 and NO_x.	Coughs, asthma, cancer, lung damage, heart attacks, and premature death.

[3] California Air Resources Board Proposed 2022 State SIP Strategy (August 2022).

Table 2-1
Criteria Pollutants and Health Impacts

Criteria Pollutant	Source	Health Effects
Nitrogen Dioxide (NO_2)	Fossil fuel combustion by vehicles, off road equipment, power generation, and household appliances such as furnaces, clothes dryers, ovens, fireplaces.	Lung damage and irritation.
Lead (Pb)	Lead smelters, ore and metals processing, combustion of leaded aviation fuel, waste incinerators, utilities, and lead-acid battery manufacturing facilities.	Damage to nervous system, kidney function, immune system, reproductive and developmental systems, and cardiovascular systems.
Sulfur Dioxide (SO_2)	Combustion of fossil fuels by power plants and industries, refineries, and diesel engines.	Irritates the nose, throat, and airways. Coughing, shortness of breath, tightness of chest. Individuals with asthma at high risk for developing issues.
Hydrogen Sulfide (H_2S)	Geothermal power plants, petroleum production, sewer gas.	Rotten egg smell, headache, skin complications, respiratory damage.

Sources: CARB 2022 Scoping Plan Update, Environmental and Regulatory Setting, Table 3; MDAQMD Air Quality & Health, https://www.mdaqmd.ca.gov/air-quality/air-quality-health (Accessed April 2024)

2.2.1 Toxic Air Contaminants

According to §39655 of the California Health and Safety Code, a toxic air contaminant (TAC) is "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." The Health and Safety Code definition of TACs also covers substances listed as hazardous air pollutants pursuant to §7412 of Title 42 of the United States Code. TACs are identified and controlled by the California Air Resources Board (CARB) in conjunction with the Office of Environmental Health Hazard Assessment (OEHHA). As an exception, TACs used in pesticides are regulated by the Department of Pesticide Regulation.

Notable TACs include asbestos, benzene, chloroform, as well as inorganic lead and arsenic. The particulate matter emitted by diesel-fueled engines is also identified by CARB as a TAC.[4]

[4] California Air Resources Board, Toxic Air Contaminant Identification Reports https://ww2.arb.ca.gov/resources/documents/toxic-air-contaminant-identification-reports (accessed April 2024).

2.3 Current Conditions

The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) establish thresholds to determine whether the contaminant levels in the air are considered unhealthy. The current federal and state standards are shown in Table 2-2.

Table 2-2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentrations[1]	Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm	--	
	8 Hour	0.070 ppm	0.070 ppm	
Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	
	AAM[2]	20 µg/m^3	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	--	35 µg/m^3	
	AAM	12 µg/m^3	12.0 µg/m^3	15 µg/m^3
Carbon Monoxide	1 Hour	20 ppm	35 ppm	--
	8 Hour	9.0 ppm	9 ppm	--
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm	100 ppb	--
	AAM	0.030 ppm	0.053 ppm	
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm	75 ppb	--
	3 Hour	--	--	0.5 ppm
	24 Hour	0.04 ppm	0.14 ppm	--
	AAM	--	0.030 ppm	--
Lead	30 Day Average	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3	
	Rolling 3-Month Average	--	0.15 µg/m^3	
Visibility Reducing Particles	8 Hour	--	No National Standards	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

[1] µg/m^3 = micrograms per cubic meter of air
[2] AAM = Annual Arithmetic Mean
Source: California Air Resources Board https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf (May 2016)

The air quality of an area is in attainment if the measure ambient air pollutant levels, for the pollutants in the above table, are not exceeded and all other standards are not exceeded at any time in any consecutive three-year period. Attainment also assumes the national standards (other than O_3, PM_{10}, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The ozone standard is in attainment when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10},

the 24-hour standard is attained when 99% of the daily concentrations, averaged over three years, are equal to or less than the standard.

Pursuant to the Federal Clean Air Act, areas that do not meet these standards must prepare State Implementation Plans (SIPs) establishing strategies and deadlines for attainment of the NAAQS and CAAQS. Additionally, air quality districts with non-attainment areas under their jurisdiction must prepare attainment plans providing steps for the implementation, maintenance, and enforcement of the air quality standard within the required timeframe.

2.3.1 Regional Air Quality – Air Basin

The Project is located in the Western Mojave Desert region within the Mojave Desert Air Basin (MDAB). The MDAB is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD) and the Antelope Valley AQMD. The Project site is within the jurisdictional boundaries of the MDAQMD.

Air quality in the MDAB is impacted not just by emissions sources within the basin, but also by activity in the broader region. The primary contributor to air pollution in California is the burning of fossil fuels for transportation, power and heat generation, and industrial processes.[5] The MDQAMD encompasses major roadways, such as the Interstate 40, State Route 58 and Interstate 395, which carry a substantial amount of heavy-duty truck traffic. Likewise, the Interstate 15 carries a substantial amount of commuter traffic connecting to the Los Angeles area, pollutant emissions from which may affect air quality in the MBAD.[6] Fine particulate matter and ozone, two of the pollutants that have the greatest potential public health impacts, are also emitted by fuel and wood combustion, as well as indirectly by chemical reactions resulting from motor vehicle and industrial activity.[7]

Table 2-3 shows the West Mojave Desert's attainment status for the criteria air pollutants, as designated by the EPA. The West Mojave Desert is designated as being in nonattainment for regional levels of particulate matter (PM_{10}) and ozone (O_3). Under the federal Clean Air Act, the MDAB is designated as being in "moderate" ozone non-attainment.

Table 2-3
Regional Attainment Status – West Mojave Desert

Criteria Pollutant	Attainment Status
Ozone (O_3)	Nonattainment
Carbon Monoxide (CO)	Attainment
Fine Particulate Matter ($PM_{2.5}$)	Attainment
Particulate Matter (PM_{10})	Nonattainment (moderate)

[5] Town of Apple Valley 2019 Climate Action Plan Update, p. 8.
[6] MDAQMD Federal 8-hour Ozone Attainment Plan (June 2008).
[7] California Air Resources Board, Sources of Air Pollution, https://ww2.arb.ca.gov/resources/sources-air-pollution (Accessed April 2024).

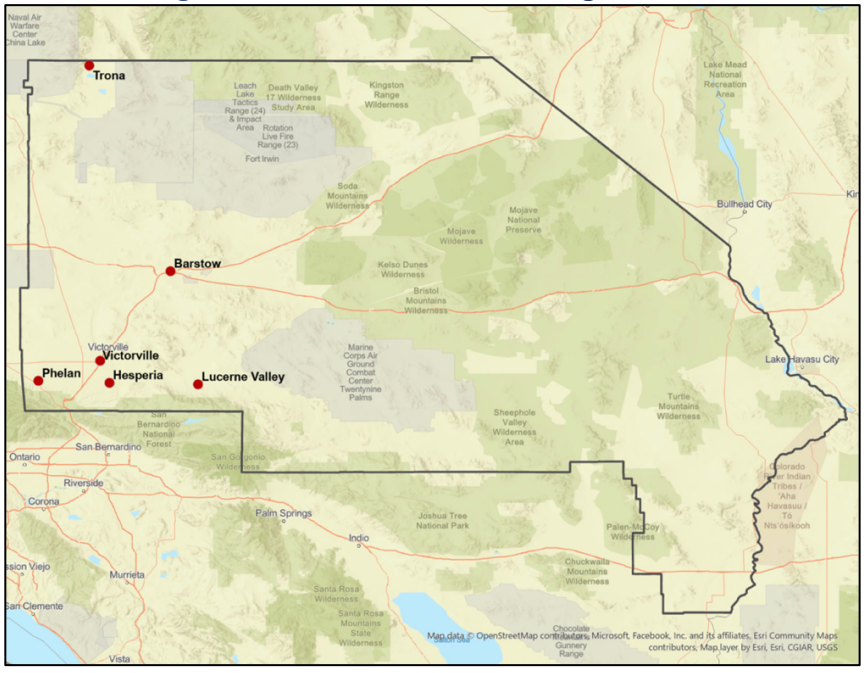
Table 2-3 Regional Attainment Status – West Mojave Desert	
Criteria Pollutant	**Attainment Status**
Nitrogen Dioxide (NO_2)	Attainment
Lead (Pb)	Attainment
Sulfur Dioxide (SO_2)	Attainment
Source: EPA Green Book (September 2022)	

Given the dispersing nature of air pollutants, the MDAB is subject to the aggregate impacts of neighboring jurisdictions. For example, fugitive dust in the MDAB results from both local sources and periodic region-wide high wind events.[8] Additionally, the MDAB receives prevailing winds which blow ozone from the Los Angeles and San Joaquin Valley basins during the summer. While activity in the MDAQMD contributes to ozone emissions, modeling conducted by the South Coast Air Quality Management District and California Air Resources Board indicate that the MDAB would be in attainment for ozone if not for the air pollution transported from upwind regions.[9]

2.3.2 Local Air Quality

Air quality is measured at monitoring stations operated by the air quality management district. The MDAQMD operates six air monitoring stations distributed across its jurisdiction in Trona, Barstow, Victorville, Hesperia, Phelan, Lucerne Valley. The nearest monitoring station to the Project is the Victorville Monitoring Station located at 14036 Park Avenue. The station is located approximately 10.3 miles southwest of the Project site.

Figure 2-2: MDAQMD Monitoring Stations



[8] MDAQMD Federal Particulate Matter (PM_{10}) Attainment Plan (July 1995).
[9] MDAQMD Federal 8-hour Ozone Attainment Plan (June 2008).

The following tables show the maximum concentration and number of days annually that ambient air quality measured at the Victorville Monitoring Station exceeded state and national standards for ozone and particulate matter (PM_{10}) from 2016 to 2022.

Table 2-4 shows the ozone monitoring data for the Victorville Park Avenue monitoring station. The data for both maximum concentrations and number of days exceeding standards fluctuates over the seven-year period, and there is no clear trend indicating worsening or improving ozone concentrations.

Table 2-4
Ozone Monitoring Data

Monitoring Station	Year	Maximum Concentration		Number of Days Standard Exceeded		
				Federal	State	
		1 Hour ppm	8 Hour ppm[1]	8 Hour[2]	1 Hour	8 Hour
Victorville Park Avenue	2016	0.100	0.085	33	4	35
	2017	0.088	0.081	17	0	19
	2018	0.107	0.096	55	5	56
	2019	0.104	0.081	29	3	34
	2020	0.112	0.094	35	4	38
	2021	0.112	0.098	34	8	35
	2022	0.100	0.090	44	3	49

Source: iAdam: Air Quality Data Statistics, California Air Resources Board; www.arb.ca.gov/adam. Accessed April 2024.
[1] 8-Hour Average National 0.07 ppm Standard Maximum
[2] Days Exceeding National 0.070 ppm Standard

Table 2-5 shows the PM_{10} data for the Victorville monitoring station. The data indicates fluctuations in PM_{10} concentrations over the seven-year period. Insufficient data was collected for the maximum concentration and number of days exceeding the state standard.

Table 2-5
Particulate Matter 10 Monitoring Data

Monitoring Station	Year	Maximum Concentration (µg/m³/24 hours)		Number of Days Standard Exceeded		Annual Arithmetic Mean[2]
		Federal	State[1]	Federal	State	
Victorville Park Avenue	2016	226.5	*	1.9	*	29.2
	2017	182.5	*	1.0	*	30.1
	2018	165.2	*	1.0	*	29.8
	2019	170.0	*	1.9	*	27.2
	2020	261.4	*	1.9	*	34.0
	2021	591.6	*	1.0	*	33.9

	2022	372.1	*	2.1	*	33.6

Source: iAdam: Air Quality Data Statistics, California Air Resources Board; www.arb.ca.gov/adam. Accessed April 2024.
[1] * = There was insufficient (or no) data available to determine the value.
[2] Federal Annual Average Standard AAM exceeding 50 µg/m^3

2.4 Regulatory Background

Federal, state, and local policies aim to reduce air pollution by regulating air quality and the sources of pollution emissions. The following section describes relevant air quality policies and regulations.

2.4.1 Federal Regulations

Federal Clean Air Act (FCAA) - 42 U.S.C. §7401 et seq.
The Federal Clean Air Act, which was first enacted in 1970 and last amended in 1990, remains the federal government's primary air quality law regulating air emissions from stationary and mobile sources. There are several regulatory programs bought about by FCAA amendments, including National Ambient Air Quality Standards (NAAQS), National Emissions Standards for Hazardous Air Pollutants (NESHAPs), New Source Performance Standards (NSPS), the Acid Rain Program (APP), and the CAA ozone program consistent with the Montreal Protocol. Notably, the FCAA gives the Environmental Protection Agency (EPA) that authority to establish the National Air Quality Standards.

National Ambient Air Quality Standards (NAAQS)
The FCAA authorizes the EPA to establish National Ambient Air Quality Standards (40 CFR Part 50) for six criteria air pollutants which are potentially harmful to the public and to the environment. The NAAQS define what qualifies as clean air by identifying the maximum amount of a pollutant, averaged over a specified timeframe, that can be present without harming public health.[10] The EPA reviews the NAAQS at five-year intervals, and makes revisions as needed. The six criteria air pollutants currently covered by the NAAQS are: particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), nitrogen oxides (NO_X), sulfur oxides (SO_X), carbon monoxide (CO), and lead. Under the FCAA, nonattainment areas (areas that exceed that maximum standard for one or more of the criteria pollutants) must prepare State Implementation Plans (SIPs) describing the actions the area will take to meet the NAAQS by the applicable attainment deadlines.

2.4.2 State Regulations

California Clean Air Act
The California Clean Air Act (CCAA) was passed into law in 1988, establishing ambient air quality standards for the State of California that exceed NAAQS, as well as accelerated attainment dates

[10] California Air Resources Board, National Ambient Air Quality Standards https://ww2.arb.ca.gov/resources/national-ambient-air-quality-standards (Accessed April 2024).

for criteria pollutants established in the FCAA. The CCAA establishes requirements for district air quality plans to ensure that the state standards for criteria pollutants are met.

Title 24 Energy Efficiency Standards & California Green Building Standards
The Building Energy Efficiency Standards (Energy Code) were first adopted by the California Energy Commission in 1976 and have since been updated regularly. The Energy Code establishes indoor air quality requirements, in addition to energy and water efficiency requirements, for all newly construction buildings as well as additions and alterations to existing buildings.

2.4.3 Air Quality Management

California Air Resource Board
The California Air Resources Board (CARB) is part of the California Environmental Protection Agency and is responsible for preparation the SIP for submission to the EPA, as well as for overseeing air quality districts and approving district air quality plans. Established in 1967, the CARB regulates vehicle emissions standards and sets area designation for criteria pollutants.

Mojave Desert Air Quality Management District (MDAQMD)
The California Air Resources Board is responsible for regulating mobile emissions sources, while the air quality management districts, such as MDAQMD, are responsible for controlling stationary sources and enforcing regulations.

The MDAQMD regulates stationary source of air pollution within its jurisdiction, which covers 20,000 square miles including the High Desert in San Bernardino County and Palo Verde Valley in Riverside County. The District covers a large portion of the Mojave Desert Air Basin, which also overlaps with parts of the Eastern Kern Air Pollution Control District, the Antelope Valley AQMD, and the South Coast AQMD.

In response to designations of non-attainment for several air pollutants within the MDAB, the MDAQMD adopted ozone and particulate matter attainment plans. The Mojave Desert Planning Area Federal Particulate Matter Attainment Plan was adopted in 1995, in order to bring the Mojave Desert non-attainment area into attainment for NAAQS. The MDAQMD State and Federal Ozone Attainment Plan was adopted in 2004 and the MDAQMD Western Mojave Desert Non-attainment Area Ozone Attainment Plan was adopted in 2008 in an effort to bring the MDAB in attainment for Ozone federal NAAQS.

MDAQMD Federal Particulate Matter (PM_{10}) Attainment Plan (July 1995): This plan was adopted to comply with the federal requirements associated with PM_{10} attainment planning, including a strategy for the adoption and implementation of reasonably available control measures. The plan was to demonstrate PM_{10} attainment, in accordance with the NAAQS, by the end of December, 2000.

MDAQMD State and Federal Ozone Attainment Plan (April 2004): This plan provided the MDAQMD's strategy for the implementation, maintenance, and enforcement of the

NAAQS for ozone by the end of 2007, as well as for progress towards meeting the State Ambient Air Quality Standards for ozone. It contains emissions limits, a monitoring program, a permit program, contingency measures, and air quality monitoring.

MDAQMD Western Mojave Desert Non-Attainment Area Ozone Attainment Plan (State and Federal) (June 2008): This plan provides the District's strategy for achieving the federal 8-hour ozone standard in the West Mojave Desert non-attainment area by 2021.

The MDAQMD has established thresholds for certain criteria pollutants and monitors daily pollutant levels and meteorological conditions throughout the District. Based on the District's emission thresholds for criteria pollutants, any project would be considered to have significant impacts to air quality if the daily emissions exceed the values shown in the table below during construction or operation:

Table 2-6
MDAQMD Significant Emissions Thresholds

Criteria Pollutant	Annual Thresholds (short tons)	Daily Thresholds (pounds)
Greenhouse Gases (CO_2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organize Compounds (VOC)	25	137
Oxides of Sulfur (SO_x)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3
Source: MDAQMD CEQA Guidelines (February 2020)		

2.4.3.1 Air Basin Regulations

The MDAQMD has adopted rules and regulations to improve and maintain air quality in the district. The rules and regulations also implement state and federal policies, such as the Clean Air Act. The current MDAQMA rule book contains 18 regulations and associated rules. Excerpts of applicable regulations to the Project are listed below. The complete list and full text of the current rule book is available on the MDAQMD website.[11]

Regulation II – Permits

Rule 201: Permits to Construct: *A person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer.*

[11] MDAQMD Rule Book, https://www.mdaqmd.ca.gov/rules/rule-book (Accessed April 2024).

A permit to construct shall remain in effect until the permit to operate the equipment for which the application was filed is granted or denied, or the application is canceled.

Regulation IV – Prohibitions

Rule 402: Nuisance: *A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.*

Rule 403: Fugitive Dust Control: *Purpose - The purpose of this rule is to reduce the amount of PM10 entrained in the ambient air from anthropogenic Fugitive Dust sources within the District by requiring actions to prevent, reduce, or mitigate Fugitive Dust.*

Rule 404: Particulate Matter Concentration: *A person shall not discharge into the atmosphere from any source, particulate matter except liquid sulfur compounds, in excess of the concentration at standard conditions, shown in Table 404(a). Where the volume discharged is between figures listed in the table, the exact concentration permitted to be discharged shall be determined by linear interpolation.*

Regulation IX – Standards of Performance for New Stationary Sources

Rule 900: Standards of Performance for New Stationary Sources (NSPS): *This rule is enacted to adopt by reference all the applicable provisions regarding standards of performance for new stationary sources as set forth in 40 Code of Federal Regulations, Part 60 (40 CFR 60).*

Regulation XI – Source Specific Standards

Rule 1103: Cutback and Emulsified Asphalt: *To reduce emissions of volatile organic compounds (VOC) from the use of cutback and emulsified asphalts. The provisions of this rule apply to the manufacture, mixing, storage, use, and application of cutback and emulsified asphalts.*

Rule 1113: Architectural Coatings: *The purpose of this rule is to limit the quantity of Volatile Organic Compounds (VOC) in Architectural Coatings. Except as provided in subsection (A)(3), this Rule is applicable to any person who supplies, sells, offers for sale, manufactures, blends or repackages any Architectural Coating for use within the Mojave Desert Air Quality Management District as well as any person who applies or Solicits the application of any Architectural Coating within the District.*

Regulation XII – Federal Operating Permits

Rule 1200: General: *The purpose of Regulation XII is to implement the operating permit requirements of Title V of the Federal Clean Air Act (42 U.S.C. §§7661-7661f). This rule is also intended to comply with the requirements promulgated by the USEPA and set forth in 40 C.F.R. Part 70.*

Regulation XIII – New Source Review

Rule 1300: New Source Review General: *The purpose of this regulation is to set forth the requirements for the preconstruction review of all new or modified Facilities; ensure that the Construction or Modification of Facilities subject to this Regulation does not interfere with the attainment and maintenance of Ambient Air Quality Standards; and ensure that there is no net increase in the emissions of any Nonattainment Air Pollutants from new or modified Major Facilities which emit or have the Potential to Emit any Nonattainment Air Pollutant in an amount greater than or equal to the amounts set forth in District Rule 1303(B)(1).*

3 PROJECT AIR QUALITY IMPACT

3.1 Introduction

The following section analyzes the potential impacts associated with buildout of the proposed Project in conformance with the California Environmental Quality Act (CEQA).

3.2 Standards of Significance

The following thresholds are from the significance criteria listed in the CEQA Environmental Checklist included in Appendix G of the CEQA Guidelines. The Project would have a significant effect on air quality if the proposed Project were to:

a) Conflict with or obstruct implementation of the applicable air quality plan?

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

c) Expose sensitive receptors to substantial pollutant concentrations?

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

3.3 Methodology

The following analysis is based on proposed land uses and traffic trip information provided by Urban Crossroads, Inc. (2023). The Project proposes the development of a 1,373,150 square foot warehouse distribution center on a 90.1 ± acre site. The Project also requires off-site improvements including the extension of roadways and utility connections. It is assumed, for analysis purposes, that 85% of the building will be used for dry warehousing, and 15% for cold storage. The Project will emit criteria air pollutants during both the construction and operational phases. In particular, the Project, as a warehouse distribution center, will generate emissions through distribution truck trips to and from the facility.

Construction and operational emissions were calculated using California Emissions Estimator Model (CalEEMod) Version 2022.1. CalEEMod is a computer program that can be used to estimate anticipated emissions associated with land development projects in California. The model calculates criteria pollutant emissions, including CO, PM_{10}, $PM_{2.5}$ and the ozone precursors ROG and $NO_{x,}$). CalEEMod detailed output tables are provided in Appendix A of this report.

The following provides a summary of the land use assumptions entered into the model:

Table 3-1 Land Use Summary for CalEEMod			
Land Use	**Acreage**	**Size**	**Landscape**
Unrefrigerated Warehouse	36.0	1,167,177 sf	Landscaping: 819,232 SF Retention: 135,036 SF
Refrigerated Warehouse	4.65	205,973 sf	---
Parking Lot	19.5	2,161 spaces (1,422 standard, 739 trailer)	---
Hardscape (Other Asphalt Surfaces)	32.87	Internal Roadways: 30 AC Off-Site Roadway Improv.: 2.87 AC	---
Source: Project plan set dated February 15, 2024. Second submittal for site plan review.			

3.4 Construction Emissions

For analysis purposes, it is assumed that the Project will require a two-year buildout, concluding in 2024. Final grading plans have not been prepared, however it is assumed there will be a net balance of cut and fill materials on-site, with not import or export of materials required. The construction phase includes site preparation, grading, paving, building construction, and application of architectural coatings. It is also assumed that building construction, paving, and architectural coating will occur in staggered, but overlapping phases.

The following provides the construction phasing assumptions entered into the model:

- Construction phasing:
  - Site Preparation: 1/1/2025 – 3/25/2025 (60 days)
  - Grading: 3/26/2025 – 11/7/2024 (163 days)
  - Building Construction: 11/10/2025 – 11/27/2026 (275 days)
  - Paving: 2/2/2026 – 11/27/2026 (215 days)
  - Architectural Coating: 7/1/2026 – 12/31/2026 (132 days)

Table 3-2 shows that the emissions generated by the Project construction activities will not exceed the MDAQMD thresholds for any criteria air pollutants. The data in Table 3-2 represents maximum daily unmitigated emissions over the 2-year construction period.

Table 3-2 Maximum Daily Construction-Related Emissions Summary (pounds per day)						
Construction Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Daily Maximum	81.6	31.7	59.3	0.09	12.0	5.25
MDAQMD Threshold	548	137	137	137	82	65
Exceeds?	No	No	No	No	No	No

Source: Appendix A: CalEEMod Outputs.

4.5 Operational Emissions

Operational Emissions refer to the ongoing emissions over the life of a project. They include area source emissions, emissions from energy demand (e.g. electricity) and mobile source emissions (e.g. vehicles).

The proposed Project is estimated to generate 2,864 daily trips according to the Traffic Impact Analysis and is based on ITE Land Use Codes 157 for High-Cube Warehouse and High-Cube Cold Storage Warehouse[12]. The total of 2,864 daily trips is comprised of 1,994 passenger car trips and 870 truck trips. For warehouse uses, two CalEEMod runs were conducted. The first run modeled passenger vehicle trips associated with the warehouse uses and assumed CalEEMod default trip lengths and purposes. The second modeling run modeled truck trips associated with the warehouse uses. Assuming that warehouse developments generate longer truck trips associated with product delivery/distribution, trip lengths for long-haul truck trips assumed a 40-mile trip length derived from the Southern California Association of Government's (SCAG) estimation of average truck trip length in its 2016 Regional Transportation Plan.[13]

Table 3-3 shows the assumed fleet mix for the passenger vehicle run and the truck trip run for warehouse developments.

Table 3-3
Fleet Mix – For Passenger Vehicle Run and Truck

Vehicle Type	Passenger Vehicle Model Run	Truck Model Run
HHD	0	60%
LDA	62%	0
LDT1	4%	0
LDT2	21%	0
LDH1	0	17%
LDH2	0	0
MCY	0	0
MDV	31%	0
MH	0	0
MHD	0	23%
OBUS	0	0
SBUS	0	0
UBUS	0	0

Source: Moreno Valley Trade Center (Warehouse Scenario) Air Quality, GHG, & HRA Evaluation prepared by UXR (October 2020)

[12] Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[13] South Coast Air Quality Management District, Preliminary Draft Staff Report: Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce.

CalEEMod defaults were assumed for electricity and natural gas demand. Southern California Edison 2027 forecasted intensity factors (as provided in CalEEMod) were applied, assuming an operational year of 2027. Based on CalEEMod default factors, the Project would generate a demand for 10,644,805 kWh/yr and 27,615,029 kBTU/yr.

CalEEMod defaults for water demand were updated based on the approved WSA. Water demand for the Project is estimated to be 65.13 acre-feet per year, which assumed 85 percent of indoor water use would be for unrefrigerated warehouse use, and 15 percent would be for refrigerated warehouse use.

As shown in Table 3-4, projected emissions during the Project's operational life will not exceed the MDAQMD thresholds for any criteria air pollutants. Impacts related to operational emissions can thus be assumed to be less than significant.

Table 3-4
Maximum Daily Operational-Related Emissions Summary (pounds per day)

Operational Emissions	CO	NO_x	ROG	SO_2	PM_{10}	$PM_{2.5}$
Daily Max (w/o mobile)	65.93	7.92	41.71	0.04	0.67	0.64
Mobile (Passenger Car)[1]	97.80	5.26	5.40	0.28	27.5	6.98
Mobile (Trucks)[1]	26.50	92.4	2.35	0.90	31.9	9.77
Daily Max. (Total)	**190.23**	**105.58**	**49.46**	**1.22**	**60.07**	**17.39**
MDAQMD Threshold	548	137	137	137	82	65
Exceeds?	No	No	No	No	No	No

Source: Appendix A: CalEEMod Outputs.

4.6 Localized Impacts

The MDAQMD considers residences, schools, daycare centers, playground, and medical facilities as sensitive receptor land uses. According to the MDAQMD CEQA Guidelines, projects within a specified distance of a sensitive receptor must be evaluated using significance threshold criteria number 4:

> *(4) [A project is significant if it] Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.*

The threshold distances from sensitive receptors, as specified by the MDAQMD are as follows:

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicle per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;

- A gasoline dispensing facility within 300 feet.[14]

The proposed Project is considered an industrial land use and proposes a distribution center with more than 40 truck trips projected per day. The Project is located within the North Apple Valley Industrial Specific Plan area and is not within 1,000 feet of any sensitive receptor land uses. The nearest sensitive receptor land uses are scattered residences located approximately 1,400 feet west of the Project site.

Given that the Project is well beyond the specified distance from any sensitive receptor land uses, it does not need to be evaluated using significance criteria number 4, stated above.

3.7 Air Quality Management Plan Consistency

The Project is located within the MDAB, which is governed by the MDAQMD. MDAQMD is responsible for monitoring criteria air pollutant concentrations and establishing management policies for the MDAB. All development within the MDAB, including the proposed Project, is subject to all applicable air quality management plans that establish control strategies and guidance on regional emission reductions for air pollutants, including but not limited to ozone attainment plans and PM_{10} reduction plans.

According to the MDAQMD CEQA Guidelines, a project is considered non-conforming if it conflicts with or may delay the implementation of any applicable attainment or maintenance plan. According to the guidelines, a project is considered conforming if it "complies with all proposed control measures that are not yet adopted from the applicable plan(s) and is consistent with the growth forecasts in the applicable plan(s)."

The MDAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments, and cooperates actively with all state and federal government agencies. SCAG adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS) to comply with metropolitan planning organization (MPO) requirements under the Sustainable Communities and Climate Protection Act. The Growth Management chapter of the RTP/SCS forms the basis of land use and transportation controls of air quality plans. The 2020 SCAG RTP/SCS forecasts that by 2045, the Town of Apple Valley will have 37,400 households and a population 101,400.[15] According to the Town's 2009 General Plan, Apple Valley has the potential to accommodate 31,716 additional dwelling units and 96,829 additional residents in the Town boundaries through buildout of the General Plan.[16]

[14] MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (February 2020).
[15] SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Demographics and Growth Forecast Technical Report, Jurisdiction-Level Growth Forecast.
[16] Town of Apple Valley General Plan (2009), page II-2.

MDAQMD states that conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast.[17] The Project site is located in the planning area of the North Apple Valley Industrial Specific Plan (NAVISP). According to the NAVISP, the Project property is designated as Industrial – Specific Plan, which allows for "a broad range of clean manufacturing and warehousing uses… [including] warehouse distribution facilities." [18] The Project, which proposes the development of a warehouse distribution facility, is consistent with the land use and zoning designation established in the NAVISP and will comply with the policies and regulations applicable to this designation. According to the MDAQMD CEQA Guidelines, given that the Project is consistent with the land use plan used to generate the growth forecast, it can be assumed that the Project is conforms with the growth forecast itself.

The MDAQMD CEQA Guidelines also state that a project is considered conforming if it complies with all proposed control measures. According to the Apple Valley General Plan, the Town is subject to the provisions of the MDAQMD Rule Book, which establishes policies and other measures designed to help the District reach federal and state attainment standards. [19] In accordance with the Towns policies, the proposed Project shall comply with the provisions of the MDAQMD Rule Book. These actions include the implementation of fugitive dust control measures (Rule 403) and the use of low VOC content architectural coatings (Rule 1113). Furthermore, the Project will be subject to Rule 201, which requires a permit from the Air Pollution Control Office prior to any construction activities, and Rule XIII, which requires preconstruction review of all new facilities to ensure they don't interfere with the attainment and maintenance of ambient air quality standards. Compliance with the MDAQMD's requirements will ensure that the Project does not conflict with applicable air quality plans.

3.8 Odors

Land uses which are likely to generate odors, other than agricultural operations which are exempted, include chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rail yards, and wastewater treatment plants.[20]

The Project proposes the development of a distribution warehouse facility, which will not include any industrial production or processing activity onsite. While the proposed warehouse may produce some odors, it is not anticipated to produce any objectionable odors long term. While some odors may be generated on site during the construction process, their production will be short term. Any odors generated on site during construction or operations are expected to disperse quickly with distances.

3.9 Cumulative Impacts

[17] MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (February 2020).
[18] North Apple Valley Industrial Specific Plan (2006), p. I-2.
[19] Town of Apple Valley General Plan (2009) Air Quality Element, p. III-70.
[20] SCAQMD Guidance Document, Chapter 2: Air Quality Issues Regarding Land Use.

Given the dispersing nature of pollutant emissions and aggregate impacts from nearby jurisdictions, cumulative air quality is evaluated on a regional scale. As previously mentioned, the West Mojave Desert portion of the Mojave Desert Air Basin is a designated non-attainment region for PM_{10} and ozone. Any development resulting in emissions of PM_{10}, ozone, or ozone precursors will, to some extent, contribute to the existing regional non-attainment.

The MDAQMD does not currently provide thresholds of significance for the cumulative emissions of multiple projects. A project's potential cumulative contributions can instead be analyzed using the criteria for project-specific impacts, assuming that if an individual development generates less than significant construction and operational emissions, then it would not generate a cumulatively considerable increase in non-attainment criteria pollutants.

The Project is located in a non-attainment area for PM_{10} as well as ozone, for which precursors include CO, NO_x, and ROG. As shown in Tables 3-3 and 3-4, Project emissions will fall below threshold of what MDAQMD considers to be cumulatively considerable. Emissions of PM_{10}, CO, NO_x and ROG related to the Project are also projected to be below the MDAQMD thresholds.

Standard best practices will be applied during construction, including dust control measures in accordance with MDAQMD Rule 403, as well as the use of low VOC content architectural coatings per MDAQMD Rule 1113. Therefore, while the Project will contribute to incremental increases in emissions, the impacts on regional PM_{10} and ozone levels are not anticipated to be cumulatively considerable.

3.10 CEQA Determination

a) Conflict with or obstruct implementation of the applicable air quality plan?

The Project conforms with the growth forecasts used in the MDAQMD's plans and will comply with all control measures proposed in the District's air quality plans. Based on this evidence, it can be concluded that the Project will not conflict with or obstruct implementation of the applicable air quality plan, and that impacts will therefore be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Both the construction and operation of the proposed Project will result in emissions that are below the MDAQMD significance thresholds. The Project is not anticipated to make substantial contributions to an existing regional air quality violation. Overall, Project-specific impacts will be less than significant and Project-related impacts to non-attainment will not be cumulatively considerable.

c) Expose sensitive receptors to substantial pollutant concentrations?

Given that there are currently no sensitive receptors in the Project vicinity, the proposed development is not anticipated to expose sensitive receptors to substantial pollutant concentrations, and impacts can be considered less than significant.

Potential Health Impacts

According to the MDAQMD CEQA Guidelines, the District does not currently have a methodology to correlate the expected air quality emissions of a project to the likely health consequences of those emissions consistently and meaningfully. There are several factors that make it scientifically impossible with the technology available today to calculate the degree to which an individual's health would be impacted by exposure to various levels of criteria pollutant emissions:

- Differing medical histories mean that not all individuals would be affected equally. Some individuals may have medical pre-dispositions, and diet and exercise levels vary across a population.
- Due to the dispersing nature of pollutants, it is difficult to local and identify which individuals will be impacted, either directly or indirectly.
- There are currently no agreed upon methodologies or studies upon which to base assumptions, such as baseline health levels or emissions level-to-health risk ratios.

While the air district, and the field of study in general, do not have methodologies available to analyze the specific health consequences of a project's emissions, MDAQMD does recommend the use of tools such as CalEEMod for the purposes of project evaluation.

Given these limitations, the extent to which the proposed Project poses a health risk is uncertain, but unavoidable. However, the results of the CalEEMod projections indicate that the Project's emissions are below the MDAQMD thresholds, and the application of the MDAQMD sensitive receptor guidelines also indicate that the Project is not within the threshold distance. Based on these findings, it is therefore anticipated that the Project's impacts and associated health effects resulting from criteria pollutants will overall be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The Project does not propose land uses likely to generate objectionable odors. While the proposed warehouse may produce some odors, it is not anticipated to produce any objectionable odors long term. There are no sensitive receptors in the immediate vicinity of the proposed Project. There are therefore no land uses nearby that are likely to be impacted by any nuisance related to odors. As such, impacts from objectionable odors are expected to be less than significant.

3.11 Air Quality Mitigation Measures

Analysis of the Project's emissions and conformance with applicable air quality attainment and maintenance plans found that impacts are expected to be less than significant. Given that impacts will be less than significant, mitigation measures will not be necessary.

4 CLIMATE CHANGE SETTING

4.1 Introduction to Greenhouse Gases and Climate Change

Greenhouse gases, or GHG, are gases that absorb infrared radiation in the atmosphere. They are named after their role in the greenhouse effect, which refers to the trapping of heat in the atmosphere, near the earth's surface. Like the function of the walls of a greenhouse, as heat flows towards space from the earth's surface, GHGs absorb it and re-radiate it back towards the earth's surface.[21] Greenhouse gases play an essential role in insulating the earth and thereby maintaining climatic conditions amenable to life as we know it.[22]

While GHGs are vital, maintaining balance in the system is also crucial. Over the last two centuries, human activity, such as the burning of fossil fuels, industrial activity, deforestation, and land use changes, began to intensify the natural greenhouse effect. While the combustion of fossil fuels produces and emits greenhouse gases into the atmosphere at levels elevated far beyond the natural production of these gases, the removal of trees and other vegetation reduce the earth's ability to sequester CO_2.[23] As the concentrations of these gases increase, so too does the amount of heat that they trap in the atmosphere. The resulting warming of the earth's climate is known as climate change.

4.1.1 Greenhouse Gases

According to the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6), atmospheric concentrations of CO_2 have increased by 50 percent since the industrial revolution and continue to increase at a rate of two parts per million each year. At this rate, the world will exceed 1.5°C above pre-industrial levels by the 2030s.[24] This level of global warming is associated with global mean sea level rise as well as regional climatic changes such as extreme temperatures, increases in the frequency and intensity of heavy precipitation in some regions, and increases in the intensity and frequency of droughts in some regions.[25]

Greenhouse gas is a broad term referring to chemicals and substances found to cause changes in the atmosphere and the changing of the earth's climate. While these are not the only greenhouse gases, the California Air Resources Board is required to monitor and regulate seven GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs).[26] The latter four gases, all of

[21] United Nations Framework Convention on Climate Change – GHG Inventories.
[22] Town of Apple Valley 2019 Climate Action Plan Update.
[23] California Air Resources Board 2022 Scoping Plan, Environmental and Regulatory Setting.
[24] IPCC Climate Change 2021: The Physical Science Basis. Contribution of Working Group 1 to the Sixth Assessment Report of the IPCC (2021).
[25] IPCC Special Report: Global Warming of 1.5°C – Summary for Policymakers (2018).
[26] California Health and Safety Code § 38505 (g).

which contain fluorine, are sometimes collectively referred to as high global warming potential greenhouse gases (high-GWP gases).

Global warming potential (GWP) is a metric used to convert all GHGs into carbon dioxide equivalents. Carbon dioxide equivalents (CO_2e), and specifically metric tons of carbon dioxide equivalents ($MTCO_2e$), are units of measure used to compare emissions of various greenhouse gases. Carbon equivalent refers to the mass of carbon dioxide that would produce the same estimated radiative force as that of another greenhouse gas.[27] These metrics facilitate the development of multi-gas frameworks and policies which are crucial to action addressing climate change.

Table 4-1 describes the primary GHGs, the contribution of each gas to California's total GHG emissions, and the main sources of emissions. The transportation sector is the largest emitter of GHGs in California, followed by the generation of electricity.[28]

Table 4-1
Sources of GHGs from Human Activities

GHG	% of California's 2020 GHG emissions [1]	Description	Sources[2]
Carbon Dioxide (CO_2)	80.2%	Odorless and colorless gas that is naturally emitted by the decomposition of dead organic matter, oceans, and volcanoes, as well as the respiration of plants, animals and fungus. CO_2 is naturally sequestered in trees and other vegetation, oceans, soils, and ice caps.	Fossil fuel combustion for transportation, electricity, and industry. Other sources include burning solid waste, trees and other biological materials, as well specific chemical processes for the industrial production of materials such as cement.
Methane (CH_4)	10.5%[3]	A natural byproduct of biological processes in low oxygen environments such as bogs or at the roots of rice crops, as well as in cattle raising. CH_4 absorbs more radiation than CO_2 but has a lower atmospheric concentration.	Fugitive emissions from fossil fuel operations and transport. Off-gassing from agricultural practices and landfills.

[27] California Air Resources Board.
[28] California Air Resources Board 2022 Scoping Plan Update, Environmental and Regulatory Setting.

Table 4-1
Sources of GHGs from Human Activities

GHG	% of California's 2020 GHG emissions [1]	Description	Sources[2]
Nitrous Oxide (N_2O)	3.5%[3]	Colloquially known as laughing gas, a colorless gas that can cause dizziness and euphoria in small doses.	Agricultural practices, particularly nitrogen-base fertilizers. Soil management, wastewater treatment, and solid waste from land use and industrial activity.
High-GWP gases	5.8%[3]	Hydrofluorocarbons (HFCs): Synthetic gases that have the highest GWP of all GHGs, though they represent a small proportion of emissions. Perfluorocarbons (PFCs): Synthetic gases stable molecular structures and very long lifetimes in the atmosphere.	PFCs and HFCs: Used as substitutes for chlorofluorocarbons (CFCs), ozone-depleting substances used in refrigeration, air conditioning, solvents, and aerosol products.
		Sulfur Hexafluoride (SF_6): A synthetic, odorless, colorless, nontoxic and nonflammable gas.	SF_6: Electricity transmission and distribution and in semiconductor manufacturing.
		Nitrogen trifluoride (NF_3): A synthetic, colorless, toxic gas with a musty odor.	NF_3: Semiconductor manufacturing.

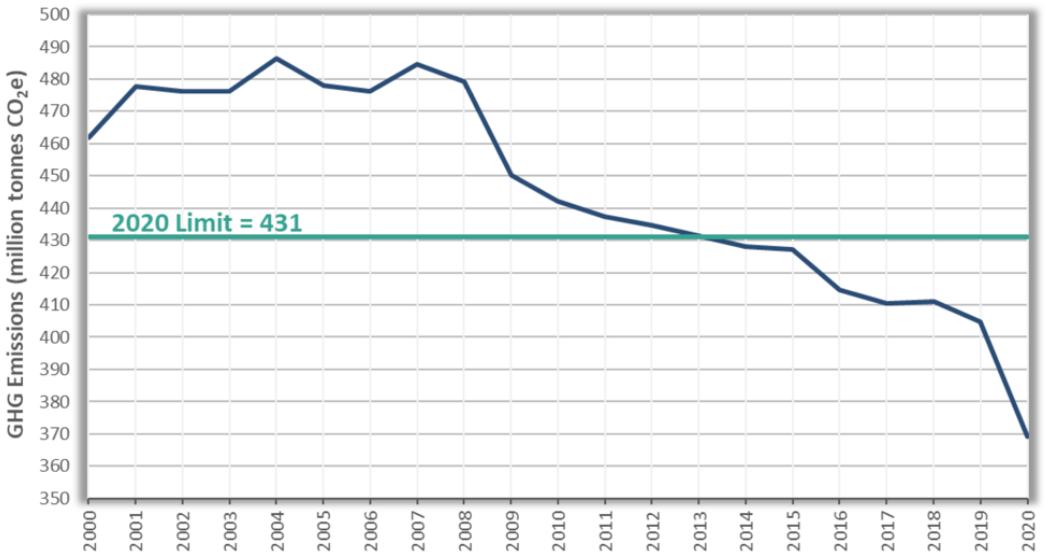
[1] Source: California Air Resources Board.
[2] Sources: California Air Resources Board 2022 Scoping Plan Update, Environmental and Regulatory Setting; U.S. EPA, Overview of Greenhouse Gases, https://www.epa.gov/ghgemissions/overview-greenhouse-gases (accessed October 2022).
[3] In carbon dioxide equivalent units.

4.1.2 Climate Change in California

California is the second largest greenhouse gas producing state in the U.S., and the 16th largest contributor in the world.[29] In 2020, emissions from GHG emitting activities in California were 369.2 $MMTCO_2e$, 35.3 $MMTCO_2e$ below 2019 levels and 61.8 $MMTCO_2e$ below the 2020 GHG Limit. While emissions data for 2020 is likely distorted by impacts of the 2020 COVID-19 pandemic, Figure 3 shows that the state's success in reducing GHG emissions since 2000.

[29] Town of Apple Valley 2019 Climate Action Plan.

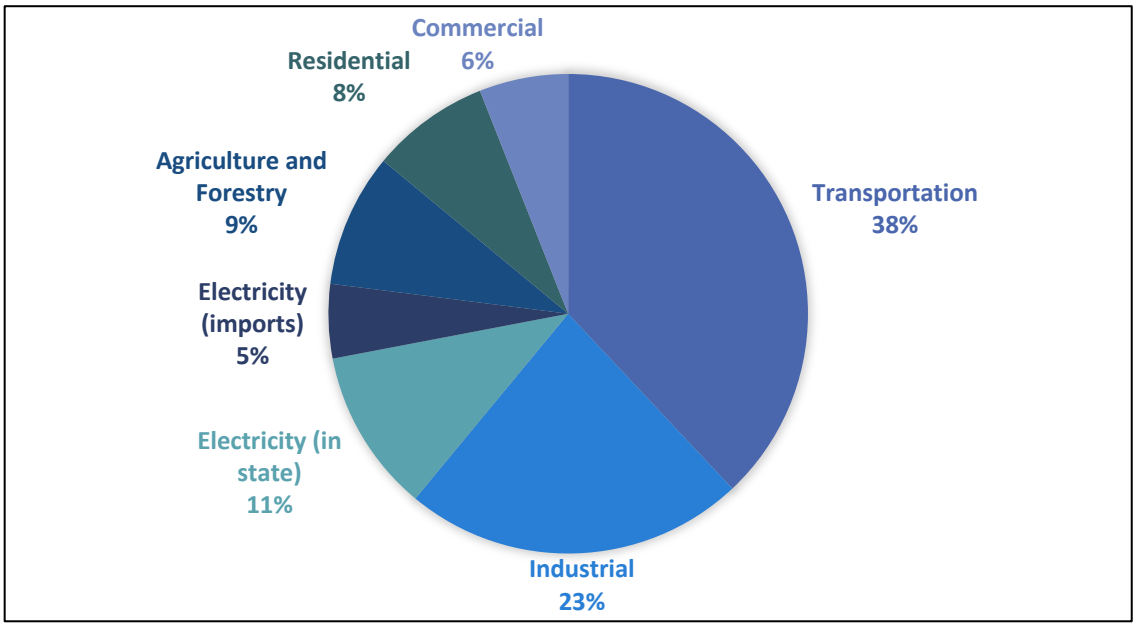
Figure 4-1: Annual Statewide GHG Emissions Compared to the 2020 GHG Limit



Source: California Greenhouse Gas 2000-2020 Emissions Trends and Indicators Report

Carbon dioxide is the primary greenhouse gas emitted in California. It accounted for 83% of total GHG emissions in the state in 2019.[30] Transportation, particularly on-road travel, is the predominant source of carbon dioxide emissions in California, and as shown in Figure 4, accounted for 38% of MMT CO_2e in the state in 2020.[31]

Figure 4-2: 2020 GHG emissions by economic sector (% of total California emissions)0



Source: California Air Resources Board, Current California GHG Emission Inventory Data.

[30] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality (November 2022), p.32.
[31] Ibid.

While research into the effects of climate change continues to evolve, such as determining the severity of impacts at specific temperature increases, current and emerging impacts are becoming increasingly evident in climatic events globally. The impacts of climate change are apparent in California in effects such as the increasing frequency and severity of wildfires, droughts, and extreme heat.

Extreme Heat: California's daily maximum average temperature, an indicator of extreme temperature trends, is expected to increase to 4.4°F - 5.8°F by 2050 and 5.6°F - 8.8°F by 2100.[32] Many regions in the state broke their previous records for hottest measured temperature, and as a whole California had its hottest summer on record in 2021.[33] Heat waves are occurring more frequently and are enduring longer, resulting in deadly public health crises, particularly in cities, across the state. Like many other effects of climate change and air pollution, the adverse impacts of heat waves are felt most acutely by vulnerable communities, including people with sensitive health conditions and low-income populations. Higher temperatures can also exacerbate natural disasters such as storms, heat waves, floods, and droughts.[34]

Drought: According to CARB, 87% of California was in severe drought, and 100% of California was in at least moderate drought, as of March 2022. While droughts are a natural phenomenon, it is estimated that human-caused climate change accounts for 19% of drought severity and 42% of the soil moisture deficit in the state since 2000. Severe and enduring drought is harmful to both wildlife and California's agricultural industry, which is responsible for growing more than half of the country's produce.[35] Combined, drought and extreme heat contribute to worsening wildfires in California.

Wildfires: Large wildfires are occurring more frequently in California: of the twenty largest wildfires recorded in the state's history, almost half of them occurred in 2020 and 2021.[36] In addition to the damage and lives lost directly from these fires, wildfire impacts compound with other impacts and causes of climate change. For example, wildfires in California result in severe air quality hazards and substantially harm wildlife populations, and the fires also result in the further emission of massive quantities of CO_2 into the atmosphere.

Beyond these three hazards, climate change is expected to have wide ranging effects to California's water and energy supply, sea level, and ecosystems. The California Energy Commission published a report on the impacts of climate change on the region encompassed by the Mojave and Sonoran Deserts.[37] It found that the region's already extreme heat will increase

[32] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality (November 2022), p.5.
[33] Ibid., p.5.
[34] Town of Apple Valley Climate Action Plan (2019).
[35] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality (November 2022), p.4.
[36] Ibid.
[37] California Energy Commission, California's Fourth Climate Change Assessment (2018) Inland Deserts Region Report.

by up to 8 to 14 degrees Fahrenheit by the end of the century, and that low and highly variable rainfall rates will be even more variable over coming decades. Increasingly extreme weather conditions will increase both the risk of flash flooding and wildfire. High temperatures and changing water supplies will exacerbate existing public health challenges and threaten vital industries such as agriculture and tourism.

4.1.3 GHGs and Health Impacts

While some greenhouse gases are hazardous to human health if encountered in high concentrations in confined areas, the public health impacts associated with GHGs are primarily those associated with their combined influence on climate change. Climate change and its effects are responsible for a wide range of potential hazards to public health, both direct and indirect. Direct health impacts resulting from climate change include heat-related illnesses, such as heat stroke, as well as injuries and death from natural disasters and extreme weather, such as wildfires. Climate change is also associated with indirect adverse health impacts, such as:

- Exacerbation of cardiovascular and respiratory disease due to increased smog and wildfire smoke.
- Increased rates and expanding geographic ranges of vector-borne and fungal diseases.
- Nutrition consequences associated with food insecurity worsened by decreased agricultural production.
- Mental trauma related to extreme weather disasters and other mental health impacts due to climate change-related unemployment, income loss, home loss, or displacement.[38]

According to the California Air Resources Board, while climate change is one of the greatest public health threats of the twenty-first century, action to address climate change presents one of the most significant opportunities to improve public health, both globally and in California.[39]

4.2 Regulatory Setting

The following section outlines regulatory actions being taken to address climate change and reduce GHG emissions at the international, federal, state, and regional levels.

4.2.1 International

Intergovernmental Panel on Climate Change (IPCC)
The IPCC was founded in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The organization is comprised of member governments of the WMO and UN. The mission of the IPCC is to provide scientific research to governments in order to inform climate policies.

[38] California Air Resources Board, Draft 2022 Scoping Plan Update (May 2022), p.127.
[39] California Air Resources Board, Draft 2022 Scoping Plan Update Appendix G: Public Health.

United Nation's Framework Convention on Climate Change (UNFCCC)
The UNFCCC was signed by 154 member nations in 1992, and now has 198 members. The Convention guides the global response to climate change with the objective of stabilizing greenhouse gas concentrations at a level that would mitigate the dangerous consequences of climate change. The UNFCCC defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."[40]

The UNFCCC is the parent treaty of the Kyoto Protocol and Paris Agreement. While the UNFCC sets targets for GHG concentrations, the 1997 Kyoto Protocol established binding targets for the 192 signatory parties. The Paris Agreement was adopted in 2015 as a legally binding international treaty signed by 196 parties. It aims to limit global warming to less than 2 degrees Celsius above pre-industrial levels by setting nationally determined contributions (NDCs) of increasingly ambitious climate action on 5-year cycles.[41]

4.2.2 Federal

GHG Endangerment Finding
Under section 202(a) of the Clean Air Act, the EPA determined that GHGs threaten public health and welfare, and that GHG emissions from motor vehicles contribute to this threat. The two distinct findings, signed by the EPA Administrator in December 2009, found that:

1. The Endangerment Finding: Concentrations of six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in atmosphere constitute air pollution and threaten the health and welfare of the public.
2. The Cause or Contribute Finding: Emissions from new motor vehicles and motor vehicle emissions contribute to GHG concentrations in the atmosphere and thus to climate change.[42]

Mandatory Reporting of GHGs (40 CFR Parts 86, 87, 89 et al.)
The Mandatory Reporting of Greenhouses Gases rule requires reporting of greenhouse gas emissions from major fossil fuel suppliers, industrial gas suppliers, direct greenhouse gas emitters and manufacturers of heavy-duty and off-road vehicles and engines. The rule requires facilities that emit 25,000 tons per year (MT/yr) of GHGs or more to submit annual reports to the EPA.[43]

[40] United Nations Framework Convention on Climate Change, Article 1 (2).
[41] United Nations Climate Change, UNFCCC Process, The Paris Agreement https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement (Accessed April 2024).
[42] United States Environmental Protection Agency, EPA's Endangerment Finding.
[43] Federal Register, Part II Environmental Protection Agency (October 30, 2009).

New Source Review (NSR)
The New Source Review Permitting program was established by Congress in 1977 as part of the Clean Air Act Amendments. The program requires new industrial facilities, or facilities making changes that will increase emissions significantly, to obtain permits limiting air emissions prior to construction. Permits are issues by state or local air pollution control agencies, and sometimes the EPA. The program requires that new sources meet the requirements for one or more of the following permits: Prevention of Significant Deterioration (PSD) permits, Nonattainment NSR permits, and minor source permits.

4.2.3 State

Assembly Bill 32 (AB 32)
The California Global Warming Solutions Act of 2006 (AB 32) required California to adopt regulations in order to reduce their GHG emissions to 1990 levels by 2020. This represents reductions of approximately 15 percent below the emissions projected in a "business as usual" scenario. The California Air Resources Board (CARB) prepared a Scoping Plan (2008) and Update (2014) to establish the state's strategy to meet the targets set forth by AB 32. Moving forward, AB 32 requires California to maintain and continue reductions beyond 2020 and continues to require CARB to update the Scoping Plan every 5 years.

Senate Bill 32 (SB 32)
The California Global Warming Solutions Act of 2016: emissions limit (SB 32) requires California to adopt regulations to reduce GHG emissions to 40% of 1990 levels by 2030.

CARB 2022 Scoping Plan Update
The 2022 Scoping Plan provides CARB's update to the 2017 Plan. Pursuant to SB 32, the plan sets forth the state's plan to stay on track towards reducing GHG emission by at least 40% below 1990 levels by 2030. Additionally, the 2022 Plan Update establishes a path for the state to achieve carbon neutrality by 2045 through technologically feasible, cost-effective means.[44]

Senate Bill 375 (SB 375)
SB 375 directs CARB to set regional GHG emissions reduction targets. The intent of the bill is to ensure local and regional governments are involved in efforts to meet the reduction targets set forth by AB 32 and SB 32. Alignment between state and local emission reduction efforts is important particularly because regional transportation planning and housing needs allocation, factors that have a major impact on GHG emissions in California, are overseen by local elected officials. The bill encourages an integrated approach by requiring the inclusion of Sustainable Communities Strategies in regional transportation plans, synchronizing the General Plan Housing Elements update schedule to align with regional transportation planning cycles, and adding CEQA incentives for projects that align with regional plans and reduce GHG emissions.

[44] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality (November 2022).

Clean Energy and Pollution Reduction Act of 2015 (SB 350)
SB 350 establishes a state renewable energy procurement goal, increasing from 33% by 2020 to 50% by 2030. It is implemented by the California Energy Commission in conjunction with state agencies including the Public Utilities Commission and CARB. The bill also requires large utilities companies to prepare integrated resource plans (IRPs) establishing how the utilities will meet customer demands while reducing GHG emissions and increasing the use of clean energy sources.

4.2.3.2 California Regulations and Building Codes

Title 24 of the California Code of Regulations
The California Building Standards Code covers a broad set of regulations regarding the construction, maintenance, fire safety, and accessibility of buildings, as well as the integration of energy conservation practices and green design.

Adopted in 1978, Part 6 of Title 24 establishes energy efficiency standards for residential and non-residential buildings constructed in the state. With the aim of continuing to reduce energy demand and consumption, Part 6 is updated as needed to reflect new energy efficiency technologies and methodologies.

Part 11 of Title 24 of the CCR The California Green Building Standards Code, or CALGreen, established mandatory minimum environmental performance standards addressing energy and water efficiency, material and water conservation, and environmental quality. CALGreen took effect in January 2022 and applies to all new commercial, low-rise residential, state-owned buildings, schools, and hospitals constructed in California. CALGreen was developed to help California meet the emissions reductions targets set forth in AB 32 and SB 32.

CARB Refrigerant Management Program
Administered by the California Air Resources Board, the Refrigerant Management Program requires periodic leak inspections, prompt leak repairs, as well as reporting and maintenance of on-site service records, for all facilities with refrigeration systems containing more than 50 pounds of high-global warming potential (GWP) refrigerant. CARB adopted the program in 2009 as part of AB 32.

Senate Bill 97 (SB 97)
SB 97 recognized the need for state agencies to analyze GHG emissions as part of the California Environmental Quality Act process. The bill updated CEQA to require the Office of Planning and Research (OPR) to develop guidelines for the feasible mitigation of GHG emissions, of the effects of GHG emissions, to be transmitted to the California Air Resources Board for approval. The adopted guidelines apply to effects associated with transportation and energy consumption.

4.2.4 Local

Air Quality Management Districts

According to §15064.7(b) of the CEQA Guidelines, for a threshold of significance to be used as part of a legal agency's environmental review process, it must be adopted by ordinance, resolution, rule, or regulation. While the Project is located within the MDAQMD jurisdiction, the MDAQMD threshold for greenhouse gas emissions has not been formally adopted. For analysis purposes, Project impacts will be assessed against GHG thresholds from both MDAQMD and *South Coast Air Quality Management District (SCAQMD)*. The SCAQMD is immediately adjacent to the MDAQMD jurisdictional area and has a formally adopted absolute threshold for stationary sources of 10,000 MTCO2e for industrial projects. Furthermore, the SCAQMD quantitative thresholds for GHG emissions are more conservative than the threshold currently in use by MDAQMD. Therefore, in order ensure that analysis of the Project's impacts related to GHG is sufficient under CEQA, emissions will be evaluated against both the MDAQMD and SCAQMD thresholds.

The GHG emission significance thresholds for the MDAQMD and SCAQMD are discussed, below:

MDAQMD Significance Thresholds

According to the MDAQMD, any project is significant if it triggers or exceeds the most appropriate evaluation criteria. The District will clarify upon request which threshold is most appropriate for a given project; in general, the emissions comparison (criteria number 1) is sufficient:

1. Generates total emissions (direct and indirect) in excess of the MDAQMD thresholds
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s) 1;
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.[45]

Table 4-2
MDAQMD Significance Thresholds

Criteria Pollutant	Annual Threshold (short tons)
Greenhouse Gases (CO2e)	100,000

Source: MDAQMD CEQA Guidelines (February 2020).

SCAQMD GHG Significance Thresholds

On December 5, 2008, the SCAQMD formally adopted a greenhouse gas significance threshold for stationary sources of 10,000 MTCO2e per year for industrial projects and 3,000 MTCO2e per year for residential and commercial projects where SCAQMD is the lead agency (SCAQMD Resolution No. 08-31). This threshold was adopted based upon a December 2008 staff report and

[45] MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (February 2020).

draft interim guidance document that also recommended a threshold for all projects using a tiered approach.[46]

It was recommended by SCAQMD staff that a project's greenhouse gas emissions would be considered significant if it could not comply with at least one of the following "tiered" tests:

- Tier 1: Is there an applicable exemption?
- Tier 2: Is the project compliant with a greenhouse gas reduction plan that is, at a minimum, consistent with the goals of AB 32?
- Tier 3: Is the project below an absolute threshold (10,000 MTCO2e/yr for industrial projects; 3,000 MTCO2e/yr for residential and commercial projects)?
- Tier 4: Is the project below a (yet to be set) performance threshold?
- Tier 5: Would the project achieve a screening level with off-site mitigation?

San Bernardino County Regional Greenhouse Gas Reduction Plan

The 2021 San Bernardino County Regional Greenhouse Gas Reduction Plan identifies state GHG reduction measures applicable to participating jurisdictions, as well as local measures selected by each jurisdiction that could reduce future GHG emissions within jurisdictional boundaries. The reduction plan has individual sections for each jurisdiction that detail the jurisdiction's 2016 GHG emissions inventory, 2030 GHG emissions forecast, reduction goal, jurisdiction-selected (or consultant-identified) GHG reduction measures, and related General Plan policies or other ongoing programs in the jurisdiction. The purpose of the plan is to provide participating jurisdictions with relevant information to complete and adopt their own Climate Action Plan (CAP).

Town of Apple Valley Climate Action Plan 2019 Update

Apple Valley's Climate Action Plan (CAP) Update is a comprehensive GHG emissions reduction strategy, representing the third update to the Town's CAP. Apple Valley originally adopted the CAP in 2010, with the intent of revisions every 3 years in response to policy changes, technological advances, and to build on the Town's successes in emissions reduction.

Pursuant to Senate Bill 32 (SB 32), the CAP Update aims to ensure that the Town continues to meet its GHG emissions reductions targets of 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030.[47] The CAP Update also provides guidance to meet VMT reduction targets established by the California Air Resources Board (CARB): 7% below projected VMT levels in 2030 to meet 40% below VMT levels in 1990. As shown in Table 4-3, the Town met its emissions target of 15% below the 2005 baseline in 2020. With implementation of the measures provided in the CAP, the Town expects to be on track to meet its emissions target in 2030.

[46] SCAQMD, Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans (December 2008).
[47] Town of Apple Valley 2019 Climate Action Plan Update (May 2021).

Table 4-3
Apple Valley CAP Emissions Reduction Targets

Target/Scenario	Town-wide Emissions	Per Capita
2005 Baseline	**748,912**	**11.75**
2020: 15% Below Baseline Target	636,575	8.59
2020: 2019 GHG Inventory	**597,681**	**8.06**
2030: 40% Below Baseline Target	449,347	5.32
2030: 40% Below, Forecast BAU [1]	533,103	6.31
2030: 40% Below, Forecast w/CAP Measures	410,922	4.86

Source: Town of Apple Valley 2019 Climate Action Plan Update, Table 1.
[1] BAU = Business as usual.

5 PROJECT GREENHOUSE GAS IMPACT

5.1 Introduction

The following section analyzes the greenhouse gas emission impacts associated with buildout of the proposed Project.

5.2 Standards of Significance

According to the 2022 CEQA Guidelines (*Appendix G: Environmental Checklist*), the project would have a significant effect on greenhouse gases if the Proposed Project were to:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.3 Methodology

The same methodology used in the air quality impacts discussion was used for greenhouse gas emissions impacts discussion. The analysis is based on proposed land uses and traffic trip information provided by Urban Crossroads, Inc. (2023). The Project proposes the development of a 1,373,150 square foot warehouse distribution center on a 90.1 ± acre site. The Project also requires off-site improvements including the extension of roadways and utility connections. It is assumed, for analysis purposes, that 85% of the building will be used for dry warehousing, and 15% for cold storage.

Construction and operational emissions were calculated using California Emissions Estimator Model (CalEEMod) Version 2022.1. CalEEMod is a computer program that can be used to estimate anticipated emissions associated with land development projects in California. The model calculates criteria pollutant emissions, including CO, PM_{10}, $PM_{2.5}$ and the ozone precursors ROG and $NO_{x,}$). CalEEMod detailed output tables are provided in Appendix A of this report.

Please refer to Table 3-1 for a summary of the land use assumptions entered into the model.

5.4 Construction Emissions

Construction activities will result in short-term GHG emissions associated with the operation of construction equipment, vehicle emissions from construction employee commutes, material hauling, and other ground disturbing activities. Table 5-1 shows that the Project is projected to generate 3,085 metric tons of CO_2e over the two-year construction period.

There are currently no construction related GHG emissions thresholds for projects of this nature. As such, construction-related GHG emissions were amortized over a 30-year period, added to annual operational emissions, and compared to the MDAQMD threshold, in order to determine if construction emissions will result in a cumulatively considerable impact. Table 16 shows the combined amortized construction emissions and operational emissions.

5.5 Operational Emissions

Once the Project reaches the operational phase, five categories of emissions will contribute to its annual GHG emissions either directly or indirectly: area emissions (e.g. pavement and architectural coating off-gassing), energy use, mobile source emissions, solid waste disposal, and water use. As stated above, GHG emissions from construction of the Project were amortized over a 30-year period and added to the operational emissions total. Table 16 shows a summary of the total annual construction and operational GHG emissions projected for buildout of the Project.

Table 5-1
Projected GHG Emissions Summary (Metric Tons)

Phase	CO_2e (MT/YR)
Construction	
2025	958
2026	2,127
Construction Total	3,085
Operational	
Area	20.1
Energy	3,151
Mobile (Passenger)	*4,290*
Mobile (Truck)	*16,357*
Mobile (Total)	20,647
Waste	403
Water	24.4
Refrigerants	909
Construction: 30-Year Amortized[1]	102.83
Total Operational	25,257.33
MDAQMD Annual Threshold	100,000.00
Exceeds?	**No**

[1] Buildout Construction GHG emissions were amortized over 30-years then added to buildout operational GHG emissions. 3,085/30=102.83

5.6 CAP Consistency

According to the CAP, the Town aims to meet the GHG emissions reduction target of 40% below 2005 levels by 2030. Based on growth forecasts in the SCAG 2020-2045 Regional Transportation Plan/SCS, the CAP forecasts that the Town will have a population of 84,535 in 2030. To meet the 40% below baseline target, the Town-wide GHG emissions in 2030 would need to be 449,347 MTCO2e, or 5.32 per capita.

As demonstrated in Table 5-1, above, based on projections made using CalEEMod Version 2022.1, the Project is expected to generate 25,257.33metric tons of CO_2e per year. As described in greater detail under Land Use, Population and Housing, at a density factor of 1,195 square feet per employee for logistics land uses, the proposed 1,373,150 square foot warehouse distribution facility would generate approximately 1,150 jobs.[48] Given the existing demand for jobs in the Town, it is likely that all of the jobs created by the Project would be filled by existing residents of Apple Valley. It is therefore assumed that the Town's 2030 population, including buildout of the Project, would be 84,535 as analyzed in the CAP.

Based on a population of 84,535, Table 5-2 shows that in order for the Town to meet the 2030 emissions reduction target, it would have to meet 5.32 tons per capita. The table also shows that with implementation of the CAP reduction measures, the Town expects to go beyond the established emissions target, reducing forecasted emissions to 410,922 $MTCO_2e$ per year or 4.86 tons per capita. The 2030 emissions forecast with CAP measures accounts for community emissions, including industrial projects. It is therefore likely that the Project's estimated annual emissions of 25,257.33 MTCO2e would already be covered by the 2030 emissions forecast. However, assuming an industrial development like the proposed Project was not accounted for in the CAP 2030 forecast, and to ensure a conservative analysis, the Project's emissions were added to the existing forecast. As shown in Table 5-2, the total annual emissions from the Project and existing 2030 forecast would be 436,179.33 MTCO2e, or 5.16 tons per capita. Both the total and per capita emissions meet the CAP target for 2030 of 40% below the 2005 baseline. The Town-wide emissions in 2030, including the Project, would therefore meet the CAP greenhouse gas emissions reduction target.

[48] Urban Crossroads, Inc., Cordova Logistics Facility VMT Analysis (December 2023).

Table 5-2 Project emissions and CAP reduction target			
Target/Scenario	**Forecast ($MTCO_2e$)**	**Population**	**Per Capita**
CAP 2030 forecast w/CAP measures	410,922.00	84,535	4.86
Project emissions (per year)	25,257.33	84,535	--
Total	436,179.33	**84,535**	**5.16**
CAP 2030 target (40% below baseline)	449,347.00[1]	84,535	5.32
		Exceeds?	
[1] Forecasted town-wide emissions for 2030.			

In order to ensure that the Project's GHG emissions are reduced to the greatest extent possible, the Project will be subject to applicable reduction measures from the CAP. The Project's consistency with applicable reduction measures is shown in the following table.

Table 5-3 Project consistency with CAP reduction measures	
Reduction Measure	**Consistency**
CO-4: Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.	**Consistent**: Per mitigation measure GHG-1, the Project will establish an employee carpooling program, including incentives for participating employees.
CO-5: Provide employees with free or discounted public transit passes.	**Consistent**: Per mitigation measure GHG-2, the Project will provide employees with free or discounted public transit passes.
ND-6: For projects within the North Apple Valley Industrial Specific Plan, develop employee housing within one mile of the industrial project.	**Consistent**: The area adjacent to the Project site, on the northern side of Quarry, is designated for Low Density Housing. Development of these sites would provide housing within one mile of the Project site.
ND-12: Building and site plan designs shall ensure that the project energy efficiencies meet applicable California Title 24 Energy Efficiency Standards.	**Consistent**: The Project design will comply with all requirements in the California Building Code, including the Title 24 Energy Efficiency Standards.
Source: Town of Apple Valley 2019 Climate Action Plan Update	

5.7 Cumulative Impacts

Due to their dispersing nature and aggregate regional impacts, greenhouse gases are analyzed in terms of their cumulative impacts. The above analysis considered the potential cumulative impacts of the Project on greenhouse gas emissions in the Mojave Desert Air Basin using

significance criteria from both the Mojave Desert Air Quality Management District and the South Coast Air Quality Management District. The analysis also considered emissions in relation to local and state greenhouse gas reduction plans and targets.

Overall, while the Project will contribute to cumulative greenhouse gas impacts, conformance to the MDAQMD significance thresholds as well as with the emissions reductions targets in the Town of Apple Valley's 2019 CAP Update indicate that impacts would be less than significant. The Project's impacts are thus not anticipated to be cumulatively considerable.

5.8 CEQA Determination

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

According to the MDAQMD CEQA Guidelines, a project's impact is considered significant if it generates total emissions (direct or indirect) that exceed the applicable threshold. As shown in Table 5-1, the Project's annual CO_2e emissions will not exceed the MDAQMD's significance threshold of 100,000 metric tons of CO_2e per year.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The California Air Resources Board (CARB) 2022 Scoping Plan puts forward the bold target of achieving carbon neutrality in state-wide emissions by 2045 or earlier. This plan builds on the efforts of the three previous scoping plans, which established goals to meet 1990 levels by 2020 and 40 percent below 1990 levels by 2030, in compliance with Senate Bill 32 (SB 32). The 2022 Scoping Plan Update aims to further reduce anthropogenic emissions in California to 85 percent below 1990 levels by 2045.[49] According to Apple Valley's General Plan (2009), at buildout the Town was estimated to contribute approximately 0.756% of the total California emissions limit for 2020, as established by the CARB.[50]

The Town's 2019 Climate Action Plan Update (CAP) provides Apple Valley's comprehensive strategy to meet the SB 32 emission targets by reducing the Town's emissions 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030.[51] According to the MDAQMD CEQA Guidelines, a project is deemed to conform with an emissions plan if it is consistent with the existing land use plan. As described under the Air Quality discussion, the Project is located in the North Apple Valley Industrial Specific Plan (NAVISP) area, on a site designated and zoned as Industrial – Specific Plan. This designation permits clean industrial uses such as warehouse distribution facilities. The Project proposes a warehouse distribution facility that aligns with the permitted uses for the site. It also complies with all development standards for the I-SP zone, including

[49] California Air Resources Board 2022 Scoping Plan Update.
[50] Apple Valley General Plan (2009) EIR, p. III-29.
[51] Town of Apple Valley 2019 Climate Action Plan Update.

maximum building coverage, maximum building height, and water efficient landscape requirements pursuant to the Town's Water Conservation/Landscaping Regulations.[52]

Given that the Apple Valley Climate Action Plan (CAP) is based on the growth projected from buildout of the Town's General Plan, the Project's conformance with the NAVISP implies compliance with the CAP. Furthermore, while the provisions of the CAP are mostly directed towards regulating emissions at the Town-wide scale, some policies are applicable to individual projects. For example, policy ND-12 in the CAP states that building and site plans must ensure that the project will meet the applicable Title 24 Energy Efficiency Standards. The Title 24 standards include performance standards for space heating and cooling, water heater design improvements, integration of solar control in building designs, use of efficient lighting, and application of the Town's landscaping guidelines. The Project will be required to comply with all applicable energy efficiency standards as provided in Title 24 and as enforced by the Town. Site plan review by the Town prior to the issuance of development permits will ensure that these standards are met.

The Project, including all components of construction and operation, will also be subject to the current MDAQMD Rules as applicable to greenhouse gases. Compliance will be ensured through MDAQMD Rule 201, which requires preconstruction plan review prior to issuance of a construction permit from the Air Pollution Control Officer.

In conclusion, conformance with the land use plan and implementation of applicable policies in the CAP ensure that the Project will not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases. Project impacts are therefore anticipated to be less than significant.

5.9 GHG Mitigation Measures

Consistent with and to reinforce existing Climate Action Plan reduction measures, the following mitigation measures shall apply to the Project:

1. Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.
2. Provide employees with free or discounted public transit passes.

[52] Town of Apple Valley Municipal Code Chapter 9.75 – Water Conservation/Landscaping Regulations.

6 REFERENCES

California Air Resources Board, National Ambient Air Quality Standards https://ww2.arb.ca.gov/resources/national-ambient-air-quality-standards (Accessed April 2024).

California Air Resources Board Proposed 2022 State SIP Strategy (August 2022).

California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality (November 2022).

California Air Resources Board 2022 Scoping Plan, Environmental and Regulatory Setting.

California Air Resources Board, Sources of Air Pollution, https://ww2.arb.ca.gov/resources/sources-air-pollution (Accessed April 2024).

California Air Resources Board, Toxic Air Contaminant Identification Reports https://ww2.arb.ca.gov/resources/documents/toxic-air-contaminant-identification-reports (accessed April 2024).

California Health and Safety Code § 38505 (g).

Federal Register, Part II Environmental Protection Agency (October 30, 2009).

iAdam: Air Quality Data Statistics, California Air Resources Board; www.arb.ca.gov/adam.

IPCC Climate Change 2021: The Physical Science Basis. Contribution of Working Group 1 to the Sixth Assessment Report of the IPCC (2021).

IPCC Special Report: Global Warming of 1.5°C – Summary for Policymakers (2018).

MDAQMD Rule Book, https://www.mdaqmd.ca.gov/rules/rule-book (Accessed April 2024).

Mojave Desert Air Quality Management District CEQA Guidelines (February 2020).

San Bernardino Countywide Plan Draft PEIR, Environmental Analysis, Air Quality (June 2019).

Town of Apple Valley 2019 Climate Action Plan Update.

United Nations Framework Convention on Climate Change – GHG Inventories.

United Nations Climate Change, UNFCCC Process, The Paris Agreement https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement (Accessed April 2024).

United States Environmental Protection Agency, EPA's Endangerment Finding.

7 APPENDICES

"The Development at Cordova Outputs," CalEEMod, Version 2022.1, prepared by Terra Nova Planning & Research, Inc., April 23, 2024.

RW Cordova - Project Buildout (Passenger Vehicle Trips) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

3.3. Grading (2025) - Unmitigated

3.5. Building Construction (2025) - Unmitigated

3.7. Building Construction (2026) - Unmitigated

3.9. Paving (2026) - Unmitigated

3.11. Architectural Coating (2026) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	RW Cordova - Project Buildout (Passenger Vehicle Trips)
Construction Start Date	1/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.00
Precipitation (days)	12.4
Location	34.61219478545679, -117.19616437039846
County	San Bernardino-Mojave Desert
City	Apple Valley
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5160
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southwest Gas Corp.
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Unrefrigerated Warehouse-No Rail	1,167	1000sqft	36.0	1,167,177	819,232	135,036	—	—
Refrigerated Warehouse-No Rail	206	1000sqft	4.65	205,973	0.00	—	—	—
Parking Lot	2,161	Space	19.5	0.00	0.00	—	—	—
Other Asphalt Surfaces	32.9	Acre	32.9	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unmit.	59.3	29.8	81.6	0.09	12.0	3.46	52.0	21,647
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unmit.	58.9	31.7	63.4	0.09	12.0	5.25	1.35	20,439
Average Daily (Max)	—	—	—	—	—	—	—	—
Unmit.	22.7	20.7	41.2	0.06	7.25	2.32	13.8	12,847
Annual (Max)	—	—	—	—	—	—	—	—
Unmit.	4.15	3.78	7.52	0.01	1.32	0.42	2.29	2,127
Exceeds (Daily Max)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—

Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—
2025	3.31	29.8	30.0	0.06	5.09	2.62	1.07	6,918
2026	59.3	28.0	81.6	0.09	12.0	3.46	52.0	21,647
Daily - Winter (Max)	—	—	—	—	—	—	—	—
2025	3.96	31.7	48.4	0.08	10.00	5.25	1.31	17,411
2026	58.9	28.7	63.4	0.09	12.0	3.46	1.35	20,439
Average Daily	—	—	—	—	—	—	—	—
2025	2.43	20.7	23.6	0.04	4.80	2.32	2.49	5,785
2026	22.7	17.9	41.2	0.06	7.25	2.10	13.8	12,847
Annual	—	—	—	—	—	—	—	—
2025	0.44	3.78	4.32	0.01	0.88	0.42	0.41	958
2026	4.15	3.27	7.52	0.01	1.32	0.38	2.29	2,127

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unmit.	47.1	12.7	164	0.33	28.1	7.63	5,573	55,757
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unmit.	36.7	12.7	71.4	0.29	28.0	7.55	5,491	52,243

Average Daily (Max)	—	—	—	—	—	—	—	—
Unmit.	41.6	13.2	109	0.30	27.8	7.53	5,525	53,132
Annual (Max)	—	—	—	—	—	—	—	—
Unmit.	7.60	2.40	19.9	0.05	5.08	1.37	915	8,797
Exceeds (Daily Max)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	100,000
Unmit.	—	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Mobile	5.40	4.75	97.8	0.28	27.5	6.98	83.8	28,410
Area	41.3	0.50	59.7	< 0.005	0.11	0.08	—	246
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	47.1	12.7	164	0.33	28.1	7.63	5,573	55,757
Daily, Winter (Max)	—	—	—	—	—	—	—	—

Mobile	4.86	5.26	65.2	0.25	27.5	6.98	2.17	25,143
Area	31.5	—	—	—	—	—	—	—
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	36.7	12.7	71.4	0.29	28.0	7.55	5,491	52,243
Average Daily	—	—	—	—	—	—	—	—
Mobile	4.91	5.51	73.1	0.25	27.2	6.93	36.2	25,910
Area	36.3	0.25	29.5	< 0.005	0.05	0.04	—	122
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	41.6	13.2	109	0.30	27.8	7.53	5,525	53,132
Annual	—	—	—	—	—	—	—	—
Mobile	0.90	1.01	13.3	0.05	4.97	1.26	5.99	4,290
Area	6.63	0.05	5.37	< 0.005	0.01	0.01	—	20.1
Energy	0.07	1.35	1.14	0.01	0.10	0.10	—	3,151
Water	—	—	—	—	—	—	—	24.4
Waste	—	—	—	—	—	—	—	403
Refrig.	—	—	—	—	—	—	909	909
Total	7.60	2.40	19.9	0.05	5.08	1.37	915	8,797

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	31.6	30.2	0.05	1.37	1.26	—	5,314
Dust From Material Movement	—	—	—	—	7.67	3.94	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	5.20	4.96	0.01	0.22	0.21	—	873
Dust From Material Movement	—	—	—	—	1.26	0.65	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.95	0.91	< 0.005	0.04	0.04	—	145
Dust From Material Movement	—	—	—	—	0.23	0.12	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.08	0.09	0.98	0.00	0.23	0.05	0.02	229
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.04	0.01	0.07	38.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	0.01	6.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.20	29.7	28.3	0.06	1.23	1.14	—	6,622
Dust From Material Movement	—	—	—	—	3.59	1.42	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.20	29.7	28.3	0.06	1.23	1.14	—	6,622
Dust From Material Movement	—	—	—	—	3.59	1.42	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	13.3	12.6	0.03	0.55	0.51	—	2,957
Dust From Material Movement	—	—	—	—	1.60	0.64	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	2.42	2.31	< 0.005	0.10	0.09	—	490
Dust From Material Movement	—	—	—	—	0.29	0.12	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.66	0.00	0.26	0.06	1.07	296
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.11	0.00	0.26	0.06	0.03	262
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.56	0.00	0.12	0.03	0.21	120
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.02	< 0.005	0.03	19.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	0.40	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—

Off-Road Equipment	0.11	1.06	1.33	< 0.005	0.04	0.04	—	245
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.24	< 0.005	0.01	0.01	—	40.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	2.58	3.06	32.1	0.00	7.54	1.77	0.80	7,542
Vendor	0.26	7.70	3.24	0.06	2.03	0.63	0.51	7,464
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.27	0.34	3.66	0.00	0.76	0.18	1.35	791
Vendor	0.03	0.78	0.33	0.01	0.20	0.06	0.86	760
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.67	0.00	0.14	0.03	0.22	131
Vendor	0.01	0.14	0.06	< 0.005	0.04	0.01	0.14	126
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	9.85	13.0	0.02	0.38	0.35	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	9.85	13.0	0.02	0.38	0.35	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.38	8.40	0.02	0.25	0.23	—	1,558
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.16	1.53	< 0.005	0.04	0.04	—	258
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	2.76	2.54	44.5	0.00	7.54	1.77	27.9	8,367
Vendor	0.28	7.01	2.95	0.06	2.03	0.63	17.7	7,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	2.44	2.80	29.6	0.00	7.54	1.77	0.72	7,390
Vendor	0.26	7.43	3.06	0.06	2.03	0.63	0.46	7,324
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	1.61	1.96	21.6	0.00	4.84	1.13	7.80	4,934
Vendor	0.17	4.78	1.96	0.04	1.30	0.41	4.97	4,746
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.29	0.36	3.95	0.00	0.88	0.21	1.29	817
Vendor	0.03	0.87	0.36	0.01	0.24	0.07	0.82	786
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	7.12	9.94	0.01	0.32	0.29	—	1,516
Paving	0.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	7.12	9.94	0.01	0.32	0.29	—	1,516
Paving	0.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.19	5.85	0.01	0.19	0.17	—	893
Paving	0.38	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.77	1.07	< 0.005	0.03	0.03	—	148
Paving	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.16	0.00	0.20	0.05	0.73	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.77	0.00	0.20	0.05	0.02	192

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.11	0.03	0.18	117
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.02	< 0.005	0.03	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	0.02	—	134
Architectural Coatings	53.0	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	0.02	—	134
Architectural Coatings	53.0	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.31	0.41	< 0.005	0.01	0.01	—	48.4

Architectural Coatings	19.2	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	< 0.005	—	8.02
Architectural Coatings	3.50	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.55	0.51	8.90	0.00	1.51	0.35	5.58	1,673
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.49	0.56	5.93	0.00	1.51	0.35	0.14	1,478
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.18	0.22	2.42	0.00	0.54	0.13	0.87	551
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.44	0.00	0.10	0.02	0.14	91.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	4.62	4.06	83.6	0.24	23.5	5.97	71.6	24,278
Refrigerated Warehouse-No Rail	0.79	0.69	14.2	0.04	3.99	1.02	12.2	4,132
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	5.40	4.75	97.8	0.28	27.5	6.98	83.8	28,410
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	4.15	4.49	55.7	0.21	23.5	5.97	1.86	21,486
Refrigerated Warehouse-No Rail	0.71	0.76	9.48	0.04	3.99	1.02	0.32	3,657
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.86	5.26	65.2	0.25	27.5	6.98	2.17	25,143
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.77	0.86	11.4	0.04	4.25	1.08	5.12	3,666
Refrigerated Warehouse-No Rail	0.13	0.15	1.94	0.01	0.72	0.18	0.87	624
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.90	1.01	13.3	0.05	4.97	1.26	5.99	4,290

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	5,143
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	4,302
Parking Lot	—	—	—	—	—	—	—	710
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	10,155
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	5,143
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	4,302
Parking Lot	—	—	—	—	—	—	—	710
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	10,155
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	851
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	712

Parking Lot	—	—	—	—	—	—	—	118
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	1,681

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.33	5.96	5.01	0.04	0.45	0.45	—	7,131
Refrigerated Warehouse-No Rail	0.08	1.46	1.22	0.01	0.11	0.11	—	1,744
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.41	7.42	6.23	0.04	0.56	0.56	—	8,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.33	5.96	5.01	0.04	0.45	0.45	—	7,131
Refrigerated Warehouse-No Rail	0.08	1.46	1.22	0.01	0.11	0.11	—	1,744
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.41	7.42	6.23	0.04	0.56	0.56	—	8,875
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.06	1.09	0.91	0.01	0.08	0.08	—	1,181
Refrigerated Warehouse-No Rail	0.01	0.27	0.22	< 0.005	0.02	0.02	—	289

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	1.35	1.14	0.01	0.10	0.10	—	1,469

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Consumer Products	29.6	—	—	—	—	—	—	—
Architectural Coatings	1.92	—	—	—	—	—	—	—
Landscape Equipment	9.81	0.50	59.7	< 0.005	0.11	0.08	—	246
Total	41.3	0.50	59.7	< 0.005	0.11	0.08	—	246
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Consumer Products	29.6	—	—	—	—	—	—	—
Architectural Coatings	1.92	—	—	—	—	—	—	—
Total	31.5	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Consumer Products	5.40	—	—	—	—	—	—	—
Architectural Coatings	0.35	—	—	—	—	—	—	—
Landscape Equipment	0.88	0.05	5.37	< 0.005	0.01	0.01	—	20.1
Total	6.63	0.05	5.37	< 0.005	0.01	0.01	—	20.1

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	134
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	13.1
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	147
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	134
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	13.1
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	147
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	22.2
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2.17
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	24.4

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2,069
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	365
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	2,434
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2,069
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	365
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	2,434
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	343
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	60.4

Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	403

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	5,489	5,489
Total	—	—	—	—	—	—	5,489	5,489
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	5,489	5,489
Total	—	—	—	—	—	—	5,489	5,489
Annual	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	909	909
Total	—	—	—	—	—	—	909	909

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2025	3/25/2025	5.00	60.0	—
Grading	Grading	3/26/2025	11/7/2025	5.00	163	—
Building Construction	Building Construction	11/10/2025	11/27/2026	5.00	275	—
Paving	Paving	2/2/2026	11/27/2026	5.00	215	—
Architectural Coating	Architectural Coating	7/1/2026	12/31/2026	5.00	132	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	577	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	225	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT

Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	115	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	2,059,725	686,575	136,874

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	90.0	0.00	—
Grading	—	—	489	0.00	—
Paving	0.00	0.00	0.00	0.00	52.4

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Refrigerated Warehouse-No Rail	0.00	0%
Parking Lot	19.5	100%
Other Asphalt Surfaces	32.9	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	1,704	1,704	1,704	621,946	33,737	33,737	33,737	12,314,124
Refrigerated Warehouse-No Rail	290	290	290	105,846	5,742	5,742	5,742	2,095,684
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	2,059,725	686,575	136,874

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	5,390,844	346	0.0330	0.0040	22,188,828
Refrigerated Warehouse-No Rail	4,509,869	346	0.0330	0.0040	5,426,201
Parking Lot	744,092	346	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	5,412,066	14,855,567
Refrigerated Warehouse-No Rail	955,071	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	1,097	—
Refrigerated Warehouse-No Rail	194	—
Parking Lot	0.00	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	34.1	annual days of extreme heat
Extreme Precipitation	0.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.80	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	7.52
AQ-DPM	21.9
Drinking Water	34.9
Lead Risk Housing	27.7
Pesticides	0.00
Toxic Releases	37.1
Traffic	59.7
Effect Indicators	—
CleanUp Sites	52.1
Groundwater	44.8
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	51.2
Solid Waste	84.7
Sensitive Population	—
Asthma	88.0
Cardio-vascular	89.5
Low Birth Weights	91.9
Socioeconomic Factor Indicators	—
Education	26.9
Housing	11.6
Linguistic	—
Poverty	52.5
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	44.97626075
Employed	30.46323624
Median HI	35.0442705
Education	—
Bachelor's or higher	42.93596818
High school enrollment	100
Preschool enrollment	39.79212113
Transportation	—
Auto Access	85.40998332
Active commuting	24.00872578
Social	—
2-parent households	51.18696266
Voting	75.34967278
Neighborhood	—
Alcohol availability	88.37418196
Park access	16.65597331
Retail density	8.469138971
Supermarket access	2.399589375
Tree canopy	0.71859361
Housing	—
Homeownership	62.60746824
Housing habitability	64.39112024
Low-inc homeowner severe housing cost burden	17.8108559

Low-inc renter severe housing cost burden	77.19748492
Uncrowded housing	68.66418581
Health Outcomes	—
Insured adults	64.22430386
Arthritis	4.4
Asthma ER Admissions	7.6
High Blood Pressure	8.9
Cancer (excluding skin)	9.1
Asthma	30.0
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	13.3
Diagnosed Diabetes	35.6
Life Expectancy at Birth	34.2
Cognitively Disabled	41.3
Physically Disabled	11.3
Heart Attack ER Admissions	2.7
Mental Health Not Good	48.5
Chronic Kidney Disease	20.1
Obesity	46.5
Pedestrian Injuries	48.3
Physical Health Not Good	39.9
Stroke	15.1
Health Risk Behaviors	—
Binge Drinking	57.0
Current Smoker	46.7
No Leisure Time for Physical Activity	58.0
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	58.1
Elderly	16.8
English Speaking	81.5
Foreign-born	11.0
Outdoor Workers	47.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	37.9
Traffic Access	23.0
Other Indices	—
Hardship	32.7
Other Decision Support	—
2016 Voting	75.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	65.0
Healthy Places Index Score for Project Location (b)	46.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project proposes 1,373,150 sf warehouse, with 819,232 sf landscaped area, 135,036 sf detention area, 1,422 parking spaces and 739 trailer parking spaces. Asphalt surfaces includes off-site roadway improvements totaling 2.87 acres. Assumes 15% of building is refrigerated warehouse.Water detention area assumed to be special landscape area for analysis purposes.
Construction: Construction Phases	Assumes 2 year buildout for analysis purposes. No demolition will be required, site is currently vacant. Assumes building construction, paving, and architectural coating will occur as staggered, overlapping phases.
Operations: Vehicle Data	Trip lengths for passenger vehicles only, based on TIA prepared for the Project by UXR. Per TIA, 1,994 passenger trips.
Operations: Fleet Mix	Fleet mix for passenger vehicle trips only. Mix based on Moreno Valley Trade Center (Warehouse Scenario) Air Quality, GHG, & HRA Evaluation prepared by UXR (October 2020).
Operations: Water and Waste Water	Water demand based on Project-specific WSA. Total water demand projected to be 21,222,703.44 gallons/year (65.13 AFY).

RW Cordova - Project Buildout (Truck Trips Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

3.3. Grading (2025) - Unmitigated

3.5. Building Construction (2025) - Unmitigated

3.7. Building Construction (2026) - Unmitigated

3.9. Paving (2026) - Unmitigated

3.11. Architectural Coating (2026) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	RW Cordova - Project Buildout (Truck Trips
Construction Start Date	1/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.00
Precipitation (days)	12.4
Location	34.61219478545679, -117.19616437039846
County	San Bernardino-Mojave Desert
City	Apple Valley
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5160
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southwest Gas Corp.
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Unrefrigerated Warehouse-No Rail	1,167	1000sqft	36.0	1,167,177	819,232	135,036	—	—
Refrigerated Warehouse-No Rail	206	1000sqft	4.65	205,973	0.00	—	—	—
Parking Lot	2,161	Space	19.5	0.00	0.00	—	—	—
Other Asphalt Surfaces	32.9	Acre	32.9	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unmit.	59.3	29.8	81.6	0.09	12.0	3.46	52.0	21,647
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unmit.	58.9	31.7	63.4	0.09	12.0	5.25	1.35	20,439
Average Daily (Max)	—	—	—	—	—	—	—	—
Unmit.	22.7	20.7	41.2	0.06	7.25	2.32	13.8	12,847
Annual (Max)	—	—	—	—	—	—	—	—
Unmit.	4.15	3.78	7.52	0.01	1.32	0.42	2.29	2,127
Exceeds (Daily Max)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—

Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—
2025	3.31	29.8	30.0	0.06	5.09	2.62	1.07	6,918
2026	59.3	28.0	81.6	0.09	12.0	3.46	52.0	21,647
Daily - Winter (Max)	—	—	—	—	—	—	—	—
2025	3.96	31.7	48.4	0.08	10.00	5.25	1.31	17,411
2026	58.9	28.7	63.4	0.09	12.0	3.46	1.35	20,439
Average Daily	—	—	—	—	—	—	—	—
2025	2.43	20.7	23.6	0.04	4.80	2.32	2.49	5,785
2026	22.7	17.9	41.2	0.06	7.25	2.10	13.8	12,847
Annual	—	—	—	—	—	—	—	—
2025	0.44	3.78	4.32	0.01	0.88	0.42	0.41	958
2026	4.15	3.27	7.52	0.01	1.32	0.38	2.29	2,127

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unmit.	44.1	95.7	92.5	0.95	32.6	10.4	5,742	126,269
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unmit.	34.1	99.8	32.7	0.95	32.5	10.3	5,496	125,817

Average Daily (Max)	—	—	—	—	—	—	—	—
Unmit.	39.0	101	62.0	0.95	32.3	10.3	5,598	126,021
Annual (Max)	—	—	—	—	—	—	—	—
Unmit.	7.12	18.4	11.3	0.17	5.90	1.88	927	20,864
Exceeds (Daily Max)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—
Threshold	137	137	548	137	82.0	65.0	—	—
Unmit.	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	100,000
Unmit.	—	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Mobile	2.35	87.7	26.5	0.90	31.9	9.77	252	98,923
Area	41.3	0.50	59.7	< 0.005	0.11	0.08	—	246
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	44.1	95.7	92.5	0.95	32.6	10.4	5,742	126,269
Daily, Winter (Max)	—	—	—	—	—	—	—	—

Mobile	2.24	92.4	26.5	0.90	31.9	9.77	6.55	98,716
Area	31.5	—	—	—	—	—	—	—
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	34.1	99.8	32.7	0.95	32.5	10.3	5,496	125,817
Average Daily	—	—	—	—	—	—	—	—
Mobile	2.28	93.3	26.3	0.90	31.7	9.72	109	98,799
Area	36.3	0.25	29.5	< 0.005	0.05	0.04	—	122
Energy	0.41	7.42	6.23	0.04	0.56	0.56	—	19,030
Water	—	—	—	—	—	—	—	147
Waste	—	—	—	—	—	—	—	2,434
Refrig.	—	—	—	—	—	—	5,489	5,489
Total	39.0	101	62.0	0.95	32.3	10.3	5,598	126,021
Annual	—	—	—	—	—	—	—	—
Mobile	0.42	17.0	4.80	0.16	5.78	1.77	18.0	16,357
Area	6.63	0.05	5.37	< 0.005	0.01	0.01	—	20.1
Energy	0.07	1.35	1.14	0.01	0.10	0.10	—	3,151
Water	—	—	—	—	—	—	—	24.4
Waste	—	—	—	—	—	—	—	403
Refrig.	—	—	—	—	—	—	909	909
Total	7.12	18.4	11.3	0.17	5.90	1.88	927	20,864

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	31.6	30.2	0.05	1.37	1.26	—	5,314
Dust From Material Movement	—	—	—	—	7.67	3.94	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	5.20	4.96	0.01	0.22	0.21	—	873
Dust From Material Movement	—	—	—	—	1.26	0.65	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.95	0.91	< 0.005	0.04	0.04	—	145
Dust From Material Movement	—	—	—	—	0.23	0.12	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.08	0.09	0.98	0.00	0.23	0.05	0.02	229
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.04	0.01	0.07	38.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	0.01	6.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.20	29.7	28.3	0.06	1.23	1.14	—	6,622
Dust From Material Movement	—	—	—	—	3.59	1.42	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	3.20	29.7	28.3	0.06	1.23	1.14	—	6,622
Dust From Material Movement	—	—	—	—	3.59	1.42	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	13.3	12.6	0.03	0.55	0.51	—	2,957
Dust From Material Movement	—	—	—	—	1.60	0.64	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	2.42	2.31	< 0.005	0.10	0.09	—	490
Dust From Material Movement	—	—	—	—	0.29	0.12	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.66	0.00	0.26	0.06	1.07	296
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.11	0.00	0.26	0.06	0.03	262
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.56	0.00	0.12	0.03	0.21	120
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.02	< 0.005	0.03	19.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	13.0	0.02	0.43	0.40	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—

Off-Road Equipment	0.11	1.06	1.33	< 0.005	0.04	0.04	—	245
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.24	< 0.005	0.01	0.01	—	40.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	2.58	3.06	32.1	0.00	7.54	1.77	0.80	7,542
Vendor	0.26	7.70	3.24	0.06	2.03	0.63	0.51	7,464
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.27	0.34	3.66	0.00	0.76	0.18	1.35	791
Vendor	0.03	0.78	0.33	0.01	0.20	0.06	0.86	760
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.67	0.00	0.14	0.03	0.22	131
Vendor	0.01	0.14	0.06	< 0.005	0.04	0.01	0.14	126
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	9.85	13.0	0.02	0.38	0.35	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	9.85	13.0	0.02	0.38	0.35	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.38	8.40	0.02	0.25	0.23	—	1,558
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.16	1.53	< 0.005	0.04	0.04	—	258
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	2.76	2.54	44.5	0.00	7.54	1.77	27.9	8,367
Vendor	0.28	7.01	2.95	0.06	2.03	0.63	17.7	7,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	2.44	2.80	29.6	0.00	7.54	1.77	0.72	7,390
Vendor	0.26	7.43	3.06	0.06	2.03	0.63	0.46	7,324
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	1.61	1.96	21.6	0.00	4.84	1.13	7.80	4,934
Vendor	0.17	4.78	1.96	0.04	1.30	0.41	4.97	4,746
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.29	0.36	3.95	0.00	0.88	0.21	1.29	817
Vendor	0.03	0.87	0.36	0.01	0.24	0.07	0.82	786
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	7.12	9.94	0.01	0.32	0.29	—	1,516
Paving	0.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	7.12	9.94	0.01	0.32	0.29	—	1,516
Paving	0.64	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.19	5.85	0.01	0.19	0.17	—	893
Paving	0.38	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.77	1.07	< 0.005	0.03	0.03	—	148
Paving	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.16	0.00	0.20	0.05	0.73	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.77	0.00	0.20	0.05	0.02	192

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.11	0.03	0.18	117
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.02	< 0.005	0.03	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	0.02	—	134
Architectural Coatings	53.0	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	0.02	—	134
Architectural Coatings	53.0	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.31	0.41	< 0.005	0.01	0.01	—	48.4

Architectural Coatings	19.2	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	< 0.005	—	8.02
Architectural Coatings	3.50	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Worker	0.55	0.51	8.90	0.00	1.51	0.35	5.58	1,673
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Worker	0.49	0.56	5.93	0.00	1.51	0.35	0.14	1,478
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—
Worker	0.18	0.22	2.42	0.00	0.54	0.13	0.87	551
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.44	0.00	0.10	0.02	0.14	91.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	1.98	73.8	22.3	0.76	26.8	8.22	212	83,230
Refrigerated Warehouse-No Rail	0.37	13.9	4.21	0.14	5.06	1.55	40.1	15,693
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.35	87.7	26.5	0.90	31.9	9.77	252	98,923
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	1.89	77.8	22.3	0.76	26.8	8.22	5.51	83,056
Refrigerated Warehouse-No Rail	0.36	14.7	4.21	0.14	5.06	1.55	1.04	15,660
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.24	92.4	26.5	0.90	31.9	9.77	6.55	98,716
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.35	14.3	4.04	0.14	4.87	1.49	15.2	13,762
Refrigerated Warehouse-No Rail	0.07	2.70	0.76	0.03	0.92	0.28	2.86	2,595
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.42	17.0	4.80	0.16	5.78	1.77	18.0	16,357

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	5,143
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	4,302
Parking Lot	—	—	—	—	—	—	—	710
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	10,155
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	5,143
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	4,302
Parking Lot	—	—	—	—	—	—	—	710
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	10,155
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	851
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	712

Parking Lot	—	—	—	—	—	—	—	118
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	1,681

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.33	5.96	5.01	0.04	0.45	0.45	—	7,131
Refrigerated Warehouse-No Rail	0.08	1.46	1.22	0.01	0.11	0.11	—	1,744
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.41	7.42	6.23	0.04	0.56	0.56	—	8,875
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.33	5.96	5.01	0.04	0.45	0.45	—	7,131
Refrigerated Warehouse-No Rail	0.08	1.46	1.22	0.01	0.11	0.11	—	1,744
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.41	7.42	6.23	0.04	0.56	0.56	—	8,875
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.06	1.09	0.91	0.01	0.08	0.08	—	1,181
Refrigerated Warehouse-No Rail	0.01	0.27	0.22	< 0.005	0.02	0.02	—	289

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	1.35	1.14	0.01	0.10	0.10	—	1,469

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Consumer Products	29.6	—	—	—	—	—	—	—
Architectural Coatings	1.92	—	—	—	—	—	—	—
Landscape Equipment	9.81	0.50	59.7	< 0.005	0.11	0.08	—	246
Total	41.3	0.50	59.7	< 0.005	0.11	0.08	—	246
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Consumer Products	29.6	—	—	—	—	—	—	—
Architectural Coatings	1.92	—	—	—	—	—	—	—
Total	31.5	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Consumer Products	5.40	—	—	—	—	—	—	—
Architectural Coatings	0.35	—	—	—	—	—	—	—
Landscape Equipment	0.88	0.05	5.37	< 0.005	0.01	0.01	—	20.1
Total	6.63	0.05	5.37	< 0.005	0.01	0.01	—	20.1

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	134
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	13.1
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	147
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	134
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	13.1
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	147
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	22.2
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2.17
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	24.4

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2,069
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	365
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	2,434
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	2,069
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	365
Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	2,434
Annual	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	343
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	60.4

Parking Lot	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	403

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	5,489	5,489
Total	—	—	—	—	—	—	5,489	5,489
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	5,489	5,489
Total	—	—	—	—	—	—	5,489	5,489
Annual	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	909	909
Total	—	—	—	—	—	—	909	909

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2025	3/25/2025	5.00	60.0	—
Grading	Grading	3/26/2025	11/7/2025	5.00	163	—
Building Construction	Building Construction	11/10/2025	11/27/2026	5.00	275	—
Paving	Paving	2/2/2026	11/27/2026	5.00	215	—
Architectural Coating	Architectural Coating	7/1/2026	12/31/2026	5.00	132	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	577	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	225	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT

Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	115	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	2,059,725	686,575	136,874

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	90.0	0.00	—
Grading	—	—	489	0.00	—
Paving	0.00	0.00	0.00	0.00	52.4

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Refrigerated Warehouse-No Rail	0.00	0%
Parking Lot	19.5	100%
Other Asphalt Surfaces	32.9	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	732	732	732	267,114	29,273	29,273	29,273	10,684,572
Refrigerated Warehouse-No Rail	138	138	138	50,363	5,519	5,519	5,519	2,014,527
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	2,059,725	686,575	136,874

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	5,390,844	346	0.0330	0.0040	22,188,828
Refrigerated Warehouse-No Rail	4,509,869	346	0.0330	0.0040	5,426,201
Parking Lot	744,092	346	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	5,412,066	14,855,567
Refrigerated Warehouse-No Rail	955,071	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	1,097	—
Refrigerated Warehouse-No Rail	194	—
Parking Lot	0.00	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	34.1	annual days of extreme heat
Extreme Precipitation	0.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.80	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	7.52
AQ-DPM	21.9
Drinking Water	34.9
Lead Risk Housing	27.7
Pesticides	0.00
Toxic Releases	37.1
Traffic	59.7
Effect Indicators	—
CleanUp Sites	52.1
Groundwater	44.8
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	51.2
Solid Waste	84.7
Sensitive Population	—
Asthma	88.0
Cardio-vascular	89.5
Low Birth Weights	91.9
Socioeconomic Factor Indicators	—
Education	26.9
Housing	11.6
Linguistic	—
Poverty	52.5
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	44.97626075
Employed	30.46323624
Median HI	35.0442705
Education	—
Bachelor's or higher	42.93596818
High school enrollment	100
Preschool enrollment	39.79212113
Transportation	—
Auto Access	85.40998332
Active commuting	24.00872578
Social	—
2-parent households	51.18696266
Voting	75.34967278
Neighborhood	—
Alcohol availability	88.37418196
Park access	16.65597331
Retail density	8.469138971
Supermarket access	2.399589375
Tree canopy	0.71859361
Housing	—
Homeownership	62.60746824
Housing habitability	64.39112024
Low-inc homeowner severe housing cost burden	17.8108559

Low-inc renter severe housing cost burden	77.19748492
Uncrowded housing	68.66418581
Health Outcomes	—
Insured adults	64.22430386
Arthritis	4.4
Asthma ER Admissions	7.6
High Blood Pressure	8.9
Cancer (excluding skin)	9.1
Asthma	30.0
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	13.3
Diagnosed Diabetes	35.6
Life Expectancy at Birth	34.2
Cognitively Disabled	41.3
Physically Disabled	11.3
Heart Attack ER Admissions	2.7
Mental Health Not Good	48.5
Chronic Kidney Disease	20.1
Obesity	46.5
Pedestrian Injuries	48.3
Physical Health Not Good	39.9
Stroke	15.1
Health Risk Behaviors	—
Binge Drinking	57.0
Current Smoker	46.7
No Leisure Time for Physical Activity	58.0
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	58.1
Elderly	16.8
English Speaking	81.5
Foreign-born	11.0
Outdoor Workers	47.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	37.9
Traffic Access	23.0
Other Indices	—
Hardship	32.7
Other Decision Support	—
2016 Voting	75.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	65.0
Healthy Places Index Score for Project Location (b)	46.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project proposes 1,373,150 sf warehouse, with 819,232 sf landscaped area, 135,036 sf detention area, 1,422 parking spaces and 739 trailer parking spaces. Assumes 15% of total building space is refrigerated warehouse. Water detention area assumed to be special landscape area for analysis purposes. Asphalt land use includes off-site roadway improvements, totaling 2.87 AC.
Construction: Construction Phases	Assumes 2 year buildout for analysis purposes. No demolition will be required, site is currently vacant. Assumes building construction, paving, and architectural coating will occur as staggered, overlapping phases.
Operations: Vehicle Data	Trip generation for truck trips only, based on trip rates provided in TIA prepared for the Project by UXR. Assumes truck trips are 100% primary trips and 100% work-other trips. Assumes 40 mile trip length per SCAQMD.
Operations: Fleet Mix	Fleet mix for truck trips only. Mix based on Moreno Valley Trade Center (Warehouse Scenario) Air Quality, GHG, & HRA Evaluation prepared by UXR (October 2020).
Operations: Water and Waste Water	Water demand based on Project-specific WSA. Total water demand projected to be 21,222,703.44 gallons/year (65.13 AFY).

Appendix C

Biological Resources Assessment
and
Desert Tortoise Focused Survey

BIOLOGICAL RESOURCES ASSESSMENT

CORDOVA ROAD PROJECT

TOWN OF APPLE VALLEY,
SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:

Terra Nova Planning and Research
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Nicole Criste, Principal
(760) 341-4800

Prepared by:

WSP USA Environment & Infrastructure Inc.
862 E Hospitality Ln #350
San Bernardino, CA 92408
Dale Hameister, Senior Biologist
(909) 888-1106

31 October 2023

TABLE OF CONTENTS

PAGE

1.0 INTRODUCTION **1**

2.0 PROJECT BACKGROUND/SITE DESCRIPTION **1**

3.0 REGULATORY FRAMEWORK **1**
3.1 Federal 1
3.2 State of California 3
3.3 Multiple-Species Habitat/Natural Community Conservation Plan 6

4.0 METHODS **6**
4.1 Literature Review 6
4.2 Biological Resources and Habitat Assessment 7
4.3 Jurisdictional Waters and Wetlands 7
4.4 Wildlife Corridors 8

5.0 RESULTS **8**
5.1 Critical Habitat 8
5.2 Soils 8
5.3 Wetlands and Jurisdictional Drainages 9
5.4 Vegetation Communities 9
5.4.1 Creosote Bush Scrub 9
5.5 Wildlife 9
5.6 Special Status Biological Resources 10
5.6.1 Special Status Plant Species 20
5.6.1.1 Western Joshua Tree 20
5.6.2 Special Status Vegetation Communities 21
5.6.3 Special Status Wildlife 22
5.6.3.1 Insects 22
5.6.3.2 Reptiles 22
5.6.3.3 Birds 24
5.6.3.4 Mammals 25
5.7 Wildlife Corridors 25

6.0 DISCUSSION AND RECOMMENDATIONS **25**

7.0 LITERATURE CITED AND REFERENCES **27**

TABLE OF TABLES

Table 1. Special Status Plant Species Potential for Occurrence.....11
Table 2. Special Status Vegetation Community Potential for Occurrence.....13
Table 3. Special Status Animals 15

TABLE OF APPENDICES

Appendix A Maps and Figures
Appendix B Site Photographs
Appendix C Plant and Vertebrate Species Lists
Appendix D USFWS IPaC Report

1.0 INTRODUCTION

WSP USA Environment & Infrastructure Inc. (WSP USA) was contracted by Terra Nova Planning and Research to conduct a biological resources assessment for a proposed warehouse facility project (project) in the town of Apple Valley, San Bernardino County, California. The biological study area (BSA) for this assessment included the pipeline alignment plus a 500-foot buffer around it. This document reports the results of that assessment.

2.0 PROJECT BACKGROUND/SITE DESCRIPTION

The project is entirely within the town of Apple Valley, San Bernardino County, California. The site is generally located north of Johnson Road, south of Quarry Road, east of Dale Evan Parkway, and west of Central Road (Figure 1). It is located primarily on the 7.5-minute Apple Valley North, Calif. United States Geological Survey (USGS) topographic quadrangle (Figure 2). It is in Section 16 of Township 6 North and Range 3 West. Project topography is relatively flat at elevations ranging from approximately 3072 to 3131 feet (936-954 meters). The project consists of three (3) parcels totaling approximately 100-acres that will be developed as a warehouse facility. The entire project site will be development and include the main warehouse building and associated parking, truck access, landscaping and other associated infrastructure.

3.0 REGULATORY FRAMEWORK

3.1 Federal

Endangered Species Act (ESA) – The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service are the designated federal agencies accountable for administering the ESA. ESA defines species as “endangered” or “threatened” and provides regulatory protection at the federal level.

- Section 9 of the ESA prohibits the “take” of listed (i.e., endangered or threatened) species. The ESA definition of take is “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct.” Recognizing that take cannot always be avoided, Section 10(a) includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Specifically, Section 10(a) (1) (A) permits (authorized take permits) are issued for scientific purposes. Section 10(a) (1) (B) permits (incidental take permits) are issued for the incidental take of listed species that does not jeopardize the species.

- Section 7 (a) (2) requires federal agencies to evaluate a proposed project with respect to listed or proposed listed, species and their respective critical habitat (if applicable). Federal agencies must employ programs for the conservation of listed species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its critical habitat. Critical habitat is a term defined and used in the ESA. It is specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat may also include areas that are not currently occupied by the species but will be needed for its recovery (USFWS 2021a).

- Section 10(a)(1)(B) of the ESA provides for partnerships with non-federal parties to conserve the ecosystems upon which listed species depend, ultimately contributing to their recovery. These Habitat Conservation Plans (HCPs) are planning documents required as part of an application for an incidental take permit. They describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or have been proposed for listing. Conserving species before they are in danger of extinction or are likely to become so can also provide early benefits and prevent the need for listing (USFWS 2021b). The Western Riverside County Multiple Species Conservation Plan (see Riverside County section below) is an HCP, but the District is not a signatory to the plan or a participant.

As defined by the ESA, "individuals, organizations, states, local governments, and other non-federal entities are affected by the designation of critical habitat only if their actions occur on federal lands, require a federal permit, license, or other authorization, or involve federal funding.

Migratory Bird Treaty Act (MBTA) – Treaties signed by the U.S., Great Britain, Mexico, Japan, and the republics of the former Soviet Union make it unlawful to pursue, capture, kill, and/or possess, or attempt to engage in any such conduct to any migratory bird, nest, egg or parts thereof listed in this document. As with the ESA, the MBTA also allows the Secretary of the Interior to grant permits for the incidental take of these protected migratory bird species. Impacts include direct disturbance to/destruction of nests, eggs, and birds as well as indirect effects such as loud construction noises (e.g., drilling, operation of heavy equipment, etc. in excess of 60 dB over an hours at the nest site) and increased site activities (e.g., moving vehicles, use of guard dogs, presence of personnel) in close proximity to active nests.

Section 404 of the Clean Water Act (CWA) – This section of the CWA, administered by the U.S. Army Corps of Engineers (USACE), regulates the discharge of dredged and fill material into Waters of the United States (WUS). The USACE has created a series of nationwide permits that authorize certain activities within WUS provided that the proposed activity does not exceed the impact threshold for each of the permits, takes steps to avoid impacts to wetlands where practicable,

minimize potential impacts to wetlands, and provide compensation for any remaining, unavoidable impacts through activities to restore or create wetlands. For projects that exceed the threshold for nationwide permits, individual permits under Section 404 can be issued.

National Environmental Policy Act (NEPA) – If all or a portion of a proposed project fall under the jurisdiction of a federal agency (such as USACE). NEPA establishes certain criteria that must be adhered to for any project that is "financed, assisted, conducted or approved by a federal agency. The federal lead agency is required to "determine whether the proposed action will significantly affect the quality of the human environment."

3.2 State of California

California Endangered Species Act (CESA) – This legislation is similar to the federal ESA; however, it is administered by the California Department of Fish and Wildlife (CDFW). The CDFW is authorized to enter a "memoranda of understanding" with individuals, public agencies, and other institutions to import, export, take, or possess state-listed species for scientific, educational, or management purposes. The CESA prohibits the take of state-listed species except as otherwise provided in state law. Unlike the federal ESA, the CESA applies the take prohibitions to species currently petitioned for state-listing status (candidate species). State lead agencies are required to consult with the CDFW to ensure that actions are not likely to jeopardize the continued existence of any state-listed species or result in the destruction or degradation of occupied habitat.

Section 2081 of the State Fish and Game Code – Under Section 2081 of the California Fish and Game Code, the CDFW authorizes individuals or public agencies to import, export, take, or possess state endangered, threatened, or candidate species in California through permits or memoranda of understanding. These acts, which are otherwise prohibited, may be authorized through permits or "memoranda of understanding" if (1) the take is incidental to otherwise lawful activities, (2) impacts of the take are minimized and fully mitigated, (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question, and (4) the applicant ensures suitable funding to implement the measures required by the CDFW. The CDFW shall make this determination based on the best scientific information available and shall include consideration of the species' capability to survive and reproduce.

California Environmental Quality Act (CEQA) – The basic goal of the CEQA is to retain a high-quality environment now and in the future. The specific goals are for California's public agencies to:

- Identify the significant environmental effects of their actions; and, either
- Avoid those significant environmental effects, where feasible; or
- Mitigate those significant environmental effects, where feasible.

CEQA applies to "projects" proposed to be undertaken or requiring approval by State and/or local governmental agencies. Projects are activities which have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps. Where a project requires approvals from more than one public agency, the CEQA requires one of these public agencies to serve as the "lead agency."

A "lead agency" must complete the environmental review process required by the CEQA. The most basic steps of the environmental review process are:

- Determine if the activity is a "project" subject to the CEQA;
- Determine if the "project" is exempt from the CEQA;
- Perform an Initial Study to identify the environmental impacts of the project and determine whether the identified impacts are "significant". Based on its findings of "significance", the lead agency prepares one of the following environmental review documents:
    - Negative Declaration if it finds no "significant" impacts;
    - Mitigated Negative Declaration if it finds "significant" impacts but revises the project to avoid or mitigate those significant impacts;
    - Environmental Impact Report (EIR) if it finds "significant" impacts.

While there is no ironclad definition of "significance", Article 5 of the State CEQA Guidelines provides criteria to lead agencies in determining whether a project may have significant effects.

The purpose of an EIR is to provide state and local agencies and the general public with detailed information on the potentially significant environmental effects which a proposed project is likely to have and to provide ways in which those effects may be minimized and indicate alternatives to the project.

Sections of the State Fish and Game Code pertaining to the protection of birds – Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3505.5 makes it unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds-of-prey, i.e.: owls, hawks, eagles, etc.) or to take, possess, or destroy the nest or eggs of any bird-of-prey. Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA.

The Native Plant Protection Act (NPPA) – The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for “rare and endangered” are different from those contained in the CESA. However, the list of species afforded protection in accordance with the NPPA includes those listed as rare and endangered under the CESA. The

NPPA provides limitations on take as follows: "no person will import into this state, or take, possess, or sell within this state" any rare or endangered native plants, except in accordance with the provisions outlined in CESA. If a landowner is notified by the CDFW, pursuant to section 1903.5 that a rare or endangered plant species is growing on their property, the landowner shall notify the CDFW at least 10 days prior to the changing of land uses to allow the CDFW to salvage the plants.

Natural Community Conservation Planning (NCCP) Program – The NCCP program, which is managed by the CDFW, is intended to conserve multiple species and their associated habitats, while also providing for compatible use of private lands. Through local planning, the NCCP planning process is designed to provide protection for wildlife and natural habitats before the environment becomes so fragmented or degraded by development and other factors that species listing are required under the CESA. Instead of conserving small, often isolated "islands" of habitat for just one listed species, agencies, local jurisdictions, and/or other interested parties have an opportunity through the NCCP to work cooperatively to develop plans that consider broad areas of land for conservation that would provide habitat for many species. Partners enroll in the programs and, by mutual consent, areas considered to have high conservation priorities or values are set aside and protected from development. Partners may also agree to study, monitor, and develop management plans for these high value "reserve" areas. The NCCP provides an avenue for fostering economic growth by allowing approved development in areas with lower conservation value. The Western Riverside County Multiple Species Conservation Plan (see Riverside County section below) is an NCCP, but the District is not a signatory to, or a participant in the plan.

Sections 1600-1603 of the State Fish and Game Code – The California Fish and Game Code, pursuant to Sections 1600 through 1603, regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. Under state code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel with hydro geomorphology distinct top-of-embankment to top-of-embankment limits, that may or may not support fish or other aquatic biota. Included in this definition are watercourses with surface or subsurface flows that support, or have supported in the past, riparian vegetation. Specifically, Section 1601 governs public projects, while Section 1603 governs private discretionary actions. The CDFW requires that public and private interests apply for a "Streambed Alteration Agreement" for any project that may impact a streambed or wetland. The CDFW has maintained a "no net loss" policy regarding impacts to streams and waterways and requires replacement of lost habitats of at least a 1:1 ratio.

Regional Water Quality Control Board – The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit

to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which are generally the same as WUS but may also include isolated waterbodies. The Porter Cologne Act defines WSC as "surface water or ground water, including saline waters, within the boundaries of the state".

3.3 Multiple-Species Habitat/Natural Community Conservation Plan

The Town of Apple Valley (Town) and San Bernardino County (County) are working in coordination with the Bureau of Land Management (BLM), USFWS, and CDFW to prepare a "Multi-Species Habitat Conservation Plan/Natural Community Conservation Plan" (MSHCP/NCCP). The goal is to achieve consistent and complimentary conservation planning goals between the MSHCP/NCCP and state and federal land use plans to achieve conservation benefits at a landscape level. The MSHCP/NCCP will safeguard features and areas that warrant protection; plus ensure that future development within the Town and surrounding County lands in the Town's sphere of influence is compliant with the ESA and CESA. The MSHCP/NCCP will guide the Town's and County's conservation efforts in the MSHCP/NCCP area, allowing for the preservation of open space and protection of threatened and endangered species (Town of Apple Valley 2022a). The MSHCP/NCCP Planning Area includes 46,948 acres within the Town's incorporated limits and an additional 122,921 acres within the Town's sphere of influence for a total of 169,869 acres (Town of Apple Valley 2023b).

Besides creating environmental benefits, an approved MSHCP/NCCP will also provide permitting advantages to the Town and County by streamlining the environmental permitting process. The process established under the MSHCP/NCCP will increase control over local land use decisions and establish a one-stop shop for environmental permitting.

4.0 METHODS

4.1 Literature Review

A literature review and record search was conducted to identify occurrences of special status biological resources in the project vicinity. The review included:

• A report from the CDFW's California Natural Diversity Data Base (CNDDB) for a five-mile radius around the project site (CDFW 2023.

• The USFWS (2023a) Environmental Conservation Online System (ECOS) including critical habitat mapping and an Information for Planning and Consultation (IPaC) report (Appendix D).

• The California Native Plant Society (CNPS) Rare Plant Inventory (CNPS 2022) including records from the following California USGS 7.5-minute topographic quadrangles which are within five miles of the project: *Apple Valley North, Fairview Valley, Stoddard Well, Turtle Valley, Helendale, and Victorville*, Calif. (Appendix C). Note that CDFW has changed the name of "CNPS List" or "CNPS Ranks" to "California Rare Plant Rank" (CRPR) to reduce confusion over the fact that rank assignments are the product of a collaborative effort between CNPS and CDFW and not solely a CNPS assignment (CDFW 2022c).

• Consortium of California Herbaria (2022) plant specimens.

• Aerial photographs, and

• Pertinent documents from the WSP USA library and project files (e.g., other biological surveys from the general vicinity) and the collective knowledge of WSP USA biologists.

Prior to the field visit, a literature review was conducted of the environmental and regulatory setting for the BSA. The literature review provides a baseline from which to evaluate the biological resources potentially occurring within the BSA, and within the local and regional vicinity.

4.2 Biological Resources and Habitat Assessment

The field reconnaissance assessment of the project's BSA was conducted on 24 August 2023 by WSP USA senior wildlife biologist Dale Hameister. Representative photographs are included in Appendix B. The entire BSA was assessed on foot and with binoculars. All flora and fauna detected (e.g., through direct observation, vocalizations, presence of scat, tracks, and/or bones) within the BSA during the course of the assessment were recorded in field notes and are included in Appendix C.

4.3 Jurisdictional Waters and Wetlands

A jurisdictional assessment was conducted within the BSA by WSP USA senior biologist Dale Hameister.

4.4 Desert Tortoise

A protocol survey for desert tortoise was conducted on 31 August 2023 by WSP USA biologists Dale Hameister and Phil Clevinger.

4.5 Wildlife Corridors

The ability of the BSA to act as a wildlife corridor was assessed. Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Corridors mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats. Wildlife movement usually fall into one of three categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

5.0 RESULTS

The literature review and field surveys revealed the following information about critical habitat, wetlands, soils, vegetation, and special status species in the BSA.

5.1 Critical Habitat

No federally designated critical habitat is present in the BSA.

5.2 Soils

The BSA contains four (4) different soil mapping units (Figure 3).

Soils series mapped within the project area include Cajon sand, Helendale-Byman loamy sands, Mirage-Joshua complex, and Nebona-Cuddeback complex.

He Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. Cajon soils are on alluvial fans, fan aprons, fan skirts, inset fans and river terraces. Slopes are 0 to 15 percent. The average annual precipitation is about 6 inches and the mean annual temperature is about 65 degrees F.

The Helendale series consists of very deep, well drained soils that formed in alluvium from granitoid rocks. Helendale soils are on fan piedmonts, fan remnants, alluvial fans and terraces. Slopes range from 0 to 15 percent. The mean annual precipitation is about 125 millimeters (5 inches) and the mean annual temperature is about 17 degrees C (62.5 degrees F).

The Mirage series consist of deep, well drained soils that formed in mixed alluvium, dominantly from granitic sources. Mirage soils are on old terraces with well-developed erosion pavement and have slopes of 2 to 5 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees.

The Nebona series consists of shallow, well drained soils that formed in mixed alluvium. Nebona soils are on terraces and have slopes of 2 to 9 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees F.

5.3 Wetlands and Jurisdictional Drainages

There are several riverine features mapped within the project site in the National Wetland Inventory. These features are areas of bare soil and appear to be washes from an aerial view.

During the field investigation, it was determined that no OHWM or evidence of any recent flows were observed. There had been heavy rain two days prior to the survey so if any features were jurisdictional on-site, then flows should be clearly evident.

There were no signs of OHWM or clearly defined bed and bank features within any of the potential wash features identified during the literature review. Soil pits were dug at several locations and indicated that there were no observable differences in soil profile or texture. There was no difference in surface soil texture or sorting. No wetland indicator or hydric plants were observed associated with the features.

These features did not contain riparian vegetation or hydric soils, did not show evidence of periodic or episodic flow, and do not have a defined bed and bank. The features were determined to be upland erosional features and did not meet the requirements to be considered WOTUS, WSC, or CDFW jurisdictional. These features were evaluated and determine to be non-jurisdictional in an otherwise upland area.

5.4 Vegetation Communities

The BSA contains one native vegetation community, creosote bush scrub (Holland 1986). (Appendix A - Figure 4).

5.4.1 Creosote Bush Scrub

The dominate shrub present is creosote bush (*Larrea tridentata*). Other native shrub species include Nevada ephedra (*Ephedra nevadensis*), burrobush (*Ambrosia salsola*), sandpaper plant (*Petalonyx thurberi*) and Anderson thornbush (*Lycium andersonii*). Non-native annual species observed include Russian thistle (*Salsola tragus*), red stemmed filaree (Erodium cicutarium), old han schismus (*Schismus barbatus*). There are also nine Joshua trees (*Yucca brevifolia*) scattered across the site and one addition Joshua tree just outside the boundary near the southeast corner of the property.

5.5 Wildlife

Species encountered during field visit included species common to inland southern California deserts. Wildlife observed or detected via scat or tracks include burrowing owl (*Athene cunicularia*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), black-throated sparrow (*Amphispiza bilineata*), black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope

squirrel (*Ammospermophilus leucurus*) and kit fox (*Vulpes velox*). A complete list of the flora and fauna observed during the field visits is included in Appendix C.

5.6 Special Status Biological Resources

Plant or animal taxa may be designated as having "special status" by the various regulatory agencies (i.e., CDFW, USFWS) and/or conservation organizations (i.e., CNPS) due to declining populations, vulnerability to habitat change or loss, or because of restricted/limited distributions. Some species have been listed as “threatened” or “endangered” and/or are a candidate for listing by the USFWS and/or the CDFW and are thus protected by the federal and state ESAs respectively. In addition to plants and animals, some vegetation communities have also received special status designations by the CDFW due to incremental loss and fragmentation resulting from development. Impacts to any special status biological resources can be considered significant under CEQA.

The literature review and field visits identified a total of 49 special status biological resources that are known from or in the general vicinity of the BSA. See Tables 1 through 3 for a complete list of these resources, their conservation status, habitat associations and occurrence potential. We did not include species which do not occur at BSA elevations or which only occur in aquatic habitats.

Table 1. Special Status Plant Species Potential for Occurrence

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		
Androsace elongata ssp *acuta*	California androsace	None	S3S4	CRPR 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. 150-1305 meters (m). Blooms (B): March-June.	Absent Suitable habitat not present.
Canbya candida	white pygmy poppy	None	S3S4	CRPR 4.2, MSHCP /NCCP	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland on granitic, gravelly, sandy soils. 600-1460 m. B: March-June.	Moderate Suitable habitat, but nearest records approximately four miles southwest
Cymopterus deserticola	desert cymopterus	None	None	CRPR 1B.2, MSHCP /NCCP	Joshua tree woodland and Mojavean desert scrub in sandy areas. 630-1500 m. B: March - May.	Moderate Habitat suitable, nearest record is over four miles to the south-southwest.
Diplacus (Mimulus) mohavensis	Mojave monkeyflower	None	None	CRPR 1B.2, MSHCP /NCCP	Joshua tree woodland and Mojavean desert scrub. Most often in washes; sometimes in gravely and sandy areas. 6001200 m. B: April - June.	Moderate Habitat suitable, nearest record approximately four miles to the east-northeast.
Eremothera boothii ssp *boothii*	Booth's evening primrose	None	S3	CRPR 2B.3, MSHCP /NCCP	Joshua tree "woodland", pinyon and juniper woodland. 815-2400 m. B: April-September.	Absent Site below elevational range of subspecies. Dried remains of *Eremothera boothii* detected on site, subspecies undeterminable. Town of Apple Valley region far outside of expected geographic range of ssp. *boothii* (Jepson Flora Project 2022)
Eriophyllum mohavense	Barstow woolly sunflower	None	S2	CRPR 1B.2, MSHCP /NCCP	Chenopod scrub, Mojavean desert scrub, playas. 500-960 m. B: March-May.	Moderate Habitat suitable, nearest records is approximately 4 miles northeast
Lycium torreyi	Torrey's boxthorn	None	S3	CRPR 4.2	Mojavean & Sonoran Desert scrub in rocky, sandy places; streambanks, washes. -50-1220 m. B: (January-February) March-June (September-November).	Absent Although there are CNPS records for *L. torreyi* in the Apple Valley North and Victorville quadrangles, CNPS also states “plants in California outside vicinity of Colorado River are likely misidentifications.”

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	Other		
Mentzelia eremophila	solitary blazing star	None	S3S4	CRPR 4.2	Mojavean desert scrub. 7001220m. B: March-May.	Moderate Suitable habitat, nearest occurrence is over four miles west-southwest
Pediomelum castoreum	Beaver Dam breadroot	None	S2	CRPR 1B.2, MSHCP /NCCP	Joshua tree "woodland", Mojavean desert scrub on roadsides, in sandy places, and in washes. 610-1525 m. B: April-May.	Moderate Suitable habitat. No records in immediate project area, but occurrences in all surrounding directions.
Sclerocactus polyancistrus	Mojave fishhook cactus	None	S3	CRPR 4.2	Great Basin scrub, Joshua tree "woodland", Mojavean desert scrub usually on carbonate soils. 640-2320 m. B: April-July.	Absent Suitable habitat, nearest occurrence approximately 2 miles west, but this small cactus was not seen during site visit.
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	None	S3	CRPR 1B.2, MSHCP /NCCP	Mesic areas in chaparral, cismontane woodland, lower montane coniferous forest. 425-2000 m. June-August.	Absent Suitable habitat not present.
Symphyotrichum defoliatum	San Bernardino aster	None	S2	CRPR 1B.2, MSHCP /NCCP	Streambanks in cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, meadows and seeps, valley and foothill grassland. 2-2040 m. B: July-November.	Absent Suitable habitat not present.
Yucca brevifolia	western Joshua tree	None	SCT	CRPR None	Mojavean desert scrub, Joshua tree “woodland.” 750 - 2,100 m, but individuals slightly lower or higher. B: January - May, rarely as early as November (CDFW 2022c).	Present

KEY TO TABLE 1

Definitions of occurrence probability:

Occurs: Observed on the site by WSP biologists, or recorded on-site by other qualified biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.

Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.

Absent: A focused study failed to detect the species, or, no suitable habitat is present.

Unknown: Distribution and habitat use has not been clearly determined.

Federal designation: = F

State designation: = C
State rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point (if any) represents a threat designation attached to the rank:
S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant
SX = Presumed extinct

California Native Plant Society (CNPS) designations:
Primary Categories
LIST 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
LIST 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
LIST 2A: Plants Presumed Extirpated in California, But Common Elsewhere
LIST 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
LIST 3: Plants About Which More Information is Needed - A Review List
LIST 4: Plants of Limited Distribution - A Watch List
Subdivisions within Categories
0.1: Seriously threatened in California
0.2: Moderately threatened in California
0.3: Not very threatened in California

Table 2. Special Status Vegetation Community Potential for Occurrence

Community	Status	Habitat	BSA Occurrence Probability
Southern Cottonwood Willow Riparian Forest	F: None C: S3.2	This vegetation community occurs along streams and rivers, occupying relatively broad drainages and floodplains. It consists of trees that are generally greater than 20 feet high. Dominated by mature winter deciduous trees, including Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and several species of tree willows (*Salix* spp.), this community often has a dense understory of shrubby willows, mule fat, and mugwort (*Artemisia douglasiana*). The dominant species require moist, bare mineral soil for germination and establishment, an environment that is provided after flood waters recede.	Absent

KEY TO TABLE 2

Definitions of occurrence probability:
Occurs: Observed on the site by WSP USA biologists or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present.
Unknown: Distribution and habitat use has not been clearly determined.

Federal designation: = F

State designation: = C

State rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point (if any) represents a threat designation attached to the rank:

S1 = Critically Imperiled. Less than (<) 6 EOsOR < 1,000 individuals OR < 2,000 acres
- S1.1 = very threatened
- S1.2 = threatened
- S1.3 = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- S2.1 = very threatened
- S2.2 = threatened
- S2.3 = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
- S3.1 = very threatened
- S3.2 = threatened
- S3.3 = no current threats known

S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant

Table 3. Special Status Animals

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Invertebrates						
Bombus crotchii	Crotch Bumblebee	None	S1S2	Not applicable (N/A)	Open grassland & scrub habitats. Occurs primarily in California, in coastal slope areas, western desert, great valley, and adjacent foothills.	Low Nectar sources scarce, is present and other flowering species utilized by this bumblebee are likely to occur in season.
Danaus plexippus	Monarch Butterfly	**FC**	S2S3	N/A	Western winter roost sites primarily occur along the coast from northern Mendocino to Baja California, Mexico, located in wind protected tree groves (*Eucalyptus* species, Monterey pine (*Pinus radiata*), cypress), with nectar and water sources nearby. During breeding season, adults widespread but scarce in the desert. Larvae require milkweed.	Low Seldom seen in the desert, no milkweed detected.
Fish						
Siphateles bicolor mohavensis	Mohave tui chub	FE	SE	MSHCP /NCCP	Found in the Mojave river as well as drainage and sewer systems with year-round water.	Absent No year-round water available
Reptiles						
Gopherus agassizii	desert tortoise	**FT**	**ST**, S2S3	MSHCP /NCCP	Prefers Joshua tree, desert wash & scrub, especially creosote bush (*Larrea tridentata*) habitats; but in most desert habitats. Large wildflower blooms preferred. Burrows & nests require friable soil.	Absent Not found by August focused survey, but habitat is appropriate and there are records in the area so future occupation is possible.

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Birds						
Aquila chrysaetos	golden eagle	MBTA, BGEPA, BCC	S3, WL, FP, FGC	MSHCP /NCCP	Mountainous/hilly areas with cliffs and open fields required for habitat. Jackrabbits are primary food source.	Low No nesting habitat on site. Could potentially nest on rocky peaks in the general area and forage on site. Not found during July or August site visits.
Athene cunicularia	burrowing owl	MBTA, BCC	SC, S3, FGC	MSHCP /NCCP	Open, dry grasslands, deserts & scrublands with low-growing vegetation. Depends on burrowing mammals.	Present Owl pellets and whitewash were observed at kit fox burrow. Unknow if occupied at the time of survey.
Buteo swainsoni	Swainson's hawk	MBTA, BCC	SE, S3, FGC	MSHCP /NCCP	Open plains, grasslands, dry grasslands. Migrates through Mojave Desert.	Low No nesting habitat on site. Could potentially nest in the general area and forage on site. May also occur during migration. Not found during July or August site visits.
Calypte costae	Costa's hummingbird	MBTA, BCC	S4, FGC	N/A	Primary habitats desert wash; edges of desert & valley foothill riparian; coastal, desert, & desert succulent scrub; palm oasis; & low elevation chaparral.	Moderate Nesting and foraging habitat present.
Falco mexicanus	prairie falcon	MBTA, BCC	SC, S3, FGC	MSHCP /NCCP	Breeding sites located on cliffs, but forages far afield.	Low No nesting habitat on site. Could potentially nest on rocky peaks in the general area and forage on site. Not found during July or August site visits.

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Gymnogyps californianus	California condor	FE, MBTA	SE, FGC	N/A	Forages widely for carrion. Ledges and cliffs are used as roost and nest sites.	Absent Identified only by the IPaC report. Although capable of very long foraging flights from breeding and nesting areas, all members of the population are closely monitored. There is no nesting habitat on site and condors rarely, if ever, visit this area.
Lanius ludovicianus	loggerhead shrike	MBTA, BCC	SSC, S4, FGC	MSHCP /NCCP	Found in open habitats with widely spaced vegetation.	Moderate Not found during site visits. Suitable nest sites, habitat present.
Spinus lawrencei	Lawrence's goldfinch	MBTA, BCC	None	N/A	Pine forests, chaparral typically but breeds in other habitats. Can be found in dry open land in migration.	Absent Identified only by the IPaC report. Project lacks breeding and typical foraging habitat.
Toxostoma redivivum	California thrasher	BCC	N/A	N/A	Chaparral & foothill habitats. Sometimes well vegetated deserts.	Absent No suitable habitat. Identified only by the IPaC report.
Toxostoma lecontei	Le Conte's thrasher	MBTA, BCC	S3, FGC	MSHCP /NCCP	Desert: open washes, scrub; commonly nests in a dense, spiny shrub or cactus.	Low Not found on July or August site visits. Suitable habitat & nesting sites present.
Mammals						
Vulpes macrotis arsipus	desert kit fox	None	FGC	MSHCP /NCCP	Annual grasslands or open areas with scattered brush, shrubs, & scrub. Dens in open, level areas with loose textured, soils (CDFW 2016b)	Occurs Scat and dens detected onsite. Regulated as a furbearing mammal.

Scientific Name	Common Name	Status[1]			Habitat	Occurrence Probability[2]
		Federal	State	Other		
Xerospermophilus mohavensis	Mojave ground squirrel	None	ST	MSHCP /NCCP	Suitable habitat is sandy and gravelly soils. Burrows found at the base of shrubs.	Absent CNDDB record five miles to the west; site within historic range of species. Site, however, not in or near current known range of species (Leitner 2008).

KEY TO TABLE 3

Definitions of occurrence probability:

Occurs: Observed on the site by WSP USA biologists or recorded on-site by other qualified biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.

Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.

Absent: A focused study failed to detect the species, or, no suitable habitat is present.

Unknown: Distribution and habitat use has not been clearly determined.

Federal designation =F

State designation =C

CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:

S1 = Critically Imperiled. Less than (<) 6 EOs OR < 1,000 individuals OR < 2,000 acres
- S1.1 = very threatened
- S1.2 = threatened
- S1.3 = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- S2.1 = very threatened
- S2.2 = threatened
- S2.3 = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
- S3.1 = very threatened
- S3.2 = threatened
- S3.3 = no current threats known

S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.

S5 = Secure. Common, widespread, and abundant in the state.

SH = All known California sites are historical, not extant

Western Bat Working Group (WBWG) designations:

H = High: Species which are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.

M: = Medium: Species which warrant a medium level of concern and need closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.

L: = Low: Species for which most of the existing data support stable populations, and for which the potential for major changes in status in the near future is considered unlikely. There may be localized concerns, but the

overall status of the species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on High and Medium status species.

P: = Periphery: This designation indicates a species on the edge of its range, for which no other designation has been determined.

5.6.1 Special Status Plant Species

Thirteen special status plant species are known from the project area (Table 2). Five are not expected to occur either due to a lack of habitat (California androsace, Booth's evening-primrose, Torrey's boxthorn, southern mountains skullcap, and San Bernardino aster) or because it was not detected during the reconnaissance survey. As shown on Table 2, habitat for the remaining eight plant species (white pygmy poppy, desert cymopterus, Mojave monkeyflower, Barstow woolly sunflower, solitary blazing star, beaver dam breadroot, and Mojave fish-hook cactus) is present on-site. These species were not found during the July or August site visits; however, this is not proof of absence. Most do not bloom in August. For those reasons, it was not possible to determine presence, absence, or population size. Until surveyed for in the appropriate season, presence, population size, and importance to the overall population cannot be determined. None of these species are federally or state listed as endangered or threatened. Impacts to these species could nevertheless be considered significant under CEQA if plants found on-site were found important to survival of the overall population. Also, white pygmy-poppy, desert cymopterus, Mojave monkeyflower, Barstow woolly sunflower, and beaver dam breadroot are proposed for coverage under the MSHCP/NCCP. In particular, the science advisory committee for the MSHCP/NCCP singled out Mojave monkeyflower and Barstow woolly sunflower as being of relatively high conservation (Fleishman, et al 2016).

It is recommended that a focused surveys be performed during the appropriate season for the detection of the eight potentially occurring species. Two surveys would be required in spring (March/April) and two additional survey in the summer (June/July). If found, biological monitoring may be required near their populations. If unavoidable, they should be transplanted and/or have seeds/topsoil collected with guidance from the CDFW. If species proposed for coverage under the MSHCP/NCCP are detected, the Town should also be consulted.

5.6.1.1 Western Joshua Tree

The Western Joshua Tree Conservation Act (WJTCA) was passed in July 2023 to conserve western Joshua tree and its habitat while supporting the state's renewable energy and housing priorities.

The WJTCA creates a streamlined permitting framework for certain development activities and collects mitigation fees for the acquisition and conservation of western Joshua tree habitat and other actions to conserve western Joshua Tree. This will offset the impacts of permitted projects that negatively impact western Joshua trees and help to conserve the species on a landscape scale. The WJTCA fees are based on the total number of individual trees at specific height intervals.

Permitting

The WJTCA authorizes the CDFW to:

- Permit the trimming and removal of hazardous or dead western Joshua trees.
- Permit the incidental take of western Joshua trees provided the permittee meets certain conditions.
- Enter into an agreement with a county or city to delegate limited authority to issue the permits mentioned above, provided certain conditions are met.

Additionally, the WJTCA directs CDFW to develop a conservation plan for western Joshua tree by the end of 2024.

The project is located in the area that qualifies for reduced Mitigation Fees for impact to Western Joshua Trees in California as defined in the California Department of Fish and Wildlife Code (Section 1927). These reduced mitigation fees also apply to "Any project receiving a permit issued by a county or city pursuant to an agreement with the department" pursuant to the Western Joshua Tree Conservation Act.

Summary of Mitigation Fees

Reduced Mitigation Fees (within blue area) [See Section 1927.3 (d)]:

- Trees 5 meters or greater in height - $1000
- Trees 1 meter or greater but less than 5 meters in height - $200
- Trees less than 1 meter in height - $150

Standard Fees (anywhere in State, outside blue area) [See Section 1927.3 (e)]:

- Trees 5 meters or greater in height - $2,500
- Trees 1 meter or greater but less than 5 meters in height - $500
- Trees less than 1 meter in height - $340

There are 9 western Joshau trees located within the project site which are all between 1 m and 5 m in height. The mitigation fee for the project is estimated to be $1,800.

5.6.2 Special Status Vegetation Communities

One special status vegetation community, southern cottonwood willow riparian forest is known from the general project area, but it does not occur in the BSA (Table 2). The closest area of this riparian habitat is along the Mojave River. Vegetation communities are not state or federally listed as threatened or endangered.

5.6.3 Special Status Wildlife

29 species of special status wildlife /species have been recorded from the BSA, as identified by the literature search and/or field surveys.

5.6.3.1 Insects

The literature review identified two special status insects from the project area (Table 3): the monarch butterfly (federal candidate for ESA listing, identified only by IPaC) and Crotch bumblebee (state ranked as critically imperiled to imperiled). There is a low probability that these insects could occur on site.

Monarchs are not expected to winter in the project area, but a few individual adults may forage in the warmer months. The main threat to the species would be impacts to milkweed, the larval foodplant. No milkweeds have been found on site.

The CNDDB reported an occurrence of Crotch bumblebee 1-2 miles north of the project site. This species nests underground and overwinters in soil or under leaf litter/debris. Visits many flowering plants including, but not limited to, Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, Boraginaceae, and Hydrophyllaceae. Genera include, but are not limited to, Antirrhinum, Asclepias, Chaenactis, Clarkia, Dendromecon, Eschscholzia, Eriogonum, Lupinus, Medicago, Phacelia, & Salvia. The flight period or this species occurs from late February to late October. These bees require flowering plants for nectar and potential nest sites, both of which occur on site, albeit in low abundance.

It is recommended that pre-construction surveys by qualified biologists bumblebee nests (if any) for avoidance. Any bumblebee nest should be avoided. If unavoidable, and determined to be occupied by Crotch bumblebees, the CDFW should be consulted for guidance and potential incidental take permits, if impacts cannot be avoided.

5.6.3.2 Reptiles

The literature search identified desert tortoise as being of potential occurrence (Table 3). The Mojave population segment of the desert tortoise is federally and state listed as threatened by the USFWS and CDFW. The Mojave population segment includes all tortoises occurring west and north of the Colorado River. The desert tortoise is most common in desert scrub, desert wash, and Joshua tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They require friable soil for burrow and nest construction. Burrows are typically found at the base of shrubs, in the interspaces between shrubs, and occasionally in caliche soil bank areas or underneath boulders/rocks. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Tortoise activity is greatest during the spring and early summer, and to a lesser extent during the fall; however, tortoises can be active at any time of the year during appropriate weather conditions. Although tortoises hibernate during the winter and typically emerge in late February or early March, hatchlings and juveniles can be fairly active during the winter months. Adults will also emerge from their burrows to drink if water resources have been limited during the previous activity season and/or winter precipitation has provided standing water. Their activity is usually much reduced during hot summer months, but they may be active following summer rains or if temperatures are moderate (Boarman 2003).

Threats to desert tortoises include loss or degradation of habitat, vandalism, poaching, intentional killing, predation on young tortoises by the common raven (*Corvus corax*) and other predators (e.g. kit fox, snakes, etc.), and disease (e.g. *Mycoplasmosis*). Off-road vehicles, military training maneuvers, mining, and livestock grazing also affect tortoise habitat by collapsing burrows, eroding soils, reducing availability of food plants, eliminating shrubs which would provide shade for tortoises and support for their burrows, and ultimately results in surface disturbance that promotes conditions more conducive to invasion by exotic plant species, which provide less nutritional value to tortoises than the native species that were replaced. Human activities, including garbage dumping, landfills, roads, increased nesting opportunities, irrigation, and increased vehicle use have led to increased numbers of common ravens in California deserts. Ultimately, the increased predation on young tortoises by common ravens reduces recruitment in breeding populations (Boarman 2003).

Tortoises are most often detected by their scats and burrows. Tortoises themselves can sometimes be detected in burrows by shining a light inside the burrow. Other tortoise sign includes carcasses, or fragments thereof, courtship rings, and drinking depressions. Presence of sign is an indication that tortoises either occur, or have recently occurred, at a particular location. Sign can be detected at any time of the year and always indicates suitable habitat, if not occupied habitat.

The vegetation community occurring on the project site (creosote bush scrub) is a habitat typically utilized by desert tortoises. There is no desert tortoise critical habitat designated on the project site, and no desert tortoises or their sign were detected during the reconnaissance or focused survey. However, the CNDDB reports four occurrences within a 5-mile radius, including records within three miles or less to the north and southwest.

The focused survey found no desert tortoises, desert tortoise burrows, or desert tortoise sign. Although desert tortoise was found to be absent, it is important to note that the project site is contiguous with potential habitat. As a result, desert tortoises may enter the project site at any time in the future.

Desert tortoises cannot be taken (harmed, harassed) under state and federal law. This report and any recommended mitigation measures do not constitute authorization for incidental take of the

desert tortoise. If desert tortoise is detected on site, consultation with the USFWS and CDFW may be required. Since desert tortoise is proposed for coverage under the MSHCP/NCCP, the Town may also need to be notified if they are detected onsite.

5.6.3.3 Birds

As shown on Table 3, several special status bird species occur or may occur on site (golden eagle, burrowing owl, Swainson's hawk, Costa's hummingbird, prairie falcon, loggerhead shrike, Le Conte's thrasher). Most of these are also proposed for coverage under the MSHCP/NCCP (golden eagle, burrowing owl, Swainson's hawk, prairie falcon, loggerhead shrike, and Le Conte's thrasher). Those that do not have nesting habitat on-site (golden eagle, Swainson's hawk, prairie falcon) should simply be avoided if temporarily present. The remaining special status species which could potentially nest onsite (burrowing owl, Costa's hummingbird, loggerhead shrike, Le Conte's thrasher) will be protected by the recommendations in Section 6.0 below.

The burrowing owl is uniquely vulnerable to ground disturbing activities since it both nests and roosts underground. Therefore, additional actions must be taken to protect against impacts to this species which would result in take. In addition to protection under the MBTA and FGC, the burrowing owl is also federally designated as a Bird of Conservation Concern and state designated as a Species of Concern. It occurs in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation (Haug et al. 2011). In southern California, burrowing owls are not only found in undisturbed natural areas, but also fallow agricultural fields, margins of active agricultural areas, livestock farms, airports, and vacant lots. It is a subterranean nester, typically utilizing pre-existing burrows or burrow surrogates (e.g. ground squirrel burrows, kit fox burrows, drain pipes, culverts, etc.). Burrowing owl occupied burrows and areas can be recognized by sign which includes tracks, molted feathers, cast pellets, prey remains, eggshell fragments, whitewash, nest burrow decoration materials (e.g., paper, foil, plastic items, livestock or other animal manure, etc.) (CDFG 2012). The species is active both day and night and may be seen perching conspicuously on fence posts or standing at the entrance of their burrows.

Analyses of regional patterns for breeding populations of burrowing owls have detected declines both locally in their central and southern coastal breeding areas, and statewide where the species has experienced breeding range retraction. Threat factors affecting burrowing owl populations include habitat loss, degradation and modification, and eradication of ground squirrels resulting in a loss of suitable burrows required by burrowing owls for nesting, protection from predators, and shelter. Conservation for burrowing owls may include but may not be limited to protecting remaining breeding pairs or providing for population expansion, protecting, and enhancing breeding and essential habitat, and amending or augmenting land use plans to stabilize populations and other specific actions to avoid the need to list the species pursuant to the ESA or CESA (CDFG 2012).

No burrowing owls were observed during the reconnaissance survey, but pellets and old whitewash was observed. Therefore, the Staff Report on Burrowing Owl Mitigation (CDFG 2012) requires a survey for potential burrows followed by four breeding season surveys of those areas found to have potential for burrowing owl occupation. The burrow survey can be conducted at any time, but breeding season focused surveys cannot begin sooner than 1 February.

If burrowing owls are found and are unavoidable, guidelines in CDFG (2012) will need to be followed and consultation with the CDFW may be required. Furthermore, where potential habitat is present, CDFG (2012) also requires less extensive preconstruction take avoidance surveys for owls whether or not found by the focused surveys in case the site has been occupied in the interim between the focused surveys and initiation of construction. These surveys are done from 14 days to 24 hours before groundbreaking. Since the burrowing owl is proposed for coverage under the MSHCP/NCCP, the Town should also be consulted if they are detected onsite.

5.6.3.4 Mammals

The literature review identified two special status / protected mammals from the project area: the Mohave ground squirrel and the desert kit fox (Table 3).

A 1977 occurrence of the state listed as threatened Mohave ground squirrel appeared on the CNDDB report approximately five miles west of the project area. This species, however, is considered to be extirpated from the project area (Leitner 2008). Therefore, we do not recommend any further action for Mohave ground squirrel.

The desert kit fox is a fur-bearing mammal regulated under the FGC but is not generally considered a special status species. The draft MSHCP/NCCP, however, treats it as a proposed covered species. Scat of this species and potential den locations were observed within the project site during the desert tortoise survey. If a potentially active den is to be impacted, the CDFW and/or Town should be consulted on mitigation measures that they will require, if any.

5.7 Wildlife Corridors

The BSA does not act as a wildlife corridor. The BSA contains the same habitat as all surrounding parcels with the exception of Quarry Road to the north which does not create a barrier to wildlife movement.

6.0 DISCUSSION AND RECOMMENDATIONS

One sensitive plant, western Joshua tree, was observed on-site. Annual rare plant species may occur on-site. Two focused surveys should be conducted in April/May 2023 and two additional surveys June/July to determine presence or absence and population size.

One special status insect, Crotch's bumble bee may occur on-site. To avoid impacts to this species, it is recommended to assess the project site for suitable nectar resources during the spring and determine if protocol surveys are recommended.

A focused survey determined that the desert tortoise is not present on-site at this time. The following mitigation and minimization measures are recommended to ensure that any potential impacts to the desert tortoise are avoided:

1) A worker's environmental awareness program (WEAP) would be implemented to educate the construction crew of potential special status species present on the project site.

2) Construction and maintenance personnel would be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it would not be moved until the desert tortoise had left of its own accord. All desert tortoise observations would be reported to a qualified biologist and the wildlife agencies.

3) A qualified biologist should monitor construction to ensure that tortoises do not enter the work area and that they are not disturbed if present. Isolating the site with tortoise-proof fencing could reduce or eliminate this need.

4) Any open trenches adjacent to habitat should be monitored by a qualified biologist daily. If left open overnight or at any time when not monitored, they should be fenced and/or covered to prevent entry by desert tortoises. Exit ramps should be present within open trenches.

The desert kit fox forages on-site, but no dens are currently present on-site. To avoid impacts to this species it is recommended to not disturb any active burrows that could contain kits. Kits are usually present in the springtime. If a potentially active den is to be impacted, the CDFW and/or Town should be consulted on mitigation measures that they will require, if any.

Nesting birds, including special status species, may occur on-site. To avoid impacts to protected species, a nesting bird clearance survey should be conducted prior to clearing of vegetation.

Burrowing owl may occur on-site. A four-visit focused breeding season survey will be conducted in 2023 beginning no sooner than 15 February and ending no sooner than 16 June.

No jurisdictional drainages were observed onsite and no permits from USACE, CDFW, or RWQCB are required.

7.0 LITERATURE CITED AND REFERENCES

California Bird Records Committee. 2023. Official California Checklist. Accessed online at: http://californiabirds.org/ca_list.asp

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation.

California Department of Fish and Wildlife (CDFW). 2023a. California Natural Diversity Database (CNDDB) RareFind 5 records of sensitive elements. Accessed online at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

CDFW. 2023b. Special Animals List. September. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline

CDFW. 2016a. Complete List of Amphibian, Reptile, Bird and Mammal Species in California. May. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=87155&inline

CDFW. 2016b. California's Wildlife. Accessed online at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range

California Legislative Information. 2021. Fish and Game Code of California. http://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=FGC&tocTitle=+Fish+and+Game+Code+-+FGC

CDFW. 2023c. Western Joshua Tree. Accessed online at: https://wildlife.ca.gov/Conservation/Environmental-Review/WJT

California Native Plant Society (CNPS). 2023. Inventory of Rare and Endangered Plants of California (online edition, v9-01 0.0). Accessed online at: https://www.rareplants.cnps.org

Fleishman, E., L. Kats, J. Lovich, B. Pavlik, and B. Riddle. 2016. Science advisory committee guidance on development and implementation of a habitat conservation plan / natural community conservation plan for Apple Valley, California. April. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=128238&inline

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Calif. Fish Game, Sacramento.

Jepson Flora Project. 2021. *Jepson eFlora.* Accessed online at: http://ucjeps.berkeley.edu/IJM.html

United States Department of Agriculture (USDA). 2023. PLANTS Database. Accessed online at: https://plants.sc.egov.usda.gov/home

USDA. 2023. Web Soil Survey. Accessed online at: http://websoilsurvey.nrcs.usda.gov/app/

United States Fish and Wildlife Service (USFWS). 2021. Bird Laws and Treaties. Accessed online at: http://www.fws.gov/migratorybirds/RegulationsandPolicies.html

USFWS. 2020a. Listing and Critical Habitat, Critical Habitat, Frequently Asked Questions. Accessed online at: https://www.fws.gov/endangered/what-we-do/critical-habitats-faq.html

USFWS. 2023b. Habitat Conservation Plans: Overview. Accessed online at: https://www.fws.gov/endangered/what-we-do/hcp-overview.html

USFWS. 2021c. National Wetlands Inventory. Accessed online at: https://www.fws.gov/wetlands/

USFWS. 2021d. Critical Habitat Portal. Accessed online at: http://ecos.fws.gov/crithab/.

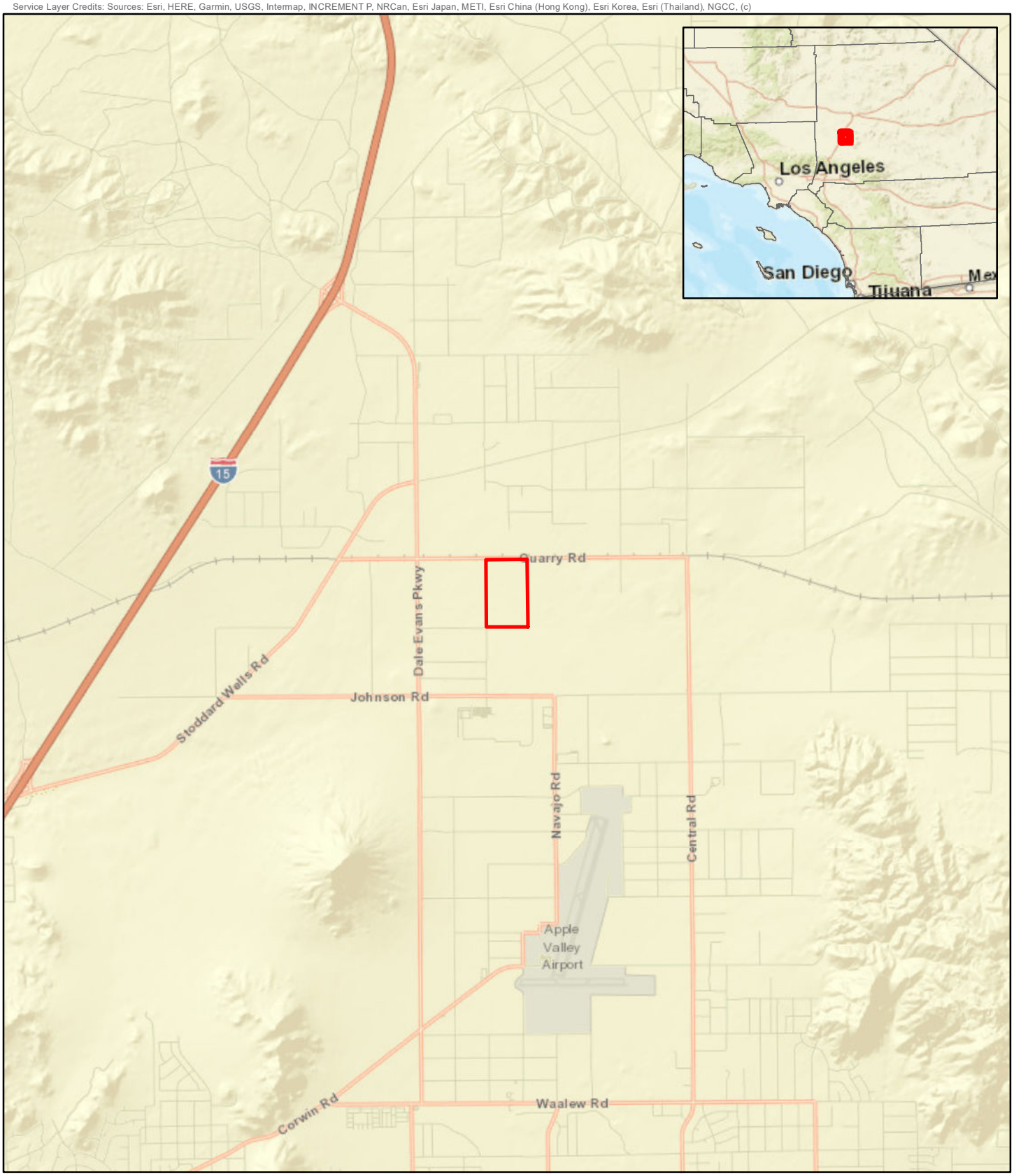
USFWS. 2013. Habitat types. Accessed online at: https://www.fws.gov/refuge/san_diego/wildlife_and_habitat/Habitat_Types.html

Xerces Society for Invertebrate Conservation, The, Defenders of Wildlife, Center for Food Safety. 2018. A Petition to The State of California Fish and Game Commission to List the Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckley cuckoo bumble bee (*Bombus suckleyi*), and western bumble bee (*Bombus occidentalis occidentalis*) as Endangered under the California Endangered Species Act. October. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902

APPENDIX A

Maps and Figures

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\BRAR\Fig1_Vicinity&Location_BRAR.mxd, aaron.johnson 10/2/2023

1 inch = 1 miles

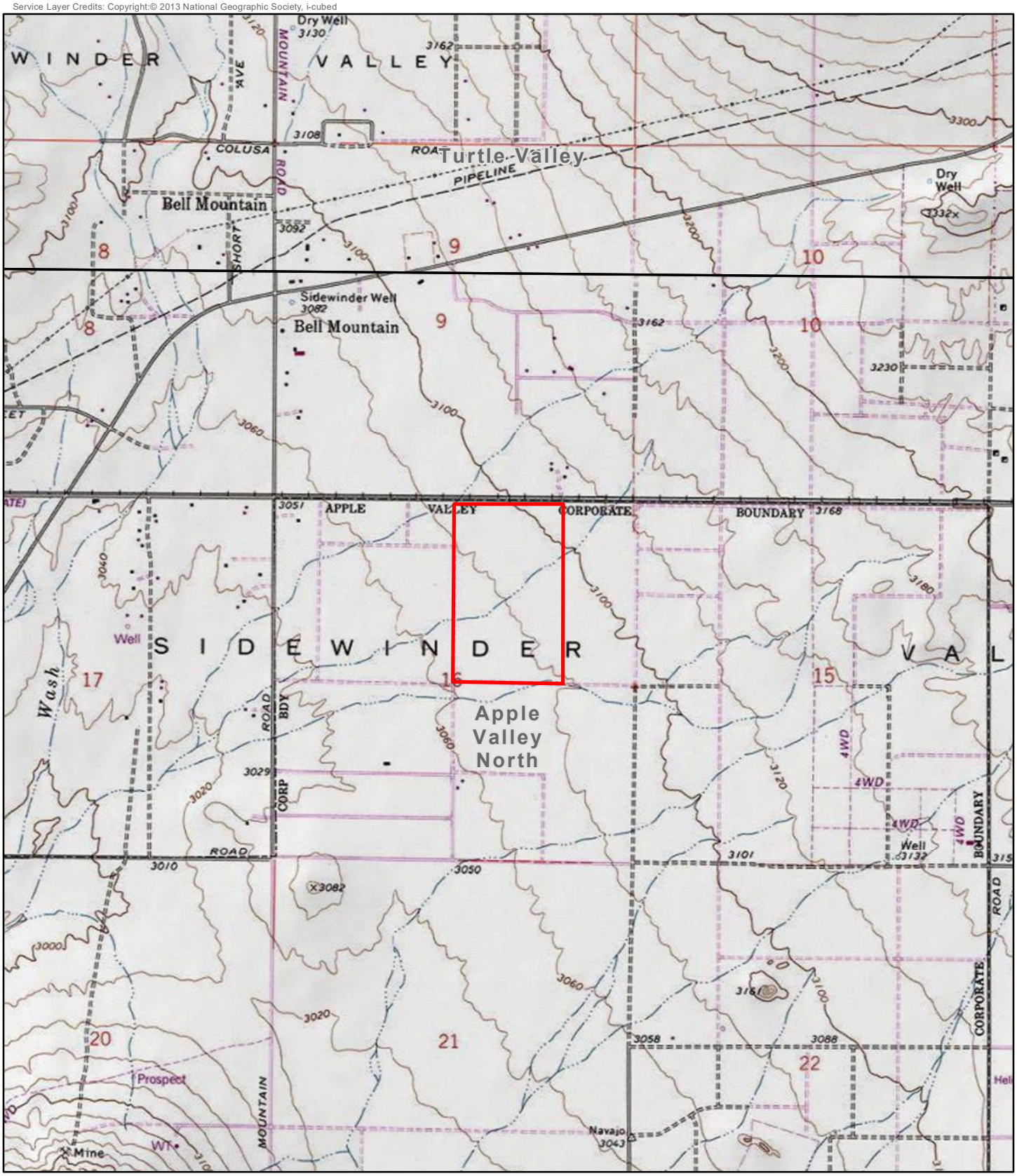
0 0.5 1 Miles

Project Boundary

FIGURE 1

Vicinity and Location
Cordova Road Project
Riverside County, California

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\BRAR\Fig2_SiteTopo_BRAR.mxd, jason.erlich 9/27/2023

1 inch = 2,000 feet

0 1,000 2,000 Feet

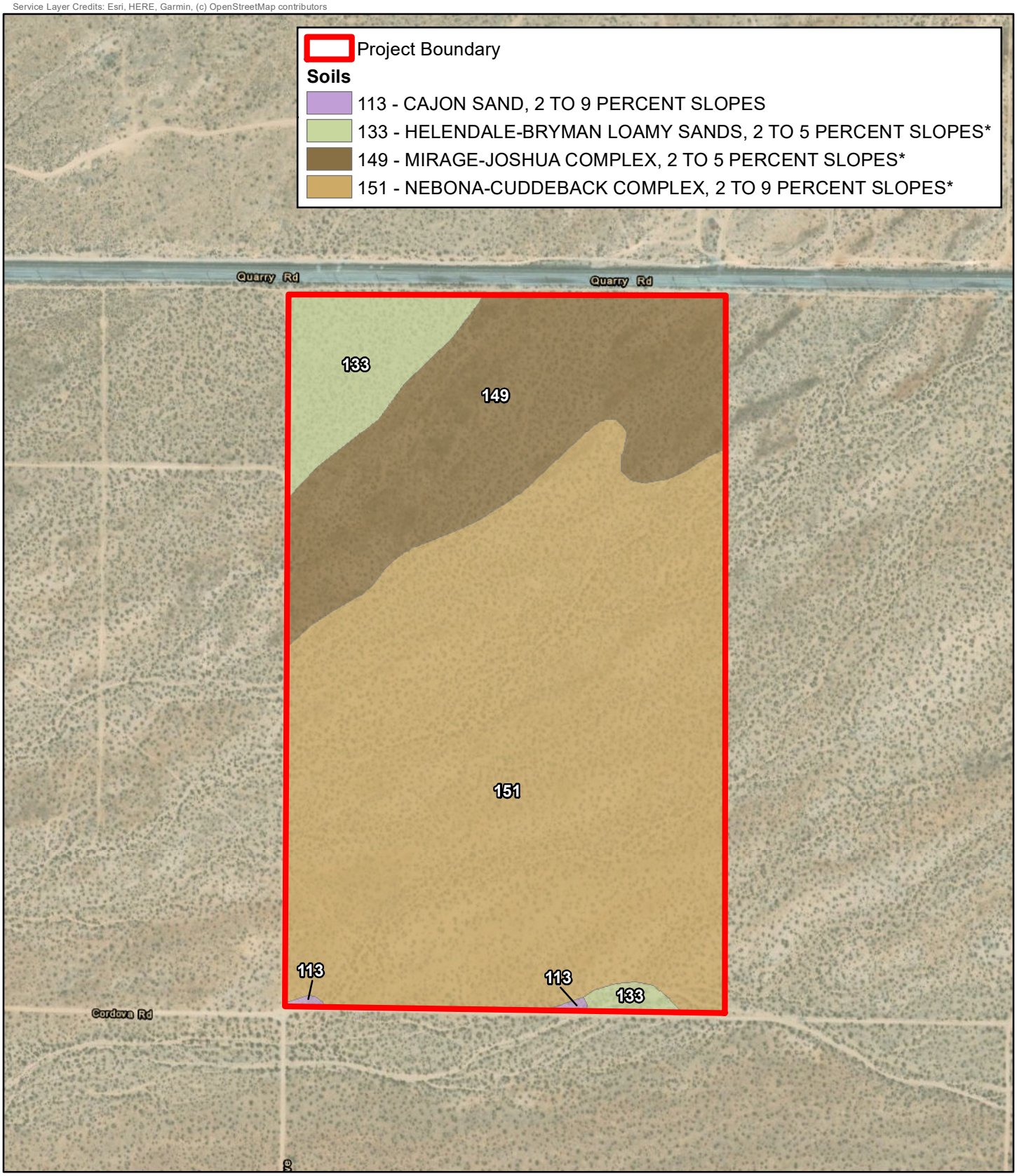
Project Boundary

FIGURE 2

USGS 7.5' Topo Quad: Apple Valley North
Cordova Road Project
Riverside County, California

FIGURE 3

Vicinity Map
Cordova Road Project
Riverside County, California



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\BRAR\Fig4_Soils_BRAR.mxd, jason.erlich 9/28/2023

1 inch = 500 feet

0 250 500 Feet

wsp

FIGURE 4

Soils
Cordova Road Project
Riverside County, California

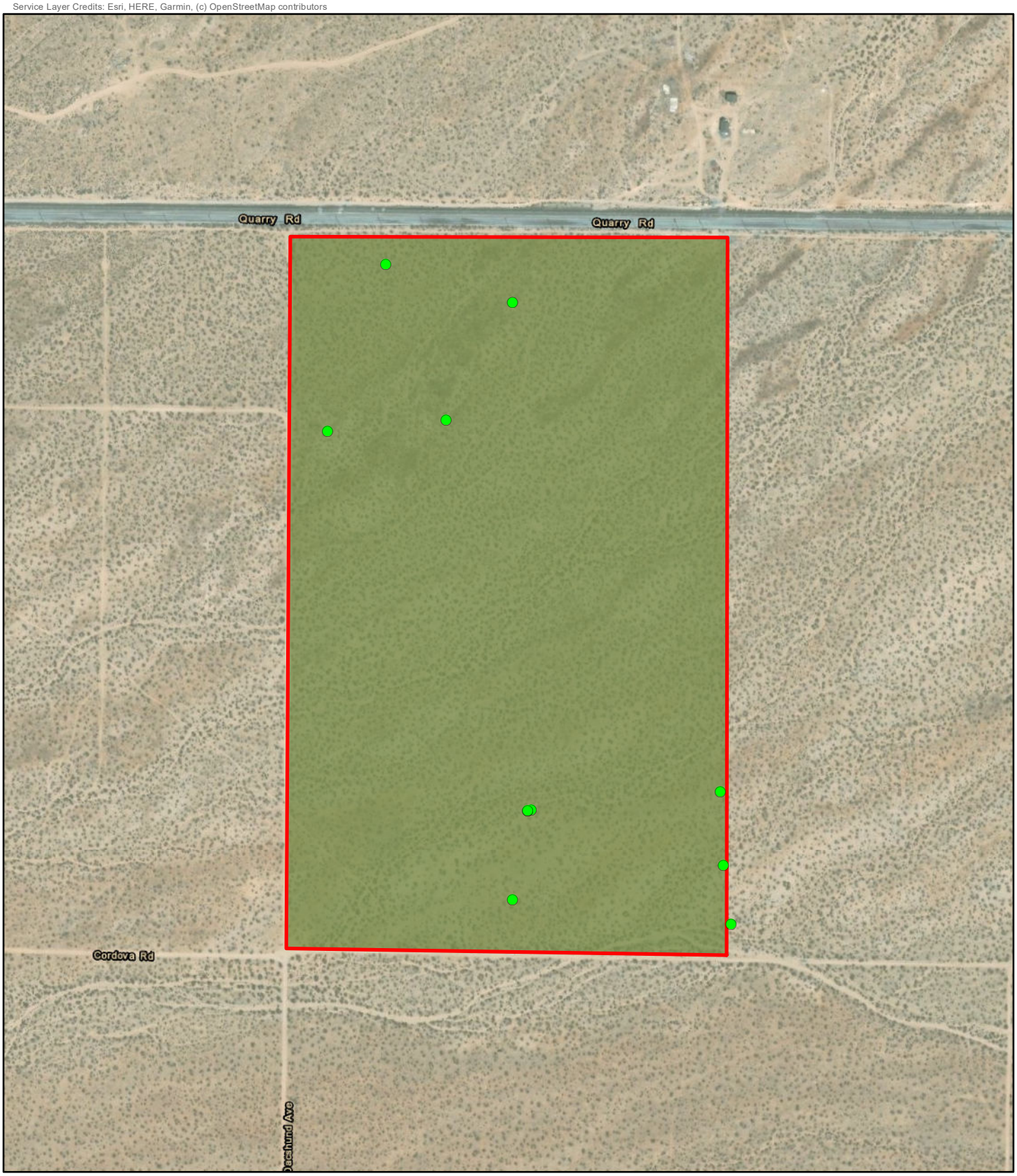


FIGURE 5

Vegetation Communities
Cordova Road Project
Riverside County, California

APPENDIX B

SITE PHOTOGRAPHS

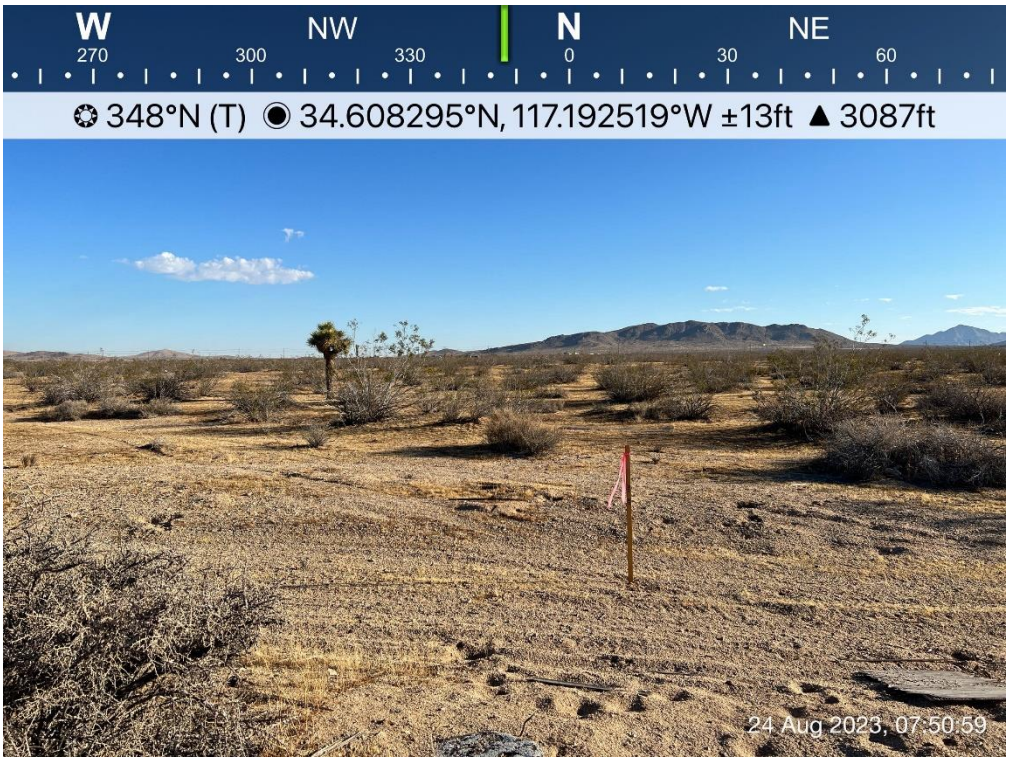


Photo 1: Looking north from the southeast corner of the property.

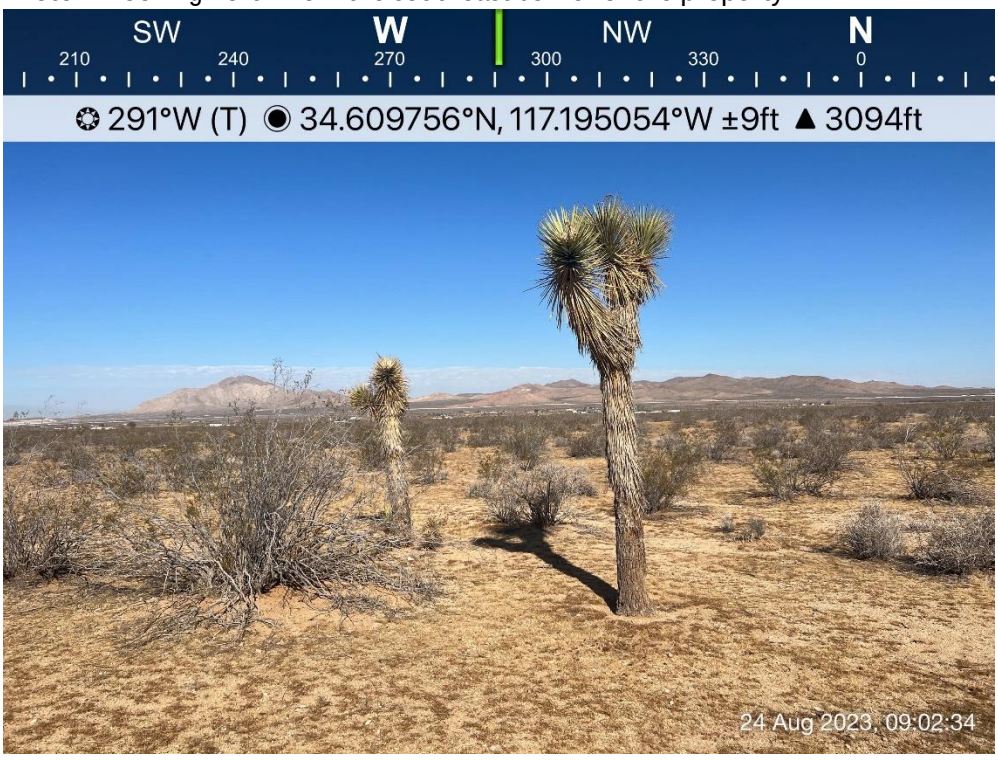


Photo 2: Western Joshua trees observed onsite.

Photo 3: Looking east from the southwest corner of the property along Cordova Road.

Photo 4: Looking east showing dumped trash within the creosote bush scrub.

Photo 5: Looking west from the northeast corner of the property along Quarry Road.

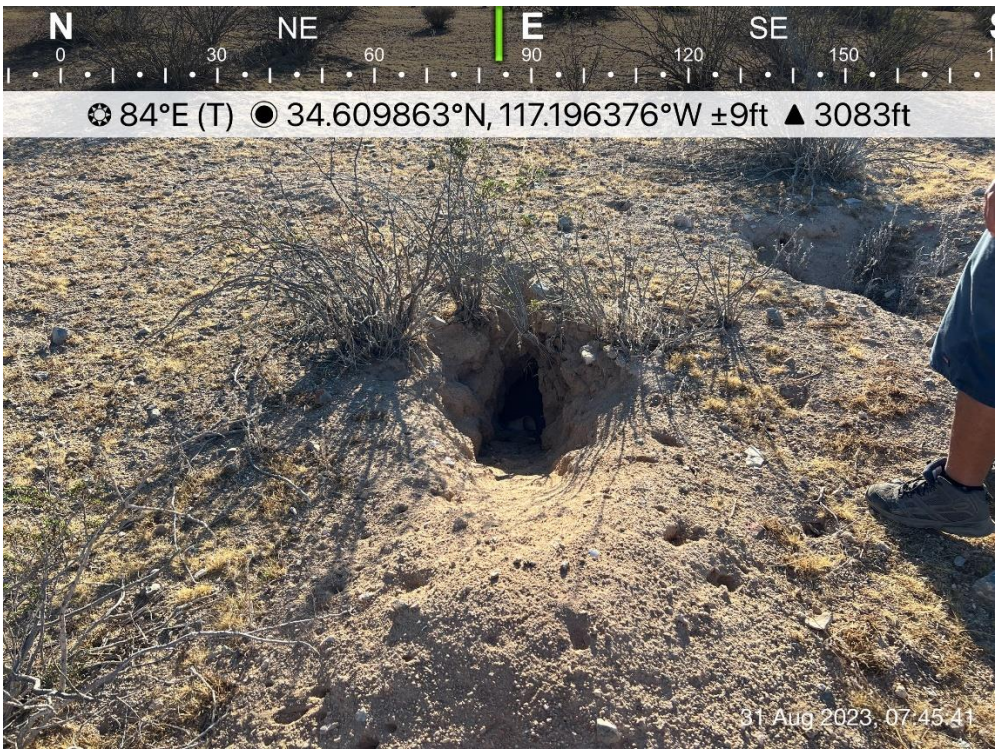


Photo 6: Potential kit fox burrow observed onsite with old burrowing owl pellets.

APPENDIX C

PLANT AND VERTEBRATE SPECIES LISTS

Fauna Compendium

Strigidae		**True Owls**
Athene	*cunicularia*	burrowing owl
Corvidae		**Jays/Crows**
Corvus	*corax*	common raven
Alaudidae		**Larks**
Eremophila	*alpestris*	horned lark
Emberizidae		**Warblers, sparrow, etc.**
Amphispiza	*bilineata*	black-throated sparrow
Leporidae		**Hares and Rabbits**
Lepus	*californicus*	black-tailed jackrabbit
Sciuridae		**Squirrels**
Ammospermophilus	*leucurus*	white-tailed antelope squirrel
Canidae		**Wolves and Foxes**
Vulpes	*velox*	kit fox

Flora Compendia

Ephedraceae		**Ephedra Family**
Ephedra	*nevadensis*	Nevada ephedra
Asteraceae		**Sunflower Family**
Ambrosia	*salsola*	burrobrush
Chenopodiaceae		**Goosefoot Family**
Salsola	*tragus*	Russian thistle
Geraniaceae		**Geranium Family**
Erodium	*cicutarium*	red stemmed filaree
Loasaceae		**Loasa Family**
Petalonyx	*thurberi*	sandpaper plant
Solanaceae		**Nightshade Family**
Lycium	*andersonii*	Anderson thornbush
Zygophyllaceae		**Caltrop Family**
Larrea	*tridentata*	creosote bush
Agavaceae		**Agave Family**
Yucca	*brevifolia*	Joshua tree
Poaceae		**Grass Family**
Schismus	*barbatus*	old han schismus

APPENDIX D

USFWS IPaC REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Bernardino County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Desert Tortoise Gopherus agassizii There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4481	Threatened

Fishes

NAME	STATUS
Mohave Tui Chub Gila bicolor ssp. mohavensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8466	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

NOT FOR CONSULTATION

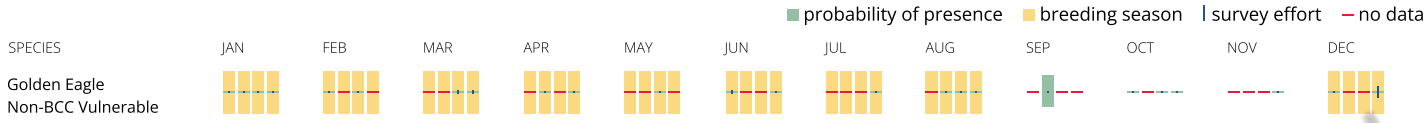
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area,

visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

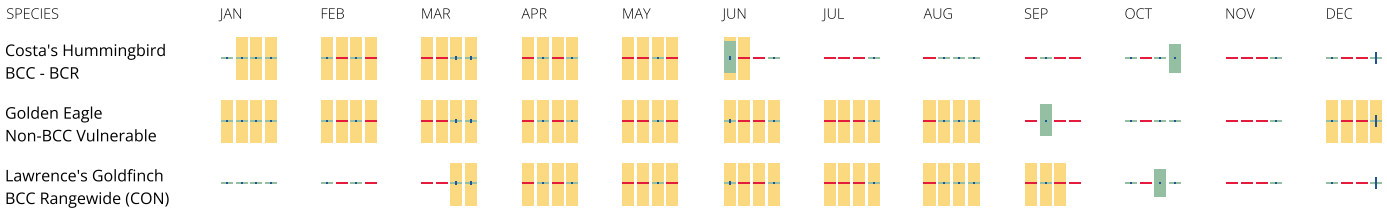
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data

NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

NOT FOR CONSULTATION

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBJ

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal

NOT FOR CONSULTATION

waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

CORDOVA ROAD PROJECT

DRAFT DESERT TORTOISE FOCUSED SURVEY

TOWN OF APPLE VALLEY, SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:

Terra Nova Planning and Research
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Nicole Criste, Principal
(760) 341-4800

Prepared by:

WSP USA Environment & Infrastructure Inc.
862 E Hospitality Ln #350
San Bernardino, CA 92408
Dale Hameister, Senior Biologist

(909) 888-1106

24 October 2023

TABLE OF CONTENTS

1.0 INTRODUCTION 3
1.1 Project Location and Topography 3
1.2 Project Description 3
2.0 BACKGROUND ON THE DESERT TORTOISE 3
3.0 METHODS 5
3.1 Literature Review and Records Search 5
3.2 Focused Survey 5
4.0 RESULTS 6
4.1 Focused Survey 6
4.2 Literature Review 6
5.0 DISCUSSION 8
6.0 REFERENCES 9

TABLE OF APPENDICES

Appendix A Maps
Appendix B Survey Forms

1.0 INTRODUCTION

WSP USA Environment & Infrastructure Inc. (WSP USA) was contracted by Terra Nova Planning and Research to conduct a focused survey for the desert tortoise (*Gopherus agassizii*) at a proposed warehouse facility project (project) in the town of Apple Valley, San Bernardino County, California. This report provides methods, results, and discussion of the focused survey.

1.1 Project Location and Topography

The project is entirely within the town of Apple Valley, San Bernardino County, California (Figure 1). It is located primarily on the 7.5-minute Apple Valley North, Calif. United States Geological Survey (USGS) quadrangle (Figure 2). It is in Section 16 of Township 6 Northand Range 3 West,. Project topography is relatively flat at elevations ranging from approximately 3072 to 3131 feet (936-954 meters). The project consists of three (3) parcels totaling approximately 100-acres, located north of Cordova Road, South of Quarry Road, East of Dale Evans Parkway and West of Navajo Road, in the town of Apple Valley, San Bernadino County.

1.2 Project Description

The project site is approximately 100-acres that will be developed as a warehouse facility. The entire project site will be development and include the main warehouse building and associated parking, truck access, landscaping and other associated infrastructure.

2.0 BACKGROUND ON THE DESERT TORTOISE

The desert tortoise is a long-lived, terrestrial turtle, with a domed carapace (upper shell) and rounded, stumpy elephantine hind limbs. The front limbs are flattened and heavily scaled for digging and without webbed toes. The carapace is oblong with rounded sides due to the joining of the carapace to the plastron (lower shell). The scutes are often yellowish in the middle and have grooved, parallel, concentric growth rings that form outward with age toward the scute margins. The plastron is typically yellowish, becoming brown around the scute margins. The head is relatively small and rounded in front with reddish-tan coloring and the iris being greenish-yellow. The front and hind feet are about equal in size and the tail is of short length.

Desert tortoises in the Mojave and Colorado deserts west and north of the Colorado River were listed by the U.S. Fish and Wildlife Service (USFWS) as threatened on April 2, 1990 (USFWS 1990). They are also listed as threatened by the State of California. Proposed actions within the range of the Mojave desert tortoise fall under purview of the federal Endangered Species Act 1973, as amended (ESA), in addition to State regulations. These tortoises have since been named as a full species, still *G. agassizii*, no longer conspecific with tortoises south and east of the Colorado River that were reclassified as *G. morafkai* (Murphy et al. 2011). USFWS (2019). For purposes of the ESA, desert tortoise habitat is defined as 1) areas with presence of desert tortoises or desert tortoise sign, 2) dispersal areas (i.e., habitat corridors), or 3) areas suitable for desert tortoises as identified by the USFWS or in the most recent approved recovery plan for the Mojave population of the desert tortoise (USFWS 2011).

The desert tortoise is most common in desert scrub, desert wash, and Joshua tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They require friable soil for burrow and nest construction. Burrows are typically found at the base of shrubs, in the interspaces between shrubs, and occasionally in caliche soil bank areas or underneath boulders/rocks. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Tortoise activity is greatest during the spring and early summer, and to a lesser extent during the fall; however, tortoises can be active at any time of the year during appropriate weather conditions. Although tortoises hibernate during the winter and typically emerge in late February or early March, hatchlings and juveniles can be fairly active during the winter months. Adults will also emerge from their burrows to drink if water resources have been limited during the previous activity season and/or winter precipitation has provided standing water. Their activity is usually much reduced during hot summer months, but they may be active following summer rains or if temperatures are moderate (Boarman 2003). They retreat into their horizontal burrow to avoid surface temperature extremes and to escape from predators. Desert tortoises are known to utilize an average of 7-12 burrows at any given time. Multiple tortoises are also known to occasionally share a single burrow (Bureau of Land Management "BLM" 2006).

Threats to desert tortoises include loss or degradation of habitat, vandalism, poaching, intentional killing, predation on young tortoises by the common raven (*Corvus corax*) and other predators (*e.g.* kit fox, snakes, etc.), and disease (*e.g.* Mycoplasmosis). Off-road vehicles, military training maneuvers, mining, and livestock grazing also affect tortoise habitat by collapsing burrows, eroding soils, reducing availability of food plants, eliminating shrubs which would provide shade for tortoises and support for their burrows, and ultimately results in surface disturbance that promotes conditions more conducive to invasion by exotic plant species, which provide less nutritional value to tortoises than the native species that were replaced. Human activities, including garbage dumping, landfills, roads, increased nesting opportunities, irrigation, and increased vehicle use have also led to increased numbers of common ravens in California deserts. Ultimately, the increased predation on young tortoises by common ravens reduces recruitment into breeding populations (Boarman 2003).

Tortoises are most often detected by scat, sign, and burrows/pallets. Tortoises themselves can sometimes be detected aboveground foraging or moving about or in burrows by shining a light within. Tortoise sign includes scat, tracks, eggshell fragments, courtship rings, drinking depressions, carcasses, or fragments thereof. Presence of sign is an indication that tortoises either occur, or have recently occurred, at a particular location that is likely to be part or all of a lifetime home range. Sign can be detected at any time of the year and always indicates suitable habitat, if not occupied habitat.

3.0 METHODS

3.1 Literature Review and Records Search

A literature review and record search were conducted to identify occurrences of desert tortoise, critical habitat for desert tortoise, or any designated desert tortoise management areas within the project footprint. The review included:

- A report from the California Department of Fish and Wildlife' (CDFW's) California Natural Diversity Data Base (CNDDB) for a five-mile radius of the project site (CDFW 2023a),
- The USFWS (2023) Environmental Conservation Online System (ECOS) including critical habitat mapping and an Information for Planning and Consultation (IPaC) report.
- Aerial photographs, and
- Pertinent documents from the WSP USA library and project files (*e.g.*, other biological surveys from the general vicinity).

3.2 Focused Survey

WSP USA biologists Dale Hameister and Phil Clevinger conducted a desert tortoise focused survey 31 August 2023 (see Appendix A). The surveys followed guidance in the protocol: *Preparing for Any Action that May Occur Within the Range of the Mojave Desert Tortoise* (USFWS 2019). The survey included the entire project property. Ten-meter transects were walked at a speed no greater than two miles per hour (2 mph). If suitable burrows, or any evidence of desert tortoise are detected during the survey, they will be mapped using a GPS unit and cataloged on standardized data sheets (Appendix B).

4.0 RESULTS

4.1 Focused Survey

The vegetation community present throughout the project area is Creosote Bush Scrub dominated by creosote bush (*Larrea tridentata*) with various co-dominants including Anderson thornbush (*Lycium andersonii*), and burrobush (*Ambrosia salsola*). There were also ten (10) Joshua trees scattered throughout the project area. Vegetation communities in the project footprint are mapped on Figure 4). A full list of plant and vertebrate wildlife species detected on-site is included in the Biological Resources Assessment Report (WSP USA 2023).

The land immediately adjacent to the project site is an extension of the undeveloped Creosote Bush Scrub similar to the project site. Quarry road, north of the project site, is a busy hauling road for trucks carrying dirt and rock to/from the White Rock Mountain Quarry located east of the project site. Most undeveloped lands are not pristine, showing signs of anthropogenic disturbance, such as mechanical disturbance of soil, vegetation removal, off road vehicle tracks, and trash dumping. There are also a number of developments within two miles of the project site including the Apple Valley Speedway, Walmart and Big_Lots Distribution Centers, and a small airport. Nevertheless, the undeveloped lands provide potential habitat and corridors for desert tortoise between developed/disturbed areas.

Soils series mapped within the project area include Helendale-Byman loamy sands, Mirage-Joshua complex, and Nebona-Cuddeback complex.

The Helendale series consists of very deep, well drained soils that formed in alluvium from granitoid rocks. Helendale soils are on fan piedmonts, fan remnants, alluvial fans and terraces. Slopes range from 0 to 15 percent. The mean annual precipitation is about 125 millimeters (5 inches) and the mean annual temperature is about 17 degrees C (62.5 degrees F).

The Mirage series consist of deep, well drained soils that formed in mixed alluvium, dominantly from granitic sources. Mirage soils are on old terraces with well-developed erosion pavement and have slopes of 2 to 5 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees.

The Nebona series consists of shallow, well drained soils that formed in mixed alluvium. Nebona soils are on terraces and have slopes of 2 to 9 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees F.

4.2 Literature Review

The closest desert tortoise record within the CNDDB (CDFW 2023) is 3.7 miles southwest of the project area. The record is from 1990. There are no recent records within the vicinity (3 miles) of the project (USFWS 2011). It is not within designated critical habitat for the desert tortoise (see Figure 5).

There is no desert tortoise critical habitat designated on the project site. The closest designated critical habitat area is approximately 14 miles to the northeast. The vegetation community occurring on the project site (*e.g.* Creosote Bush Scrub) is habitat typically utilized by desert tortoises, and the CNDDB reported populations 3.7 miles to the southwest, however from over 30 years ago in 1990. This information obtained from the literature review is evidence that there is some potential for desert tortoise to occur within the project site.

5.0 DISCUSSION

The focused survey detected no desert tortoises or desert tortoise sign within the project footprint and action area. Despite the absence of desert tortoise and sign, the project area is surrounded by potential habitat with past occupied habitat nearby. For these reasons desert tortoises may enter the project area in the future. The following mitigation and minimization measures are recommended to ensure that any potential impacts to the desert tortoise are avoided:

1) A worker's environmental awareness program (WEAP) would be implemented to educate the construction crew of potential special status species present on the project site.

2) A pre-construction clearance survey will be required immediately prior to ground disturbing activities. If no evidence of tortoise are identified, no additional monitoring will be required.

3) Construction and maintenance personnel will be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it should not be moved and allowed leave of its own accord. If it is in immediate harms way, USFWS has allowed for emergency relocation, but otherwise a qualified desert tortoise handler should be contacted to safely relocate the tortoise. All desert tortoise observations would be reported to a qualified biologist and the wildlife agencies.

4) If Construction and maintenance personnel identify a tortoise within the project site, a qualified biologist will be required to monitor any remaining soil disturbance activities to ensure that tortoises do not enter the work area and that they are not disturbed if present

5) Any open trenches adjacent to habitat should be covered nightly. If left open overnight or at any time when not monitored, they should be fenced and/or covered to prevent entry by desert tortoises. Exit ramps should be present within open trenches.

Based on the survey results, desert tortoise are absent from the project site. However, there is still some potential for desert tortoise to occur in the surrounding area. Desert tortoises cannot be taken (harmed, harassed) under state and federal law. This report and any recommended mitigation measures do not constitute authorization for incidental take of the desert tortoise. If present, and construction activities may affect desert tortoise, an incidental take permit will be required.

6.0 REFERENCES

Boarman, W. 2003. Desert tortoise species account. *In* Final Environmental Impact Report and Statement for the West Mojave Plan (Bureau of Land Management "BLM" 2005). California Desert Conservation Area District Office, Riverside, California.

BLM. 2006. West Mojave Plan.

California Department of Fish and Wildlife (CDFW). 2023a. California Natural Diversity Database (CNDDB) RareFind 5 records of sensitive elements.

CDFW. 2023b. Special Animals List. April. Periodic publication. Sacramento, CA. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline

CDFW. 2016. Complete List of Amphibian, Reptile, Bird and Mammal Species in California. May. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=87155&inline

Jepson Flora project. 2023. *Jepson eFlora.* Accessed online at: http://ucjeps.berkeley.edu/IJM.html

Murphy R.W., K.H. Berry, T. Edwards, A.E. Leviton, A. Lathrop, J.D. Riedle. 2011. The dazed and confused identity of Agassiz's land tortoise, Gopherus agassizii (Testudines, Testudinidae) with the description of a new species, and its consequences for conservation. ZooKeys 113:39–71.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2022. The PLANTS Database. National Plant Data Team. Accessed online at: https://plants.usda.gov/java/

United States. Fish and Wildlife Service (USFWS). 2022. Environmental Conservation Online System (ECOS) https://ecos.fws.gov/ecp/

USFWS. 2019. Preparing for Any Action that May Occur Within the Range of the Mojave desert tortoise. October 8, 2019. Accessed online from: https://wildlife.ca.gov/Conservation/Survey-Protocols#377281283-reptiles

USFWS. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.

USFWS. 1994. Endangered and Threatened Wildlife and Plants. Determination of Critical Habitat for the Mojave Population of the Desert Tortoise, *Federal Register*, 59: 5820-5866.

USFWS. 1990. Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the Mojave Population of the Desert Tortoise, *Federal Register*, 55:12178-12191.

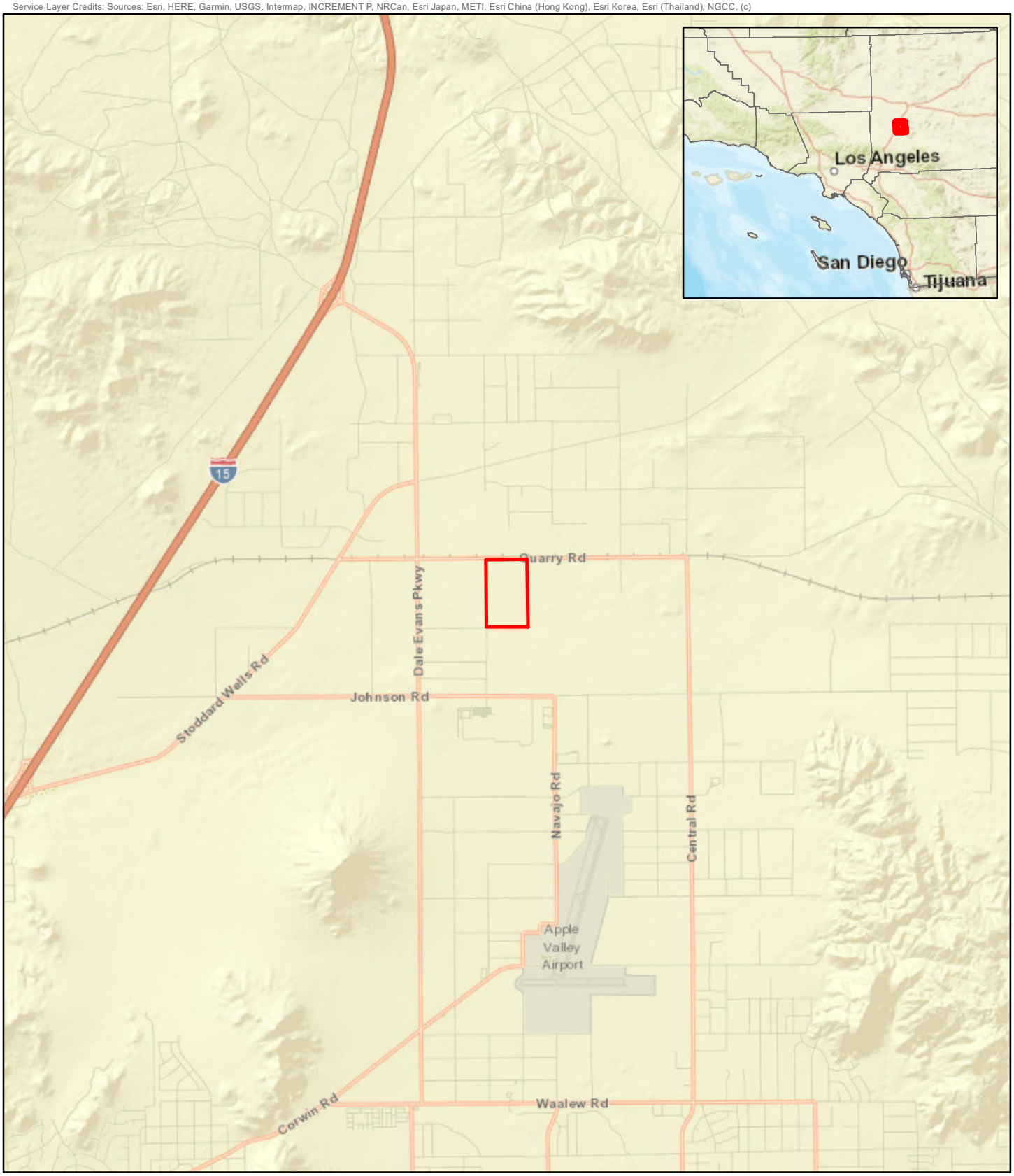
USFWS. 1989. Endangered and Threatened Wildlife and Plants. Emergency Determination of Endangered Status for the Mojave Population of the Desert Tortoise, *Federal Register*, 54: 32326-32331.

United States Geological Survey (USGS). 2004. Mojave Desert Ecosystem Program: Central Mojave Vegetation Database.

WSP USA Environment & Infrastructure Inc. (WSP USA). 2023. Cordova Road Project Draft Biological Resources Assessment. Town of Apple Valley, San Bernardino County, California. Unpublished report prepared for Terra Nova Planning and Research.

Appendix A Maps

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\DT_Survey\Fig1_Vicinity&Location_DT.mxd, aaron.johnson 10/2/2023

1 inch = 1 miles

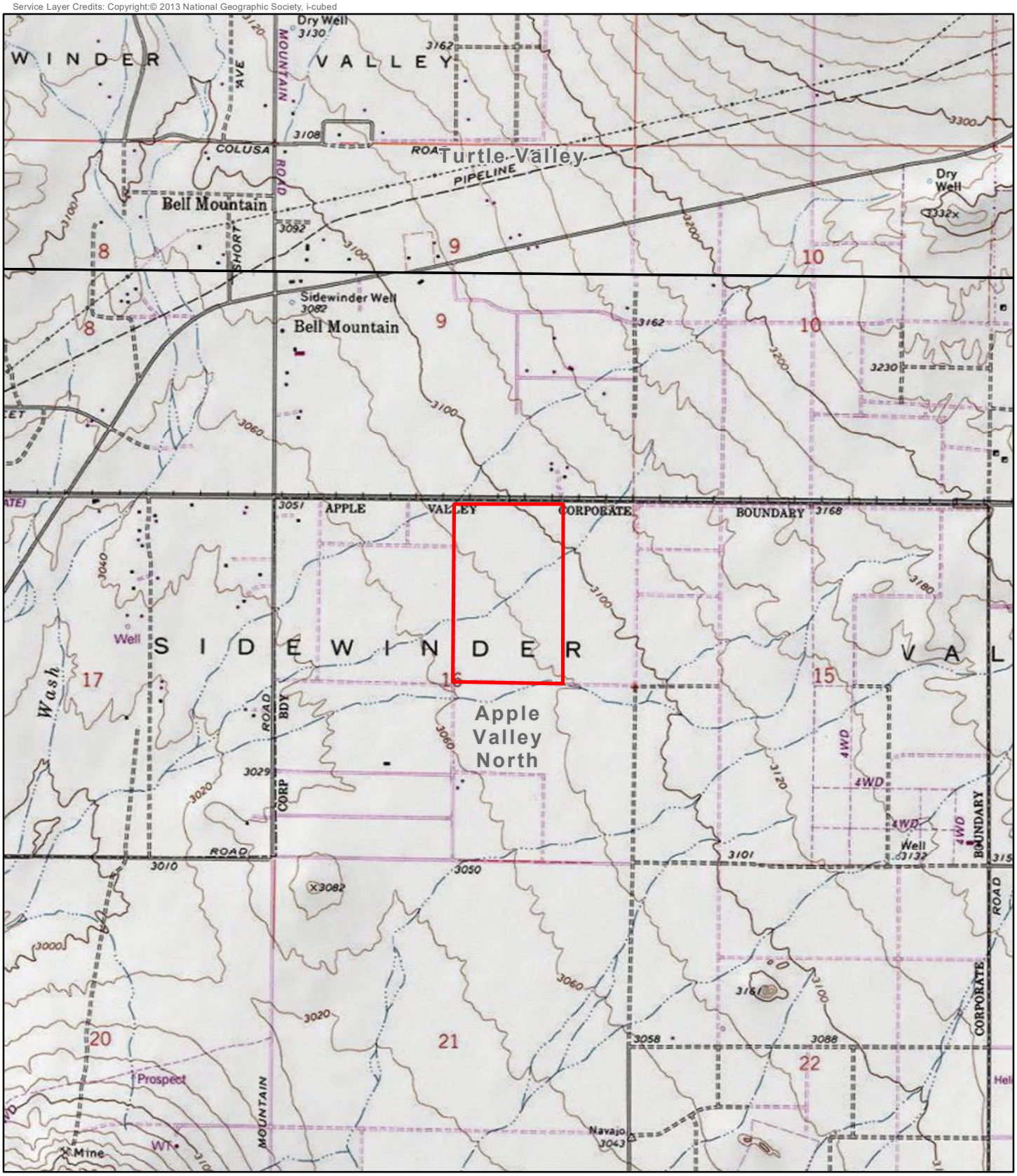
0 0.5 1 Miles

Project Boundary

FIGURE 1

Vicinity and Location
Desert Tortoise Survey
Cordova Road Project
Riverside County, California

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\DT_Survey\Fig2_SiteTopo_DT.mxd, jason.erlich 9/27/2023

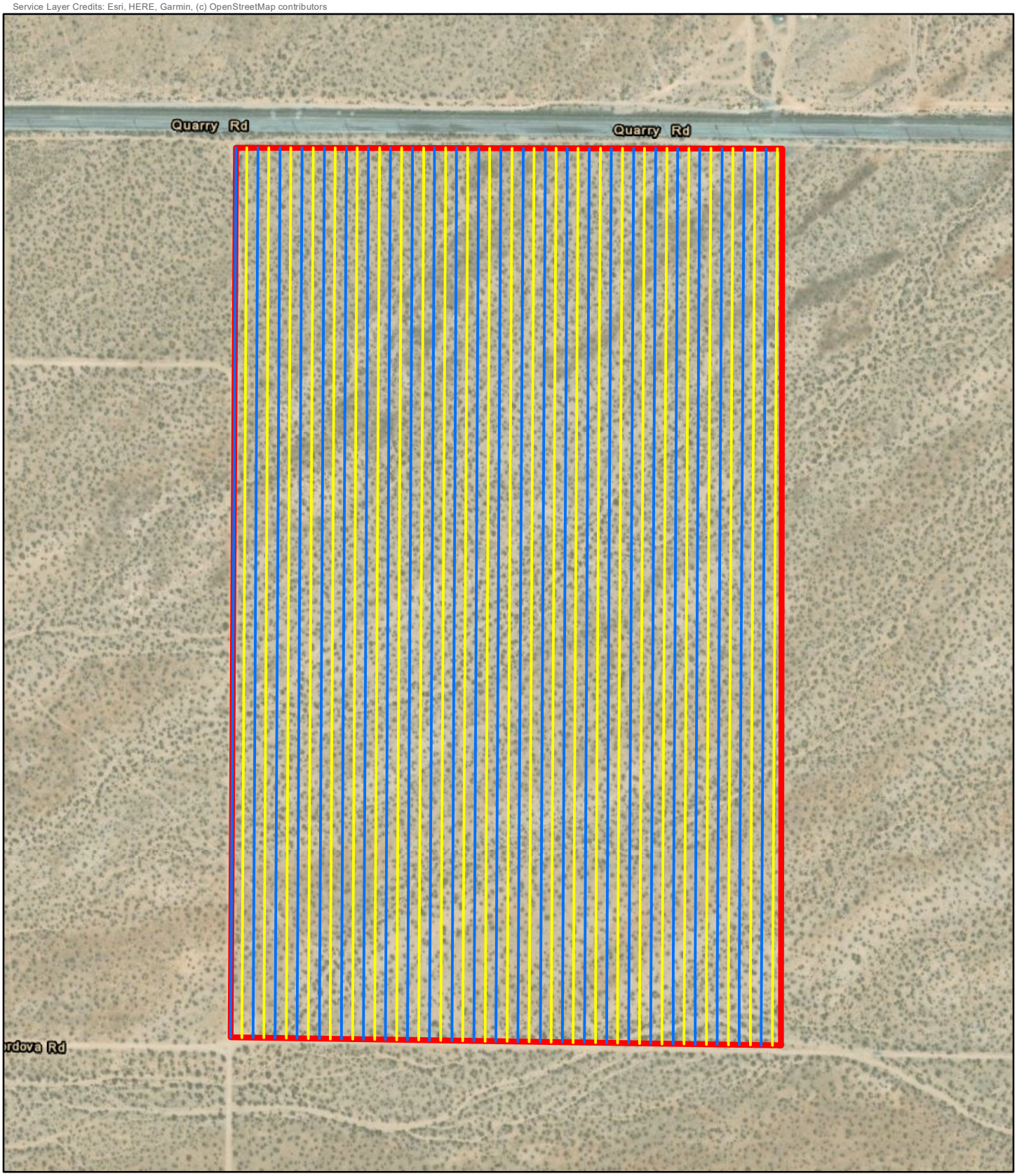
1 inch = 2,000 feet

0 1,000 2,000 Feet

FIGURE 2

USGS 7.5' Topo Quad: Apple Valley North
Desert Tortoise Survey
Cordova Road Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\DT_Survey\Fig3_SurveyMap_DT.mxd, jason.erlich 9/27/2023

1 inch = 400 feet
0 200 400 Feet

Survey Transects (10 meters wide)

- Even
- Odd
- Project Boundary

FIGURE 3

Survey Map
Desert Tortoise Survey
Cordova Road Project
Riverside County, California

Appendix B Survey Forms

Date of survey: 31/8/2023 (day, month, year) Survey biologist(s): Dale Hameister and Phil Clevinger (name, email, and phone number)

Site description: Cordova Road Project - Apple Valley - 100 acres (project name and size; general location)

County: San Bernardino Quad: Apple Valley North Location: 482173 E, 3830017 N (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 100 acre Transect #: ____ Transect length: .5 mi

GPS Start-point: 481838 E, 382961 N 948 m (easting, northing, elevation in meters) Start time: 6:00 am am/pm

GPS End-point: 482404 E, 382962 N 943 m (easting, northing, elevation in meters) End time: 2:35 pm am/pm

Start Temp: 21 ºC End Temp: 24 ºC

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

Appendix D

Jurisdictional Assessment

October 26, 2023

Nicole Criste, Principal
Terra Nova Planning and Research
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

Subject: Jurisdictional Assessment of Wetlands and Waters Cordova Road Project, Town of Apple Valley, California

WSP USA Environment & Infrastructure Inc. (WSP USA) conducted a jurisdictional assessment of wetlands and water resources for the proposed project located north of Cordova Road, South of Quarry Road, East of Dale Evans Parkway and West of Navajo Road, in the town of Apple Valley, San Bernadino County 1.0 PROJECT LOCATION

The project is entirely within the town of Apple Valley, San Bernardino County, California (Figure 1). It is located primarily on the 7.5-minute Apple Valley North, California, United States Geological Survey (USGS) topographic quadrangle (Figure 2). It is in Section 16 of Township 6 North and Range 3 West. Project topography is relatively flat overall at elevations ranging from approximately 3072 to 3131 feet (936-954 meters). The project consists of three (3) parcels totalling approximately 100-acres, located north of Cordova Road, South of Quarry Road, East of Dachshund Avenue and West of Navajo Road, in the town of Apple Valley, San Bernadino County.

2.0 ENVIORNMENTAL SETTING

The average rainfall for the area is 5.52 inches per year (Western Regional Climate Center). Weather data was recorded in the adjacent city of Victorville. The delineation survey was conducted two days following Tropical Storm Hillary, which contributed approximately 2 inches of rain in in the Victorville and Apple Valley areas. There were some puddles of standing water along Cordova Road observed to the day of the survey.

The project site is generally located within the South Lahontan hydrological region (USGS). It is more specifically located within the Upper Mohave hydrologic area within the Mohave hydrologic unit (Hydrologic Unit Code 18090208) (Appendix A – Figure 3).

3.0 REGULATORY FRAMEWORK

3.1 U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the Clean Water Act (CWA).

3.1.1 Waters of the U.S.

REGULATORY FRAMEWORK

U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

Waters of the U.S.

The Environmental Protection Agency (EPA) and the Department of the Army ("the agencies") finalized a rule defining the scope of waters protected under the Clean Water Act on December 30, 2022. In developing this rule, the agencies considered the text of the relevant provisions of the Clean Water Act and the statute as a whole, the scientific record, relevant Supreme Court case law, and the agencies' experience and technical expertise after more than 45 years of implementing the longstanding pre-2015 regulations defining "waters of the United States."

This final rule advances the objective of the Clean Water Act and ensures critical protections for the nation's vital water resources, which support public health, environmental protection, agricultural activity, and economic growth across the United States.

To summarize some of the most applicable highlights, the agencies' new rule defines WOTUS as:

A. Features that do not require a site-specific evaluation to be determined to be WOTUS

1. Traditional navigable waters
2. Interstate waters
3. Territorial seas
4. Wetlands adjacent to the features identified in A.1 through A.3
5. Tributaries that are "relatively permanent, standing or continuously flowing,"
   i. Including adjacent wetlands that have a continuous surface connection to these tributaries
6. Impoundments of features that are otherwise considered WOTUS

B. Features that are WOTUS if they are found to have a significant nexus to a Traditional navigable Water, interstate water, or territorial sea

1. Non-relatively permanent tributaries, including ephemeral and intermittent waters
2. Wetlands adjacent to but lacking a continuous connection with the features identified in A.5.
3. Wetlands adjacent to the features identified in B.1.

C. Features that are not WOTUS

1. Aquatic resources that were considered non-jurisdictional under the pre-2015 regulations, subject to agency discretion
   i. Upland ditches that are not relatively permanent waters
   ii. Artificial lakes or ponds created in dry land for such purposes as irrigation, stock watering, settling, or rice growing
   iii. Water-filled depressions created incidental to mining or construction activities, provided those activities are ongoing at the time of the determination

iv. Areas that would revert to upland in the absence of irrigation

v. Prior Converted Cropland designated by the Secretary of Agriculture, but only until there is a change of land use from agricultural purposes

vi. Waste treatment facilities

vii. Many stormwater facilities constructed in uplands.

The new rule adds substantially to guidance on determining whether a significant nexus exists through "material influence" on connected waters by evaluation of

- distance to a traditional navigable water or relatively permanent water;
- hydrologic factors such as volume and duration of water flow;
- size, density, or number of similarly situated waters;
- landscape position and geomorphology; and
- regional climate and effects on water flow.

Of these five factors, distance and hydrology will receive the greatest weight in the assessing the strength of connectivity and material influence.

Supreme Court Decisions

Solid Waste Agency of Northern Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

Rapanos/Carabell

In the Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of

hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snowpack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

Sackett v. EPA Supreme Court

Sackett began backfilling an Idaho lot with dirt to build a home. The Environmental Protection Agency informed Sackett that the property contained wetlands and that the backfilling violated the Clean Water Act, which prohibits discharging pollutants into "the waters of the United States," 33 U.S.C. 1362(7). The EPA ordered Sackett to restore the site, threatening penalties of over $40,000 per day. The EPA classified the Sacket wetlands as "waters of the United States" because they were near a ditch that fed into a creek, which fed into Priest Lake, a navigable, intrastate lake. The Ninth Circuit affirmed summary judgment in favor of the EPA.

The Supreme Court reversed. CWA jurisdiction over an adjacent wetland requires that the adjacent body of water constitutes waters of the United States (a relatively permanent body of water connected to traditional interstate navigable waters) and a continuous surface connection between the wetland and that water, making it difficult to determine where the 'water' ends and the 'wetland' begins."

The Court reviewed the history of judicial interpretation of "the waters of the United States" and enforcement by federal agencies, which argued that the significant-nexus test was sufficient to establish jurisdiction over "adjacent" wetlands. Under that test, nearly all waters and wetlands are potentially susceptible to regulation, "putting a staggering array of landowners at risk of criminal prosecution for such mundane activities as moving dirt." The CWA's use of "waters" encompasses only relatively permanent, standing, or continuously flowing bodies, ordinarily called streams, oceans, rivers, and lakes. Wetlands qualify as "waters of the United States" only if "indistinguishable from waters of the United States," having a continuous surface connection to bodies that are waters of the United States in their own right, with no clear demarcation between waters and wetlands.

On August 29, 2023, the EPA and USACE announced a final rule amending the 2023 definition of "waters of the United States" to conform with the recent Supreme Court decision in Sackett v. EPA. The ruling removes the significant nexus test and confirms that only drainages with relatively permanent flows will fall under USACE jurisdiction.

3.2 Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit including a Section 404 permit. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WOTUS but may also include waters not in federal jurisdiction.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State was adopted in April 2020 and put into effect statewide on May 28, 2020 (State Water Resources Control Board, 2020).

The Water Boards define an area as wetland as follows:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The Water Code defines WSC broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." WSC include all WOTUS but also includes waters not in federal jurisdiction.

The following wetlands are waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):
        i. Industrial or municipal wastewater treatment or disposal,
        ii. Settling of sediment,
        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
        iv. Treatment of surface waters,
        v. Agricultural crop irrigation or stock watering,
        vi. Fire suppression,
        vii. Industrial processing or cooling,
        viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
        ix. Log storage,
        x. Treatment, storage, or distribution of recycled water, or
        xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
        xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not WSC.

3.3 California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

“An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (CDFW, 2015).”

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows, or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

3.0 METHODS

Prior to conducting fieldwork, the following literature and materials were reviewed:

- Aerial photographs of the project vicinity.
- USGS topographic maps (Figure 2, Appendix A) to determine mapped water features.
- USFWS NWI database (Figure 3, Appendix A).
- USDA soil mapping data (Figure 4, Appendix A).

Field surveys were conducted on 10 February 2023 by WSP USA biologist Dale Hameister. Field surveys included identifying potential jurisdictional wetlands and/or waters of the US/State within the project area by walking the property within the areas to be impacted. The presence of potentially jurisdictional waters was identified within the project area by presence of ordinary high water mark (OHWM) (Lichvar and McColley 2008; Cutis and Lichvar 2010), defined bed and bank, and riparian communities associated with the drainage channel observed within the project area. Data was collected on width and depth of federal and state jurisdiction with Global Positioning System (GPS) using Trimble GeoXT.

Potential wetland features were visually examined for hydrophytic plants, hydric soils, and wetland hydrology (U.S. Army Corps of Engineers [ACOE] 1987 and 2008). Soil pits were dug within the bottom of potential features, and within adjacent uplands to identify changes in soil texture.

The GIS data collected in the field will be overlaid onto aerial photographs to identify project related impacts. Representative site photographs were taken during the field investigation and are included in Appendix B.

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service on-line Web Soil Survey (USDA 2019) was consulted to determine the soil types mapped within the project area.

The United States Fish and Wildlife Service (USFWS) maintains the National Wetlands Inventory (NWI) to identify wetlands and deepwater habitat including descriptions based on the Cowardin Classification System (Cowardin et. al., 1979).

4.0 RESULTS

The vegetation community present throughout the project area is Creosote Bush Scrub dominated by creosote bush (*Larrea tridentata*) with various co-dominants including Anderson thornbush (*Lycium andersonii*), and burrobush (*Ambrosia salsola*). There were also ten (10) Joshua trees scattered throughout the project area.

Soils mapped within the project area include Helendale-Byman loamy sands, Mirage-Joshua complex, and Nebona-Cuddeback complex.

The Helendale series consists of very deep, well drained soils that formed in alluvium from granitoid rocks. Helendale soils are on fan piedmonts, fan remnants, alluvial fans and terraces. Slopes range from 0 to 15 percent. The mean annual precipitation is about 125 millimeters (5 inches) and the mean annual temperature is about 17 degrees C (62.5 degrees F).

The Mirage series consist of deep, well drained soils that formed in mixed alluvium, dominantly from granitic sources. Mirage soils are on old terraces with well developed erosion pavement and have slopes of 2 to 5 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees.

The Nebona series consists of shallow, well drained soils that formed in mixed alluvium. Nebona soils are on terraces and have slopes of 2 to 9 percent. The mean annual precipitation is about 4 inches and the mean annual temperature is about 63 degrees F. No signs of redox, staining, or any other wetland soil indicators were observed within the drainage. Therefore, the project area has no evidence of hydric soils. Therefore, the drainage feature within the project site does not meet the minimum criteria to be considered a wetland.

There are several riverine features mapped within the project site in the National Wetland Inventory. These features are areas of bare soil and appear to be washes from an aerial view.

During the field investigation, it was determined that no OHWM or evidence of any recent flows were observed. There had been heavy rain two days prior to the survey so if any features were jurisdictional on-site, then flows should be clearly evident.

There were no signs of OHWM or clearly defined bed and bank features within any of the potential wash features identified during the literature review. Soil pits were dug at several locations and indicated that there were no observable differences in soil profile or texture. There was no difference in surface soil texture or sorting. No wetland indicator or hydric plants were observed associated with the features.

These features did not contain riparian vegetation or hydric soils, did not show evidence of periodic or episodic flow, and do not have a defined bed and bank. The features were determined to be upland erosional features and did not meet the requirements to be considered WOTUS, WSC, or CDFW jurisdictional. These features were evaluated and determine to be non-jurisdictional in an otherwise upland area.

No potential federally regulated wetlands were identified within the impact areas based on lack of hydric soils, hydrophytic vegetation, and wetland hydrology indicators (ACOE 1987 and 2008).

5.0 REFERENCES

Army Corps of Engineers (ACOE). 1987. Wetlands Delineation Manual, Technical Report Y-8. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. + append.

ACOE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. September.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior.

Curtis, K.E., and R.W. Lichvar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States. U.S. Army Corps of Engineers Wetland Regulatory Assistance Program. July 2010.

Lichvar R.W., and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States. A Delineation Manual. Lichvar and McColley. U.S. Army Corps of Engineers. August

National Resource Conservation Service Field Office Technical Guide (FOTG), https://efotg.sc.egov.usda.gov/

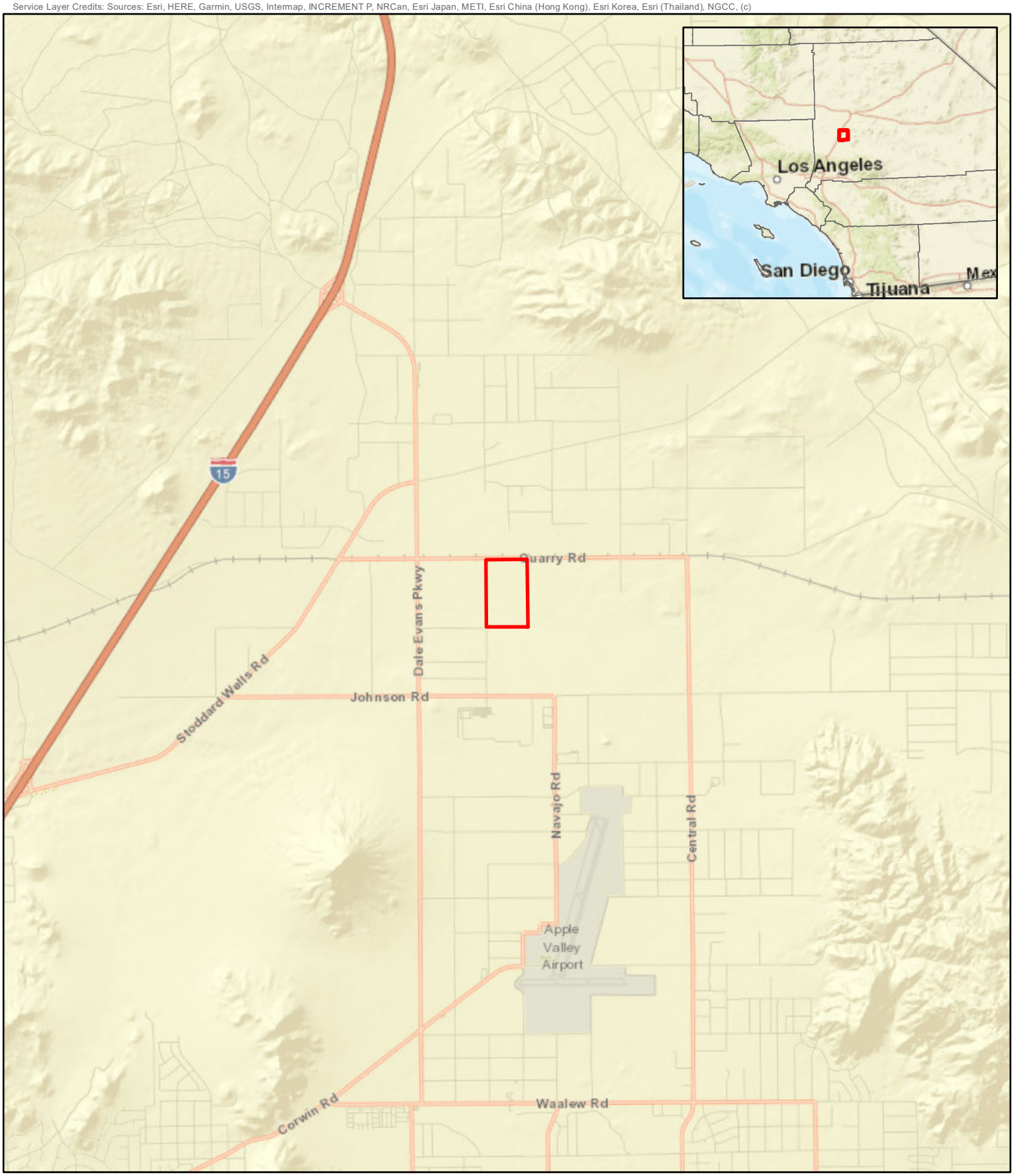
U.S. Department of Agriculture (USDA). 2023. Web Soil Survey. USDA Natural Resources Conservation Service. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

U.S. Fish and Wildlife Service (USFWS). 2023. National Wetlands Inventory Mapper. From: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed September 2023.

Appendix A

Figures

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\JD\Fig1_Regional_JD.mxd, aaron.johnson 10/2/2023

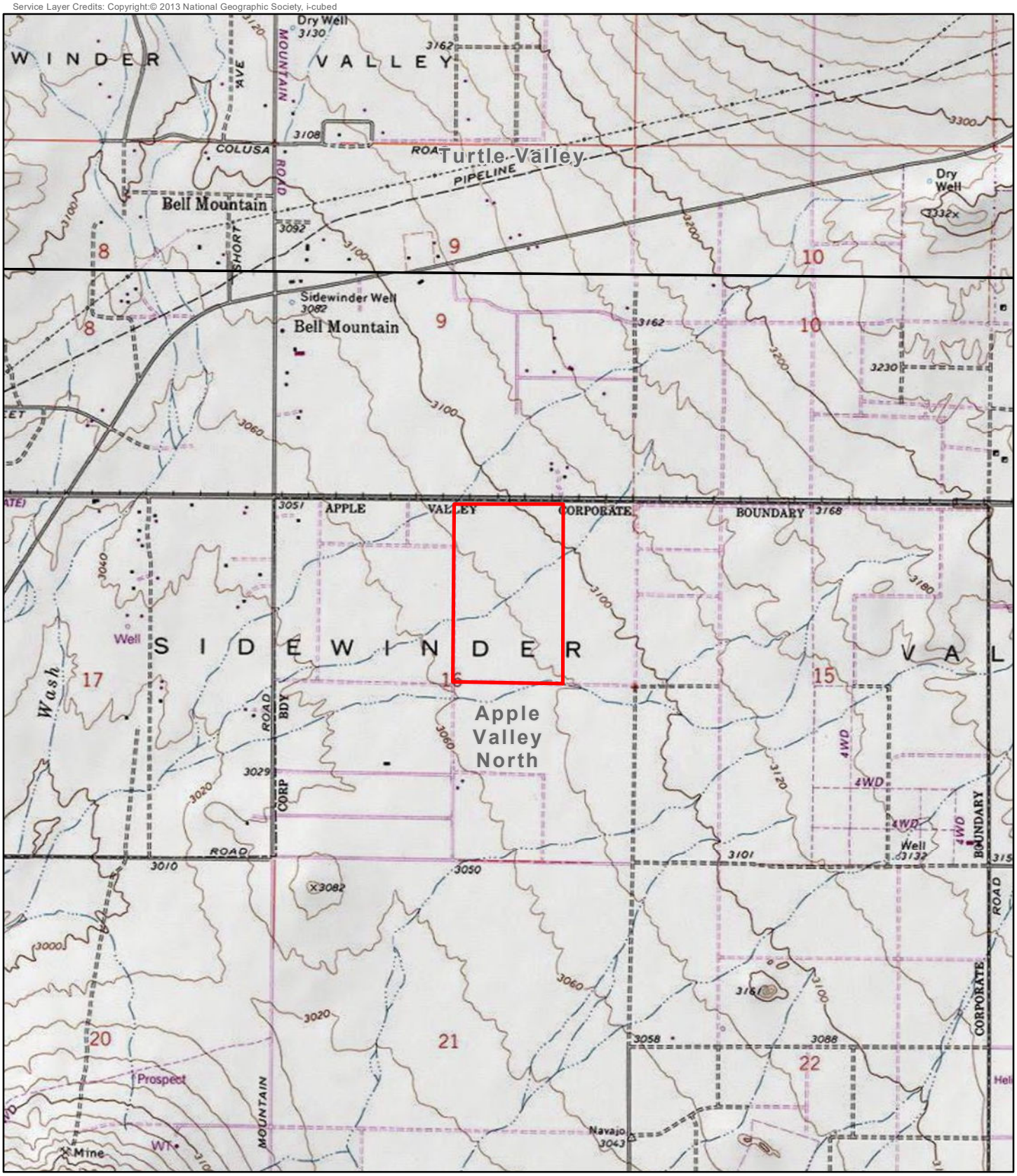
1 inch = 1 miles
0 0.5 1 Miles

Project Boundary

FIGURE 1

Regional Location
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\JD\Fig2_USGS_JD.mxd, jason.erlich 9/27/2023

1 inch = 2,000 feet

0 1,000 2,000 Feet

Project Boundary

FIGURE 2

USGS 7.5' Topo Quad: Apple Valley North
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\JD\Fig3_VicinityMap_JD.mxd, jason.erlich 9/27/2023

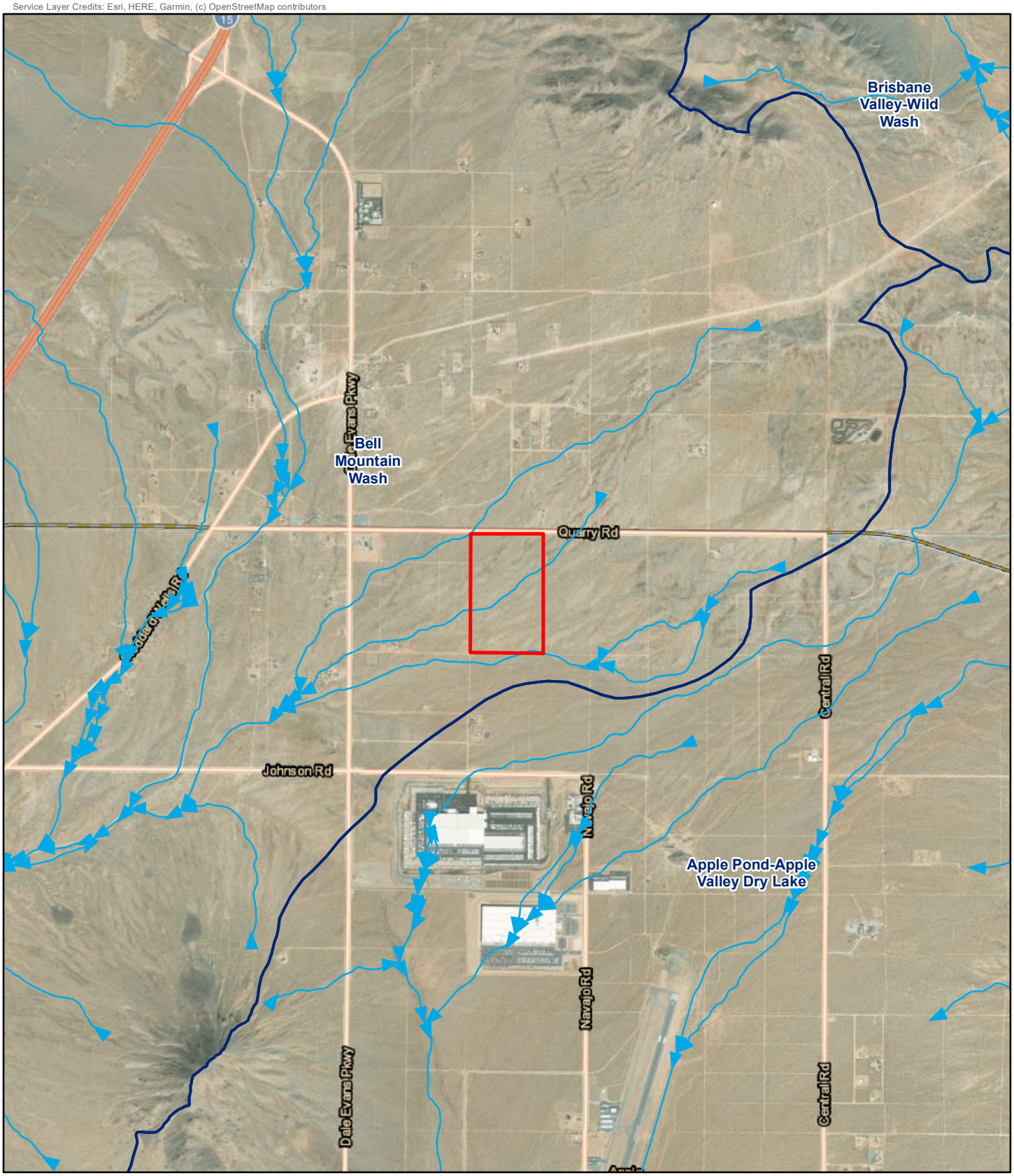
1 inch = 4,000 feet
0 2,000 4,000
Feet

Project Boundary

FIGURE 3

Vicinity Map
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\JD\Fig4_Hydrology_JD.mxd, jason.erlich 9/27/2023

1 inch = 3,000 feet
0 1,500 3,000 Feet

wsp

Flow Direction
Project Boundary
HUC 12 Watershed Boundary

FIGURE 4

Hydrology
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

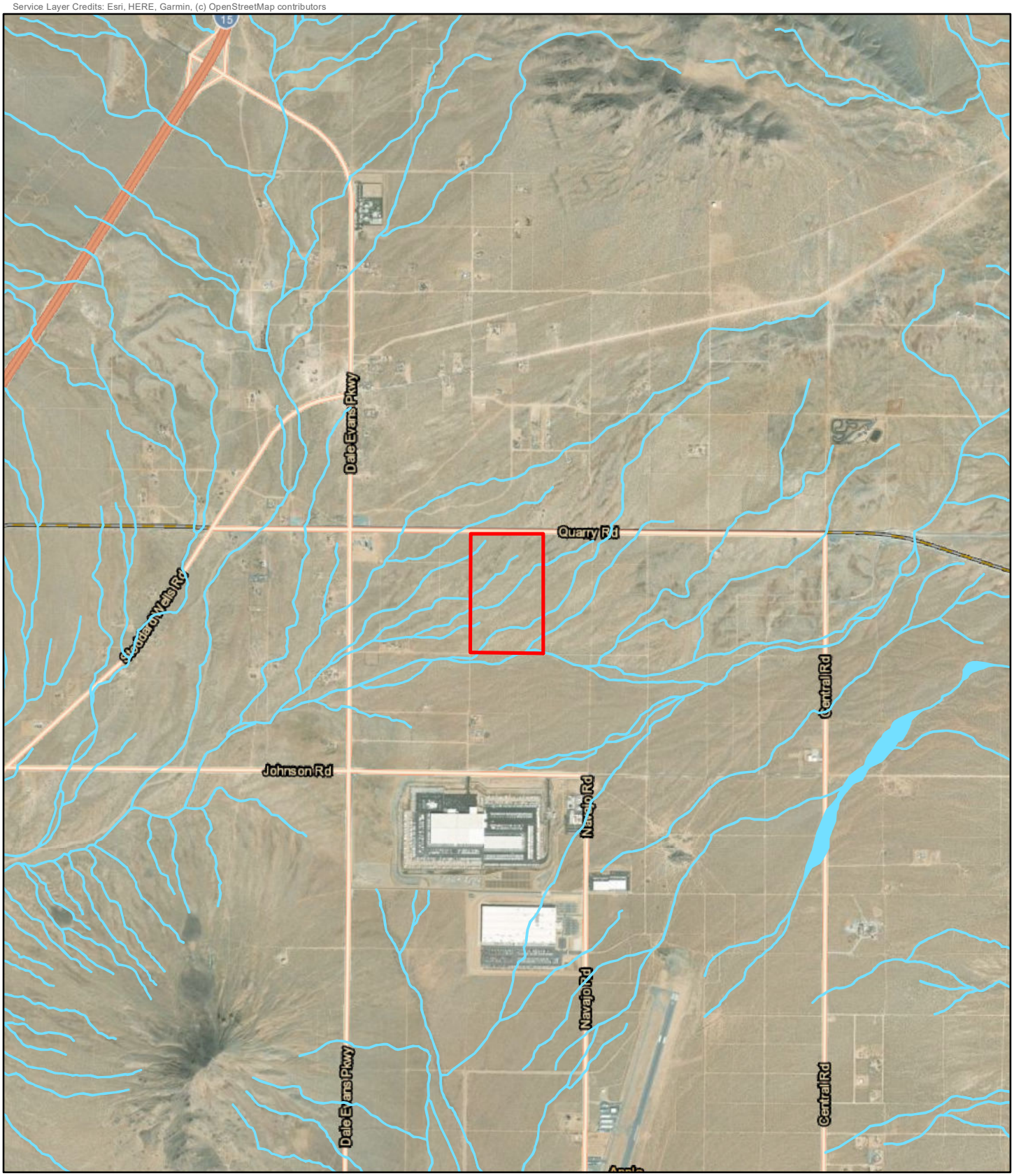
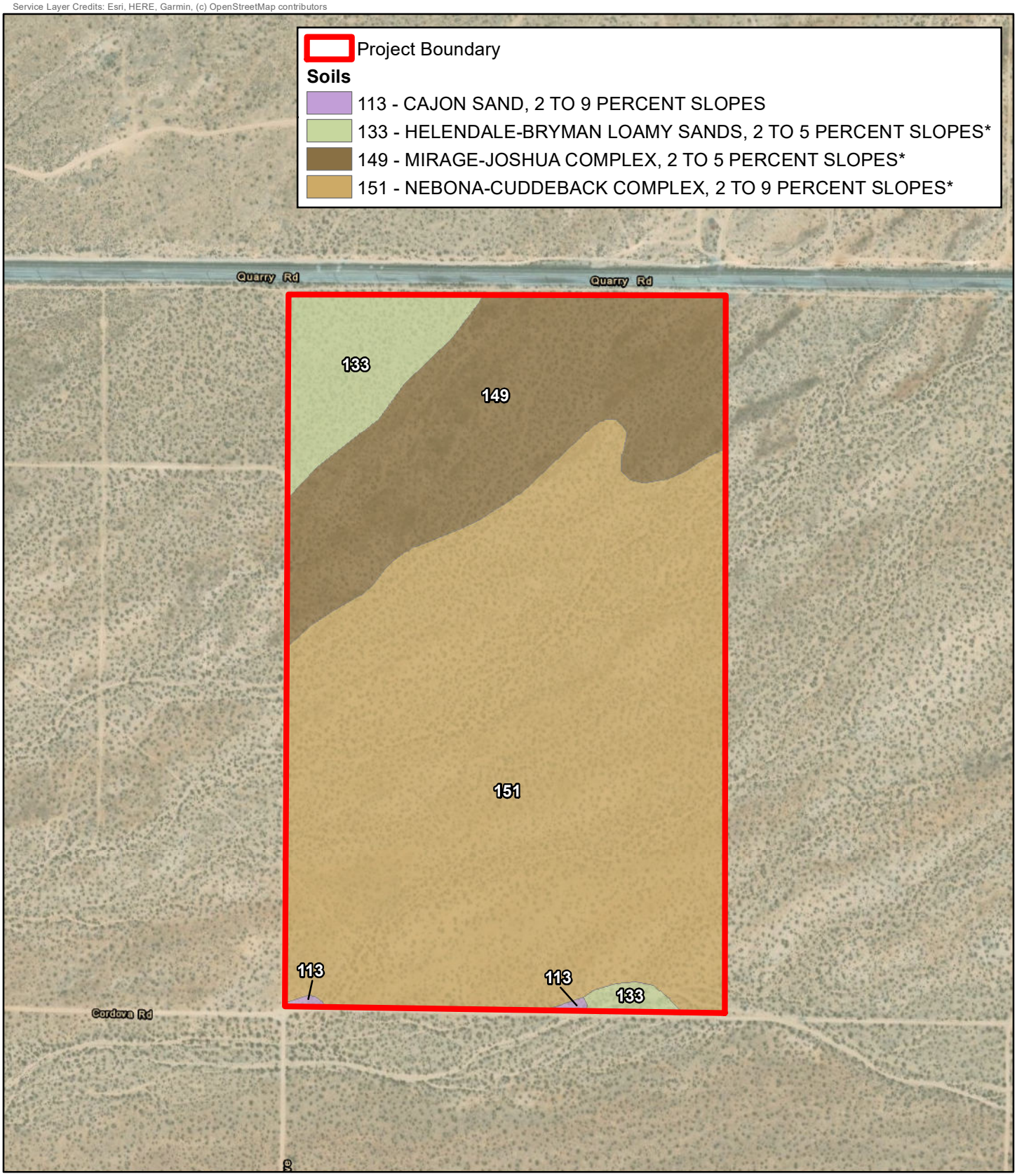


FIGURE 5

National Wetlands Inventory
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_CordovaRd_322520145\MXD\ReportFigures\JD\Fig6_Soils_JD.mxd, jason.erlich 9/28/2023

1 inch = 500 feet
0 250 500 Feet

wsp

FIGURE 6

Soils
Jurisdictional Assessment
Cordova Road Project
Riverside County, California

Appendix B

Site Photographs

Photo 1: Looking southwest showing an example of features investigated but showing no OWHM or evidence of flow.

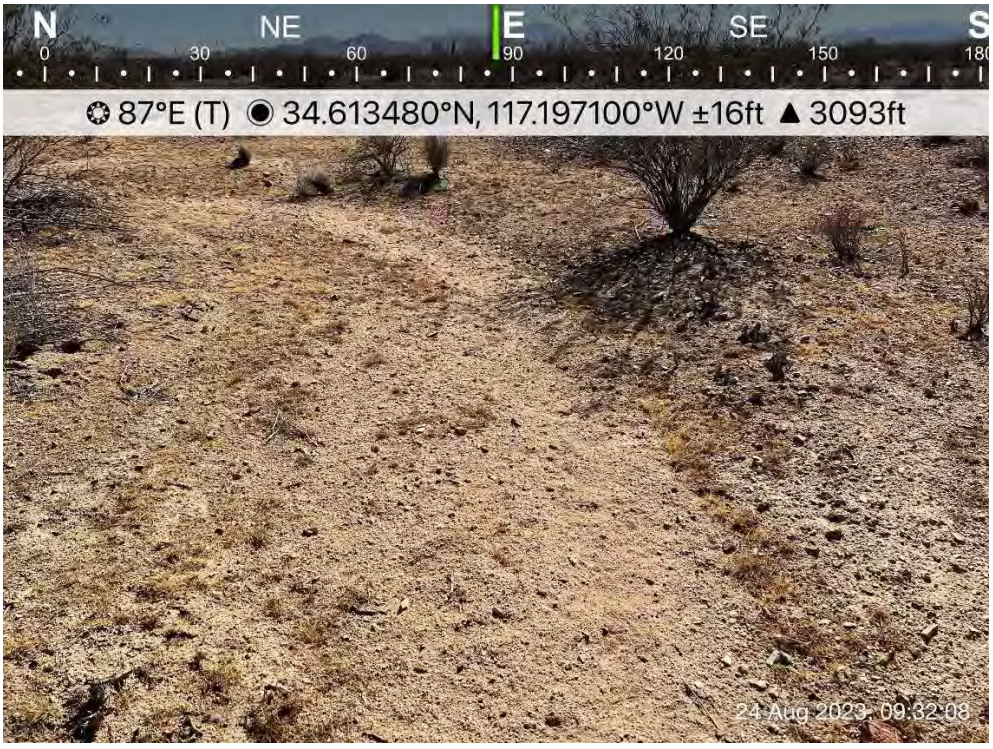


Photo 2: Looking east showing an example of features investigated but showing no OWHM or evidence of flow.

Appendix E

Historical/Archaeological Resources Survey

PHASE I HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY

ASSESSOR'S PARCEL NUMBERS 0463-213-01, -29, AND -32

Town of Apple Valley
San Bernardino County, California

For Submittal to:

Planning Division
Town of Apple Valley
14955 Dale Evans Parkway
Apple Valley, California 92307

Prepared for:

Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

Prepared by:

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

November 11, 2023
CRM TECH Contract No. 4032

Title: Phase I Historical/Archaeological Resources Survey: Assessor's Parcel Numbers 0463-213-01, -29, and -32, Town of Apple Valley, San Bernardino County, California

Author(s): Bai "Tom" Tang, Principal Investigator/Historian
Frank Raslich, Archaeologist/Report Writer
Michael Richards, Archaeologist

Consulting Firm: CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: November 11, 2023

For Submittal to: Planning Division
Town of Apple Valley
14955 Dale Evans Parkway
Apple Valley, California 92307
(760) 240-7000

Prepared for: Terra Nova Planning and Research, Inc
Nicole Sauviat Christe
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
(760) 341-4800

USGS Quadrangle: Apple Valley North, Calif., 7.5' quadrangle (Section 16, T6N R3W, San Bernardino Baseline and Meridian)

Project Size: Approximately 98 acres

Keywords: Victor Valley/Southern Mojave Desert region; Sites 36-020981 and 4032-3H*, Isolates 4032-1H* and 4032-2H*: historic-period refuse; no "historical resources" under CEQA

* *Temporary designations, pending assignment of permanent identification numbers in the California Historical Resources Inventory*

EXECUTIVE SUMMARY

Between June and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources study on approximately 98 acres of undeveloped land in the Town of Apple Valley, San Bernardino County, California. The subject property of the study consists of Assessor's Parcel Numbers 0463-213-01, -29, and -32, located on the east side of Dachshund Avenue between Quarry Road and Cardova Road, in the northeast quarter of Section 16, Township 6 North, Range 3 West, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the proposed construction of a warehouse facility on the property. The Town of Apple Valley, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the Town with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area.

To identify and evaluate such resources, CRM TECH conducted a cultural resources records search, initiated a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. As a result of these research procedures, a previously recorded archaeological site, a newly identified site, and two isolates (i.e., localities with fewer than three artifacts) were found to be present within or partially within the project area, all of them consisting of scattered refuse items from the historic period.

The site record for the previously recorded site, 36-020981, has been updated, and the three new localities have been recorded into the California Historical Resources Inventory under the temporary designations of Isolate 4032-1H, Isolate 4032-2H, and Site 4032-3H, pending assignment of permanent identification numbers. Due to the lack of any close historical associations or potential for important archaeological data, none of these sites and isolates appears to be eligible for listing in the California Register of Historical Resources. Therefore, they do not meet the definition of a "historical resource" for CEQA-compliance purposes. No other features or artifacts of prehistoric or historical origin were encountered within the project boundaries.

Based on these findings, CRM TECH recommends to the Town of Apple Valley a conclusion of *No Impact* regarding "historical resources." No further cultural resources investigation is recommended for the project unless construction plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are discovered during earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
INTRODUCTION 1
SETTING 4
Current Natural Setting 4
Cultural Setting 5
Prehistoric Context 5
Ethnohistoric Context 6
Historic Context 7
RESEARCH METHODS 7
Records Search 7
Sacred Lands File Search 8
Historical Research 8
Field Survey 8
RESULTS AND FINDINGS 8
Records Search 8
Sacred Lands File Search 9
Historical Research 9
Field Survey 12
DISCUSSION 13
Applicable Statutory/Regulatory Framework 13
Resource Evaluation 14
Conclusion and Recommendations 14
REFERENCES 15
APPENDIX 1: Personnel Qualifications 17
APPENDIX 2: Sacred Lands File Search Results 22
APPENDIX 3: Cultural Resources Recorded within the Project Area 25

LIST OF FIGURES

Figure 1. Project vicinity 1
Figure 2. Project area 2
Figure 3. Recent satellite image of the project area 3
Figure 4. Overview of the current natural setting of the project area 4
Figure 5. Previous cultural resources studies 10
Figure 6. The project area and vicinity in 1855-1857 11
Figure 7. The project area and vicinity in 1920-1932 11
Figure 8. The project area and vicinity in 1952-1957 11
Figure 9. Isolate 4032-1H 12
Figure 10. Isolate 4032-2H 12
Figure 11. Site 4032-3H 13

INTRODUCTION

Between June and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources study on approximately 98 acres of undeveloped land in the Town of Apple Valley, San Bernardino County, California (Figure 1). The subject property of the study consists of Assessor's Parcel Numbers 0463-213-01, -29, and -32, located on the east side of Dachshund Avenue between Quarry Road and Cardova Road, in the northeast quarter of Section 16, Township 6 North, Range 3 West, San Bernardino Baseline and Meridian (Figures 2, 3).

The study is part of the environmental review process for the proposed construction of a warehouse facility on the property. The Town of Apple Valley, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the Town with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area.

To identify and evaluate such resources, CRM TECH conducted a cultural resources records search, initiated a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

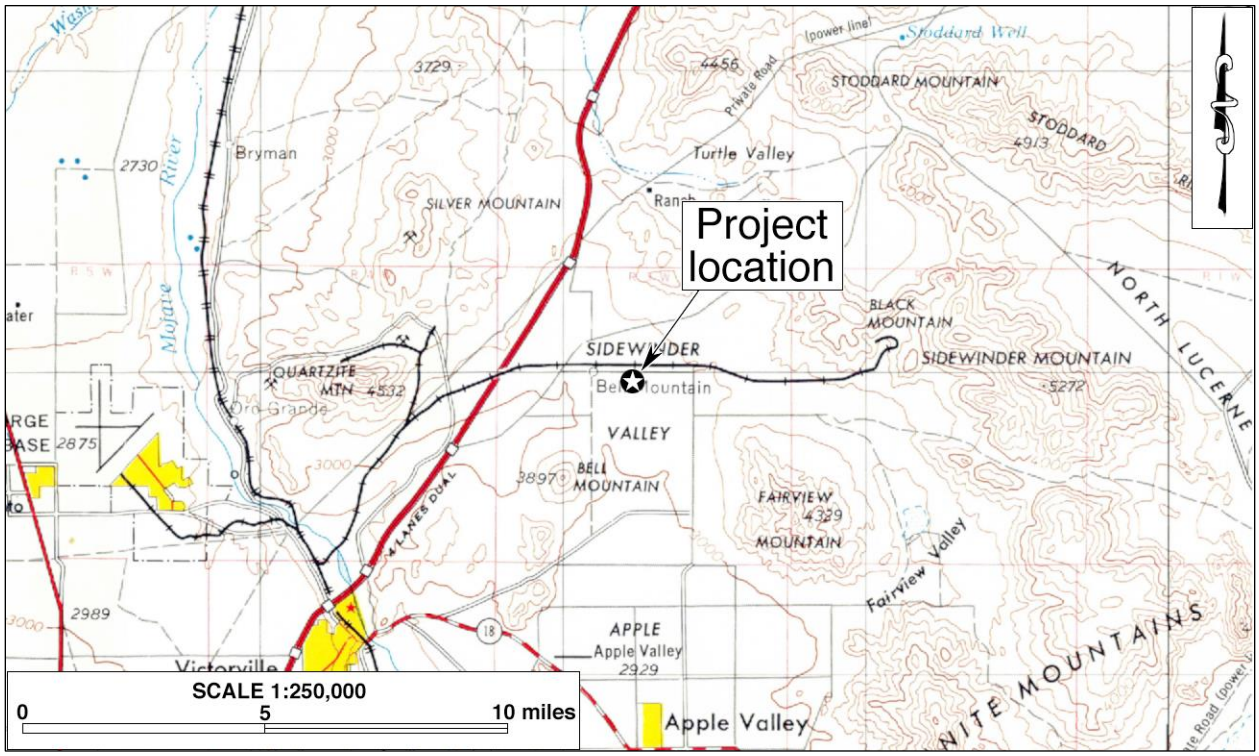


Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle [USGS 1969])

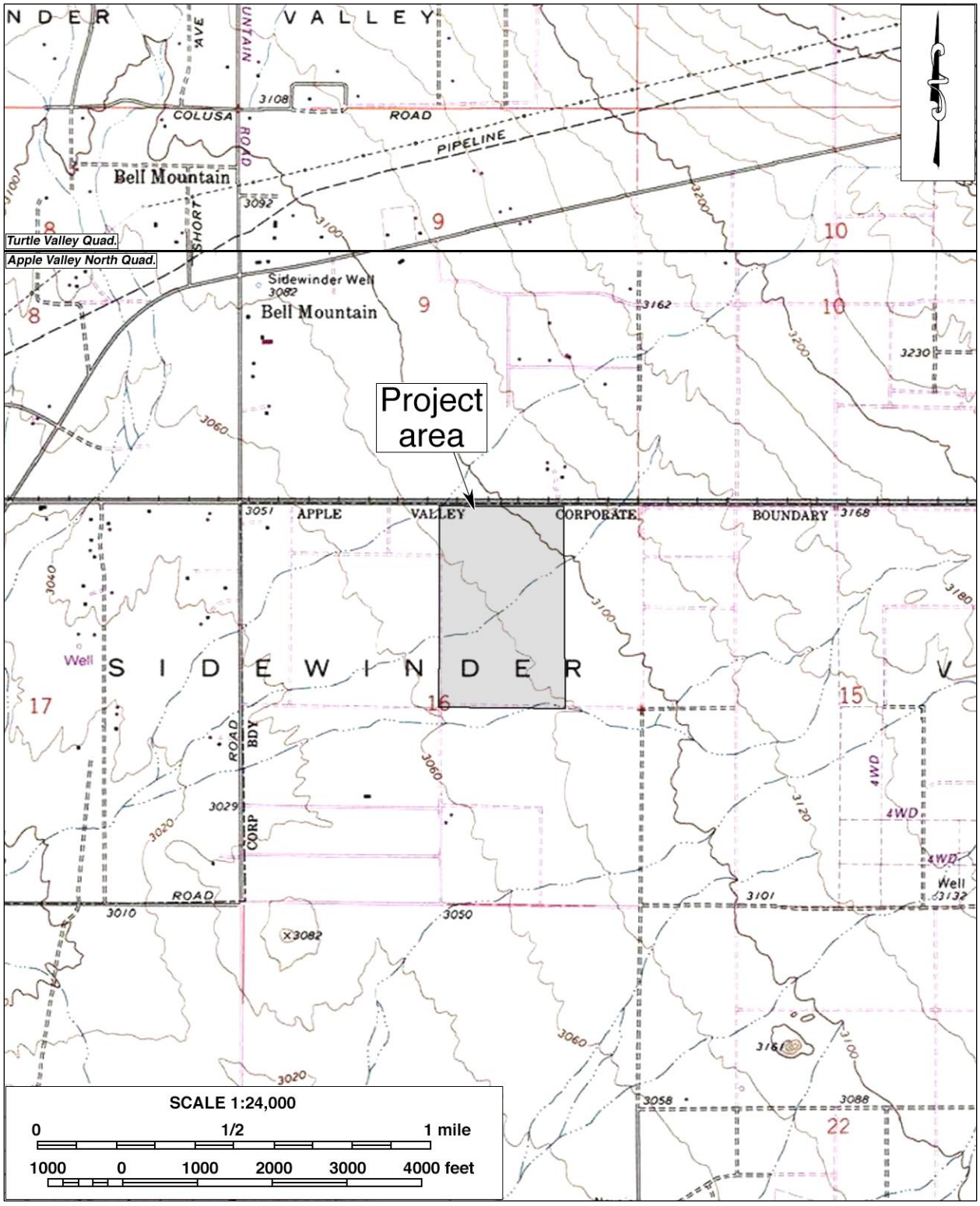


Figure 2. Project area. (Based on USGS Apple Valley North and Turtle Valley, Calif., 7.5' quadrangles [USGS 1993a; 1993b])

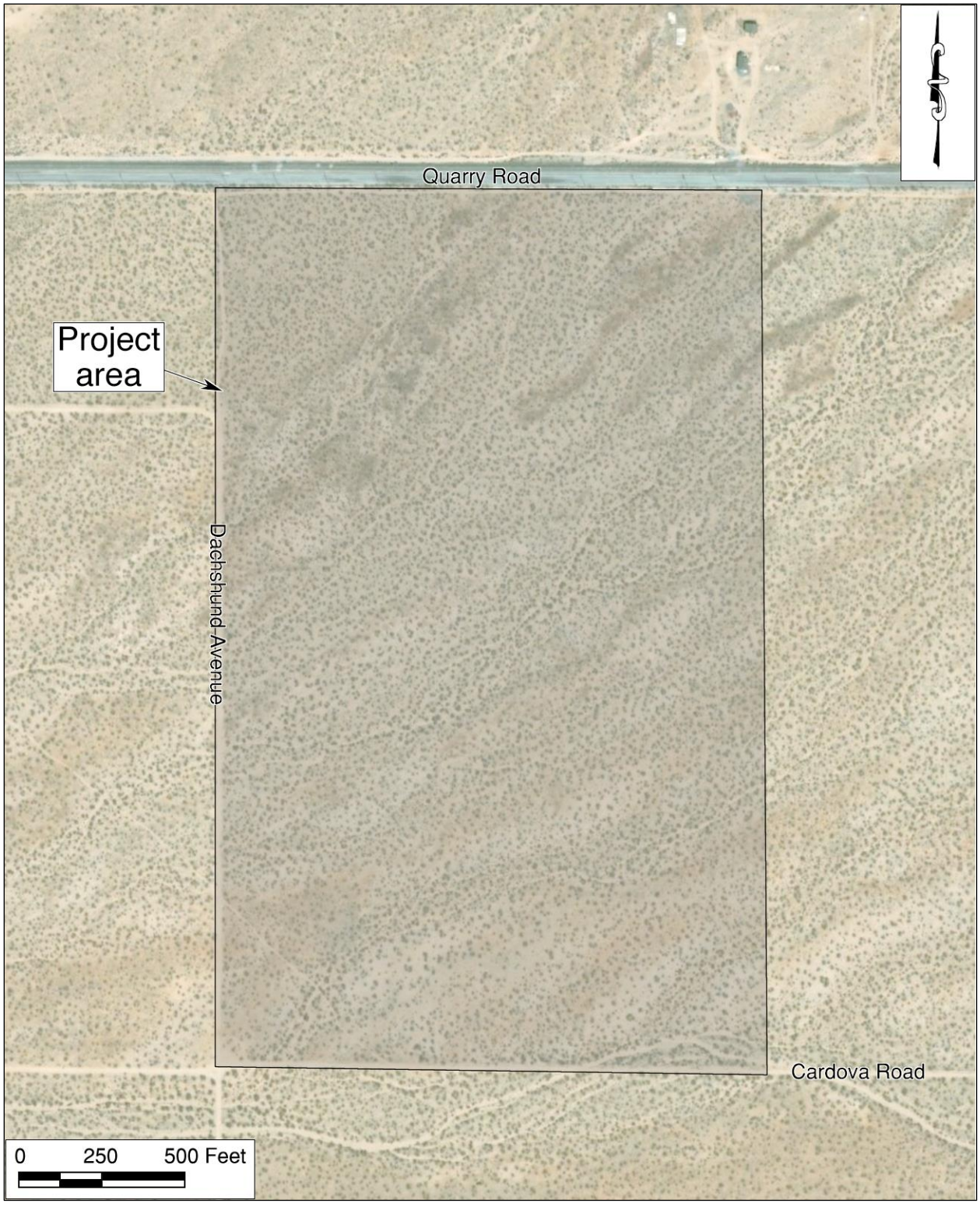


Figure 3. Recent satellite image of the project area. (Based on Google Earth imagery)

SETTING

CURRENT NATURAL SETTING

The Town of Apple Valley is situated on the eastern flank of the Mojave River and the northeastern edge of the Victor Valley. The Victor Valley itself lies on the southern rim of the Mojave Desert, bounded on the south by the San Bernardino-San Gabriel Mountain Ranges, on the east and north by the highlands of the Mojave Desert, and on the west by the Antelope Valley. The climate and environment of the area are typical of the high desert region, so-called because of its higher elevation than the Colorado Desert to the southeast. The climate is marked by extremes in temperature and aridity, with summer highs reaching well over 110ºF and winter lows dipping below freezing. Average annual precipitation is less than five inches, most of which occurs during the winter months and occasional monsoon storms in summer.

The project area lies in the northernmost portion of the Town of Apple Valley, on the south side of the Sidewinder Valley and to the northeast of Bell Mountain. The property retains most of its natural character, with other parcels of undeveloped land nearby in all directions of the project area (Figures 3, 4). It is bounded by Cardova Road on the south, Dachshund Avenue on the west, Quarry Road on the north, and an open field on the east (Figure 3). Further to the south, commercial warehouse development has begun to transform the desert landscape in the general vicinity.

Figure 4. Overview of the current natural setting of the project area, view to the north. (Photograph taken on August 17, 2023)

The terrain in the project area slopes down gently to the southwest and has at least four separate drainages crossing the area running in a southwest-northeast direction. The elevation of the project area ranges approximately between 3,060 feet and 3,110 feet above sea level. In its natural state, the project area is part of the Creosote Scrub Plant Community. Vegetation observed in the project vicinity included creosote bushes, Joshua trees, beaver tail cactus, and small grasses and shrubs consistent to the community. The surface soil consists of fine to coarse yellowish brown alluvial sand mixed with small rocks and gravel. The project area has been slightly disturbed by unauthorized dirt roads running northwest-southeast as well as refuse dumping (Figure 4).

CULTURAL SETTING

Prehistoric Context

To understand the progress of Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types that date back some 12,000 years. Currently, the chronology most frequently applied in the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. According to Warren (1984) and Warren and Crabtree (1986), the five periods are as follows: the Lake Mojave Period, 12,000 years to 7,000 years ago; the Pinto Period, 7,000 years to 4,000 years ago; the Gypsum Period, 4,000 years to 1,500 years ago; the Saratoga Springs Period, 1,500 years to 800 years ago; and the Protohistoric Period, 800 years ago to European contact.

More recently, Hall (2000) presented a slightly different chronology for the region, also with five periods: Lake Mojave (ca. 8000-5500 B.C.), Pinto (ca. 5500-2500 B.C.), Newberry (ca. 1500 B.C.-500 A.D.), Saratoga (ca. 500-1200 A.D.), and Tecopa (ca. 1200-1770s A.D.). According to Hall (*ibid*.:14), small mobile groups of hunters and gatherers inhabited the Mojave Desert during the Lake Mojave sequence. Their material culture is represented by the Great Basin Stemmed points and flaked stone crescents. These small, highly mobile groups continued to inhabit the region during the Pinto Period, which saw an increased reliance on ground foods, small and large game animals, and the collection of vegetal resources, suggesting that "subsistence patterns were those of broad-based foragers" (*ibid*.:15). Artifact types found in association with this period include the Pinto points and *Olivella* sp. spire-lopped beads.

Distinct cultural changes occurred during the Newberry Period, in comparison to the earlier periods, including "geographically expansive land-use pattern…involving small residential groups moving between select localities," long-distance trade, and diffusion of trait characteristics (Hall 2000:16). Typical artifacts from this period are the Elko and Gypsum Contracting Stem points and Split Oval beads. The two ensuing periods, Saratoga and Tecopa, are characterized by seasonal group settlements near accessible food resources and the intensification of the exploitation of plant foods, as evidenced by groundstone artifacts (*ibid*.:16).

Hall (2000:16) states that "late prehistoric foraging patterns were more restricted in geographic routine and range, a consequence of increasing population density" and other variables. Saratoga Period artifact types include Rose Spring and Eastgate points as well as Anasazi grayware pottery. Artifacts from the Tecopa Period include Desert Side-notched and Cottonwood Triangular points,

buffware and brownware pottery, and beads of the Thin Lipped, Tiny Saucer, Cupped, Cylinder, steatite, and glass types (*ibid*.).

Ethnohistoric Context

The present-day Apple Valley area is a part of the homeland of the Serrano people, which is centered in the San Bernardino Mountains. Together with that of the Vanyume people, linguistically a subgroup, the traditional territory of the Serrano also includes part of the San Gabriel Mountains, much of the San Bernardino Valley, and the Mojave River valley in the southern portion of the Mojave Desert, reaching as far as the Cady, Bullion, Sheep Hole, and Coxcomb Mountains to the east, the Twentynine Palms area to the north, and possibly the southern edge of Kern County to the west. The name "Serrano" was derived from a Spanish term meaning "mountaineer" or "highlander." The basic written sources on Serrano culture are Kroeber (1925), Strong (1929), and Bean and Smith (1978). The following ethnographic discussion of the Serrano people is based mainly on these sources.

Prior to European contact, Serrano subsistence was defined by the surrounding landscape and primarily based on the gathering of wild and cultivated foods and hunting, exploiting nearly all of the resources available. their long-term settlements were located mostly on elevated terraces, hills, and finger ridges near reliable sources of water, especially in foothills and along major rivers. Loosely organized into exogamous clans led by hereditary heads, the clans were in turn affiliated with one of two exogamous moieties, the Wildcat (*Tukutam*) or the Coyote (*Wahiiam*). The exact nature of the clans, their structure, function, and number are not known, except that each clan was the largest autonomous political and landholding unit. The core of the unit was the patrilineage, although women retained their own lineage names after marriage. There was no pan-tribal political union among the clans.

The Serrano had a variety of technological skills that they used to acquire food, shelter, and clothing as well as to create ornaments and decorations. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow straighteners, and stone knives and scrapers. These lithic tools were made from locally sourced material as well as materials procured through trade or travel. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink. Much of this material cultural, elaborately decorated, does not survive in the archaeological record. As usual, the main items found archaeologically relate to subsistence activities.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was minimal until the 1810s, when a mission *asistencia* was established on the southern edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano in the western portion of their traditional territory were removed to the nearby missions. In the eastern portion, a series of punitive expeditions in 1866-1870 resulted in the death or displacement of almost all remaining Serrano population in the San Bernardino Mountains. Today, most Serrano descendants are affiliated with the Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians), the Morongo Band of Mission Indians, or the Serrano Nation of Indians.

Historic Context

The first European visitor known to have arrived in the present-day Victor Valley area was the famed Spanish explorer Francisco Garcés, who traveled through the valley in 1776, shortly after the beginning of Spanish colonization of Alta California in 1769 (Beck and Haase 1974:15). The earliest Euroamerican settlements appeared in the Victor Valley as early as 1860 (Peirson 1970:128). Despite these "early starts," due to its harsh environment, development in the arid high desert country of southern California was slow and limited for much of the historic period, and the Victor Valley remained only sparsely populated until the second half of the 20th century.

Garcés traveled through the Victor Valley along an ancient Indian trading route known today as the Mojave Trail (Beck and Haase 1974:15). In the early 1830s, part of this trail was incorporated into the Old Spanish Trail, an important pack-train road that extended between southern California and Santa Fe, New Mexico (Warren 2004). Some 20 years later, when the historic wagon road known as the Mormon Trail or Salt Lake Trail was established between Utah and southern California, it followed essentially the same route across the Mojave Desert (NPS 2001:5). Since then, the Victor Valley has always served as a crucial link on a succession of major transportation arteries, where the heritage of the ancient Mojave Trail was carried on by the Santa Fe Railway since the 1880s, by the legendary U.S. Route 66 during the early and mid-20th century, and finally by today's Interstate Highway 15.

With the completion of the Santa Fe Railway, settlement activities began in earnest in the Victor Valley in the 1880s and reached a peak in the 1910s. Thanks to the availability of fertile lands and the abundance of ground water, agriculture played a dominant role in the early development of the Victor Valley area. During the late 19th and early 20th centuries, settlers in the valley attempted a number of moneymaking staples, such as alfalfa, deciduous fruits, and poultry, with only limited success. The name of Apple Valley, adopted around the turn of the century, reflects one such endeavor in the vicinity (Gudde 1998:15).

As a community, Apple Valley did not come into being until 1945, when developers Newton T. Bass and Bernard "Bud" Westlund acquired approximately 25,000 acres of land and developed a new town under the name of Apple Valley Ranchos (Ryon 1964; O'Rourke 2004:37). Through a series of high-profile promotion campaigns, within 20 years Bass and Westlund had succeeded in turning this sparsely settled stretch of desert land into a western-themed town of 11,000 residents (O'Rourke 2004:41-43). Since then, the Town of Apply Valley, incorporated in 1988, has grown into a city of well over 74,000 residents, largely as a commuter bedroom community in support of the industrial and commercial centers in the Greater Los Angeles area.

RESEARCH METHODS

RECORDS SEARCH

On August 2, 2023, CRM TECH archaeologist Nina Gallardo conducted the historical/ archaeological resources records search at the South Central Coastal Information Center (SCCIC). Located on the campus of California State University, Fullerton, the SCCIC is the designated cultural resource records repository for the County of San Bernardino. During the records search,

Gallardo examined digitized maps and records on file at the SCCIC for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the project area. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

SACRED LANDS FILE SEARCH

On June 28, 2023, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. The NAHC is the State of California's trustee agency for the protection of "tribal cultural resources," as defined by California Public Resources Code §21074, and is tasked with identifying and cataloging properties of Native American cultural value, including places of special religious, spiritual, or social significance and known graves and cemeteries throughout the state. The response from the NAHC is summarized in the sections below and attached to this report in Appendix 2.

HISTORICAL RESEARCH

Historical background research for this study was conducted by CRM TECH principal investigator/ historian Bai "Tom" Tang. Sources consulted during the research included published literature in local and regional history, historical maps of the Apple Valley area, and aerial/satellite photographs of the project vicinity. Among the maps consulted for this study were the U.S. General Land Office's (GLO) land survey plat maps dated 1857 and the U.S. Geological Survey's (USGS) topographic maps dated 1934-1993, which are available at the websites of the U.S. Bureau of Land Management and the USGS. The aerial and satellite photographs, taken in 1952-2023, are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

FIELD SURVEY

On August 17, 2023, CRM TECH field director Daniel Ballester and project archaeologist Michael Richards carried out the intensive-level field survey of the project area. The survey was completed on foot by walking a series of parallel east-west transects at 15-meter (approximately 50-foot) intervals. In this way, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was good to excellent (80-95 percent), due to the sparse low-lying vegetation throughout the project area (Figure 4).

RESULTS AND FINDINGS

RECORDS SEARCH

SCCIC records show that the project area had not been surveyed systematically for cultural resources before the present study. Although the area was covered by a 2006 study completed for the North Apple Valley Specific Plan, that study was a program-level reconnaissance that did not

include an intensive-level field survey (Tang et al. 2006:8). Within the one-mile scope of the records search, SCCIC files identified 11 other studies on various tracts of land and linear features (Figure 5). An archaeological site from the historical period, designated 36-020981 (CA-SBR-13515H) in the California Historical Resources Inventory, was previously recorded as lying partially within the project boundaries.

Site 36-020981 was recorded in 2009 as an elongated refuse deposit extending along the south side of Quarry Road and containing 12 discrete loci of dumping episodes as well as a sparse background scatter of debris. The material appears to date to the 1950s-1960s based on the presence of church key-opened tin top beer cans that were replaced by aluminum top cans in the 1960s and condensed/ evaporated milk cans that were produced after 1950. Only a small portion of this site falls within the current project area, including Loci 11 and 12.

In addition to Site 36-020981, six other sites and one isolate (i.e., a locality with fewer than three artifacts) have been identified and recorded within the one-mile radius. One of the sites was prehistoric (i.e., Native American) in origin, as was the isolate. The site, designated 36-020979 (CA-SBR-13513), was described as a sparse artifact scatter consisting of one expedient basalt scraper, a multidirectional basalt core, and two basalt interior flakes, and the isolate, 36-012355, consisted of a quartzite core with several flake removal scars.

The other five sites date to the historical period. Among these were a segment of the Mormon Trail, a segment of Stoddard Wells Road, a refuse scatter of a few bottles and ceramics, the Boulder Dam-San Bernardino transmission lines, and the access road to the transmission lines. Other than 36-020981, none of these known cultural resources was found in the immediate vicinity of the project area. Therefore, none of them requires further consideration during this study.

SACRED LANDS FILE SEARCH

In response to CRM TECH's inquiry, the NAHC states in a letter dated August 4, 2023, that the Sacred Lands File search identified no Native American cultural resources in the project vicinity. However, noting that the absence of specific information in the Sacred Lands File does not necessarily establish the absence of Native American cultural resources, the NAHC recommended that local Native American groups be contacted for future information and provided a referral list of pertinent tribal organizations in the region (see Appendix 2).

According to current CEQA guidelines, the identification of potential "tribal cultural resources," as defined by California Public Resources Code §21074, is beyond the scope of this study and may be addressed through government-to-government consultations between the Town of Apple Valley and the pertinent Native American groups pursuant to Assembly Bill (AB) 52. For that purpose, the NAHC's reply is attached to this report in Appendix 2 for reference by the Town.

HISTORICAL RESEARCH

Historical sources consulted for this study indicate that the project area remained unsettled and undeveloped throughout the historic period (Figures 6-8; NETR Online 1952-1984). In the 1850s, when the U.S. government conducted the first systematic land survey in the Victor Valley, no human-made features of any kind were noted in or near the project area (Figure 6). By the 1920s-

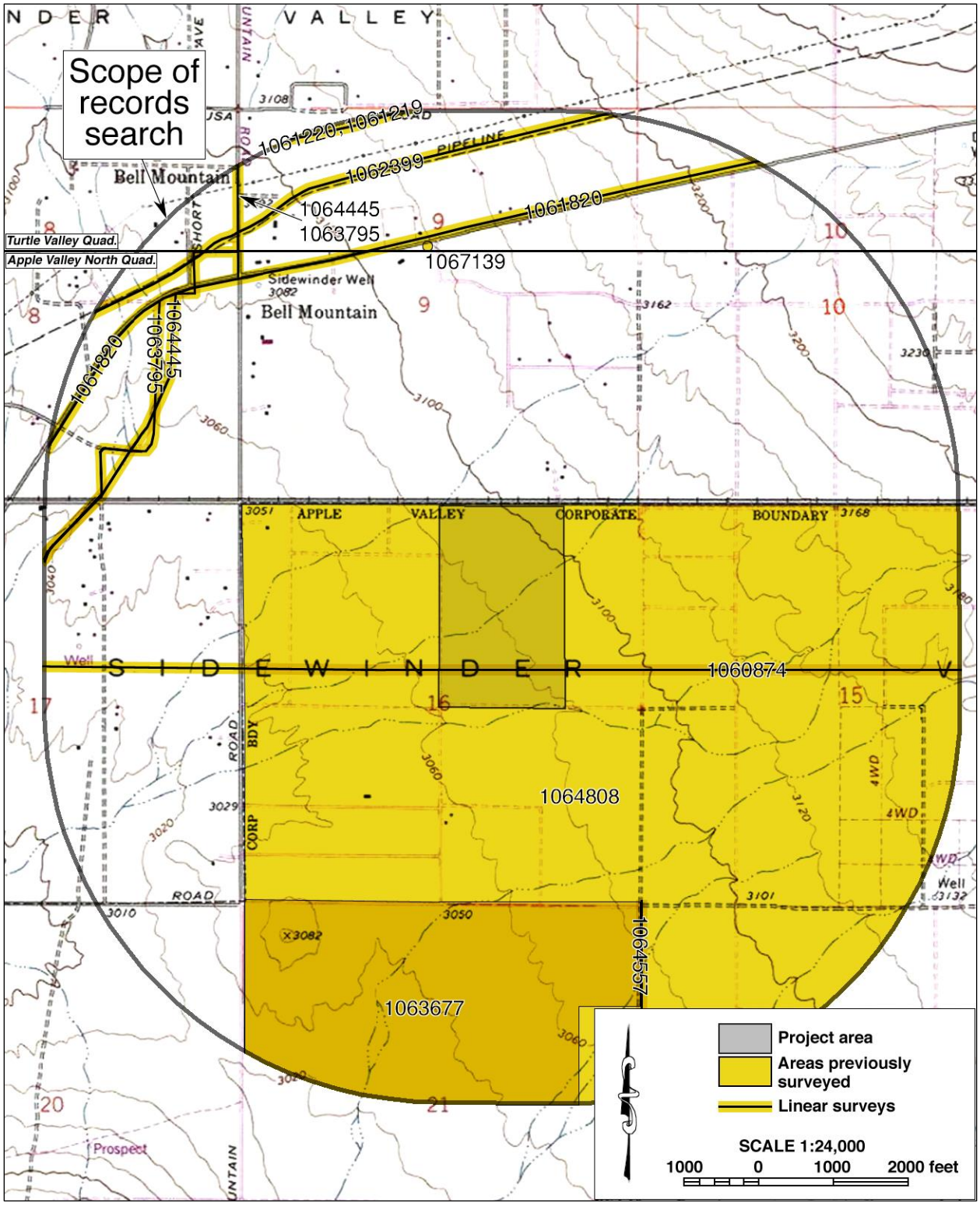


Figure 5. Previous cultural resources studies in the vicinity of the project area, listed by SCCIC file number. As a protective measure, locations of known historical/archaeological resources are not shown; nor is the 2006 program-level reconnaissance, which covered nearly the entire scope of the records search.

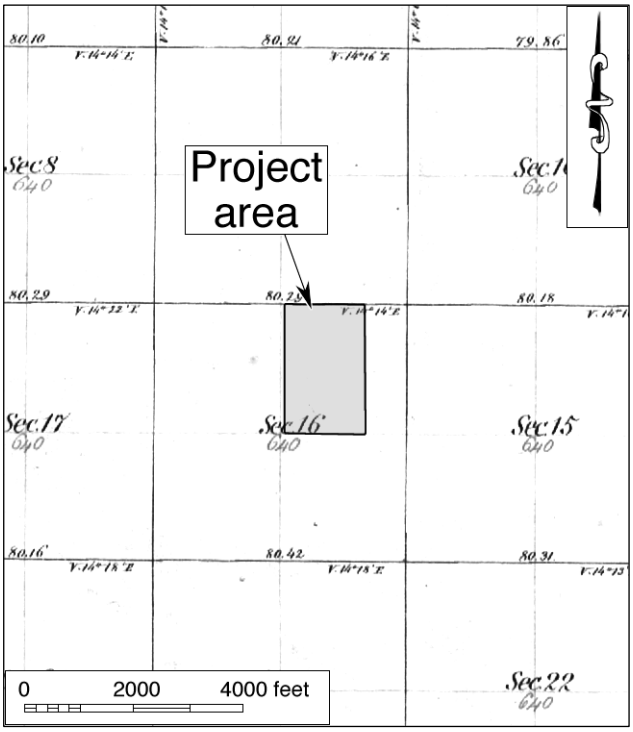


Figure 6. The project area and vicinity in 1855-1857. (Source: GLO 1857)

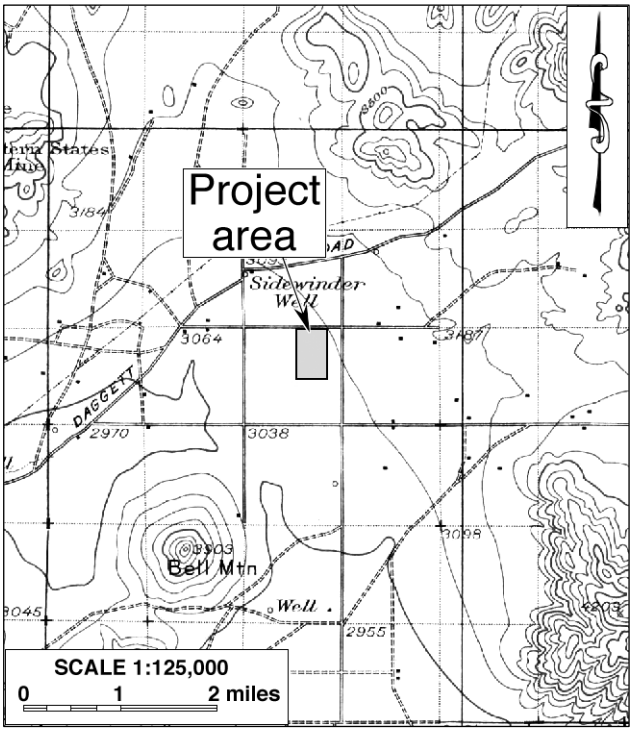


Figure 7. The project area and vicinity in 1920-1932. (Source: USGS 1934)

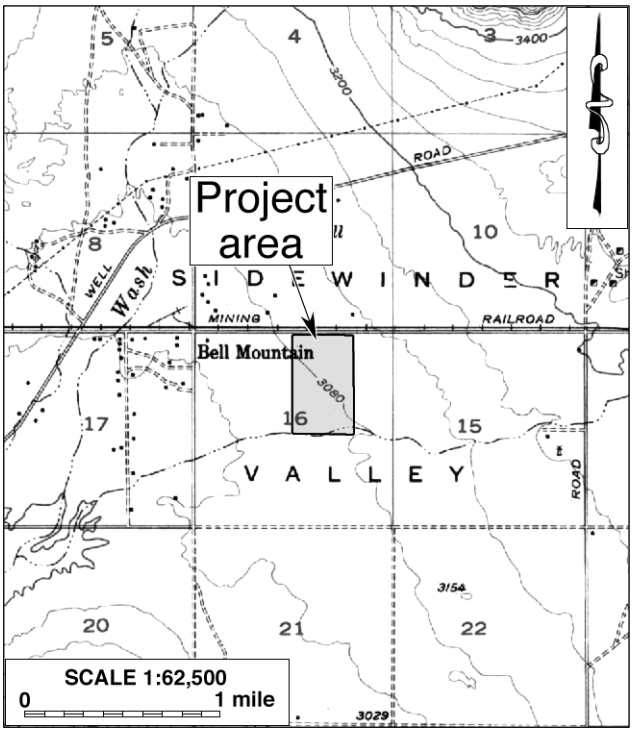


Figure 8. The project area and vicinity in 1952-1957. (Source: USGS 1957)

1930s, a number of roads and scattered buildings had appeared in the surrounding area, including a segment of what is now Quarry Road along the northern project boundary (Figure 7).

Since then, while the number of roads and buildings gradually increased over the decades, the overall character of the surrounding area underwent little change, with most of the land remaining undeveloped and largely unused, until the early years of the 21st century, when the first of the warehouse developments to the south of the project location took place (Figure 8; NETR Online 1952-2020; Google Earth 1994-2023). Meanwhile, the natural desert landscape in the project area itself has remained essentially unaltered to the present time despite the emergence of Dachshund Avenue and Cardova Road sometime between 1984 and 1994 (NETR Online 1952-2020; Google Earth 1994-2023).

FIELD SURVEY

During the field survey, the remnants of historic-period refuse deposits previously recorded at Site 36-020981 were observed along the northern edge of the project area, while three previously unknown cultural resources, including one archaeological site and two isolates, were also identified within the project boundaries. The three newly identified resources were recorded into the California Historical Resources Inventory under the temporary designations of Isolate 4032-1H, Isolate 4032-2H, and Site 4032-3H, pending assignment of permanent identification numbers (see Appendix 3).

At Site 36-020981, the existing site record suggests that two of the 12 loci recorded in 2009, Locus 11 and Locus 12, were located within the current project boundaries, but neither of them could be found during the survey. A small number of scattered cans were observed in the portion of the site within the project boundaries. These artifacts, such as hole-in-top condensed milk cans and beverage cans with church-key openings, appear consistent to what was recorded at the site in 2009.

The three newly identified resources also consist of historic-period refuse. Isolates 4032-1H (Figure 9) and 4032-2H (Figure 10) represent a single metal cone top beverage can each, both of them found in the southwestern portion of the project area. Site 4032-3H (Figure 11) is a 1950s-era refuse scatter located in the central portion of the project area. Featuring mainly domestic household items, the refuse deposit at Site 4032-3H appears to reflect the result of a single dumping episode that has since been dispersed by wind and water.

As recorded during the survey, Site 4032-3H contains 50 metal cans, 30 ceramic bowl and dish fragments, 2 blue decorative glass dish fragments, 20 glass fragments, and some metal wires. Among the more diagnostic artifacts are 6 hole-in-top cans, 46 sanitary cans, 2 cone top cans, 1 tobacco tin, 1 Coke bottle fragment, 1 clear glass bottle base, and a small amount of crown tops bottle caps. Most of these items were found along a drainage that runs through the property, suggesting the possibility of secondary deposition.

Figure 9. Isolate 4032-1H. (Photograph taken on August 17, 2023)

Figure 10. Isolate 4032-2H. (Photograph taken on August 17, 2023)

Figure 11. Site 4032-3H. (Photograph taken on August 17, 2023)

DISCUSSION

APPLICABLE STATUTORY/REGULATORY FRAMEWORK

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired." As defined by PRC §5020.1(q), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria of historical significance, CEQA guidelines mandate that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the

California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history (PRC §5024.1(c)).

RESOURCE EVALUATION

In summary of the research results presented above, a previously recorded archaeological site (36-020981), a newly identified site (4032-3H), and two isolates (4032-1H and 4032-2H) were found to be present within or partially within the project area during this study. All four of these localities feature scattered refuse items, the most common historic-period cultural remains to be found in the southern California desert region. The two isolates each consists of a single metal beverage can. According to guidelines set forth by the California Office of Historic Preservation, isolates like these, with fewer than three artifacts, by definition do not qualify as archaeological sites due to the lack of contextual integrity. As such, Isolates 4032-1H and 4032-2H do not constitute potential "historical resources" and require no further consideration in the CEQA compliance process.

Site 4032-3H and the remnant of Site 36-020981 in the project area contain light scatters of typical domestic refuse from the late historic period (1950s-1960s), and neither of them demonstrates any unique qualities among the numerous similar sites previously found in the region or any particular historical interest. Site 4032-3H is distributed along a drainage, which suggests post-depositional movement and disturbed provenience, while the artifacts at Site 36-020981 are scattered along a well-traveled roadway. In both cases any possible connection to a particular person or event in the past is obscured, nor do the common, ubiquitous, and often fragmented artifacts hold the promise of any important archaeological data for the study of mid-20th century American history, a subject that is well documented in historical literature, archival records, and contemporary publications. Based on these considerations, neither site appears eligible for listing in the California Register of Historical Resources. Therefore, they do not meet CEQA definition of "historical resources."

CONCLUSION AND RECOMMENDATIONS

In conclusion, Isolate 4032-1H, Isolate 4032-2H, Site 4032-3H, and a portion of Site 36-020981 were the only cultural resources identified within or adjacent to the project area, and none of them constitutes a "historical resource" for CEQA-compliance purposes. Therefore, CRM TECH presents the following recommendations to the Town of Apple Valley:

- No "historical resources" are known to be present within or adjacent to the project area, and thus the project as currently proposed will not cause a substantial adverse change to any known "historical resource."
- No further cultural resources investigation will be necessary for the project unless construction plans undergo such changes as to include areas not covered by this study.

- If buried cultural materials are discovered inadvertently during earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

REFERENCES

Bean, Lowell John, and Charles R. Smith
1978 Serrano. In *Handbook of North American Indians*, Vol. 8: *California*, edited by Robert F. Heizer; pp. 570-574. Smithsonian Institution, Washington, D.C.

Beck, Warren A., and Ynez D. Haase
1974 *Historical Atlas of California*. University of Oklahoma Press, Norman, Oklahoma.

GLO (General Land Office, U.S. Department of the Interior)
1857 Plat Map: Township No. 6 North Range No. 3 West, SBBM; surveyed in 1855-1857.

Google Earth
1994-2023 Aerial photographs of the project vicinity from 1994, 1995, 2003, 2005, 2006, 2009, 2013, 2015-2018, 2020, 2022, and 2023. Available through the Google Earth software.

Gudde, Erwin G.
1998 *California Place Names: The Origin and Etymology of Current Geographic Names*; fourth edition. University of California Press, Berkeley.

Hall, M.C.
2000 Archaeological Survey of 2472 Acres in Adjacent Portions of Lava, Lead Mountain, and Cleghorn Pass Training Areas, Marine Corps Air Ground Combat Center, Twentynine Palms, California (Volume I). Report prepared by the Archaeological Research Unit, University of California, Riverside, for the United States Marine Corps Natural Resources and Environmental Affairs Division.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Government Printing Office, Washington, D.C.

NETR (Nationwide Environmental Title Research) Online
1952-2020 Aerial photographs of the project vicinity from 1952, 1968, 1969, 1984, 1994, 1995, 2005, 2009, 2010, 2012, 2014, 2016, 2018, and 2020. http://www.historicaerials.com.

NPS (National Park Service, U.S. Department of the Interior)
2001 *National Historic Trail Feasibility Study and Environmental Assessment: Old Spanish Trail, New Mexico, Colorado, Utah, Arizona, Nevada, California*. National Park Service, U.S. Department of the Interior, Washington, D.C.

O'Rourke, Kate
2004 *The Story of Apple Valley.* The Lewis Center for Educational Research/Apple Valley Chamber of Commerce, Apple Valley.

Peirson, Erma
1970 *The Mojave River and Its Valley*. The Arthur H. Clarke Company, Glendale, California.

Ryon, Art
1964 *The Apple Valley Story*. Supplement to the *Los Angeles Times*.

Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology, Vol. 26. Reprinted by Malki Museum Press, Banning, California, 1972.

Tang, Bai "Tom," Michael Hogan, Josh Smallwood, and Laura Hensley Shaker
2006 Cultural Resources Technical Report: North Apple Valley Specific Plan and EIR, Town of Apple Valley, San Bernardino County, California. On file, South Central Coastal Information Center, California State University, Fullerton.
USGS (United States Geological Survey, U.S. Department of the Interior)
1934 Map: Barstow, Calif. (30', 1:125,000); surveyed in 1920 and 1932.
1957 Map: Apple Valley, Calif. (15', 1:62,500); aerial photographs taken in 1952, field checked in 1957.
1969 Map: San Bernardino, Calif. (120'x60', 1:250,000); 1958 edition revised.
1993a Map: Apple Valley North, Calif. (7.5', 1:24,000); 1970 edition photorevised in 1989.
1993b Map: Turtle Valley, Calif. (7.5', 1:24,000); 1970 edition photorevised in 1989.
Warren, Claude N.
1984 The Desert Region. In *California Archaeology*, edited by Michael J. Moratto; pp. 339-430. Academic Press, Orlando, Florida.
Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In *Handbook of North American Indians*, Vol. 11, *Great Basin*, edited by Warren L. d'Azevedo; pp. 183-193. Smithsonian Institution, Washington D.C.
Warren, Elizabeth von Till
2004 The Old Spanish National Historic Trail. http://oldspanishtrail.org/our-history.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, University of California, Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, University of California, Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, University of California, Riverside.
1988-1993	Research Assistant, American Social History, University of California, Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA (Registered Professional Archaeologist)

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	"Section 106—National Historic Preservation Act: Federal Law at the Local Level," UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside, California.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands, California.
1992-1998	Assistant Research Anthropologist, University of California, Riverside.
1992-1995	Project Director, Archaeological Research Unit, U.C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U.C. Riverside.
1984-1998	Project Director, Field Director, Crew Chief, and Archaeological Technician for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Principal investigator for, author or co-author of, and contributor to numerous cultural resources management study reports since 1986.

Memberships

Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Frank J. Raslich, M.A.

Education

2016-	Ph.D. candidate, Michigan State University, East Lansing.
2010	M.A., Anthropology, Michigan State University, East Lansing.
2005	B.A., Anthropology, University of Michigan, Flint.
2019	Grant and Research Proposal Writing for Archaeologists; Society for American Archaeology online seminar.
2014	Bruker Industries Tracer S1800 pXRF Training; presented by Dr. Bruce Kaiser, Bruker Scientific.

Professional Experience

2022-	Project Archaeologist/Report Writer, CRM TECH, Colton, California.
2022	Archaeological Monitor, Agua Caliente Band of Cahuilla Indians, Palm Springs, California.
2014-2022	Board of Directors, Ziibiwing Center of Anishinabe Culture and Lifeways, Saginaw Chippewa Indian Tribe of Michigan.
2008-2021	Archaeological Consultant, Saginaw Chippewa Indian Tribe of Michigan.
2019	Archaeologist, Sault Tribe of Chippewa Indians and Little Traverse Bay Band of Odawa Indians.
2016-2018	Adjunct Lecturer, Michigan State University, East Lansing.
2017-2018	Adjunct Lecturer, University of Michigan, Flint.
2009-2017	Teaching Assistant, Michigan State University, East Lansing.
2008-2014	Research Assistant, Intellectual Property Issues in Cultural Heritage, Simon Fraser University, British Columbia, Canada.
2010-2013	Research Assistant, Michigan State University, East Lansing.
2009-2011	Archaeologist/Crew Chief, Saginaw Chippewa Indian Tribe of Michigan.

Publications

2017	Preliminary Results of a Handheld X-Ray Fluorescence (pXRF) Analysis on a Marble Head Sarcophagus Sculpture from the Collection of the Kresge Art Center, Michigan State University. Submitted to Jon M. Frey, Department of Art, Art History, and Design, Michigan State University, East Lansing.
2013	Geochemical Analysis of the Dickenson Group of the Upper Peninsula, Michigan: A study of an Accreted Terrane of the Superior Province. Geological Society of America *Abstracts with Programs* 45:4(53).

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

Cultural Resources Management Reports

Field Director, co-author, and contributor to numerous cultural management reports since 2002.

PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Nina Gallardo, B.A.

Education

2004	B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004-	Project Archaeologist, CRM TECH, Riverside/Colton, California.

Cultural Resources Management Reports

Co-author of and contributor to numerous cultural resources management reports since 2004.

PROJECT ARCHAEOLOGIST
Michael D. Richards, M.A., Registered Professional Archaeologist

Education

2002	M.A., Anthropology, California State University, Northridge (CSUN).
1986	B.A., Anthropology: University of California, Los Angeles (UCLA).
1982	A.A., Los Angeles Valley College, Los Angeles, California.

2015	Section 106 workshop.
2000	CSUN "Olmec" field excavation and lab analysis; La Venta, Mexico.
1999	Rock art recording, UCLA Extension; Little Lake, California.
1998	Rock art symposium, UCLA Extension.

Professional Experience

2018-	Project Archaeologist/Paleontologist, CRM TECH, Colton, Calif.
2016-2018	Co-Principal Investigator/Archaeologist, LSA Associates Inc.
2012-2016	Co-Principal Investigator/Archaeologist, ICF International (Jones & Stokes).
2010-2012	Co-Principal Investigator/Archaeologist, various CRM firms (on call).
2007-2010	Principal Investigator/Field Director/Crew Chief, ASM Affiliates, Inc.
2004-2007	Project Manager/Co-Principal Investigator, ArchaeoPaleo Resource Management, Inc.
2003-2004	Staff Archaeologist/Crew Chief, SRI, Inc.
2000-2003	Project Archaeologist/Field Director, Ancient Enterprises (Clewlow, Jr.).
1999-2000	Staff Archaeologist/Lab Crew Chief, CSC/Edwards Air Force Base.

Research Interests

Pottery and rock art analysis; prehistory the American southwest; Mesoamerica; Japan.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1999.

Memberships

Society for American Archaeology; Society for California Archaeology; Archaeological Institute of America; Conejo Open Space Trails Advisory Committee; Conejo Valley Historical Society.

APPENDIX 2

SACRED LANDS FILE SEARCH RESULTS

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

August 4, 2023

Nina Gallardo
CRM TECH

Via Email to: ngallardo@crmtech.us

Re: Proposed Warehouse Project on Assessor's Parcel Numbers 0463-213-01, -29, and -32 (CRM TECH No. 4032), San Bernardino County

Dear Ms. Gallardo:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela
Cultural Resources Analyst
Attachment

ACTING CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Vacant

COMMISSIONER
Vacant

COMMISSIONER
Vacant

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contact List
San Bernardino County
7/13/2023

Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties
Kern Valley Indian Community	N	Robert Robinson, Chairperson	P.O. Box 1010 Lake Isabella, CA, 93240	(760) 378-2915		bbutterbredt@gmail.com	Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare
Kern Valley Indian Community	N	Brandy Kendricks,	30741 Foxridge Court Tehachapi, CA, 93561	(661) 821-1733		krazykendricks@hotmail.com	Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare
Kern Valley Indian Community	N	Julie Turner, Secretary	P.O. Box 1010 Lake Isabella, CA, 93240	Phone: (661) 340-0032			Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare
Morongo Band of Mission Indians	F	Ann Brierty, THPO	12700 Pumarra Road Banning, CA, 92220	(951) 755-5259	(951) 572-6004	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Los Angeles,Riverside,San Bernardino,San Diego
Morongo Band of Mission Indians	F	Robert Martin, Chairperson	12700 Pumarra Road Banning, CA, 92220	(951) 755-5110	(951) 755-5177	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Los Angeles,Riverside,San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee	P.O. Box 1899 Yuma, AZ, 85366	(928) 210-8739		culturalcommittee@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Jordan Joaquin, President, Quechan Tribal Council	P.O.Box 1899 Yuma, AZ, 85366	(760) 919-3600		executivesecretary@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Jill McCormick, Historic Preservation Officer	P.O. Box 1899 Yuma, AZ, 85366	(928) 261-0254		historicpreservation@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego
San Fernando Band of Mission Indians	N	Donna Yocum, Chairperson	P.O. Box 221838 Newhall, CA, 91322	(503) 539-0933	(503) 574-3308	dyocum@sfbmi.org	Kitanemuk Vanyume Tataviam	Kern,Los Angeles,San Bernardino,Ventura
San Manuel Band of Mission Indians	F	Alexandra McCleary, Cultural Lands Manager	26569 Community Center Drive Highland, CA, 92346	(909) 633-0054		alexandra.mccleary@sanmanuel-nsn.gov	Serrano	Kern,Los Angeles,Riverside,San Bernardino
Serrano Nation of Mission Indians	N	Wayne Walker, Co-Chairperson	P. O. Box 343 Patton, CA, 92369	(253) 370-0167		serranonation1@gmail.com	Serrano	Los Angeles,Riverside,San Bernardino
Serrano Nation of Mission Indians	N	Mark Cochrane, Co-Chairperson	P. O. Box 343 Patton, CA, 92369	(909) 528-9032		serranonation1@gmail.com	Serrano	Los Angeles,Riverside,San Bernardino
Twenty-Nine Palms Band of Mission Indians	F	Anthony Madrigal, Tribal Historic Preservation Officer	46-200 Harrison Place Coachella, CA, 92236	(760) 775-3259		amadrigal@29palmsbomi-nsn.gov	Chemehuevi	Imperial,Inyo,Riverside,San Bernardino
Twenty-Nine Palms Band of Mission Indians	F	Darrell Mike, Chairperson	46-200 Harrison Place Coachella, CA, 92236	(760) 863-2444	(760) 863-2449	29chairman@29palmsbomi-nsn.gov	Chemehuevi	Imperial,Inyo,Riverside,San Bernardino
Kern Valley Indian Community	N	Robert Robinson, Chairperson	P.O. Box 1010 Lake Isabella, CA, 93240	(760) 378-2915		bbutterbredt@gmail.com	Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare
Kern Valley Indian Community	N	Brandy Kendricks,	30741 Foxridge Court Tehachapi, CA, 93561	(661) 821-1733		krazykendricks@hotmail.com	Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare
Kern Valley Indian Community	N	Julie Turner, Secretary	P.O. Box 1010 Lake Isabella, CA, 93240	Phone: (661) 340-0032			Kawaiisu Tubatulabal Koso	Inyo,Kern,Los Angeles,San Bernardino,Tulare

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Proposed Warehouse Project on Assessor's Parcel Numbers 0463-213-01, -29, and -32 (CRM TECH No. 4032), San Bernardino County.

Record: PROJ-2023-003881
Report Type: List of Tribes
Counties: San Bernardino
NAHC Group: All

APPENDIX 3

CULTURAL RESOURCES RECORDED WITHIN THE PROJECT AREA (Available to Qualified Professionals at Town Hall)

Appendix F

Geotechnical Investigation Report

GEOTECHNICAL INVESTIGATION REPORT

GEOTECHNICAL INVESTIGATION
Proposed Industrial Warehouse
NE Corner of Cardova Road and Dachshund Avenue
Apple Valley, CA

Prepared for Redwood West
Submitted by Merrell Johnson Geotechnical, Inc.
December 1, 2023

MERRELL JOHNSON

Merrell Johnson Geotechnical
12277 Apple Valley Rd. #291, Apple Valley, CA 92308
760 240 8000 | www.merrelljohnson.com

December 1, 2023

Butterfly Equity Partners and /or
RW Apple Valley II and /or
Assignee, and/or Linkup, LLC
220 Newport Center Drive, Ste 11-557
Newport Beach, CA 92660

Re: Geotechnical Investigation Report | Proposed Industrial Warehouse | NE Corner of Cardova Road and Dachshund Avenue, Apple Valley, CA 92307 | M.J.G. Project No. 3813.006.500

Ladies and Gentlemen:

This letter transmits Merrell Johnson Geotechnical's Geotechnical Investigation Report for the subject industrial warehouse building. The investigation was planned and performed based on the proposed project development illustrated on the Conceptual Grading Plan prepared by Merrell Johnson, dated September 18, 2023.

We trust that the enclosed information will be useful for the design and construction phases of this project. If you have any questions, please do not hesitate to contact our firm.

Sincerely,

Merrell Johnson Companies

Brad S. Merrell, P.E., President
Merrell Johnson Geotechnical, Inc.
R.C.E. 49423

Jeff S. Burns, Project Manager
Merrell Johnson Geotechnical, Inc.

CONTENTS

Introduction 2

Project Description 2
Scope of Services 2

Field Exploration and Laboratory Testing 2

Field Exploration 2
Laboratory Testing 3

Site and Subsurface Conditions 3

Site Conditions 3
Subsurface Conditions 3
Expansion Potential 3
Geologic Setting 4
CBC Ground Motion Analysis 4
Groundwater 5
Faulting 6

Conclusions and Recommendations 7

Compacted Fill Placement 7
Imported Soils 7
Lateral Loading 8
Building Floor Slabs 8
Surface Drainage 9
Concrete and Flexible Asphalt Concrete Pavement Subgrade Preparation 9
Flexible Pavement Structural Sections 10
Onsite Flexible Pavement 10
Off-Site Flexible Pavement for Cardova and Dachshund Avenue 11

Portland Cement Concrete Pavements and Flatwork 12
Utility Excavations 12
Corrosivity 13
Limitations 13

APPENDICES

Appendix A	Figures
Figure 1	Site Vicinity Map
Figure 2	Plot Plan / Satellite Site Image
Figure 3	Architectural Site Plan
Figure 4	Conceptual Grading Plan & Test Boring Plot Plan
Appendix B	Exploratory Logs
Appendix C	Laboratory Testing

INTRODUCTION

Project Description

This report presents the results of the geotechnical investigation Merrell Johnson Geotechnical (MJG) performed for the new warehouse planned for the 68.2-acre parcel located on the northeast corner of Cardova and Dachshund Avenue, Apple Valley, CA. The location of the proposed development is shown on the Site Vicinity Map, Google Earth Site Image, Site Plan, and Conceptual Grading Plan, included with this report as Appendix A, Figures 1-4.

The proposed industrial warehouse will occupy a plan area of 1,346,270 square feet (SF) and includes a 26,880 SF mezzanine. Proposed site improvements will include truck loading docks, truck trailer parking, automobile parking, driveways, retention basin, utilities, and other ancillary improvements. Maximum cut and fill depths required to grade the site are anticipated to be about 15 feet and 10 feet, respectively, plus building pad overexcavation.

Proposed off-site improvements will include installing utilities and paving Dachshund Avenue from Quarry Road south to Johnson Road and Cardova Road westward from the project's southeast corner to Dale Evans Parkway.

Scope of Services

The scope of work for this project consisted of field exploration, laboratory testing, engineering analyses, and preparation of this report. The results of the field exploration and laboratory test programs were analyzed to develop conclusions and recommendations regarding:

- Subsurface conditions underlying areas to be developed
- Site preparation and grading
- Excavation conditions
- Foundation support for the new structure along with soils engineering criteria for foundation design
- Support for slab-on-grade floors
- Concrete and flexible pavement structural sections for parking and driveway/fire lanes
- Flexible pavement structural sections for Dachshund Avenue and Cardova Road off-site street improvements

FIELD EXPLORATION AND LABORATORY TESTING

Field Exploration

Subsurface conditions were explored by drilling five (5) test borings within the warehouse building limits, one (1) to a depth of 50 feet and four (4) to a depth of 25 feet. The 50-foot-deep test boring was also used to evaluate the soil liquefaction potential.

Outside the limits of the proposed warehouse, two 10-feet-deep test borings were drilled within the proposed retention basin, six 5-feet-deep test borings within the onsite loading/parking areas, and four 5-feet-deep testing borings within the off-site Cardova and Dachshund Avenue improvement areas.

The locations of the test borings are shown on Conceptual Grading Plan, Figure 3 in Appendix A. The borings were logged by an MJG's representative, who also collected samples of the materials encountered for examination and laboratory testing.

Bulk samples were collected from drill cuttings. Relatively undisturbed samples were obtained by driving a 2.5-inch inside diameter modified California sampler with a 140-pound hammer falling 30 inches. Blow counts required to drive the sampler each 6 inches of an 18-inch (or less) drive are noted on the boring logs as "N" value.

Standard Penetration Tests (SPTs) were performed at selected depths by driving a 1.4-inch inside diameter sampler 18 inches with a 140-pound hammer falling 30 inches. The blow counts required to drive the sampler each 6 inches of the drive are noted on the boring logs as "N" value. Disturbed samples were collected from the SPT sampler at the time of driving.

The logs of the test borings are in Appendix B. Soils are described according to the Unified Soil Classification System explained in Appendix B.

Laboratory Testing

The laboratory program included the following tests:

- ASTM D 422 - Grain Size Analysis
- ASTM D 1557 - Maximum Density
- ASTM D 2419 – Sand Equivalent
- ASTM D 2435 / CT-219 - Consolidation of Soils
- ASTM D 2844 / CT 301 - Resistance to R-value
- ASTM D 2937 - In-place Moisture Content and Dry Density
- ASTM D 3080 - Direct Shear
- ASTM D 4829 - Expansion Index of Soil
- G51/CT643, CT417, CT422 - Corrosion Potential

The results of the laboratory tests are summarized in Appendix C.

SITE AND SUBSURFACE CONDITIONS

Site Conditions

The 68.2-acre site is located on the northeast corner of Cardova and Dachshund Avenue. The property is undeveloped and covered with sparce desert vegetation. The ground surface slopes (descends) gradually towards the southwest at an inclination of about 1.5 percent. Cardova and Dachshund Avenue are unpaved. Quarry Road bounds the north side of the site. Quarry Road is a paved private road with no legal paved access to the project site.

Subsurface Conditions

The site is blanketed by medium dense silty sand (SM) to a depth of about 3 feet where it becomes dense. At a depth of about 5 feet, dense poorly graded sand with silt with some gravel and cobbles (SP-SM) was encountered and extended to the depth explored (50 feet). A boulder was encountered in Boring No. 1 at a depth of 30 feet.

Expansion Potential

Results of an expansion index test (ASTM D4829) performed on a near-surface soil sample from Boring No. 3 within the proposed warehouse limits exhibited an expansion index of 2, which corresponds to a very low expansion potential.

Geologic Setting

The subject site is located within a natural geomorphic province in southern California known as the Mojave Desert. This province consists of a broad interior region of isolated mountain ranges separated by expanses of desert plains and is characterized by the numerous interior enclosed drainages and playas. The Mojave Desert is in large, bounded structurally on the southwest by the San Andreas Fault and on the northwest by the Garlock Faults, and is ill-defined along the east where the structural patterns resemble the Basin and Range Province to the north and east. This province exhibits interior drainage, including the Mojave River, which has its source in the San Bernardino Mountains and would extend into Death Valley if there was enough water.

The geologic units of this region generally consist of three main divisions being: 1) Crystalline rocks of pre-Tertiary age; 2) sediments and volcanic rocks of Tertiary age; and 3) sediments and basalt flows of Quaternary age. Regionally, the site is located along a large alluvial plain, locally underlain by Quaternary age alluvium and older that has been derived predominantly as outwash from the adjacent highlands to the north and east along Sidewinder Valley. These sediments are believed to be less than 500± feet locally (Subsurface Surveys, 1990).

Locally as mapped by Hernandez and Tan (2007), the subject site is shown to be underlain by late Pleistocene age older alluvium. These deposits are generally described as being comprised of a fine- to medium-grained sand and fine to medium gravel of inactive fans.

CBC Ground Motion Analysis

Included for this study was an assessment of the seismic ground motion parameters of the subject site with respect to the most recently adopted 2022 California Building Code (CBC) and ASCE/SEI Standard 7-22 (ASCE, 2022) as partially summarized and tabulated below. Geographically, the proposed construction area is centrally located at Latitude 34.610365 and Longitude -117.196553.

Site Classification (CBC 1613.3.2) – Based on the presence of mapped Quaternary age alluvial deposits underlying the site and the absence of site-specific shear-wave data, the design Site Class is *estimated* to be **"D."** This Class is defined as having the upper 100 feet (30 meters) of the subsurface being underlain by "Stiff Soil" with average shear-wave velocities of 600 to 1,200 feet/second (180 to 360 meters/second). In accordance with the CBC, the proposed warehouse is considered a Risk Category II structure.

TABLE 1: SUMMARY OF SEISMIC DESIGN PARAMETERS

Factor or Coefficient	***Value***
S_S	1.16g
S_1	0.39g
S_{DS}	1.0g
S_{D1}	0.67
S_{MS}	1.5g
S_{M1}	1.0
T_L	12 Seconds
PGA_M	0.55g
V_{S30}	260
Site Class	D

Groundwater

The study area lies within the Upper Mojave River Groundwater Basin of southern California. The Mojave River Basin is part of the Mojave Desert region and is bordered by the San Bernardino and San Gabriel Mountains to the south and extends to Afton Canyon to the northeast, with Lucerne Valley and Antelope Valleys bordering the east and west, respectively. The Mojave River, which is located to the west, is the principal source of water recharge to the basin, which originates from the junctions of Deep Creek and West Fork Mojave River at the northern foot of the San Bernardino Mountains. Other sources of recharge include other lesser river tributaries from the San Bernardino and San Gabriel Mountains, the adjacent highlands to the north and east, as well as deep percolation from rainwater and other artificial means.

The water-bearing deposits are principally unconsolidated and partially consolidated continental sedimentary deposits that form two aquifers (Stamos and Predmore, 1995), the upper one being shallow alluvium (200± feet thick, within 1± mile of the Mojave River), with the regional aquifer underlying most of the basin at depth. The regional aquifer is comprised of unconsolidated older alluvium and fan deposits of Pleistocene to Tertiary age, and partly consolidated to consolidated sediments of Tertiary age. These deposits are as much as 1,000 feet thick in some places and their permeability generally decreases with depth.

Based on groundwater data provided by the California Department of Water Resources (2023), the closest measured well is approximately 1,300± feet to the west (State Well No. 06N03W16C001S), which had a water level of 39 feet in 1957 (only measurement). Other wells in the nearby vicinity show groundwater depth around 87 feet in depth (State Well No. 06N03W16D001S) located approximately 2,400± feet to the west, and 52 feet in depth (State Well No. 06N03W09N001S) located approximately 2,400± feet to the northwest.

Faulting

There are at least thirty-five major "potentially active/active" (late Quaternary) faults that are within a 100-kilometer (62 mile) radius of the site as shown on Figure 1 below (site shown as small dot in middle).

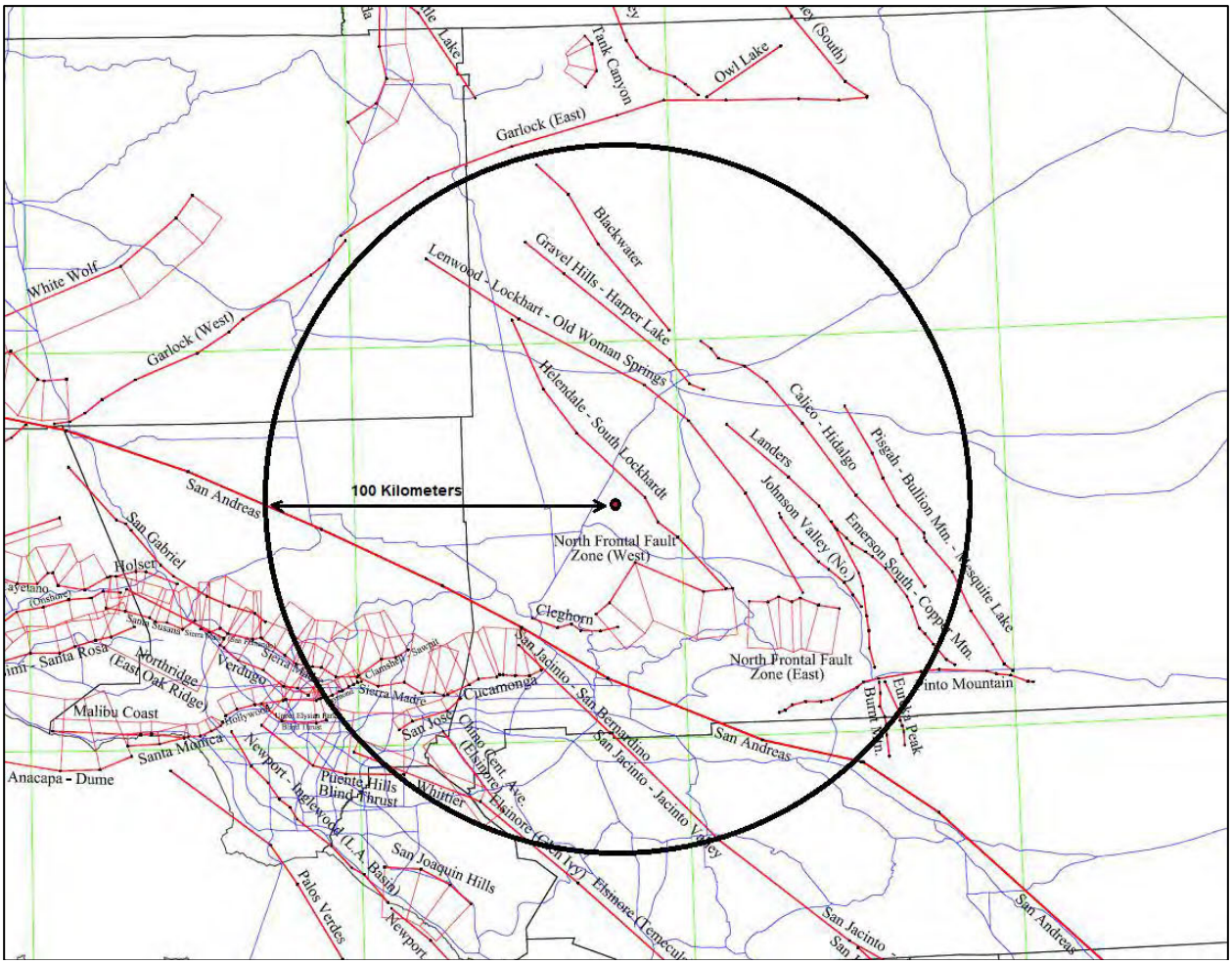


FIGURE 1: Regional Fault Map showing 100 km radius (from CGS 2002 California Fault Model)

Of these, there are no active faults known to traverse the site based on published literature. In addition, the subject site is not located within a State of California “Alquist-Priolo Earthquake Fault Zone” for surface fault rupture hazards (CGS, 2018).

The nearest mapped “active” fault zoned by the State of California is for the Helendale-South Lockhart Fault, located approximately 2½±-miles to the northeast. The Helendale-South Lockhart Fault is a right-lateral, strike-slip fault, being approximately 97 kilometers in length, with an associated slip-rate of 0.6 ±0.4 mm/year (C.D.M.G., 1996 and Cao, et al., 2003).

CONCLUSIONS AND RECOMMENDATIONS

The existing surface soils are medium dense to a depth of about 3 feet. Below 3 feet, the native soils are generally dense and are considered adequate for support of the new facilities.

The site is not within an Alquist Priolo Earthquake Fault Zone. The soils are medium dense to dense, and groundwater is deep below this site. The liquefaction potential consequently is very low. The potential for dynamically induced settlement of the granular soils is also very low. In addition, the soils have a very low potential for expansion due to changes in moisture content.

The potential for encountering groundwater within the anticipated relatively shallow excavations is minimal. There is a potential for minor amounts of water to enter open excavations because of direct rainfall and runoff.

Earthwork

At the time of MJG's investigation, the site was covered with sparce desert vegetation. Any debris, vegetation, and other deleterious materials should be stripped and removed from the site prior to grading work. Organic materials should be disposed of off-site in accordance with the owner's instructions. Roots should be removed to a depth of 6 inches below foundation and pavement subgrade elevations.

Areas to receive fill should be scarified to a depth of 12 inches, brought to within 2 percentage points above or below optimum moisture content, and compacted to a minimum of 95% relative compaction based on the ASTM D1557 laboratory test method. All references to optimum moisture content and relative compaction in this report are based on this test method.

Compacted Fill Placement

Fill should be placed in 8-inch-thick loose lifts, moisture conditioned to within 2 percentage points above or below optimum moisture content and compacted to a minimum of 95% relative compaction.

Imported Soils

Imported soils, if needed, should consist of predominantly granular material with an expansion index less than 20 when tested in accordance with ASTM D4829, and should have a minimum R-value of 40. Imported material should be inspected and approved by an MJG's representative prior to being brought to the site.

Shallow Foundation and Building Slab-On-Grade Support

The existing soils below and within five (5) feet of the proposed warehouse building should be over-excavated to a depth of at least three feet below the existing ground surface or 12 inches below the proposed footing base grade, whichever depth is greater. The bottom of the over-excavation should be scarified to a depth of at least 6 inches, moistened to within 2 percent of the optimum moisture content, and compacted to a relative compaction of at least 95 percent (ASTM D 1557).

Fill should be placed in 8-inch-thick loose lifts, moisture conditioned to within 2 percentage points above or below optimum moisture content and compacted to a minimum of 95% relative compaction.

The planned structures can be supported on shallow spread footings with bottom levels in the compacted fill at a minimum depth of 18 inches below the lowest adjacent finished grade.

A minimum width of 18 inches is recommended for continuous footings. Isolated footings should be at least 24 inches wide. Footings can be designed for an allowable bearing pressure of 2500 pounds per square foot (psf) for dead plus long-term live loads. This value can be increased by ⅓ when considering the total of all loads, including wind or seismic forces.

Total post-construction settlement is estimated to be approximately ¾ inch. Post-construction differential settlements are anticipated to be ½ inch or less between isolated footings, and between the middle and end of a continuous footing.

Continuous (strip) foundations should be reinforced with a minimum of #5 deformed reinforcing bars at the top and bottom of the footings.

Spread footing reinforcement should be designed by the structural engineer for punching shear and bending. As a minimum, the spread footings should be reinforced with a #5 deformed reinforcing bars, spaced 18 inches on center each way and placed 3 inches above the bottom of the spread footing.

All grade beam reinforcement should be designed and specified by the building's designer/structural engineer.

Foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

Footing excavations should be observed by an MJG's representative to check bearing materials and cleaning.

Lateral Loading

Resistance to lateral loads will be provided by passive earth pressure against the faces of footings and other structural elements below grade, and by friction along the bases of footings and slabs. Passive earth pressure can be taken as 350 pounds per square foot (psf) per foot of depth. Base friction can be taken as 0.35 times the actual dead load. Base friction and passive earth pressure can be combined without reduction. Retaining structures free to rotate at the top should be designed for an active equivalent fluid pressure of 35 psf per foot of height, plus any additional building or equipment surcharge. MJG should be notified if retaining walls greater than 10 feet in height, restrained walls, or tieback walls are planned so that geotechnical recommendations specific to wall conditions can be developed.

Building Floor Slabs

During grading operations, the building pad soils should be compacted to a relative compaction of at least 95 percent (ASTM D 1557). Prior to placing the slab-on-grade concrete, the final pad surfaces should be proof-rolled to provide a smooth, dense surface upon which to place the concrete.

A 15-mil vapor retarder membrane, conforming to ASTM E 1745 and installed per ASTM E 1643, should be placed beneath concrete slabs-on-grade covered with moisture sensitive or impervious floor coverings, or where the slab will support equipment or materials sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to

ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Reinforcing for slabs-on-grade should be designed by the project structural engineer based on anticipated storage and forklift loads. A modulus of subgrade reaction of 150 pounds per cubic inch (pci) can be used. Reinforcing should extend down into the footings. Concrete construction (i.e. jointing, etc.) should be in conformance with the American Concrete Institute Manual of Concrete Practice Design and Construction Standards.

Minimum reinforcing for 4-inch-thick slabs-on-grade should consist of 6" x 6" W1.4 /1.4 welded wire fabric supported mid height in the slab by concrete blocks or dobies. Positioning the wire fabric by lifting after concrete placement should not be allowed. Minimum reinforcing for 6-inch-thick slabs-on-grade should consist of at least #4 deformed reinforcing bars at 12 inches on center each way placed at mid-height in the slab.

Where the project's structural engineer's reinforcement recommendations exceed MJG's above minimum slab reinforcement recommendations, the structural engineer's recommendations should be followed.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The structural engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing, or other means.

Surface Drainage

It is important that water be kept a minimum of 5 feet from structures and slabs. No ponding adjacent to buildings and structures should be allowed. Final surfaces should have a positive 2 percent minimum slope away from structures.

Retaining walls should be designed to resist hydrostatic pressures or be provided with a back-drain, weep holes or other drainage facilities. If a basement or underground structure is constructed, a subsurface drainage system is recommended.

Concrete and Flexible Asphalt Concrete Pavement Subgrade Preparation

Soils should be scarified to a depth of at least 12 inches, moistened to within 2 percent of the optimum moisture content and compacted to a relative compaction of at least 95 percent (ASTM D1557). Any additional fill required to prepare the finish subgrade should be placed in maximum 8-inch-thick lifts, each lift moistened to within two (2) percent of the optimum moisture content and compacted to a relative compaction of at least 95 percent.

Flexible Pavement Structural Sections

New flexible pavement structural sections were determined following California Department of Transportation (Caltrans) procedures.

ONSITE FLEXIBLE PAVEMENT

Onsite flexible pavement for automobiles and light trucks are planned for the north and south sides of the project site. MJG's review of the Conceptual Site Plan indicates that most of the heavy truck driveways, trailer parking areas, and loading docks will be located on the east and west sides of the warehouse and paved with rigid portland cement concrete pavement. The automobile and truck trailer parking areas will be connected by onsite access driveways.

Six test borings were drilled around the perimeter of the proposed warehouse. Sieve analyses (ASTM D422, D1140 & D2487) and sand equivalent tests (ASTM D 2844) were performed from soil samples collected in each of these borings. The soil samples containing the largest percentage of fines (soil fraction passing the #200 sieve) and the lowest sand equivalent value were selected and tested for R-value (ASTM D 2844).

The most critical soil samples were collected in Boring Nos. 10 and 12 located on the east and west sides of the warehouse, respectively. R-value tests were performed from the soil samples collected in these two borings. The sieve analysis, sand equivalent, and R-value test data are summarized in Table 2 below.

TABLE 2: ONSITE SIEVE AND R-VALUE TEST RESULTS

Boring No.	***% Passing the 200 Sieve (ASTM D422, D1140, & D2487)***	***Sand Equivalent ASTM D 2844***	***R-value ASTM D2844***
8	10.1	71	--
9	12.4	36	--
10	13.9	24	25
11	18.4	24	--
12	17.4	17	17
13	14.9	37	--

Based on the above soil test data, the most critical R-value of 17 was used to calculate the recommended onsite flexible pavement sections for the project. In addition, the Traffic Indexes for the flexible pavement areas was selected as follows:

- Automobiles and light truck traffic: TI = 5
- Heavy truck traffic: TI = 8

Recommended onsite flexible pavement structural sections are listed in Table 3 below.

TABLE 3: ONSITE FLEXIBLE PAVEMENT STRUCTURAL SECTIONS			
Pavement Area	***Traffic Index***	***Asphalt Concrete (inches)***	***Base Course (inches)***
Autos & Light Truck Traffic	5	3	8
Heavy Truck Traffic	8	6	12

OFF-SITE FLEXIBLE PAVEMENT FOR CARDOVA AND DACHSHUND AVENUE

Off-site flexible pavement is proposed for Cardova Road and Dachshund Avenue adjacent the subject warehouse site. Additionally, the paving of Cardova and Dachshund Avenue will be extended from the southwest corner of the warehouse site westward to Dale Evans Parkway and southward to Johnson Road, respectively.

Two test borings were excavated along the alignment of Cardova Road and two along Dachshund Avenue (4 total). Samples from the four test borings were collected and tested for sieve analysis (ASTM D422, D1140 & D2487). The samples containing the largest percentage of fines from each street (soil fraction passing the #200 sieve) were selected and tested for R-value (ASTM D 2844).

The most critical soil samples were collected in Boring Nos. 14 and 15 located on Cardova Road and Dachshund Avenue, respectively. R-value tests were performed from the soil samples collected in these two borings. The sieve analysis and R-value test data are summarized in Table 4 below.

TABLE 4: OFF-SITE ROADWAY SIEVE AND R-VALUE RESULTS			
Boring No.	***Roadway***	***% Passing the 200 Sieve (ASTM D422, D1140, & D2487)***	***R-value ASTM D2844***
14	Dachshund Avenue	23.4	58
15	Cardova Road	27.4	52
16	Cardova Road	15.4	--
17	Dachshund Avenue	20.1	--

Based on the above soil test data, the most critical R-values of 52 and 58 were used to calculate the recommended off-site flexible pavement sections for Cardova and Dachshund Avenue, respectfully. The Traffic Index used to calculate the roadway pavement sections was:

- Automobiles and Heavy truck traffic: TI = 9

Recommended off-stie flexible pavement structural sections for Cardova and Dachshund Avenue are presented in Table 5 below.

TABLE 5: ONSITE FLEXIBLE PAVEMENT STRUCTURAL SECTIONS			
Roadway	***Traffic Index***	***Asphalt Concrete (inches)***	***Base Course (inches)***
Cardova Road	9	5	6
Dachshund Avenue	9	5.5	4

Alternative pavement sections can also be considered. Merrell Johnson should review the design pavement sections if traffic loads will be different from those currently anticipated.

PORTLAND CEMENT CONCRETE PAVEMENTS AND FLATWORK

The subgrade surface beneath rigid (portland cement concrete) pavements should be proof-rolled with a smooth-wheel roller to form a dense, uniform surface. Any pumping or yielding areas should be excavated and replaced with compacted fill.

Rigid pavements to support automobile and light truck traffic should be a minimum of 6 inches thick and reinforced with a minimum of #4 deformed reinforcing bars spaced 12 inches on center each way. Joints should be provided at intervals of no more than 12 feet. Smooth dowels should be provided across pavement joints.

Rigid pavement to support heavy truck traffic should be a minimum of 8 inches thick and reinforced with #4 deformed reinforcing bars spaced 12 inches of center each way. Joints should be provided at intervals of no more than 12 feet. Smooth dowels should be provided across pavement joints.

Pedestrian walkways and other lightly loaded concrete flatwork areas should be proof rolled as described above. The flatwork in these areas should have a minimum thickness of 4 inches and be provided with doweled joints at no more than 12-foot intervals. Minimum reinforcement should consist of 6 x 6 W1.4/1.4 welded wire fabric supported mid height in the slab by concrete blocks or dobies. Positioning the wire fabric by lifting after concrete placement should not be allowed.

UTILITY EXCAVATIONS

Excavations for this project will require sloping sidewalls or shoring. Excavations should be made in accordance with California Administrative Code, Title 8, Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 4, Construction Safety Orders, Article 6. Temporary excavations should be shored or sloped in accordance with Cal OSHA requirements. On-site soils can be considered Type C for purposes of excavation design.

In general, temporary excavations in on-site soils should be sloped no steeper than 1.5 horizontal to 1 vertical for excavations up to 20 feet in depth. Compound excavations with vertical sides in lower portions should be properly shielded to a minimum height of 18 inches above the top of the vertical side, with the upper portion having a maximum slope of 1.5 horizontal to 1 vertical. A Registered Professional Engineer should design slopes or benching for excavations greater than 20 feet in depth.

Temporary excavation slopes should be inspected twice daily by the contractor's competent person before personnel are allowed to enter the excavation. If sloughing, raveling or other evidence for slope instability is noted, corrective measures should be implemented.

Temporary shoring will be required for those excavations where temporary cut slopes as described above are not feasible. Cantilever shoring, and shoring with 1 level of bracing, can be designed to resist an equivalent fluid pressure of 30 psf per foot of depth. For shoring with multiple levels of bracing, a uniform lateral pressure equal to 25H in psf, where H is the height of shoring in feet, should be used. The recommended soil pressure applies to level soil conditions behind the shoring. Where a combination of sloped embankment and shoring is used, the soil pressure will be greater and should be evaluated for actual conditions.

In addition to the above recommended lateral earth pressures, a minimum uniform lateral pressure of 125 psf should be incorporated in the design of the upper 10 feet of shoring when normal traffic is permitted within 10 feet of the shoring. The design of temporary shoring should also include the surcharge loads from delivery and construction equipment, as appropriate.

CORROSIVITY

Laboratory test results indicate that resistivity of the soils sampled exhibit resistivities ranging from 260 to 1,500 ohms-cm, which indicates the soils have a corrosion potential with respect to reinforced concrete and ferrous metals. For this reason, Type II modified, or Type V cement is recommended for use in concrete in contact with the ground. Foundations should be designed with continuous reinforcing steel top and bottom. Reinforcing steel should maintain minimum clearances specified by applicable codes and good construction practice. Appropriate corrosion protection, including consultation with a qualified corrosion engineer, should be implemented anywhere ferrous metal is in contact with the soils.

LIMITATIONS

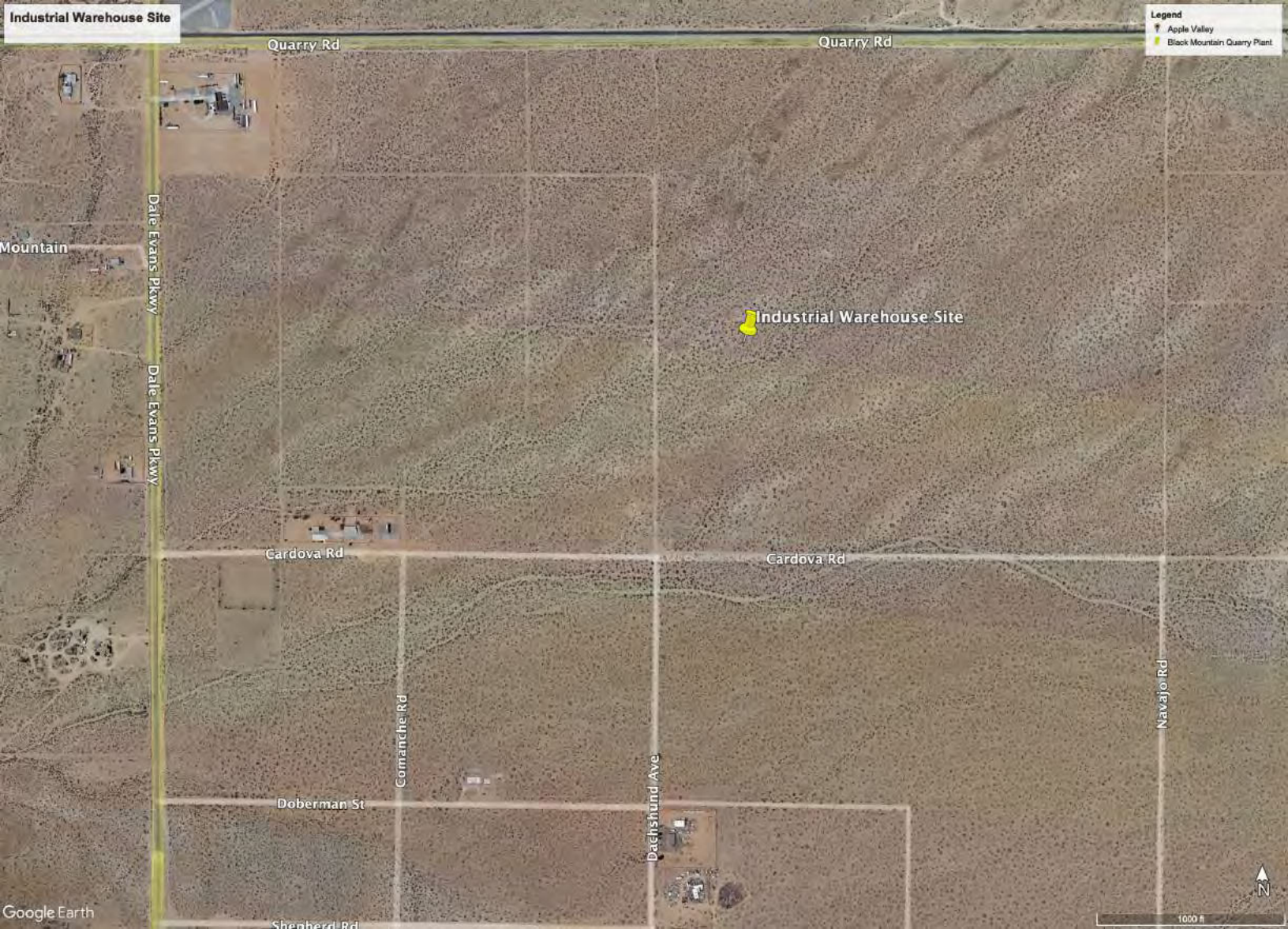
The recommendations in this report are based on results of the field exploration and laboratory test programs, combined with interpolation and extrapolation of subsurface conditions between and beyond boring locations. The nature and extent of variations in these conditions may not become evident until construction. If variations are encountered during construction, MJ should be notified so these variations can be reviewed and the recommendations in this report modified if necessary. If changes in the nature, design or location of the structures are planned, these changes should be reviewed by MJ so that modifications to the recommendations in this report can be made if needed.

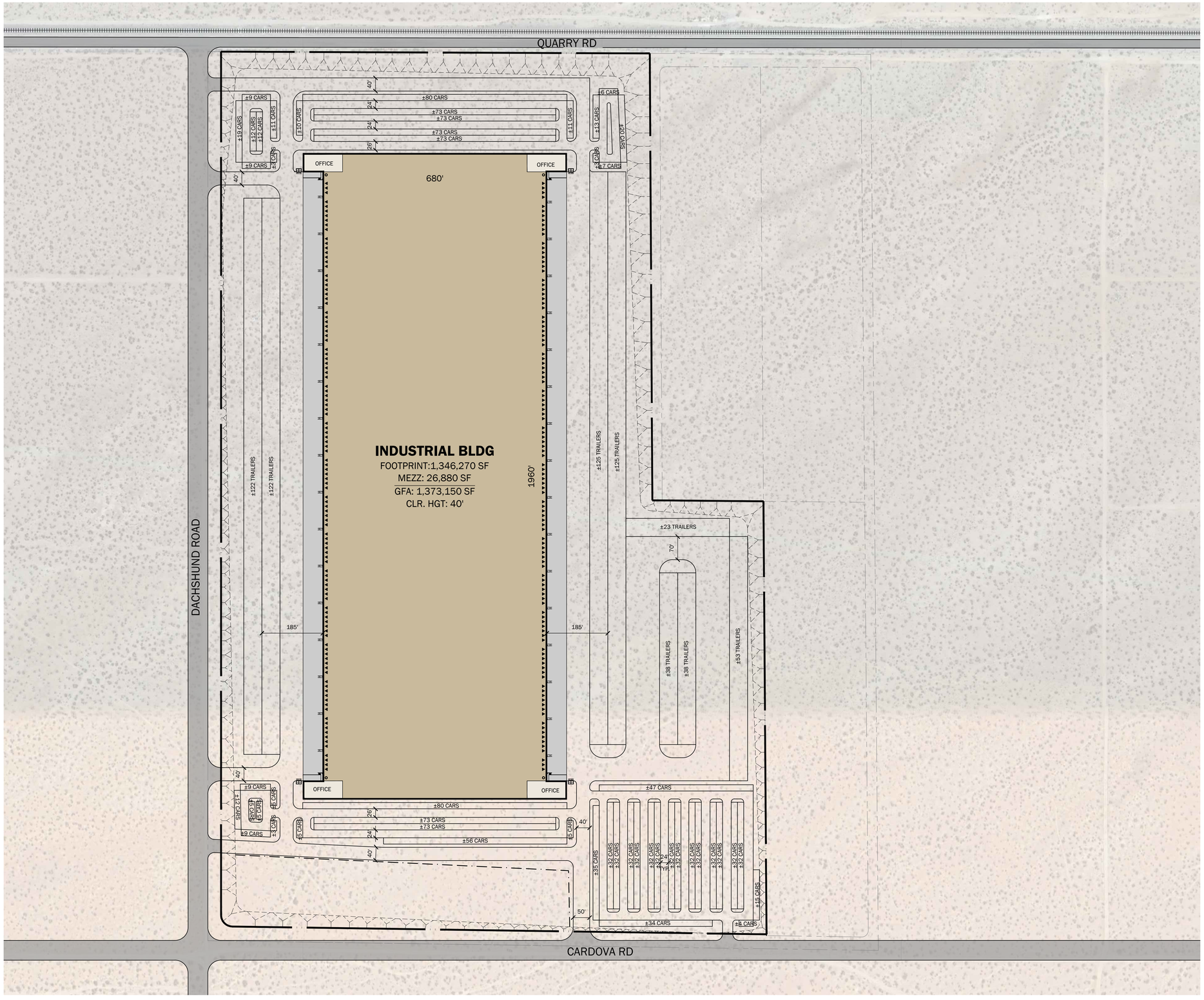
Our professional services have been performed using the degree of care and skill ordinarily exercised under similar circumstances by reputable engineering consultants practicing in this or similar localities. No other warranty, express or implied, is made as to the professional advice or data included in this report. This report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

APPENDIX A

Figure 1 – Site Vicinity Map
Figure 2 – Plot Plan / Satellite Site Image
Figure 3 – Architectural Site Plan
Figure 4 – Conceptual Grading Plan

Industrial Warehouse Site
Legend
Apple Valley
Black Mountain Quarry Plant
Black Mountain Quarry Plant
Industrial Warehouse Site
Bell Mountain
15
18
Victorville
DESERT KNOLLS
Apple Valley
Apple Valley
Spring Valley Lake
Google Earth
N
2 mi


Industrial Warehouse Site
Legend
Apple Valley
Black Mountain Quarry Plant
Quarry Rd
Quarry Rd
Dale Evans Pkwy
Dale Evans Pkwy
Mountain
Industrial Warehouse Site
Cardova Rd
Cardova Rd
Comanche Rd
Dachshund Ave
Navajo Rd
Doberman St
Shepherd Rd
Google Earth
N
1000 ft



DEVELOPMENT STANDARDS

Zoning

Jurisdiction		Apple Valley, CA
Zoning Designation		I-SP (Specific Plan)
Max Coverage		45% [4]
Max Height		100 FT
Building Setbacks		[1]
Landscape Setbacks		[4]
Parking Standards		
	Min Stall Size	9X19
	Drive Aisle	24 FT
Required Parking		
	Office	1/250 SF [5]
	Manufacturing	1/500 SF [3]
	Non-Specified	3/1000 SF [6]
	Warehouse	1/500 SF [2]
	≤10000 SF	1/500 SF
	10000≥# SF	1/1000 SF

PROJECT DATA

Site Summary

Gross Site Area	3,927,102 SF	90.15 AC
Total Building Area(s)	Gross Floor Area	1,373,150 SF
	Footprint	1,346,270 SF
Coverage	Gross	34%
FAR	Gross	0.35

Building 1

Building Area(s)	Footprint	1,346,270 SF
	Mezzanine	26,880 SF
	Gross Floor Area	1,373,150 SF
Cars Required	@4% Office	1,383 Stalls
Cars Provided	*@1.05/1,000 SF*	1,440 Stalls
	Req. Accessible	29 Stalls
Drive-in Doors		4
Docks	*@1.63/10,000 SF*	224
Trailers		619 Stalls

Notes

1. From major or secondary streets, the setback is 50 FT. From local industrial streets, the setback is

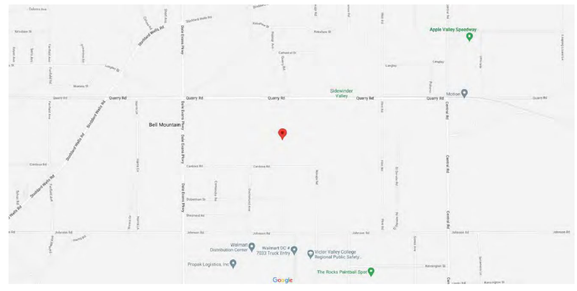
2. 1 space per 500 SF of GFA for the first 10,000 SF and beyond that, 1 space per 1,000 SF of GFA; for office area that exceeds 25%, provide 1 space per 200 SF in excess of 25%

3. 1 space per 500 SF of GFA or 1 space per 2 employees on the largest shift, whichever is greater; for office area that exceeds 25%, provide 1 space per 200 SF in excess of 25%

4. To be determined by city.

5. Minimum required number of parking spaces: 4

6. 3 spaces per 1000 SF of GFA or 1 space per 2 employees on the largest shift, whichever is greater; for office area that exceeds 25%, provide 1 space per 200 SF in excess of 25%



1" =120'

0 60 120 300 600

NORTH

This conceptual design is based upon a preliminary review of entitlement requirements and on unverified and possibly incomplete site and/or building information, and is intended merely to assist in exploring how the project might be developed.

Boundary Source:
PDF ALTA SURVEY

Stormwater Management Design:

SCHEME: 03

Conceptual Site Plan

Redwood West Cordova Apple Valley

Cardova Rd, Apple Valley, CA 92307

WARE MALCOMB

IRV23-0142-00
2023.08.02

✱ NOTE:
QUARRY ROAD IS A PRIVATE ROAD.
THERE IS NO LEGAL PAVED ACCESS TO THE SITE.

APN 0463-071-16
OWNER: ZADNICK ETAL

APN 0463-071-17
OWNER: WONG

APN 0463-071-19
OWNER: KHAN

APN 0463-071-20
OWNER: BAEK

APN 0463-071-22 OWNER: CEMEX

✱QUARRY RD.

EXISTING AC PAVING

PROPOSED 20' UTILITY EASEMENT

PROPOSED 16" WATER

CONNECT TO WATER ON NAVAJO RD.

POHONO ROAD

N

80' 40' 0' 80' 160'
SCALE: 1" = 80'

APN 0463-441-07
OWNER: BLAIR-LIV TR

APN 0463-441-15
OWNER: Q.I.D., INC

APN 0463-441-16
OWNER: CABLE REV TR

APN 0463-451-08
OWNER: GHANCHI

APN 0463-441-10
OWNER: OLMEDO

APN 0463-441-12
OWNER: RAKE, LIV TR

APN 0463-441-14
OWNER: RAMIREZ

APN 0463-213-29
OWNER: WVLIG US HOLDINGS

APN: 0463-213-01
DOC# 2021-0503765

APN: 0463-213-32
DOC# 2012-0538941, O.R.

APN 0463-213-33
OWNER: WVLIG US HOLDINGS

APN 0463-213-34
OWNER: WVLIG US HOLDINGS

APN 0463-213-35
OWNER: WVLIG US HOLDINGS

APN 0463-213-36
OWNER: WVLIG US HOLDINGS

APN 0463-213-05
OWNER: WVLIG US HOLDINGS

APN 0463-213-31
OWNER: WVLIG US HOLDINGS

PROPOSED 40' RIGHT-OF-WAY
PROPOSED CURB FACE
PATH OF TRAVEL
STORM DRAIN LOW PT. (TYP.)
PROPOSED SEWER
PROPOSED 16" WATER
PROPOSED AC PAVING
EXIST. 8" WATER
PROPOSED CURB FACE
PROPOSED 40' RIGHT-OF-WAY
SPREADING BASIN
EXIST. 40' UTILITY EASEMENT
LOW PT. CURB DRAINS
EXIST. R/W
PRE-TREATMENT
RIP-RAP
RETENTION BASIN
BOT. ELEV.=70.00
VOL.=583,450 CF
CONTINUE SEWER TO JOHNSON RD., THEN WEST ON JOHNSON TO CONNECTION POINT
CONNECT WATER TO 16" WATER ON JOHNSON RD.
PROPOSED 44' RIGHT-OF-WAY
PROPOSED CURB FACE
EXIST. 8" WATER
LOW PT. CURB DRAINS
PROPOSED SEWER
EXIST. 40' UTILITY EASEMENT
PROPOSED 16" WATER
PROPOSED 44' RIGHT-OF-WAY
PROPOSED CURB FACE

B-1 (25')
B-2 (25')
B-3 (50")
B-4 (25')
B-5 (25')
B-6 (10')
B-7 (10')
B-8 (5')
B-9 (5')
B-10 (5')
B-11 (5')
B-12 (5')
B-13 (5')
B-14 (5')
B-15 (5')
B-16 (5')
B-17 (5')

FF 86.00
PE 85.25

DRAINAGE DITCH
18" STORM DRAIN
24" STORM DRAIN
30" STORM DRAIN
36" STORM DRAIN
42" STORM DRAIN
RIBBON GUTTER
JOSHUA
EXISTING PROPERTY LINE TO BE REMOVED BY LOT MERGER
EXISTING R.O.W. TO BE ABANDONED
PARCEL 1
PARCEL 2
PARCEL 3
PARCEL 4
MAP 9763
MAP 10410
MAP 9764
RAMONA ROAD
℄ DACHSHUND AVE.
CIMARRON ROAD
℄CARDOVA RD.

LEGEND

- E ▫ INDICATES ELECTRIC BOX
- FH • INDICATES FIRE HYDRANT
- T ▫ INDICATES TELEPHONE BOX
- W ⧓ INDICATES WATER METER
- W • INDICATES WATER VALVE
- 3040 INDICATES EXISTING CONTOUR
- 3040 INDICATES PROPOSED CONTOUR
- INDICATES PROPOSED 4' FENCE
- INDICATES PROPOSED PATH OF TRAVEL, 4' MINIMUM WIDTH & LESS THAT 5% SLOPE ALONG PATH & LESS THAN 2% CROSS SLOPE
- INDICATES PROPOSED BUILDING
- INDICATES PROPOSED PROPERTY LINE
- INDICATES EXISTING PROPERTY LINE
- INDICATES BUILDING SETBACK LINE
- INDICATES EXISTING ASPHALT ROAD
- INDICATES PROPOSED ASPHALT ROAD
- INDICATES PROPOSED RIP-RAP

Test Boring, typical

NOTE:

THIS GRADING PLAN COVERS PORTIONS OF TWO SEPARATE LOTS AND WILL REQUIRE A REPLAT ON A SEPARATE PLAN.

THE TWO LOTS ARE:

APN 0463-231-01 (AREA) 3,649,179.23 S.F. (83.77 AC.)

APN 0463-213-32 (AREA) 405,718.42 S.F. (9.31 AC.)

THE NEW LOT TO BE DEVELOPED WILL HAVE AN AREA OF: 3,927,169.77 S.F (68.03 AC.)

NOT FOR CONSTRUCTION

OWNER :

BUTTERFLY EQUITY PARTNERS AND/OR
RW APPLEVALLEY II AND/OR LINKUP, LLC
220 NEWPORT CENTER DRIVE, STE 11-557
NEWPORT BEACH, CA 92660

DATE	DELTA	REVISION DESCRIPTION	APPROVAL DATE	APPROVAL BY

MERRELL JOHNSON

MERRELL JOHNSON ENGINEERING, INC.
22221 U.S. HIGHWAY 18, APPLE VALLEY, CA 92307
760 240 8000 | MERRELLJOHNSON.COM

CONCEPTUAL GRADING PLAN
WAREHOUSE
CARDOVA RD & DACHSHUND AVE.
68.2 ACRES

FOR:
REDWOOD WEST

DRAWN BY: EKJ
DATE: 9/18/23

JOB NO. 3813.006

SHEET 1 OF 1

ejohnson 11:10am 18 September 2023 C:\Users\ejohnson\Documents\MJE\3813.006 Redwood West\GRADING\ROUGH-GR-3813.006.dwg — 30X42 RG Merrell Johnson Companies

APPENDIX B

Exploratory Logs

Soil Classification Key

Unified Soil Classification System (USCS) and Particle Size Limits

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Unified Soil Classification System (USCS)

Coarse Grained Soils More Than 50% Is Larger Than No. 200 Sieve	Gravel and Gravelly Soils More Than 50% Retained on No. 4 Sieve	Clean Gravels Little Or No Fines	GW		Well-graded gravels, gravel-sand mixtures, little or no fines
			GP		Poorly-graded gravels, gravel-sand mixtures, little or no fines
		Gravels w/ Fines Appreciable Amount	GM		Silty gravels, gravel-sand-silt mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils More Than 50% Passing No. 4 Sieve	Clean Sand Little Or No Fines	SW		Well-graded sands, gravelly sands, little or no fines
			SP		Poorly-graded sands, gravelly sands, little or no fines
		Sands w/ Fines Appreciable Amount	SM		Silty-sands, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
Fine Grained Soils More Than 50% Is Smaller Than No. 200 Sieve	Silts and Clays Liquid Limit Less Than 50		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL		Organic silts and organic silty clays of low placticity
	Silts and Clays Liquid Limit Greater Than 50		MH		Inorganic silts, micaceous or diatomaceous fine sand or silty soils
			CH		Inorganic clays of high plasticity, fat clays
			OH		Organic clays of medium to high plasticity, organic silts
	Highly Organic Soils		PT		Peat, humus, swamp soils with high organic contents

Particle Size Limits

Divison	Silt or Clay	Sand			Gravel		Cobbles	Boulders
		Fine	Medium	Coarse	Fine	Coarse		
U.S. Sieve		No. 200	No. 40	No. 10	No. 4	3/4"	3"	12"
Grain (mm)		0.075	0.420	2.00	4.76	19.1	76.2	305

Soils possessing characteristics of two classifications are designated by group symbol combination. Soils may be classified initially using the visual manual procedure prior to laboratory test.

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 2
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B1	**Start Date/Time:**	10/25/23 0730	**End Date/Time:**	10/25/23 0825

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2868
Operator:	A. Lara	**Dimensions:**	8" x 50'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75-HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0					SM		Light Brown, Dry, Dense, Silty Sand	
	20, 21, 26		4.1	95.4			Bulk Sample at 0' to 5' - JDA10252301	SA, MD, DS
							Tube Sample at 1' - JDA10252302	TD
	30, 32, 50		4.6	96.6			Tube Sample at 3'- JDA10252303	TD
5	32, 50 (3")		3.2	99.3	SPSM		Tube Sample at 5' - JDA10252304	TD
							Light Brown, Dry, Very Dense, Poorly Graded Sand with Silt	
10	50 (4")		2.8	104.8			Tube Sample at 10' - JDA10252305 (One Tube Recovered)	TD
15	50 (5")						SPT at 15'	
20	50 (4")						SPT at 20', No Recovery	
25	50 (3")						SPT at 25', No recovery Difficulty Drilling	

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	2 of 2
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B1 (Cont.)	**Start Date/Time:**	10/25/23 0730	**End Date/Time:**	10/25/23 0825

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2868
Operator:	A. Lara	**Dimensions:**	8" x 50'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
30	50 (2")				SPSM		SPT at 30' Boulder/Rock Encountered	
35								
40	50 (3")						SPT at 40'	
45							Very Difficult Drilling	
50	50 (2")						SPT at 50' *Drilling Terminated at Approximately 50'*	
55								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B2	**Start Date/Time:**	10/25/23 0920	**End Date/Time:**	10/25/2023 0950

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2869
Operator:	A. Lara	**Dimensions:**	8" x 25'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0					SM		Light Brown, Dry, Medium Dense, Silty Sand	
	10, 10		3.4	94.2			Bulk Sample at 0' to 5' - JDA10252306	SA
	11						Tube Sample at 1' - JDA10252307	TD
	10, 12,		2.5	107.2			Tube Sample at 3' - JDA10252308	TD
	18							
5	27,		3.9	96.7			Tube Sample at 5' - JDA10252309	TD
	50 (3")						Very Dense	
							Bulk Sample at 5' to 10' - JDA10252310	SA, CN, CR
					SPSM		Light Brown, Dry, Very Dense, Poorly Graded Sand with Silt	
10	50 (3")						Tube Sample at 10' - No Recovery	
15	50 (3")						SPT at 15' Bedrock Encountered	
20	50 (3")						SPT at 20'	
25	50 (4")						SPT at 25' *Drilling Terminated at Approximately 25'*	

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk, =Driven

(2) **DS** =Direct Shear, **EI** =Expansion Index, **SA** =Sieve Analysis, **CR** =Corrosion, **MD** =Max Density, **RV** =R-Value, **AL** =Atterberg Limits, **SE** =Sand Equivalent, **CN** =Consolidation, **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B3	**Start Date/Time:**	10/25/23 1010	**End Date/Time:**	10/25/23 1040

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2863
Operator:	A. Lara	**Dimensions:**	8" x 25'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Very Dense, Silty Sand	
	35, 50 (5")		4.3	98.0			Bulk Sample at 0' to 5' - JDA10252311	MD, CR, EI
							Tube Sample at 1' - JDA10252312	TD
	33, 30, 34		7.7	84.3			Tube Sample at 3' - JDA10252313	TD
							Whitish brown	
5	19, 26, 39		6.5	85.2			Tube Sample at 5' - JDA10252314	TD
10	33, 50 (4")		2.9	97.5			Tube Sample at 10' - JDA10252315	TD
							Light Brown, Dry, Very Dense, Poorly Graded Sand with Silt	
15	50 (4")						SPT at 15'	
20	50 (4")						SPT at 20'	
25	50 (3")						SPT at 25' - No Recovery *Drilling Terminated at Approximately 25'*	

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B4	**Start Date/Time:**	10/25/23 1100	**End Date/Time:**	10/25/2023 1130

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2861
Operator:	A. Lara	**Dimensions:**	8" x 25'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0	50 (6")		2.6	102.0			Light Brown, Dry, Poorly Graded Sand with Silt Bulk Sample at 0' to 5' - JDA10252315 Tube Sample at 1' - JDA10252316 (One Tube Recovered)	MD, DS TD
	50 (4")						Tube Sample at 3' - No Recovery	
5	50 (2")						Tube Sample at 5' - No Recovery Grayish Brown, Poorly Graded Sand Bedrock Encountered	
10	50 (3")						Tube Sample at 10' - No Recovery	
15	50 (4")						SPT at 15'	
20	50 (3")						SPT at 20'	
25	50 (4")						SPT at 25' - No Recovery *Drilling Terminated at Approximately 25'*	

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B5	**Start Date/Time:**	10/25/23 1155	**End Date/Time:**	10/25/23 1220

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2863
Operator:	A. Lara	**Dimensions:**	8" x 25'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand	
	50 (6")		3.7	104.6			Bulk Sample at 0' to 5' - JDA10252317	SA
							Tube Sample at 1' - JDA10252318	TD
5	50 (4")		2.8	101.6			Tube Sample at 5' - JDA102523219 (One Tube Recovered)	TD
							Light Brown, Dry, Poorly Graded Sand with Silt	
							Bedrock Encountered	
10	50 (6")		4.2	96.8			Tube Sample at 10' - JDA10252320 (One Tube Recovered)	TD
15	50 (3")						SPT at 15'	
							Difficulty Drilling	
20	50 (3")						SPT at 20' - No Recovery	
25	50 (3")						SPT at 25'	
							Drilling Terminated at Approximately 25'	

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B6 (Perc.)	**Start Date/Time:**	10/25/23 1240	**End Date/Time:**	10/25/23 1300

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 10'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Poorly Graded Sand with Silt	
5							Bulk Sample at 5' to 10' - JDA10252321	SA
10							*Drilling Terminated at Approximately 10'*	
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B7 (Perc.)	**Start Date/Time:**	10/25/23 1315	**End Date/Time:**	10/25/23 1330

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2863
Operator:	A. Lara	**Dimensions:**	8" x 10'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Poorly Graded Sand with Silt Rock Encountered	
5							Bulk Sample 5' to 10' - JDA10252322	SA
10							*Drilling Terminated at Approximately 10'*	
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B8	**Start Date/Time:**	10/25/23 1335	**End Date/Time:**	10/25/23 1345

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Poorly Graded Sand with Silt Bulk Sample at 0' to 5' - JDA10252323	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B9	**Start Date/Time:**	10/25/23 1350	**End Date/Time:**	10/25/23 1355

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2865
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252324	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B10	**Start Date/Time:**	10/25/23 1400	**End Date/Time:**	10/25/23 1405

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2864
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Whitish Brown, Dry, Silty Sand with Gravel Bulk Sample at 0' to 5' - JDA10252325	SA, SE, RV
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B11	**Start Date/Time:**	10/25/23 1407	**End Date/Time:**	10/25/23 1410

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2867
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Whitish Brown, Dry, Silty Sand with Gravel Bulk Sample 0' to 5' - JDA10252326	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B12	**Start Date/Time:**	10/25/23 1416	**End Date/Time:**	10/25/23 1420

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2864
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75 HSA	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252327	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B13	**Start Date/Time:**	10/25/23 1425	**End Date/Time:**	10/25/23 1430

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252328	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No: B14 Dachshund Avenue **Start Date/Time:** 10/25/23 1425 **End Date/Time:** 10/25/23 1430

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252328	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B15, Cardova Road	**Start Date/Time:**	10/25/23 1425	**End Date/Time:**	10/25/23 1430

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252328	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No:	B16, Cardova Road	**Start Date/Time:**	10/25/23 1425	**End Date/Time:**	10/25/23 1430

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252328	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Exploratory Log

ASTM D5434, D1452, D1586, D1587, D2488 (USCS), D3550

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	B
Permit No:	
Client Project No:	
USA Ticket No:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Location No: B17, Dachshund Avenue **Start Date/Time:** 10/25/23 1425 **End Date/Time:** 10/25/23 1430

Conducted By:	J. Albornoz	**Excavation Type:**	Auger Hole	**Elevation:**	2862
Operator:	A. Lara	**Dimensions:**	8" x 5'	**Groundwater:**	Not Encountered
Equipment Type:	CME-75	**Advance Assist:**	None	**Recent Weather:**	Clear
Drive Weight (lb)**:**	140	**Field Tests:**	D3550	**Sampler Insertion:**	Driven
Drive Drop (in)**:**	30	**Shoring Type:**	None	**Preservation:**	D4220

Depth (ft)	'N' Value	Sample (1)	Moisture (%)	Density (pcf)	Class (USCS)	Graphic	Description / Comments	Lab Tests (2)
0							Light Brown, Dry, Silty Sand Bulk Sample at 0' to 5' - JDA10252328	SA, SE
5							*Drilling Terminated at Approximately 5'*	
10								
15								
20								
25								

Comments: "N" Value Based on 2.5" diameter modified California Tube Sampler (ASTM D3550) or SPT (ASTM D1586) as noted on log. Some boulder/rock encountered during drilling operations. Partial caving of hole observed.

(1) =Bulk =Driven

(2) **DS** =Direct Shear **EI** =Expansion Index **SA** =Sieve Analysis **CR** =Corrosion **MD** =Max Density **RV** =R-Value **AL** =Atterberg Limits **SE** =Sand Equivalent **CN** =Consolidation **TD** =Tube Density

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

APPENDIX C

Laboratory Testing

Particle-Size Analysis of Soil

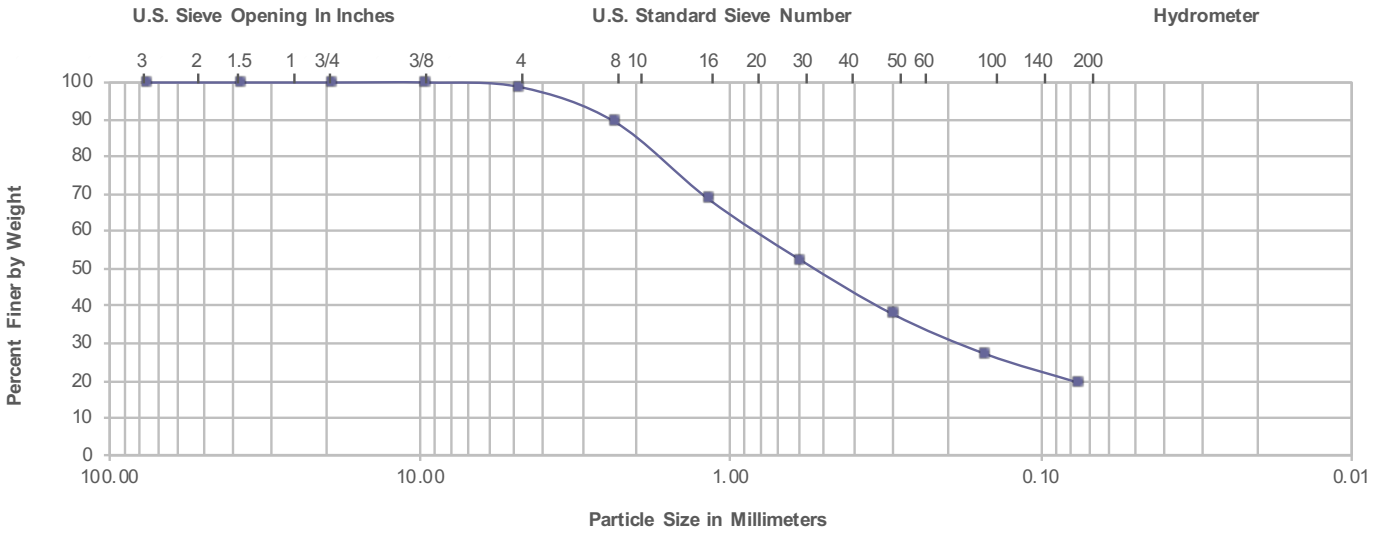
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252301 **Gravel (%):** 1.2% **Sand (%):** 79.4% **Fines (%):** 19.3%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring One at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	4.2%	5.692	0.832	0.191	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	497.0
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

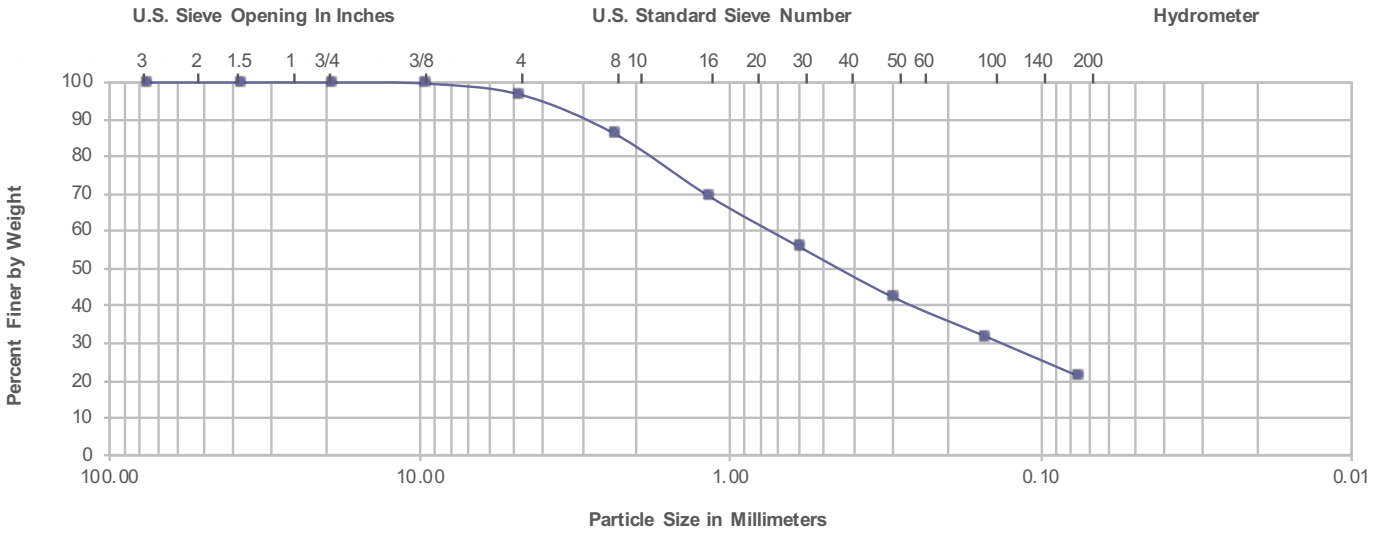
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252306 **Gravel** (%): 3.3% **Sand** (%): 75.7% **Fines** (%): 21.0%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Two at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	3.8%	8.398	0.733	0.138	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	512.5
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

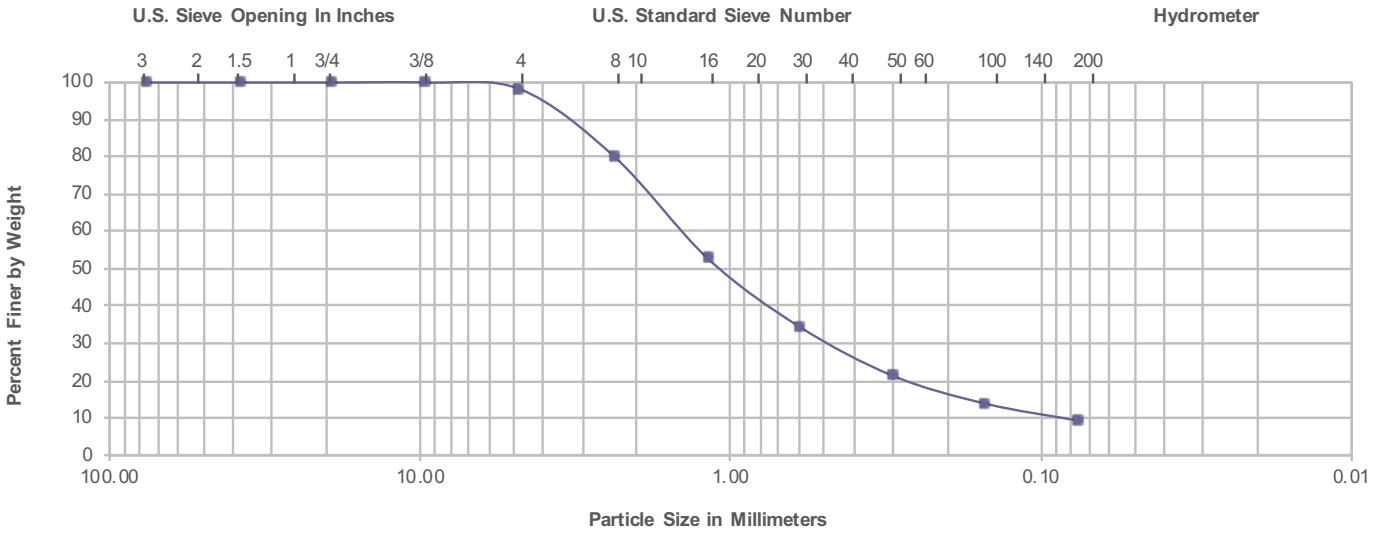
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252310 **Gravel** (%): 1.8% **Sand** (%): 89.0% **Fines** (%): 9.2%

Classification, ASTM D2487: (SPSM) Poorly graded sand with silt
Sample Origin: Boring Two at 5' to 10'
Laboratory Remarks:



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
17	2	3.1%	5.231	1.498	0.499	0.089	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	509.0
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

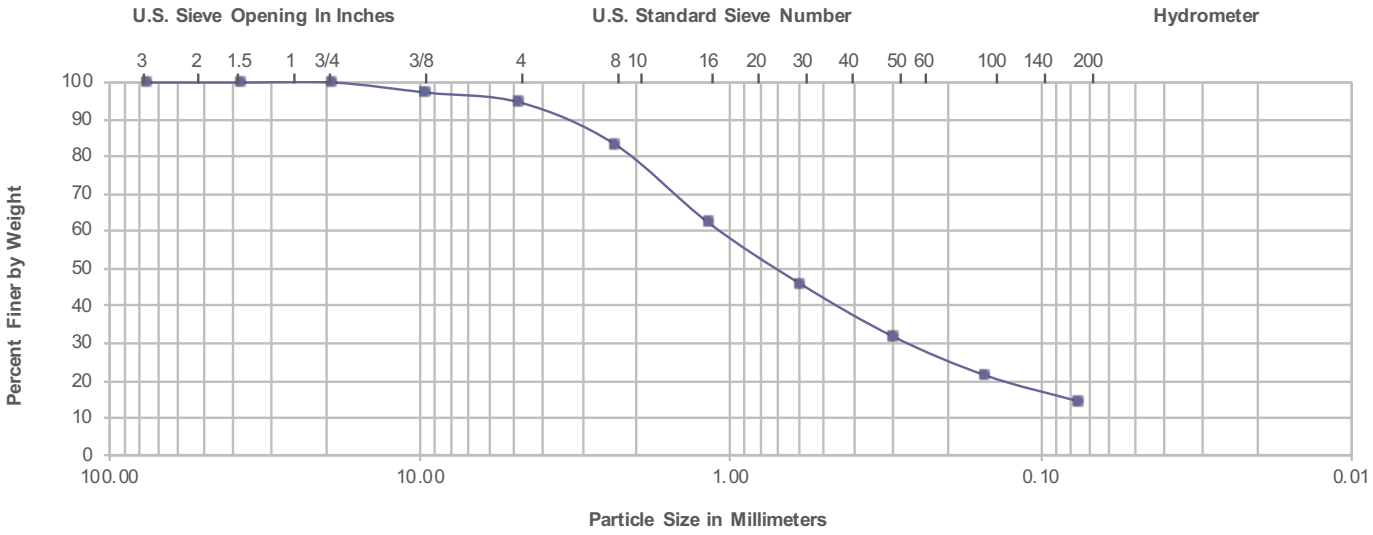
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252317 **Gravel (%):** 5.4% **Sand (%):** 80.3% **Fines (%):** 14.3%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Five at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	4.0%	15.519	1.095	0.274	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	483.6
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

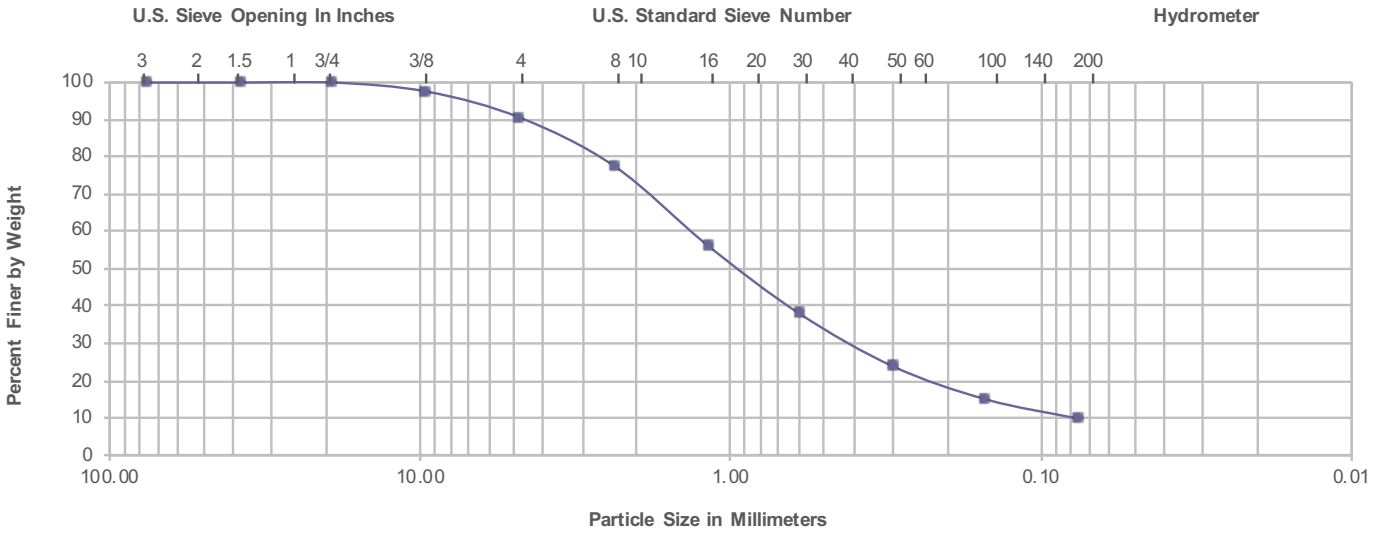
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252321 **Gravel** (%): 9.5% **Sand** (%): 80.8% **Fines** (%): 9.7%

Classification, ASTM D2487:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Six at 5' to 10'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	2.3%	15.109	1.394	0.431	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	528.3
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

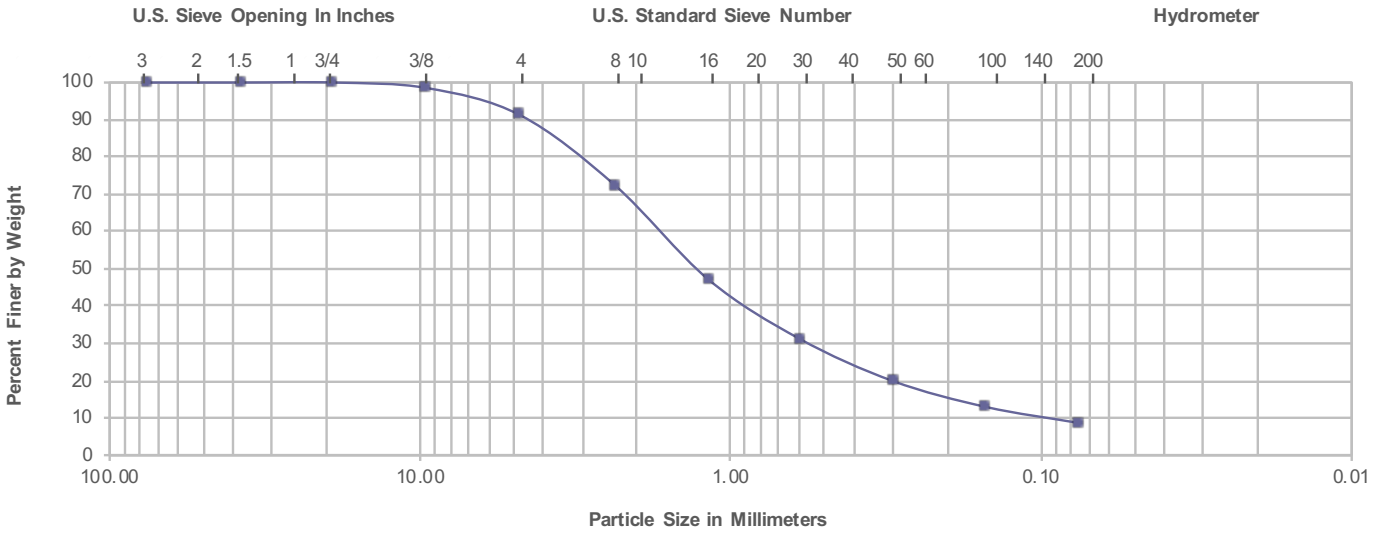
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252322 **Gravel (%):** 8.8% **Sand (%):** 82.6% **Fines (%):** 8.6%

Classification, ASTM D2487:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Seven at 5' to 10'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
19	2	2.0%	12.605	1.780	0.568	0.095	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	511.6
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

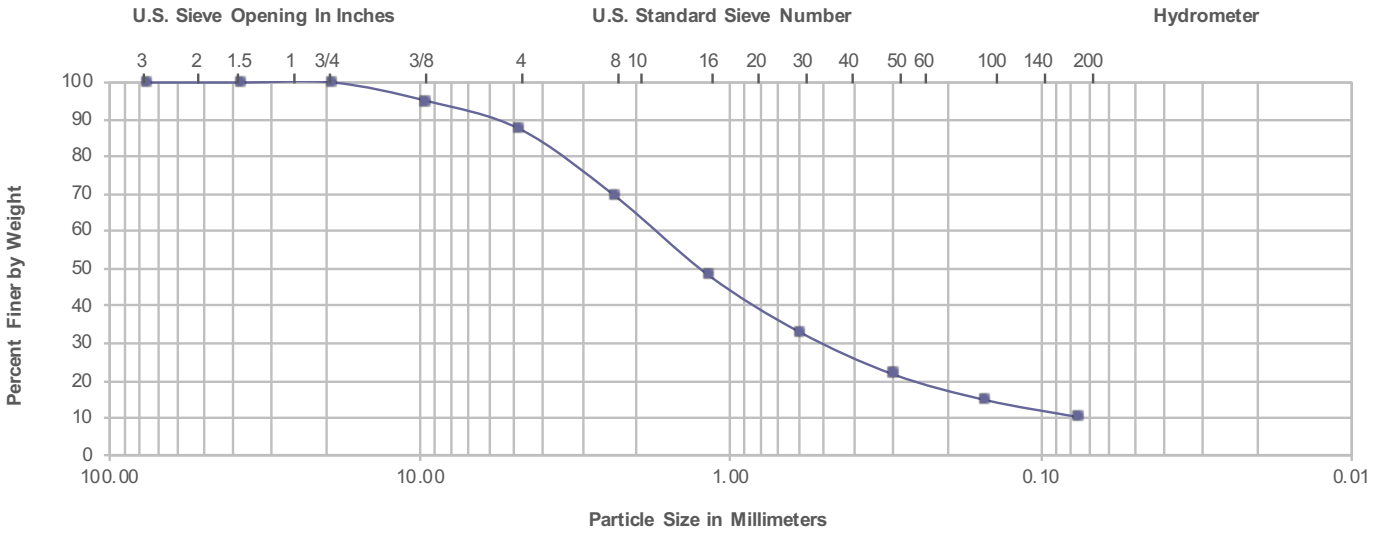
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252323 **Gravel (%):** 12.6% **Sand (%):** 77.3% **Fines (%):** 10.1%

Classification, ASTM D2487: (SPSM) Poorly graded sand with silt
Sample Origin: Boring Eight at 0' to 5'
Laboratory Remarks:



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	1.7%	17.084	1.773	0.520	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	500.1
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

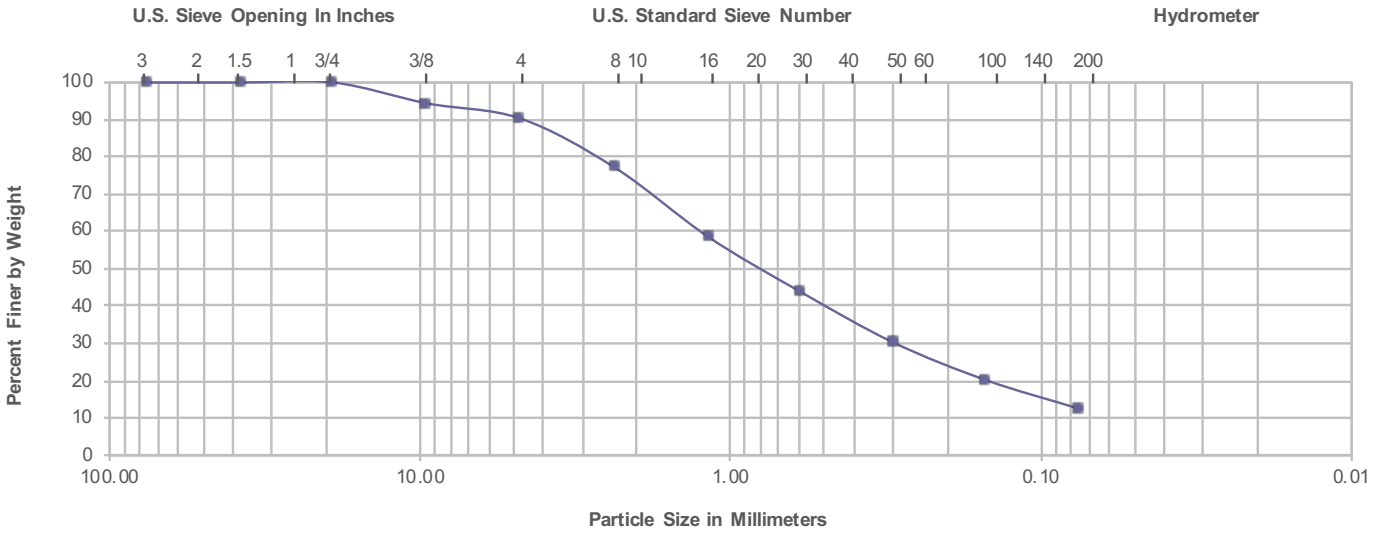
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252324 **Gravel (%):** 9.7% **Sand (%):** 77.9% **Fines (%):** 12.4%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Nine at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	2.3%	17.303	1.272	0.296	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	498.5
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

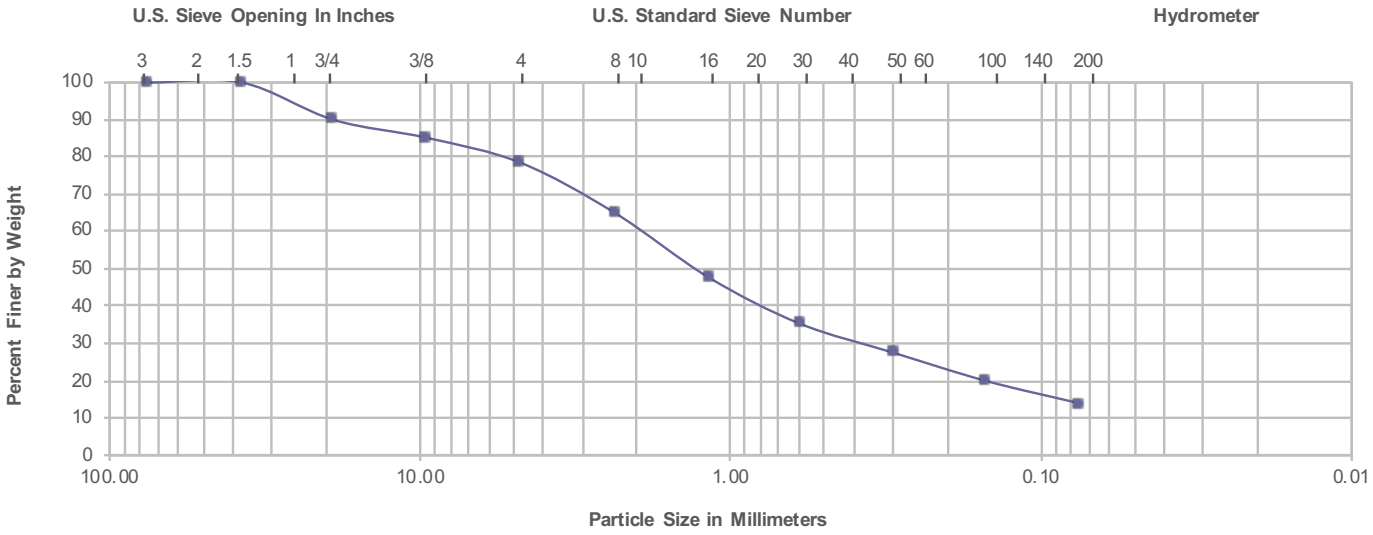
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252325 **Gravel (%):** 21.5% **Sand (%):** 64.6% **Fines (%):** 13.9%

Classification, ASTM D2487:	(SM) Silty sand with gravel
Sample Origin:	Boring Ten at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	6.5%	35.655	1.949	0.395	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	507.8
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

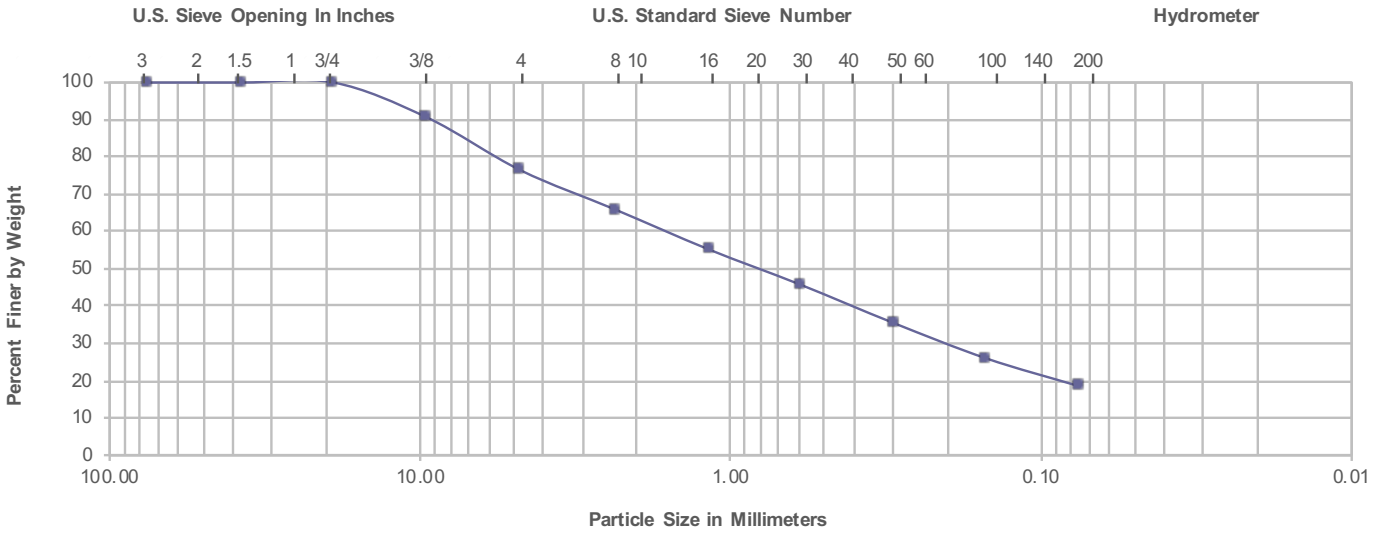
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252326 **Gravel** (%): 23.6% **Sand** (%): 58.0% **Fines** (%): 18.4%

Classification, ASTM D2487:	(SM) Silty sand with gravel
Sample Origin:	Boring Eleven at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	5.0%	17.988	1.703	0.214	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	504.9
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

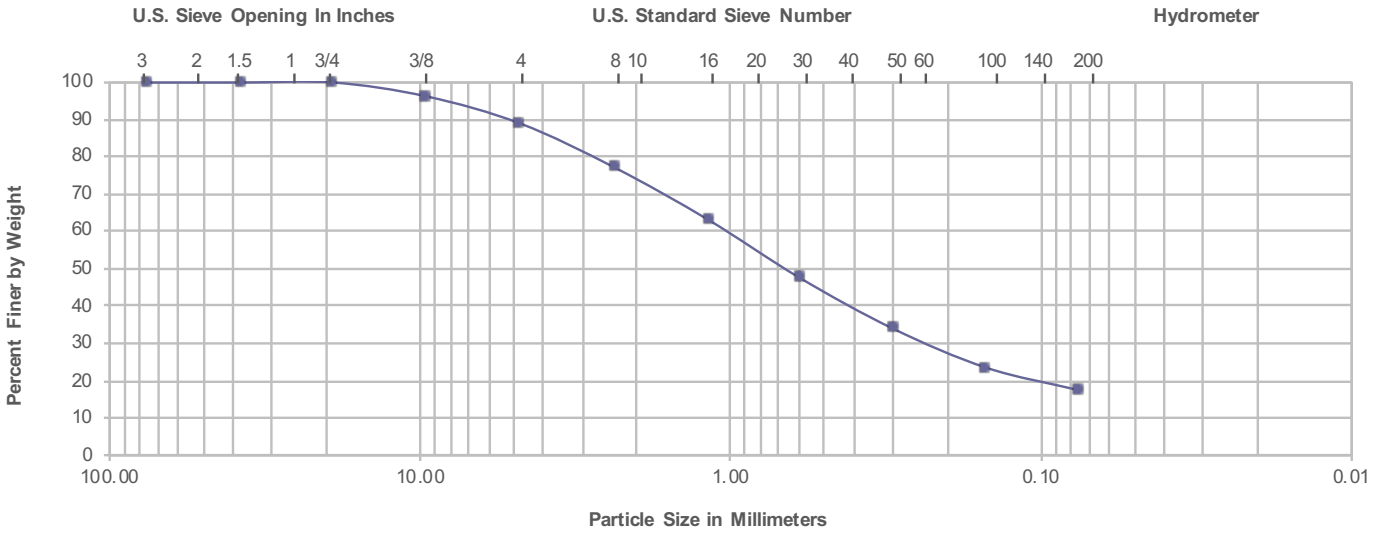
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252327 **Gravel (%):** 11.0% **Sand (%):** 71.6% **Fines (%):** 17.4%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Twelve at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	5.8%	16.471	1.025	0.244	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	505.8
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

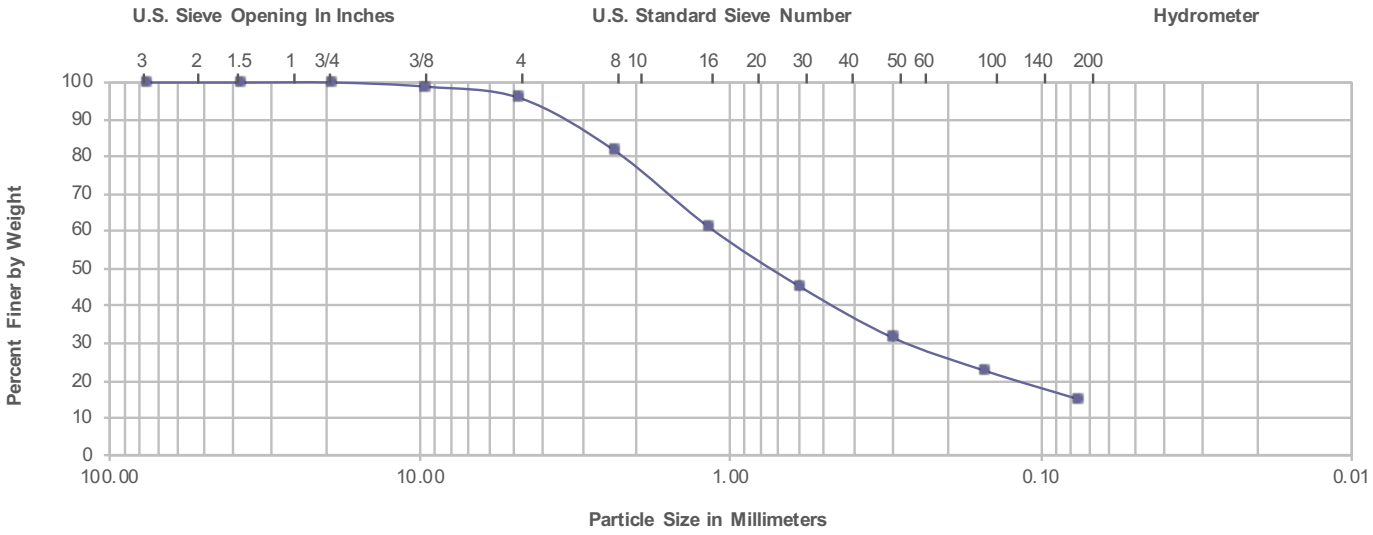
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252328 **Gravel (%):** 4.2% **Sand (%):** 80.9% **Fines (%):** 14.9%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Thirteen at 0' to 5'
Laboratory Remarks:	



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	2.2%	10.647	1.133	0.275	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	536.3
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

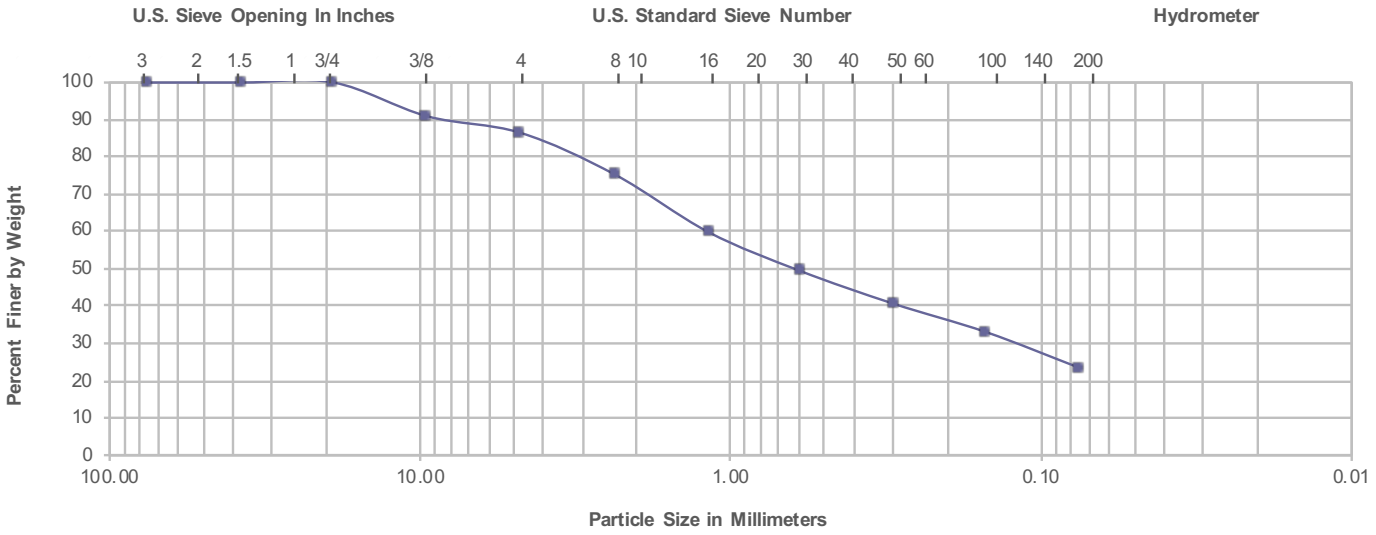
D422, D1140, D2487

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA11292302 **Gravel** (%): 13.5% **Sand** (%): 63.1% **Fines** (%): 23.4%

Classification, ASTM D2487: (SM) Silty sand
Sample Origin: Boring Fourteen at 0' to 5'
Laboratory Remarks: Cardona Road



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	1.8%	17.950	1.131	0.119	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	694.0
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

MerrellJohnson. engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

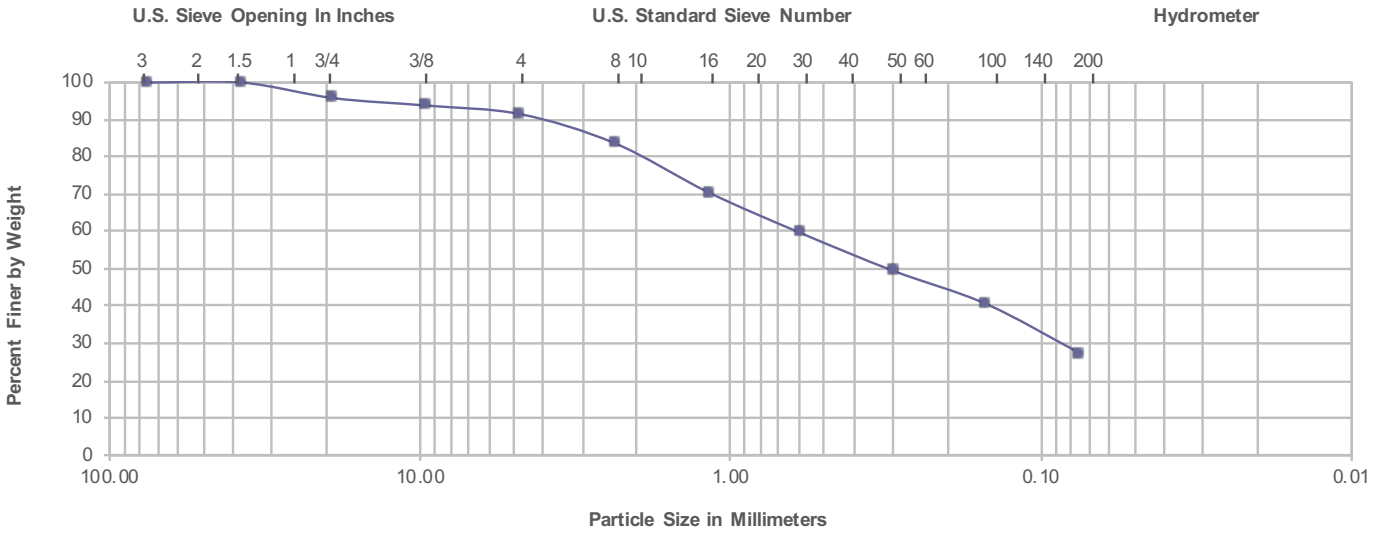
D422, D1140, D2487

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA11292303 **Gravel** (%): 8.5% **Sand** (%): 64.1% **Fines** (%): 27.4%

Classification, ASTM D2487: (SM) Silty sand
Sample Origin: Boring Fifteen at 0' to 5'
Laboratory Remarks: Dachshund Avenue



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	1.7%	33.086	0.560	0.084	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used: D422, D1140
Size of Initial Dry Mass (g): 734.9
Determination of Dry Mass: D2216
Particles; Shape, Hardness: ND
Dispersion Device/Period: Manual/2 hr
Type & Amount of Agent: Defloc. & 1.0
Laboratory Comments:

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

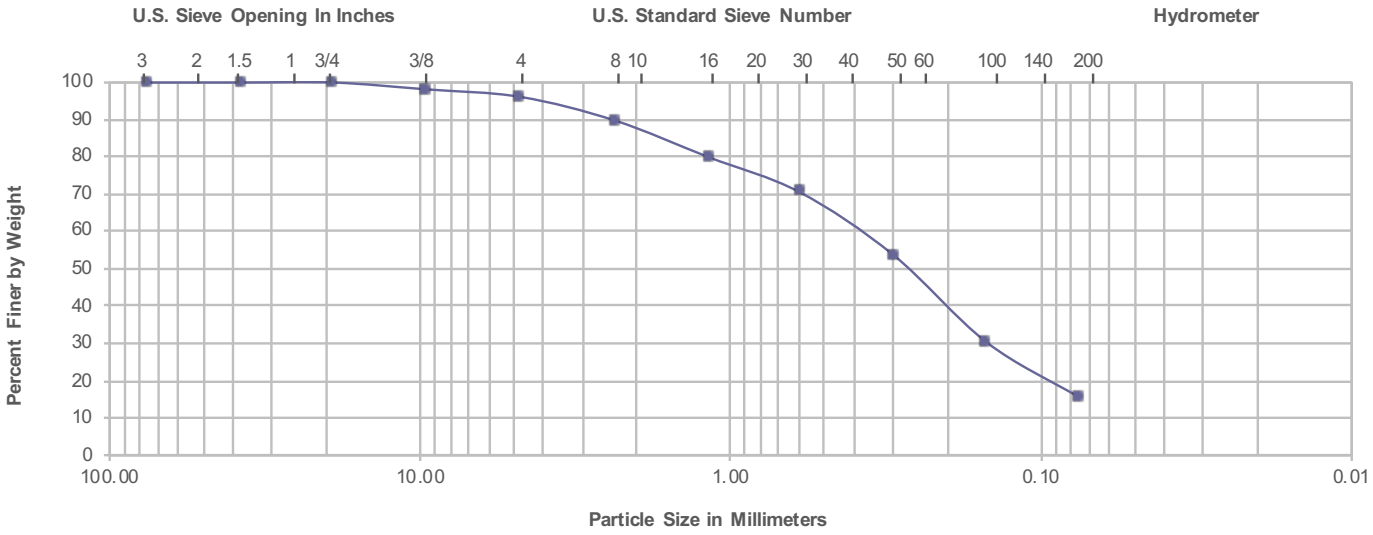
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA11292304 **Gravel (%):** 3.9% **Sand (%):** 80.7% **Fines (%):** 15.4%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Sixteen at 0' to 5'
Laboratory Remarks:	Cardona Road



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	6.0%	13.850	0.393	0.143	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	688.5
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Particle-Size Analysis of Soil

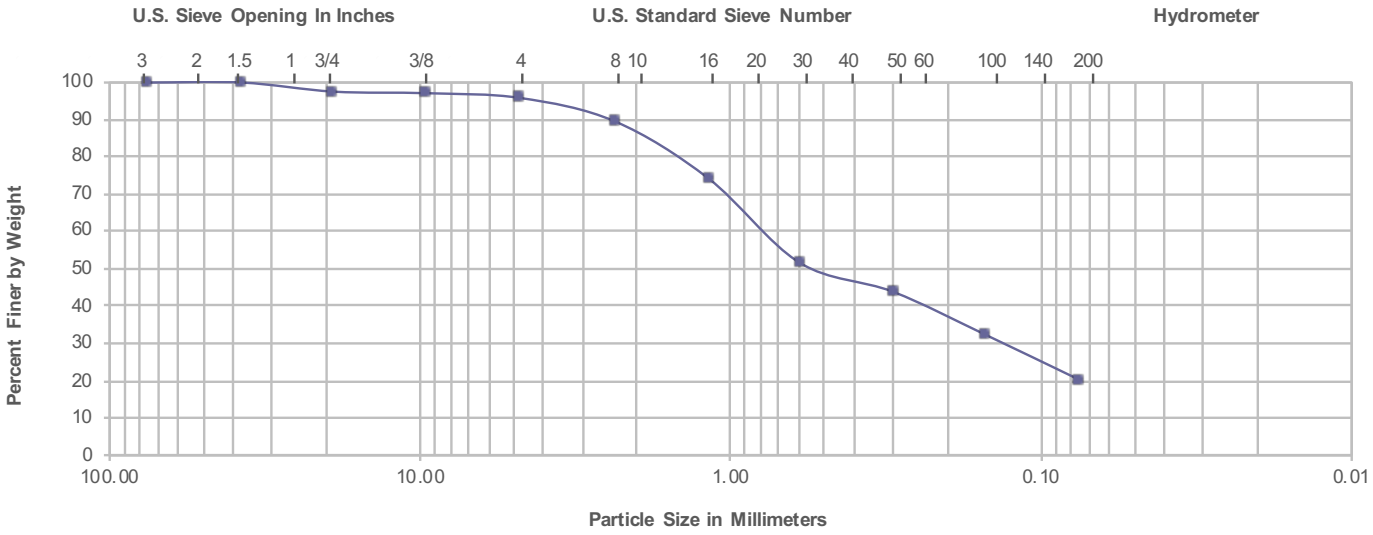
D422, D1140, D2487

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA11292301 **Gravel (%):** 4.2% **Sand (%):** 75.7% **Fines (%):** 20.1%

Classification, ASTM D2487:	(SM) Silty sand
Sample Origin:	Boring Seventeen at 0' to 5'
Laboratory Remarks:	Dachsund Avenue



C_u	C_c	Moisture	D_{100}	D_{60}	D_{30}	D_{10}	LL	PL	PI	SG	FM	SE
NA	NA	1.2%	29.922	0.788	0.130	0.000	ND	ND	ND	ND	ND	ND

Method / Procudure Used:	D422, D1140
Size of Initial Dry Mass (g):	1015.9
Determination of Dry Mass:	D2216
Particles; Shape, Hardness:	ND
Dispersion Device/Period:	Manual/2 hr
Type & Amount of Agent:	Defloc. & 1.0
Laboratory Comments:	

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Merrell Johnson engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Laboratory Compaction Characteristics

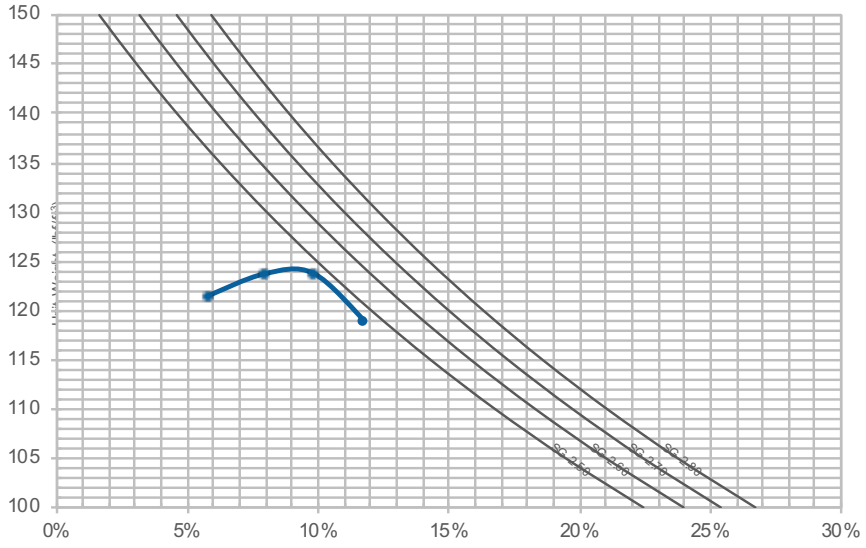
ASTM D1557, D2488

Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Attachment:	
Permit No.:	C
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252301 **Maximum Dry Unit Weight** (lbf/ft³): 124.1 **Optimum Moisture Content** (%): 9.2

Classification, ASTM D2488: (SM) Silty sand
Sample Origin: Boring One at 0' to 5'
Laboratory Remarks:



Tested By:	DRS
Received Moisture:	3.8%
Preparation:	Wet
Specific Gravity:	
SG Method:	
Start Weight (lb):	35.0
Retained on 3/4" (lb):	0.2
Retained on 3/8" (lb):	0.7
Retained on No. 4 (lb):	1.9
Retained on 3/4" (%):	0.6%
Retained on 3/8" (%):	2.0%
Retained on No. 4 (%):	5.4%
Oversize Correction:	
Mold Volume Factor:	29.94
Tare Weight (lb):	4.35
Rammer Used:	Mechanical
Method Used:	☐ A ☑ B ☐ C

Weight of Soil and Tare (lb):	8.64	8.81	8.89	8.79
Wet Weight (g):	349.4	311.7	373.1	347.5
Dry Weight (g):	330.4	288.8	339.8	310.9
Moisture Content (%):	5.8%	7.9%	9.8%	11.8%
Dry Unit Weight (flb/ft³):	121.5	123.7	123.8	118.9

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

Merrell Johnson COMPANIES

concept to completion
ENGINEERING | SURVEYING | TESTING | INSPECTION

MEC-031 MD 12/12

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Laboratory Compaction Characteristics

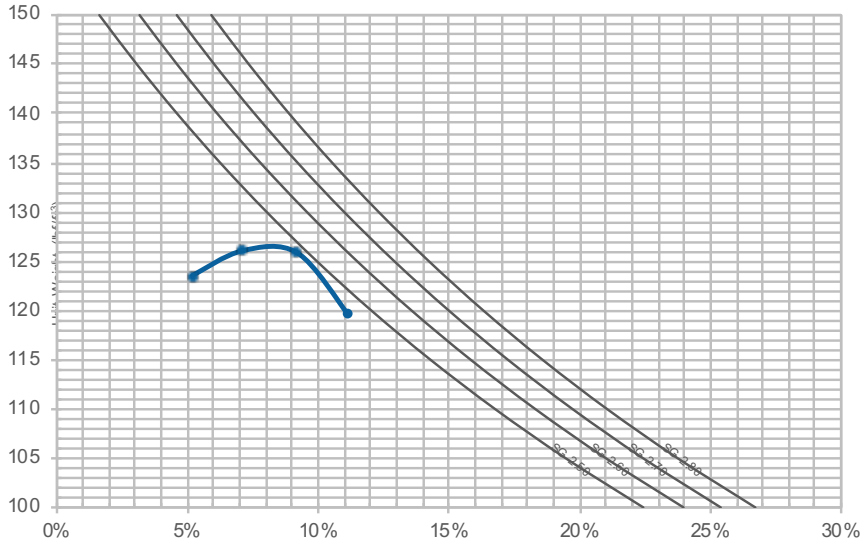
ASTM D1557, D2488

Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252310 **Maximum Dry Unit Weight** (lbf/ft³): 126.5 **Optimum Moisture Content** (%): 9.4

Classification, ASTM D2488: (SPSM) Poorly graded sand with silt
Sample Origin: Boring Two at 5' to 10'
Laboratory Remarks:



Tested By:	DRS
Received Moisture:	3.6%
Preparation:	Wet
Specific Gravity:	
SG Method:	
Start Weight (lb):	35.0
Retained on 3/4" (lb):	0.0
Retained on 3/8" (lb):	0.2
Retained on No. 4 (lb):	1.4
Retained on 3/4" (%):	
Retained on 3/8" (%):	0.6%
Retained on No. 4 (%):	4.0%
Oversize Correction:	
Mold Volume Factor:	29.94
Tare Weight (lb):	4.35
Rammer Used:	Mechanical
Method Used:	☑ A ☐ B ☐ C

Weight of Soil and Tare (lb):	8.69	8.86	8.94	8.79
Wet Weight (g):	323.0	321.2	317.1	339.4
Dry Weight (g):	307.1	299.9	290.4	305.4
Moisture Content (%):	5.2%	7.1%	9.2%	11.1%
Dry Unit Weight (lb/ft³):	123.5	126.1	125.9	119.6

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Laboratory Compaction Characteristics

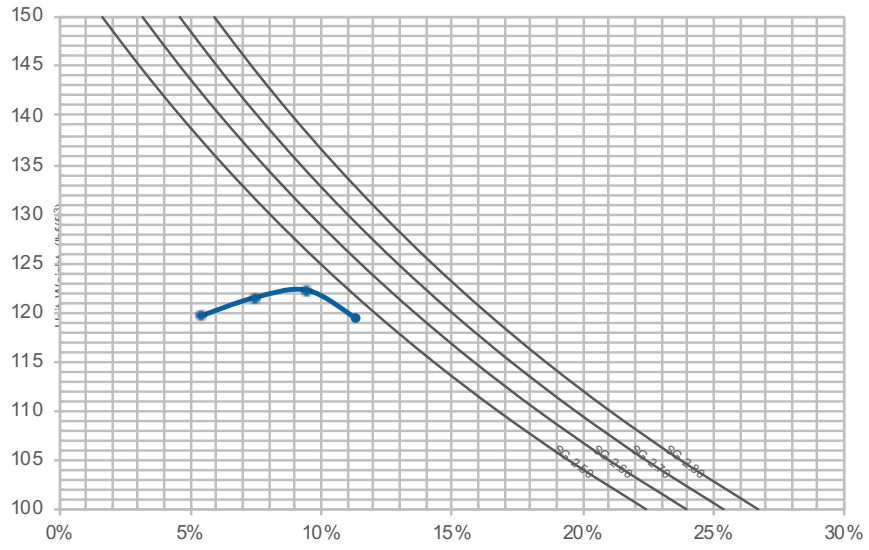
ASTM D1557, D2488

Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252311 **Maximum Dry Unit Weight** (lbf/ft³): 122.5 **Optimum Moisture Content** (%): 9.1

Classification, ASTM D2488: (SPSM) Poorly graded sand with silt
Sample Origin: Boring Three at 0' to 5'
Laboratory Remarks:



Tested By:	DRS
Received Moisture:	3.4%
Preparation:	Wet
Specific Gravity:	
SG Method:	
Start Weight (lb):	25.0
Retained on 3/4" (lb):	0.3
Retained on 3/8" (lb):	1.1
Retained on No. 4 (lb):	2.6
Retained on 3/4" (%):	1.2%
Retained on 3/8" (%):	4.4%
Retained on No. 4 (%):	10.4%
Oversize Correction:	
Mold Volume Factor:	29.94
Tare Weight (lb):	4.35
Rammer Used:	Mechanical
Method Used:	☐ A ☑ B ☐ C

Weight of Soil and Tare (lb):	8.56	8.71	8.82	8.79
Wet Weight (g):	349.4	320.8	332.2	321.8
Dry Weight (g):	331.6	298.6	303.5	289.1
Moisture Content (%):	5.4%	7.4%	9.5%	11.3%
Dry Unit Weight (flb/ft³):	119.6	121.5	122.3	119.4

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Laboratory Compaction Characteristics

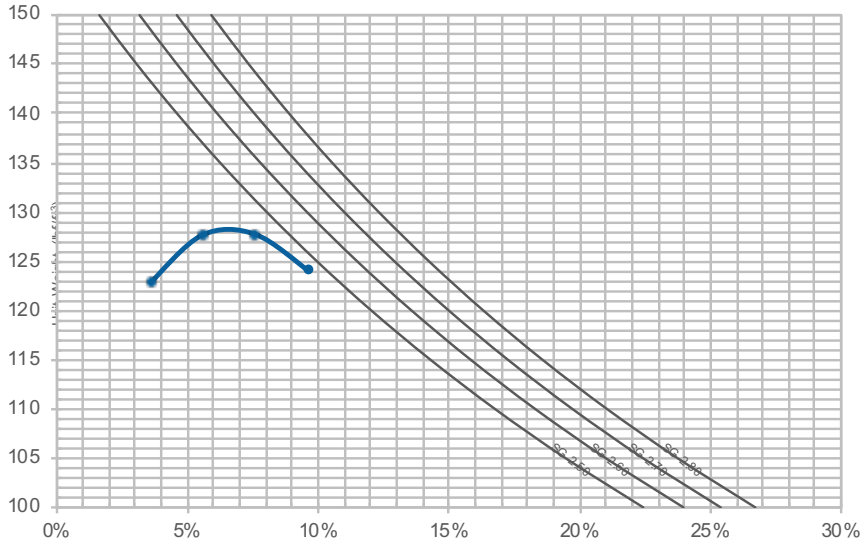
ASTM D1557, D2488

Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252315 **Maximum Dry Unit Weight** (lbf/ft³): 128.1 **Optimum Moisture Content** (%): 6.5

Classification, ASTM D2488: (SM) Silty sand
Sample Origin: Boring Four at 0' to 5'
Laboratory Remarks:



Tested By:	DRS
Received Moisture:	3.6%
Preparation:	Wet
Specific Gravity:	
SG Method:	
Start Weight (lb):	31.0
Retained on 3/4" (lb):	0.4
Retained on 3/8" (lb):	0.8
Retained on No. 4 (lb):	1.6
Retained on 3/4" (%):	1.3%
Retained on 3/8" (%):	2.6%
Retained on No. 4 (%):	5.2%
Oversize Correction:	
Mold Volume Factor:	29.94
Tare Weight (lb):	4.35
Rammer Used:	Mechanical
Method Used:	☐ A ☑ B ☐ C

Weight of Soil and Tare (lb):	8.60	8.85	8.94	8.89
Wet Weight (g):	323.7	308.2	318.4	343.2
Dry Weight (g):	312.5	292.0	296.0	313.0
Moisture Content (%):	3.6%	5.5%	7.6%	9.6%
Dry Unit Weight (flb/ft³):	122.8	127.6	127.8	124.0

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252323 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Eight at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
71	-

Ammount/Value Allowable Based On:

The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager

Name / Title

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252324 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SM) Silty sand with
Sample Origin:	Boring Nine at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
36	**-**

Ammount/Value Allowable Based On:

The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager

Name / Title

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	
Permit No.:	C
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252325 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SM) Silty sand with gravel
Sample Origin:	Boring Ten at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
24	**-**

Ammount/Value Allowable Based On:

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252326 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SM) Silty sand with gravel
Sample Origin:	Boring Eleven at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
24	**-**

Ammount/Value Allowable Based On:

The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager

Name / Title

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252327 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SM) Silty sand
Sample Origin:	Boring Twelve at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
17	**-**

Ammount/Value Allowable Based On:

The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager

Name / Title

Sand Equivalent of Soils and Fine Aggregate

ASTM D2419

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252328 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription:	(SM) Silty sand with
Sample Origin:	Boring Thirteen at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Mechanical/Manual Shaker:	Mechanical

Sand Equivalent Value	**Ammount/Value Allowable**
37	**-**

Ammount/Value Allowable Based On:

The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner/ Laboratory Manager

Name / Title

Consolidation Properties of Soils

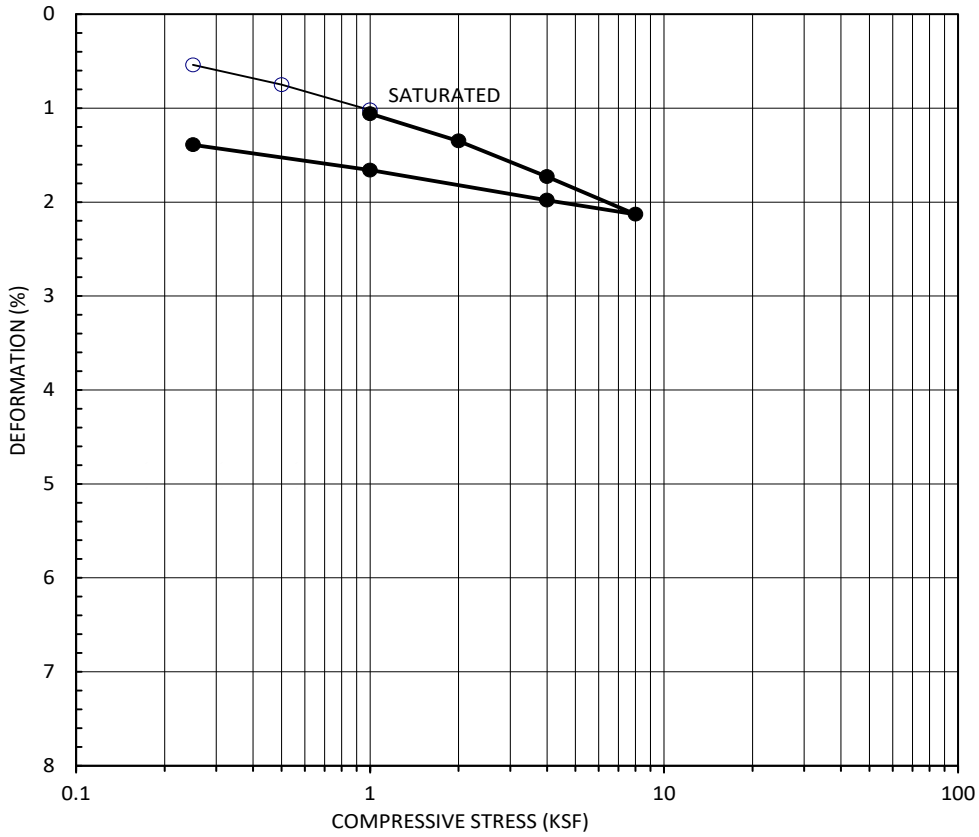
ASTM D2435

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA10252310 **Initial Moisture Content** (%)**:** 9.4 **Initial Dry Density** (pcf)**:** 120.2 **Initial Void Ratio:** 0.401

Classification, ASTM D2488: (SPSM) Poorly graded sand with silt
Sample Origin: Boring Two at 5' to 10'
Laboratory Remarks:



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewd By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

MerrellJohnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

R-Value and Expansion Pressure of Compacted Soils

ASTM D2844

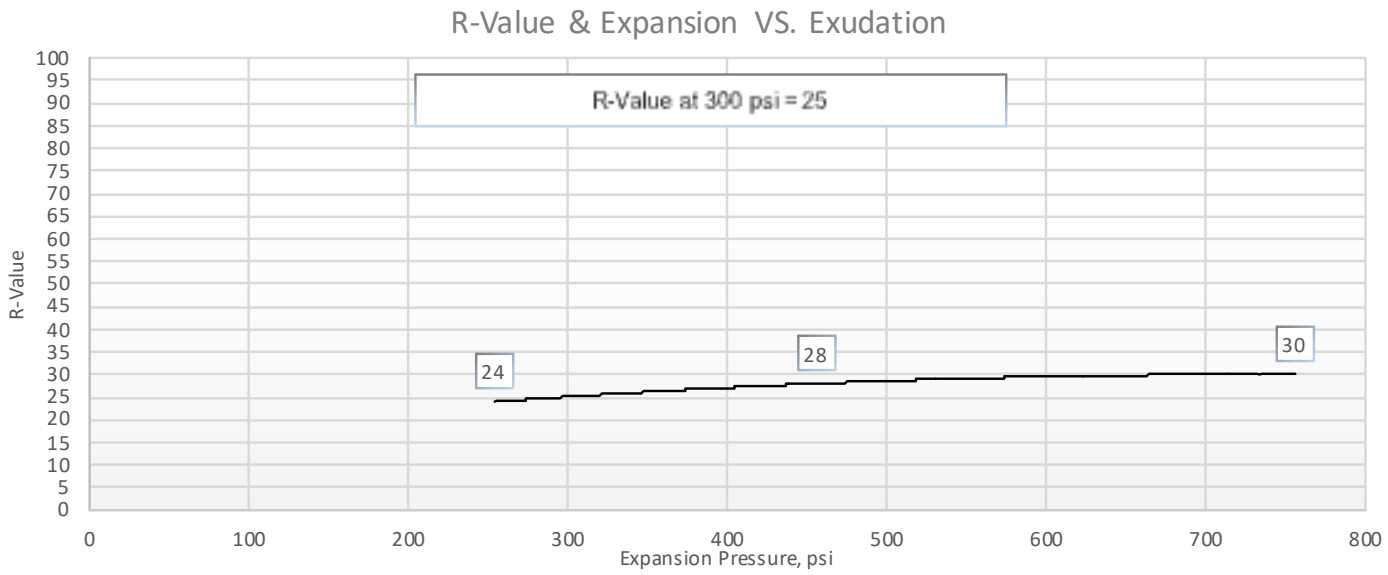
Report Date:	12/01/23
Sheet:	1 *of* 1
Appendix:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA10252325 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription, D2847:	(SM) Silty sand with gravel
Sample Origin:	Boring Ten at 0' to 5' , East Side of Warehouse
Tested By:	JJB

Briguette Number:	1	2	3
Moisture Content (%):	12.9	15.1	14.8
Dry Density (pcf):	124.4	118.9	128.6
Exudation Pressure (psi):	756	456	254
Expansion Pressure (psf):	0	0	0
R-Value:	30	28	24



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

R-Value and Expansion Pressure of Compacted Soils

ASTM D2844

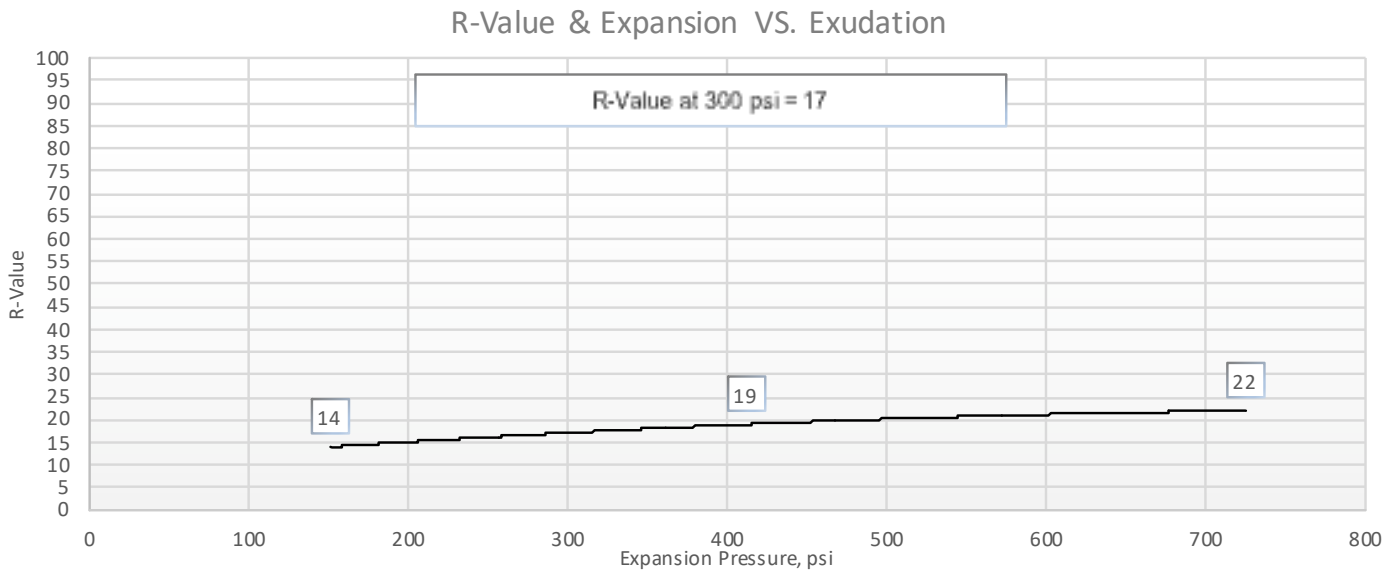
Project Number:	3813.006.600
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Appendix:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252327 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription, D2847:	(SM) Silty sand
Sample Origin:	Boring Twelve at 0' to 5', West Side of Warehouse
Tested By:	JJB

Briguette Number:	1	2	3
Moisture Content (%):	10.7	11.8	15.8
Dry Density (pcf):	126.3	125.6	112.4
Exudation Pressure (psi):	725	412	151
Expansion Pressure (psf):	0	0	0
R-Value:	22	19	14



The Material	☐ Was	☐ Was Not	Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested	☐ Met	☐ Did Not Meet	The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager

Name / Title

R-Value and Expansion Pressure of Compacted Soils

ASTM D2844

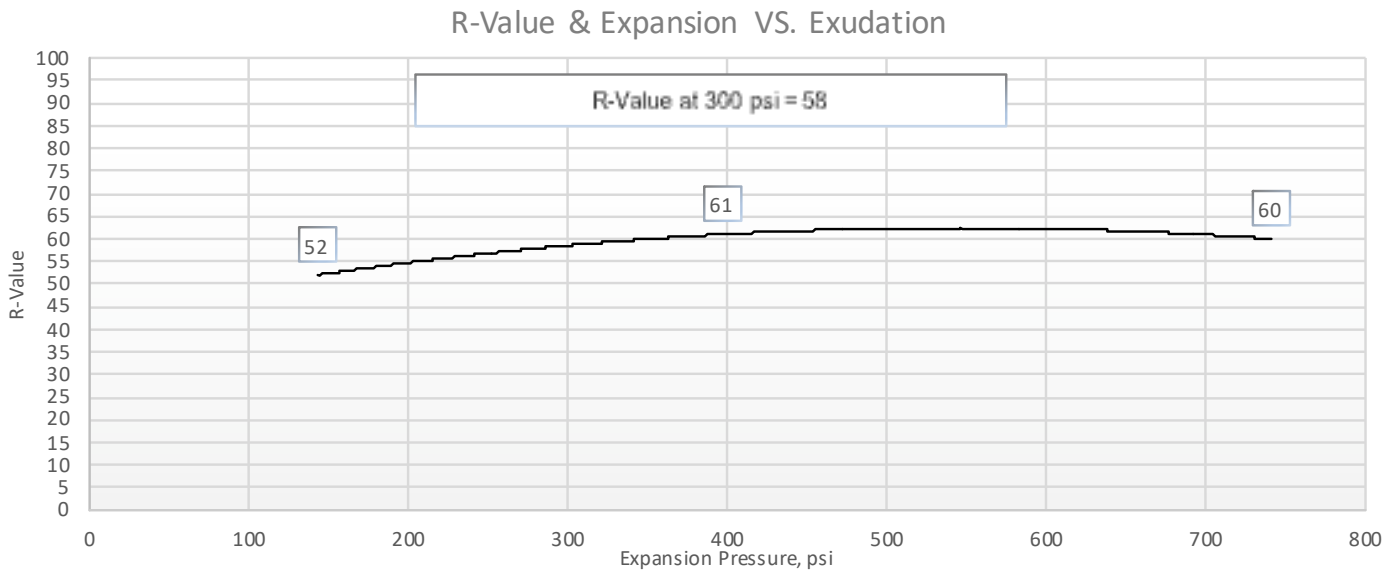
Report Date:	12/01/23
Sheet:	1 *of* 1
Appendix:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Sample ID: JDA11292302 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription, D2847:	(SM) Silty sand
Sample Origin:	Boring Fourteen at 0' to 5' , Dachund Avenue
Tested By:	JJB

Briguette Number:	1	2	3
Moisture Content (%):	7.0	7.5	9.1
Dry Density (pcf):	129.1	130.9	127.9
Exudation Pressure (psi):	741	397	143
Expansion Pressure (psf):	0.0135	0.0169	0.0194
R-Value:	60	61	52



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

Merrell Johnson COMPANIES

concept to completion
ENGINEERING | SURVEYING | TESTING | INSPECTION

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

R-Value and Expansion Pressure of Compacted Soils

ASTM D2844

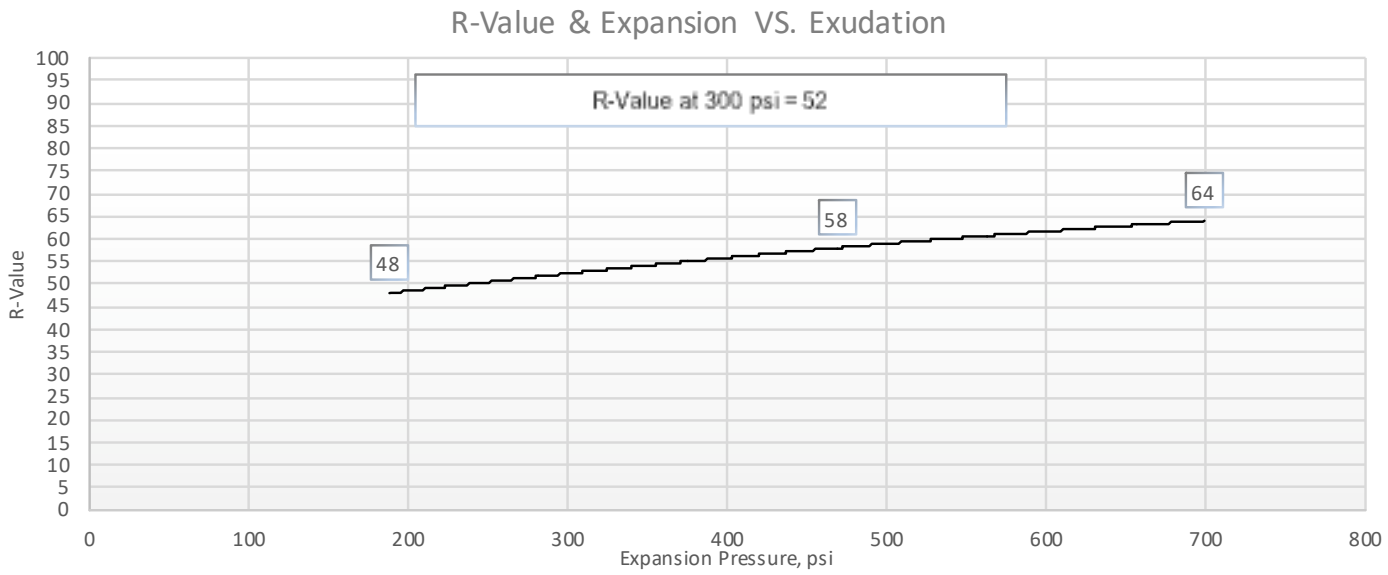
Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	
Sheet:	1 *of* 1
Appendix:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA11292303 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Desription, D2847:	(SM) Silty sand
Sample Origin:	Boring Fifteen at 0' to 5' Cardova Avenue
Tested By:	JJB

Briguette Number:	1	2	3
Moisture Content (%):	7.5	8.1	8.8
Dry Density (pcf):	129.9	130.5	127.8
Exudation Pressure (psi):	699	469	188
Expansion Pressure (psf):	0.0031	0.0017	0.0008
R-Value:	64	58	48



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

Merrell Johnson COMPANIES

concept to completion
ENGINEERING | SURVEYING | TESTING | INSPECTION

t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Direct Shear Test of Soils

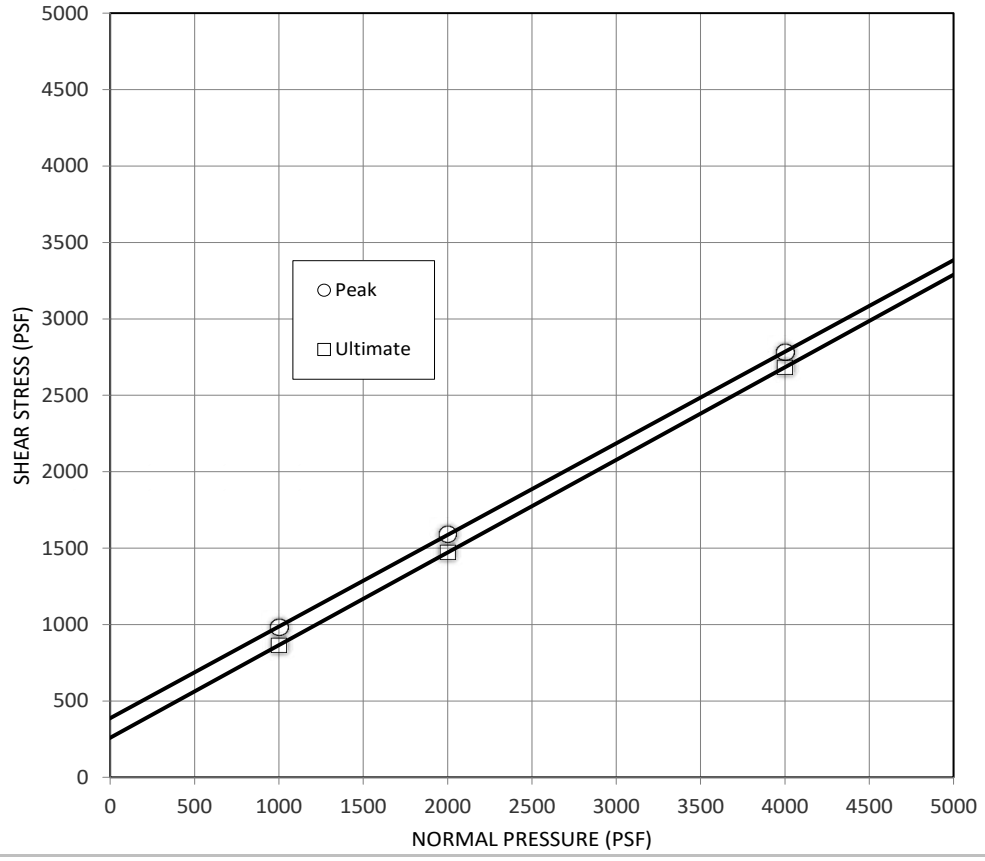
ASTM D3080

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA10252301 **Angle of Internal Friction** (°)**:** 31 **Peak Cohesion** (psf)**:** 388 **Ultimate Cohesion** (psf)**:** 260

Classification, ASTM D2488: (SM) Silty sand
Sample Origin: Boring One at 0' to 5'
Laboratory Remarks: Sample was remolded to 95% relative compaction and optimum moisture.
Maximum Dry Density: 124.1 pcf Optimum Moisture: 9.2%



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.
cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewd By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

MerrellJohnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Direct Shear Test of Soils

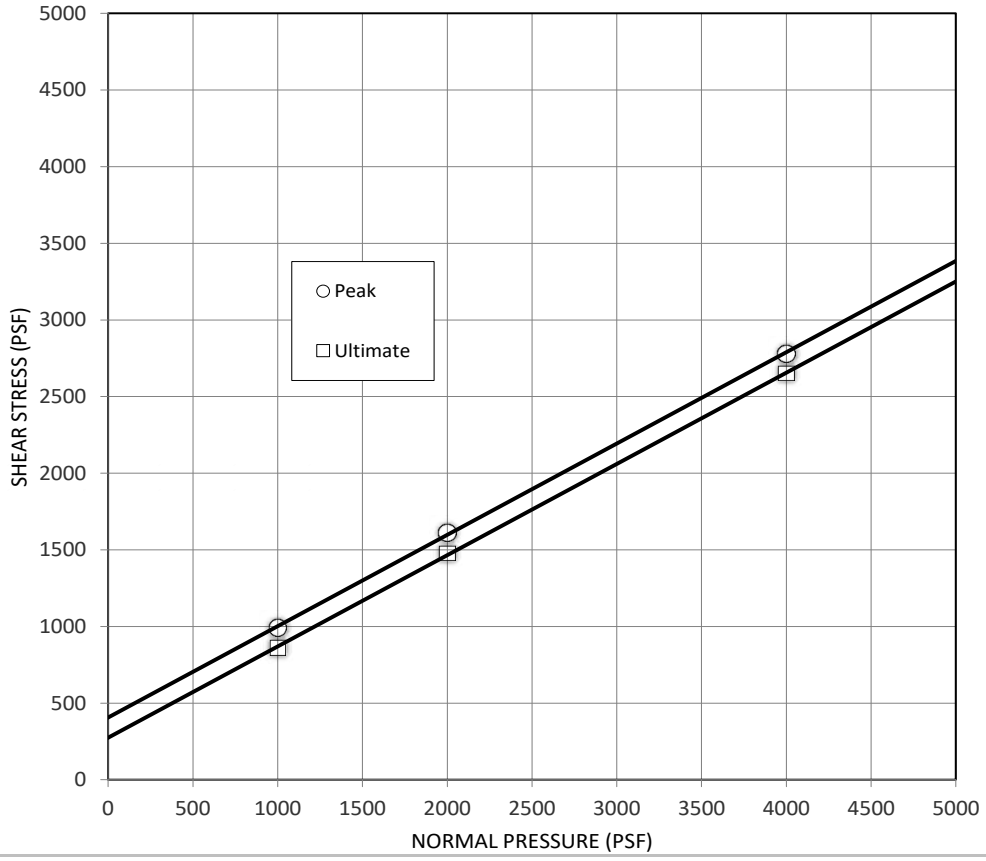
ASTM D3080

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA10252315 **Angle of Internal Friction** (°)**:** 31 **Peak Cohesion** (psf)**:** 406 **Ultimate Cohesion** (psf)**:** 275

Classification, ASTM D2488:	(SM) Silty sand
Sample Origin:	Boring Four at 0' to 5'
Laboratory Remarks:	Sample was remolded to 95% relative compaction and optimum moisture. Maximum Dry Density: 128.1 pcf Optimum Moisture: 6.5%



The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewd By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

MerrellJohnson.

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Expansion Index

ASTM D4829

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 *of* 1
Attachment:	C
Permit No.:	
Client Project No.:	
Other:	
DSA File No.:	
DSA Application No.:	
DSA LEA No.:	

Sample ID: JDA10252311 ☐ **General Compliance** ☐ **Non-Compliance** ☐ **Not Specified**

Classification, ASTM D2487:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Three at 0' to 5'
Laboratory Remarks:	
Tested By:	JJB
Method/Procedure:	ASTM D4829

Expansion Index

Value: 2

Expansion Index	Potention Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
> 130	Very High

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewed By (Signature)

Jeremy Beissner / Laboratory Manager
Name / Title

Corrosion Potential

CT 643, 422, 417, 643

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA10252310

Classification, ASTM D2487:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Two at 5' to 10'
Laboratory Remarks:	

Analysis	Result	Units	Test Method
Minimum Resistivity	1,500	ohm-cm	CT 643
Chloride Content	260	ppm	CT 422
Sulfate Content	0.006	%	CT 417
pH	8.85	pH units	CT 643

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewd By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

Corrosion Potential

CT 643, 422, 417, 643

Project Number:	3813.006.500
Project Title:	Industrial Building
Project Location:	Apple Valley, CA
Client:	Redwood West

Report Date:	12/01/23
Sheet:	1 of 1
Appendix:	C
Permit No:	
Client Project No:	
Other:	
DSA File No:	
DSA Application No:	
DSA LEA No:	

Sample ID: JDA10252311

Classification, ASTM D2487:	(SPSM) Poorly graded sand with silt
Sample Origin:	Boring Three at 0' to 5'
Laboratory Remarks:	

Analysis	Result	Units	Test Method
Minimum Resistivity	260	ohm-cm	CT 643
Chloride Content	1230	ppm	CT 422
Sulfate Content	0.177	%	CT 417
pH	7.86	pH units	CT 643

The Material ☐ Was ☐ Was Not Sampled & tested in accordance with the reqs. of the DSA approved documents.
The Material Tested ☐ Met ☐ Did Not Meet The requirements of the DSA approved documents.

cc: Project Architect, Structural Engineer, Project Inspector, DSA Regional Office, School District

Reviewd By (Signature)

Jeremy Beissner/ Laboratory Manager
Name / Title

Merrell Johnson®

engineering | surveying | testing | inspection

Merrell Engineering Company, Inc. | 22221 US Highway 18, Apple Valley, Ca. 92308 t)760.256.2068 f)760.256.0418 w)www.merrelljohnson.com

MERRELL JOHNSON

12277 Apple Valley Rd. #291, Apple Valley, CA 92308
760-256-2068 | www.merrelljohnson.com

Appendix G

Phase I Environmental Site Assessment

DRAFT

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Assessor's Parcel Numbers – 0463-213-01-0000, -30-0000, and -32-0000

Apple Valley, California

Prepared For:

Redwood West
2250 Newport Beach, Suite 101
Newport Beach, California 92663

Prepared By:

Northgate Environmental Management, Inc.
92 Argonaut, Suite 100
Aliso Viejo, California 92656

May 31, 2023

Project No. 2146.04

DRAFT
PHASE I ENVIRONMENTAL SITE ASSESSMENT

Assessor's Parcel Numbers 0463-213-01-0000, -30-0000, and -32-0000
Apple Valley, California

May 31, 2023

Prepared For:

Redwood West
2250 Newport Beach, Suite 101
Newport Beach, California 92663

Prepared By:

Northgate Environmental Management, Inc.
92 Argonaut, Suite 100
Aliso Viejo, California 92656

Derrick S. Willis
Principal

Nicky G. Robinson, PE, QSD/P
Senior Engineer

TABLE OF CONTENTS

1.0 SUMMARY 1
2.0 INTRODUCTION 2
2.1 Purpose 2
2.2 Scope of Services 2
2.3 Limitations and Exceptions 3
2.3.1 Limitations 3
2.3.2 Exceptions 4
2.4 Phase I ESA Report Shelf Life 4
2.5 User Reliance 5
3.0 USER PROVIDED INFORMATION 6
3.1 Environmental Liens or Activity and Use Limitations 6
3.2 Valuation Reduction for Environmental Issues 6
3.3 Owner, Property Manager, and Occupant Information 6
3.4 Specialized Knowledge 6
3.5 Reason for Performing the Phase I ESA 7
4.0 SUBJECT PROPERTY RECONNAISSANCE 8
4.1 Methodology and Limiting Conditions 8
4.2 Subject Property Conditions 8
4.2.1 Current Use of the Subject Property 8
4.2.2 Description of Structures, Roads, Sewage, and Potable Water Sources 8
4.2.3 Inspection Observations 8
4.3 Current Uses of Adjoining Properties 9
4.4 Subject Property Reconnaissance Summary 10
5.0 SUBJECT PROPERTY PHYSICAL SETTING 11
5.1 Subject Property Location and Legal Description 11
5.2 Subject Property Vicinity General Characteristics 11
5.3 Geology and Groundwater 11
5.3.1 Geology 11
5.3.2 Groundwater 12
6.0 RECORDS REVIEW 13
6.1 Standard Environmental Record Sources 13
6.1.1 Subject Property 13
6.1.2 Subject Property Vicinity Sources 13
6.2 Vapor Encroachment Screening 14
6.3 Additional Environmental Record Sources 15
6.3.1 Department of Toxic Substances Control EnviroStor Website 16
6.3.2 State Water Resources Control Board GeoTracker Website 16
6.3.3 California Environmental Protection Agency Website 16
6.3.4 Regional Water Quality Control Board – Lahontan Region 16

6.3.5 Apple Valley Fire Protection District 16
6.3.6 San Bernardino County – Various Departments 16
6.3.7 Town of Apple Valley – Various Departments 16
6.3.8 California Department of Conservation, Geologic Energy Management Division 17
6.4 Historical Records Review 17
6.4.1 Aerial Photographs 17
6.4.2 Sanborn Maps 20
6.4.3 Topographic Maps 20
6.4.4 City Directories 21
6.5 Building Permits 22
6.6 Property Tax Map 22
6.7 Previous Reports 22
6.8 Non-Scope Considerations 22
6.8.1 Floodplain Maps 22
6.8.2 Radon 22
7.0 INTERVIEWS 24
7.1 Owner Interview 24
7.2 Key Subject Property Manager Interview 24
7.3 Key Subject Property Occupant Interview 24
7.4 Regulatory Agency Interview 24
8.0 PHASE I ESA CONCLUSIONS AND RECOMMENDATIONS 25
9.0 REFERENCES 26
10.0 ENVIRONMENTAL PROFESSIONAL STATEMENT 29

FIGURES

1 Subject Property Vicinity Map
2 Subject Property Plan

SUBJECT PROPERTY PHOTOGRAPHS

APPENDICES

A EDR Environmental Lien and AUL Search Report and Preliminary Title Reports
B The EDR Radius Map™ Report with GeoCheck®
C EDR Vapor Encroachment Screen
D The EDR Aerial Photo Decade Package
E Certified Sanborn® Map Report
F The EDR Historical Topographic Map Report
G The EDR-City Directory Abstract
H EDR Building Permit Report
I The EDR Property Tax Map Report
J Environmental Professional Qualifications

1.0 SUMMARY

This report presents the results of a Phase I Environmental Site Assessment (ESA) performed by Northgate Environmental Management, Inc. (Northgate) for Redwood West at a property with no formal address located south of Quarry Road and north of Cordova Road between Dale Evans Parkway and Flint Road in the City of Apple Valley, San Bernardino County, California (the Subject Property). The Subject Property consists of three legal parcels totaling approximately 97.78 acres of unimproved, vacant land identified as Assessor's Parcel Numbers (APNs) 0463-213-01-0000, -30-0000, and -32-0000. A Subject Property Vicinity Map is shown on Figure 1 and a Subject Property Plan is shown on Figure 2.

The Subject Property has historically been occupied by vacant, desert land from at least the 1930s to the present. The Subject Property is undeveloped and presently occupied by desert landscape. The Subject Property and vicinity are located in a desert area of sparse development.

In summary, Northgate has performed a Phase I ESA of the property located south of Quarry Road and north of Cordova Road between Dale Evans Parkway and Flint Road, identified as APNs 0463-213-01-0000, -30-0000, and -32-0000 in the City of Apple Valley, San Bernardino County, California in in conformance with the scope and limitations of ASTM Practice E 1527-13 and E 1527-21, the latter of which was published on November 1, 2021 and is currently under review by the Environmental Protection Agency (EPA) to be formally adopted as the new standard, and the standards and practices of the All Appropriate Inquiry – Final Rule (40 Code of Federal Regulations [CFR] Part 312). Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report. Our review did not identify the presence of any Recognized Environmental Condition (RECs), Controlled RECs (CRECs), or Historical RECs (HRECs) in connection with the property.

The following business environmental risk was identified during this assessment:

- Apple Valley Development Codes regulate protection of all native plant and animal species at developments in Apple Valley. It is likely that a specific evaluation for the presence of endangered species or critical habitat will be required to develop the Subject Property.
- A mining railroad was identified adjacent to the north of the Subject Property since at least 1932.

2.0 INTRODUCTION

This report presents the results of a Phase I ESA performed by Northgate at the property located south of Quarry Road and north of Cordova Road between Dale Evans Parkway and Flint Road in the City of Apple Valley, San Bernardino County, California. The Subject Property consists of three legal parcels totaling approximately 97.78 acres identified as APNs 0463-213-01-0000, -30-0000, and -32-0000. The Subject Property consists of undeveloped, vacant, desert land. A Subject Property Vicinity Map is shown on Figure 1 and a Subject Property Plan is shown on Figure 2.

2.1 Purpose

The purpose of Phase I ESA has been to identify and evaluate the presence of RECs at the Subject Property. The term "REC" means *(1) the presence of hazardous substances or petroleum products in, on or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on or at the subject property under conditions that pose a material threat of a future release to the environment*. The term is not intended to include *de minimus* conditions that generally do not present a threat to human health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 Scope of Services

Northgate has performed this Phase I ESA in general conformance with the scope and limitations of ASTM E-1527-13 and E-1527-21, *Standard Practices for Environmental Site Assessments: Phase I Environmental Site Assessment Process* and 40 CFR Part 312, *Standards and Practices for All Appropriate Inquiry – Final Rule*, the latter of which was published on November 1, 2021 and is currently under review by the EPA to be formally adopted as the new standard. This investigation was conducted by Nicky Robinson, P.E., QSD/P, with review from Derrick Willis, Principal. The scope of work for the investigation included the following services:

- Review of readily available information regarding the history of the Subject Property, including historic aerial photographs, maps, previous reports, and other information, and discussions with individuals familiar with the Subject Property;
- Review of environmental lien documents obtained for the Subject Property;
- A reconnaissance of the Subject Property and near vicinity;

- Review of regulatory agency files for the Subject Property and surrounding area, as applicable;
- Evaluation of potential RECs, development of conclusions and recommendations as appropriate; and
- Preparation of this report.

2.3 Limitations and Exceptions

2.3.1 Limitations

The purpose of an environmental assessment is to reasonably evaluate the potential for RECs arising from past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. No investigation is thorough enough to absolutely rule out the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not be construed as a guarantee of the absence of such materials on the Subject Property, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the Subject Property that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at un-sampled locations.

Except where there is express concern of Northgate's client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

Where the scope of services is limited to interview and/or review of readily available reports and literature, any conclusions and/or recommendations are necessarily based largely on information supplied by others, the accuracy or sufficiency of which may not be independently reviewed by Northgate.

Any opinions and/or recommendations presented apply to Subject Property conditions existing at the time of performance of services. Northgate is unable to report on, or accurately predict, generally unforeseeable events that may impact the Subject Property following performance of services, whether occurring naturally or caused by external forces. Therefore, Northgate cannot

assume responsibility for such events or their impact. Northgate also cannot assume responsibility for changes in environmental standards, practices, or regulations.

2.3.2 Exceptions

The time intervals between some historical information sources may exceed five years due to the unavailability of such records, additionally, there is no historical Sanborn map coverage for the Subject Property. However, in Northgate's opinion, this data gap does not significantly impact our ability to evaluate historic land use conditions at the Subject Property given the availability of other sources for this information.

At the time this report was prepared, Northgate was unable to interview the Subject Property owner as part of this assessment. This constitutes a data gap as defined in the ASTM Standard that could potentially impact Northgate's ability to evaluate environmental conditions at the Subject Property. Northgate will issue an addendum to this report if any response is received from the Subject Property owner within 90 days of the date of this report that significantly changes the conclusions or recommendations of this report.

At the time this report was prepared, no response had yet been received from the Apple Valley Fire Protection District and the Town of Apple Valley. Northgate will issue an addendum to this report if any public records received from these agencies within 90 days of the date of this report significantly changes the conclusions or recommendations of this report.

There were no other limiting conditions.

2.4 Phase I ESA Report Shelf Life

As defined in the ASTM Standard, a Phase I ESA report remains viable if it was completed no more than 180 days prior to the date of acquisitions or up to one year if the Phase I ESA Report has been updated including the following five components: 1) Interviews; 2) Searches for recorded environmental cleanup liens; 3) Review of government records; 4) Reconnaissance of the Subject Property and adjoining properties; and 5) Environmental Professional Declaration.

The shelf-life date begins with the date upon which the first of these components was completed. The table below summarizes the date of completion of these components of this Phase I ESA report, with the report shelf life initiating from the earliest of the dates provided below.

Report Component	Date
Interviews	See note below
Searches for recorded environmental cleanup liens	May 12, 2023

Report Component	Date
Review of government records	
Government records requests	May 10, 2023
Radius Report	May 11, 2023
Aerial photographs	May 11, 2023
Sanborn maps	May 11, 2023
Historic topographic maps	May 11, 2023
City directories	May 13, 2023
Subject Property reconnaissance	May 19, 2023
Environmental Professional Declaration	DRAFT

At the time this report was prepared, Northgate was unable to interview the Subject Property owner as part of this assessment. This constitutes a data gap as defined in the ASTM Standard that could potentially impact Northgate's ability to evaluate environmental conditions at the Subject Property. Northgate will issue an addendum to this report if any response is received from the Subject Property owner within 90 days of the date of this report that significantly changes the conclusions or recommendations of this report.

2.5 User Reliance

This report has been prepared for the exclusive use of Redwood West (the User) and their corporations, subsidiaries, affiliates, partners, partnerships, and lenders in evaluating environmental conditions at the Subject Property. Others may not use or rely on the information contained in this report without the express written consent of Northgate.

3.0 USER PROVIDED INFORMATION

3.1 Environmental Liens or Activity and Use Limitations

Environmental lien and activity and use limitation (AUL) searches were conducted for APN 0463-213-01-0000 by EDR (EDR, 2023a) and for APNs 0463-213-30-0000 and 0463-213-32-0000 by EDR (EDR, 2023b). EDR's review indicates that there are no environmental liens or activity and use limitations of record for these APNs.

Northgate additionally reviewed a copy of the Preliminary Title Reports provided by the User for the Subject Property. The Preliminary Title Reports indicated that there are no environmental liens or activity and use limitations of record for these APNs. The Subject Property is not listed on the Federal NPL LIENS database. Copies of the Environmental Lien and AUL Search (EDR, 2023a and EDR, 2023b) and the Preliminary Title Report (FATC, 2023, and FNTC, 2023a and 2023b) are included in Appendix A.

3.2 Valuation Reduction for Environmental Issues

The User has not provided Northgate with any information indicating that the value of the property has been reduced due to environmental issues.

3.3 Owner, Property Manager, and Occupant Information

The environmental lien and AUL search reports prepared by EDR and Preliminary Title Reports indicates that title to the Subject Property is vested in the following entities for each parcel:

- APN 0463-213-01-0000 is vest in Linkup LLC as of 2021;
- APN 0463-213-30-0000 is vest in the Brewster Family Trust as of 1991 per the title report and the oanna (presumed to be a typo on the EDR report that should be Joanna) K Brewster TR as of 2012; and
- APN 0463-213-32-0000 is vest in Season's Land Corporation, a California corporation, as of 2012.

The Subject Property is currently unoccupied desert land.

3.4 Specialized Knowledge

The User has indicated that they do not possess any additional specialized knowledge regarding the Subject Property.

3.5 Reason for Performing the Phase I ESA

Northgate understands that the purpose of the Phase I ESA is to evaluate the condition of the property and identify RECs in compliance with ASTM and AAI standards as part of due diligence for potential purchase of the Subject Property by Redwood West.

4.0 SUBJECT PROPERTY RECONNAISSANCE

Current Subject Property conditions were observed during a reconnaissance of the Subject Property and near vicinity by Mr. Scott Hawes of Northgate on May 19, 2023. Mr. Hawes was unescorted for the reconnaissance. Subject Property photographs from the reconnaissance are attached at the end of this report.

4.1 Methodology and Limiting Conditions

The Subject Property reconnaissance was performed by traversing the Subject Property by car and on foot and the general Subject Property vicinity by car. There were no limiting conditions.

4.2 Subject Property Conditions

4.2.1 Current Use of the Subject Property

The Subject Property generally consists of vacant desert land covered with a moderate growth of shrubs and brush. Several dry creek beds were observed to traverse the Subject Property. Scattered trash and household debris is present at the Subject Property along Quarry Road.

No hazardous materials, wastes, or chemicals were observed to be stored, used, or generated in any part of the Subject Property. No evidence of any current underground or aboveground tanks, sumps, clarifiers, or other subsurface features was identified during the reconnaissance.

4.2.2 Description of Structures, Roads, Sewage, and Potable Water Sources

The Subject Property is currently undeveloped. The Subject Property is bordered to the north by Quarry Road, to the east by undeveloped, vacant desert land, to the south by Cordova Road, and to the west by undeveloped, vacant desert land. It is our understanding that new development in the area will be supplied with water and sewer service by the local municipal utility providers.

4.2.3 Inspection Observations

Observation results from the inspection for specific features listed in the ASTM E-1527-21 standard are summarized in the table below.

Yes	No	Observed Feature(s)	Notes
	✓	Hazardous Substances and Petroleum Products in Connection with Identified Uses	

Yes	No	Observed Feature(s)	Notes
	✓	Storage Tanks	
	✓	Strong, Pungent, or Obnoxious Odors	
	✓	Standing Surface Water, Pools, or Sumps Containing Liquids	
	✓	Drums, Totes, and Bulk Containers	
	✓	Hazardous Substances and Petroleum Product Containers Not in Connection with Identified Uses	
✓		Unidentified Substance Containers	Apparent used paint cans
	✓	PCB-Containing Items	
	✓	Heating / Cooling	
	✓	Stains or Corrosion on Floors, Walls, or Ceilings	
	✓	Drains and Sumps	
	✓	Pits, Ponds, of Lagoons	
	✓	Stained Soil or Pavement	
	✓	Stressed Vegetation	
✓		Solid Waste	Scattered trash and household debris is present at the Subject Property along Quarry Road.
	✓	Water / Wastewater	
	✓	Wells	
	✓	Septic Systems or Cesspools	

4.3 Current Uses of Adjoining Properties

General land use in the area consists primarily of vacant desert land, with scattered rural residences and commercial development. The Subject Property is bordered on the north by Quarry Road and a railroad followed vacant desert land with limited scattered rural residences. To the east, the Subject Property is bordered by vacant desert land followed by Flint Road then additional vacant desert land. The Subject Property is bordered to the south by Cordova Road followed by vacant desert land. Vacant desert land borders the Subject Property to the west followed by a commercial development and Dale Evans Parkway farther west of the Subject Property. Big Lots and Wal-Mart distribution warehouse and trucking facilities are located farther to the southwest of the Subject Property, respectively, at the intersection of Johnson Road and Navajo Road.

4.4 Subject Property Reconnaissance Summary

In summary, Northgate's reconnaissance of the Subject Property did not indicate the visible presence of conditions indicating the past use, storage, or release of hazardous materials at the Subject Property.

5.0 SUBJECT PROPERTY PHYSICAL SETTING

5.1 Subject Property Location and Legal Description

The Subject Property consists of three legal parcels totaling approximately 97.78 acres of land located south of Quarry Road and north of Cordova Road between Dale Evans Parkway and Flint Road in the City of Apple Valley. The Subject Property includes APNs 0463-213-01-0000, -30-0000, and -32-0000 in San Bernardino County. A Subject Property Vicinity Map is shown on Figure 1 and a Subject Property Plan is shown on Figure 2.

5.2 Subject Property Vicinity General Characteristics

The Subject Property consists of vacant desert land that is undeveloped. The Subject Property is located in an area of primarily undeveloped desert land with two warehouse distribution and trucking facilities located farther to the southwest of the Subject Property, in Apple Valley, California. The Apple Valley Airport is located approximately 1.45-miles south of the Subject Property. Scattered rural residences are present in the outlying areas.

5.3 Geology and Groundwater

5.3.1 Geology

The Subject Property is located in the western Mojave Desert between the southern Sierra Nevada and San Bernardino Mountains within the Basin and Range physiographic province. Much of the area is low-relief desert that surrounds small mountains and bedrock knolls and hills. The shallow geology of the area consists of Pleistocene and younger river channel and floodplain deposits in close proximity to the Mojave River, which is regionally underlain by the Pliocene and younger alluvial fan deposits (CDWR, 2004). The alluvial fan deposits range from unconsolidated to partly consolidated with a maximum thickness of 1,000 feet (CDWR, 2004).

Soil borings advanced in the Subject Property vicinity by others, indicate that subsurface materials generally consist of sand with gravel to a maximum depth of 40 feet below ground surface ([bgs], A.C.C. E.S., 2010).

According to the U.S. Geological Survey topographic map of the Apple Valley North Quadrangle, the Subject Property slopes gently to the southwest. Elevations at the Subject Property range from about 3080 feet above mean sea level (msl) at the southwest corner of the Subject Property to about 3130 feet above msl in the northeast corner of the Subject Property. On a regional basis, topography generally slopes to the southwest or south.

5.3.2 Groundwater

The Subject Property is located within the Upper Mojave River Groundwater Basin. The groundwater basin is bounded on the north by basement rock outcrops near Helendale, on the south by the basement rocks of the San Bernardino Mountains, on the east by basement exposures of the mountains surrounding Apple Valley and on the west by a surface drainage divide between this basin and El Mirage Valley Basin, and basement rocks that form the Shadow Mountains (CDWR, 2004).

The main water bearing units of the basin are the Pleistocene floodplain deposits in close proximity to the Mojave River and the regional Pliocene alluvial fan deposits (CDWR, 2004). Regionally, groundwater flows towards the Mojave River; therefore, groundwater flow from the Subject Property would be toward the southwest (CDWR, 2004). Based on nearby sites, groundwater has been detected between 115 and 200 feet bgs and flows in a southerly direction, varying from southeast to southwest (LOR, 2008 and A.C.C. E.S., 2010).

6.0 RECORDS REVIEW

6.1 Standard Environmental Record Sources

To determine if the Subject Property has any documented environmental concerns, or if other sites with documented environmental concerns exist within the search radii of the Subject Property prescribed by ASTM 1527-13 and *All Appropriate Inquiry*, Northgate reviewed a summary of regulatory agency database listings prepared by EDR. In addition, where appropriate, we reviewed local regulatory agency files for additional specific information regarding sites identified in the EDR report judged to be of possible concern to the Subject Property. The EDR report presenting a summary of the agency databases reviewed and a map showing the location of the identified sites is provided as Appendix B (EDR, 2023c). The results of the database search and follow-up agency file review are summarized below.

6.1.1 Subject Property

The regulatory agency database search prepared by EDR did not have any listings for the Subject Property.

6.1.2 Subject Property Vicinity Sources

The regulatory agency database search prepared by EDR indicates the presence of one agency-database listing for facilities located within an approximate one-mile radius of the Subject Property. The EDR database report containing a list of the agency databases searched is attached in Appendix B.

The Victorville PBR N-1 facility was identified approximately 0.50-miles south of the Subject Property on the Envirostor, unexploded ordnances (UXO), and the formerly used defense sites (FUDS) databases. The facility historically consisted of vacant, desert land that was formerly occupied by the United States (U.S.) Army as part of a practice bombing range during the 1940s. Information in the file indicates that the former PBR No. 1 originally included 560 acres of land. Victorville PBR No. 1 was used by the Army Air Force based at the Victorville Airfield as a precision target area. The War Department improvements on PBR No. 1 consisted of frame butts and appurtenances, fences and gates, and a bombing target. There were no buildings on the bombing range. The bombing target was located in the approximate center of the range and was composed of asphalt strips approximately 5 feet wide configured as three concentric circles, with approximate radii of 100, 200, and 300 feet. In addition, there were two strips of asphalt, which transected the concentric circles at right angles to each other.

The leases on the 400 acres acquired from private landowners were terminated on December 1, 1942, and on November 1, 1948, 160 acres of Victorville PBR No. 1 were informally returned to the U.S. Department of the Interior by a Letter of Transfer. The Letter of Transfer declared the bombing target to have been "dedudded" and certified to be free and clear of explosives or explosive objects reasonably possible to detect by visual inspection. Transfer of land from the Department of Defense (DoD) to the U.S. Department of the Interior became official on March 29, 1954, by Public Land Order 948. The site was then divided into 46 parcels owned by private landowners (USACE, 1995). A more recent assessment performed by the military (USACE, 2007a and USACE, 2007b) concluded that 1) a potential for hazards exists at the site, 2) the potential hazard is classified as "marginal", and 3) "additional action is recommended, as appropriate.

Information in the USACE files indicates that only type of munitions identified as being used on the PBR No. 1 Site was the, M38A2 practice Bomb, which was constructed of welded sheet metal, filled with a mixture of water and sand and had provisions for an M1A1, 4.25-lb spotting charge filled with approximately 3lbs of black powder located in the tail assembly and initiated when impacting the ground by a striker, firing pin and a 28-gauge blank shotgun shell.

In 2017, Northgate developed and oversaw remedial actions at the southeastern portion of this practice target during redevelopment of this area into a distribution center for Big Lots. Remedial action was recommended by Northgate to reduce to a very low level the risk associated with the former U.S. Army Air Force's use of the facility as a precision practice bomb target to human health and the environment based on the future land use The remedial action program included operations and management, a boundary survey, surface clearance, vegetation clearance, excavation and soil sifting, scarification, construction support, instrument verification strip, and disposal of materials potentially presenting and explosive hazard and munitions debris. Remedial actions were completed in 2018 and ongoing operations and maintenance is routinely conducted (Northgate, 2019).

Given the relative distance, downgradient location, and the remedial action completed, this facility does not appear to represent a potential threat to soil, soil vapor, and/or groundwater quality at the Subject Property.

6.2 Vapor Encroachment Screening

A vapor encroachment screening (VES) evaluation was performed for the Subject Property. A "Tier I" VES was performed to evaluate the potential for vapors associated with contaminated soil and/or groundwater to impact the Subject Property, whether originating from the Subject Property or from nearby off-Subject Property sources. For properties where a vapor

encroachment concern (VEC) could not be ruled out, existing subsurface investigation reports, if available, were used to evaluate potential impacts to the Subject Property (Tier 2 screening). A copy of the EDR Vapor Encroachment Screen is included in Appendix C (EDR, 2023d). The following table presents a summary of the VES findings:

Potential for Vapor Intrusion on Subject Property	
Areas of Concern	*Conclusion*
Subject Property (existing conditions)	VEC not present.
Subject Property (former condition)	VEC not present.
Adjoining Property or near-by Property Operations or Existing Conditions	VEC not present.
Historical Uses of Adjoining Property or Near-by Properties	VEC not present.

Our review indicates that the Subject Property and adjoining properties have historically been occupied by undeveloped desert land. Based on the historic land use, and the lack of known sources of volatile organic compounds present in the subsurface either on, or adjacent to the Subject Property, a VEC is not present for the Subject Property related to the former or existing conditions or the adjoining properties.

6.3 Additional Environmental Record Sources

Northgate contacted local regulatory agencies for information regarding the use or storage of hazardous materials at the Subject Property, and reviewed files at any agency maintaining a file for the Subject Property. The following agencies were contacted for information regarding the use or storage of hazardous materials at the Subject Property:

- Department of Toxic Substances Control EnviroStor Website;
- State Water Resources Control Board GeoTracker Website;
- California Environmental Protection Agency Website;
- Regional Water Quality Control Board – Lahontan Region;
- Apple Valley Fire Protection District;
- San Bernardino County – Various Departments;
- Town of Apple Valley – Various Departments; and
- California Department of Conservation, Geologic Energy Management Division.

The results of our review are described in the following sections.

6.3.1 Department of Toxic Substances Control EnviroStor Website

The Subject Property is not listed on the Department of Toxic Substances Control's (DTSC's) EnviroStor website, and thus, there are no files related to the property.

6.3.2 State Water Resources Control Board GeoTracker Website

The Subject Property is not listed on the State Water Resources Control Board (SWRCB) GeoTracker website, and thus, there are no files related to the property.

6.3.3 California Environmental Protection Agency Website

The Subject Property is not listed on the California Environmental Protection Agency (CalEPA) website, and thus, there are no files related to the property.

6.3.4 Regional Water Quality Control Board – Lahontan Region

Northgate submitted a file review request to the Regional Water Quality Control Board – Lahontan Region (RWQCB). The RWQCB indicated that no files were maintained for the Subject Property.

6.3.5 Apple Valley Fire Protection District

Northgate submitted a file review request to the Apple Valley Fire Protection District (AVFPD). At the time this report was prepared, no response had yet been received from the AVFPD. Northgate will issue an addendum to this report if any public records received from this agency within 90 days of the date of this report significantly changes the conclusions or recommendations of this report.

6.3.6 San Bernardino County – Various Departments

Northgate submitted a file review request to San Bernardino County including the Environmental Health Services, Planning, and Building and Safety Departments. San Bernardino County indicated that no files were maintained for the Subject Property.

6.3.7 Town of Apple Valley – Various Departments

Northgate submitted a file review request to the Town of Apple Valley. At the time this report was prepared, no response had yet been received from the Town of Apple Valley. Northgate will issue an addendum to this report if any public records received from this agency within 90 days of the date of this report significantly changes the conclusions or recommendations of this report

6.3.8 California Department of Conservation, Geologic Energy Management Division

According to the EDR GeoCheck® - Physical Setting Source Addendum located in the EDR Radius Report (Appendix B), there are no oil and gas wells located within 1-mile of the Subject Property. Information available on the California Department of Conservation, Geologic Energy Management Division's website indicates that there are no wells located on or within a 0.25-mile radius of the Subject Property. There are no wells that appear to represent an environmental concern to the Subject Property.

6.4 Historical Records Review

Information on historical land use at the Subject Property and adjacent area was evaluated by reviewing historic aerial photographs, maps, and other documents. Summaries of these investigation findings are presented below.

6.4.1 Aerial Photographs

Northgate reviewed historic aerial photographs of the Subject Property from 1948, 1953, 1969, 1973, 1979, 1984, 1994, 2005, 2009, 2012, 2016, and 2020 obtained from EDR (EDR, 2023e). Copies of the aerial photographs are provided in Appendix D. A summary of our aerial photograph review is presented below.

Year: 1948	**Scale:** 1" = 500'	**Source:** USGS
Subject Property Description: The Subject Property consists of vacant, undeveloped, desert land. A dry riverbed traverses diagonally across the southern portion of the Subject Property from the east to the west.		
North:	A dirt road followed by vacant desert land.	
East:	Vacant desert land.	
South:	Vacant desert land.	
West:	Vacant desert land.	

Year: 1953	**Scale:** 1" = 500'	**Source:** USDA
Subject Property Description: The Subject Property appears similar to the 1948 photograph.		
North:	A road followed by vacant desert land and a rural residence.	
East:	Appears similar to the 1948 photograph.	
South:	Appears similar to the 1948 photograph.	
West:	Appears similar to the 1948 photograph.	

Year: 1969	**Scale:** 1" = 500'	**Source:** USGS
Subject Property Description: The Subject Property appears similar to the 1953 photograph.		
North:	A road followed by vacant desert land and scattered rural residences.	
East:	Appears similar to the 1953 photograph.	
South:	Appears similar to the 1953 photograph.	
West:	Appears similar to the 1953 photograph.	

Year: 1973	**Scale:** 1" = 500'	**Source:** USGS
Subject Property Description: The Subject Property appears similar to the 1968 photograph.		
North:	Appears similar to the 1968 photograph.	
East:	Appears similar to the 1968 photograph.	
South:	Appears similar to the 1968 photograph.	
West:	Appears similar to the 1968 photograph.	

Year: 1979	**Scale:** 1" = 500'	**Source:** USGS
Subject Property Description: The Subject Property appears similar to the 1973 photograph.		
North:	Appears similar to the 1973 photograph.	
East:	Appears similar to the 1973 photograph.	
South:	Appears similar to the 1973 photograph.	
West:	Appears similar to the 1973 photograph.	

Year: 1984	**Scale:** 1" = 500'	**Source:** USDA
Subject Property Description: The Subject Property appears similar to the 1975 photograph.		
North:	Appears similar to the 1975 photograph.	
East:	Appears similar to the 1975 photograph, except that several dirt roads are present farther east of the Subject Property.	
South:	Appears similar to the 1975 photograph.	
West:	Appears similar to the 1975 photograph, except that several dirt roads are present farther west of the Subject Property.	

Year: 1994	**Scale:** 1" = 500'	**Source:** USGS/DOQQ
Subject Property Description: The Subject Property appears similar to the 1984 photograph.		
North:	Appears similar to the 1984 photograph.	
East:	Appears similar to the 1984 photograph.	
South:	Appears similar to the 1975 photograph, except that several dirt roads are present farther south of the Subject Property.	
West:	Appears similar to the 1984 photograph.	

Year: 2005	**Scale:** 1" = 500'	**Source:** USDA/NAIP
Subject Property Description: The Subject Property appears similar to the 1994 photograph.		
North:	Appears similar to the 1994 photograph.	
East:	Appears similar to the 1994 photograph.	
South:	Appears similar to the 1994 photograph.	
West:	Appears similar to the 1994 photograph.	

Year: 2009	**Scale:** 1" = 500'	**Source:** USDA/NAIP
Subject Property Description: The Subject Property appears similar to the 2005 photograph.		
North:	Appears similar to the 2005 photograph.	
East:	Appears similar to the 2005 photograph.	
South:	Appears similar to the 2005 photograph.	
West:	Appears similar to the 2005 photograph.	

Year: 2012	**Scale:** 1" = 500'	**Source:** USDA/NAIP
Subject Property Description: The Subject Property appears similar to the 2009 photograph.		
North:	Appears similar to the 2009 photograph.	
East:	Appears similar to the 2009 photograph.	
South:	Appears similar to the 2009 photograph.	
West:	Appears similar to the 2009 photograph.	

Year: 2016	**Scale:** 1" = 500'	**Source:** USDA/NAIP
Subject Property Description: The Subject Property appears similar to the 2012 photograph.		
North:	Appears similar to the 2012 photograph.	
East:	Appears similar to the 2012 photograph.	
South:	Appears similar to the 2012 photograph.	
West:	Appears similar to the 2012 photograph.	

Year: 2020	**Scale:** 1" = 500'	**Source:** USDA/NAIP
Subject Property Description: The Subject Property appears similar to the 2016 photograph.		
North:	Appears similar to the 2016 photograph.	
East:	Appears similar to the 2016 photograph.	
South:	Appears similar to the 2016 photograph.	
West:	Appears similar to the 2016 photograph.	

In summary, historical aerial photographs indicate that the Subject Property primarily consisted of vacant desert land from at least the late 1940s at least 2020. Scattered rural residences have been present to the north of the Subject Property since the 1950s.

6.4.2 Sanborn Maps

According to EDR, our Sanborn Map supplier, no Sanborn Map coverage is available for the Subject Property. A copy of the Sanborn Map report is provided in Appendix E (EDR, 2023f).

6.4.3 Topographic Maps

Northgate reviewed historic topographic maps for the Subject Property obtained from EDR for the years 1932, 1934, 1957, 1970, 1978, 1993, 2012, 2015, and 2018. Copies of the topographic maps are provided in Appendix F (EDR, 2023g). Information from the topographic maps is summarized below.

Quadrangle: Barstow	**Scale:** 1:125,000	**Series:** 30 Minute
1932:	The Subject Property and vicinity are shown as vacant desert land. A road is mapped adjacent to the north of the Subject Property and additional roads are mapped in the vicinity of the Subject Property with scattered rural residences primarily farther northeast, east, and southeast of the Subject Property.	
1934:	The Subject Property and vicinity appear similar to the 1932 map.	
Quadrangle: Apple Valley	**Scale:** 1:62,500	**Series:** 15 Minute
1957:	The Subject Property and vicinity are mapped within the "Sidewinder Valley" and are shown as vacant desert land. A stream is shown to extend through the southern portion of the Subject Property extending from east to west. A road and a mining railroad are now mapped adjacent to the north of the Subject Property. Additional roads and scattered rural residences are now shown primarily to the west and northwest of the Subject Property.	

Quadrangle: Turtle Valley/Apple Valley North **Scale:** 1:24,000 **Series:** 7.5 Minute	
1970:	The Subject Property and vicinity appear similar to the 1957 map, except that additional streams are now mapped through the Subject Property, including the central portion of the Subject Property, and immediate vicinity of the Subject Property extending from northeast to southwest. Additional roads are now mapped in the vicinity of the Subject Property.
Quadrangle: Apple Valley North **Scale:** 1:24,000 **Series:** 7.5 Minute	
1978:	The Subject Property and vicinity appear similar to the 1970 map.
Quadrangle: Turtle Valley/Apple Valley North **Scale:** 1:24,000 **Series:** 7.5 Minute	
1993:	The Subject Property and vicinity appear similar to the 1978 map, except that additional roads are now mapped in the vicinity of the Subject Property, including Cordova Road to the south of the Subject Property.
2012:	The Subject Property and vicinity appear similar to the 1993 map.
2015:	The Subject Property and vicinity appear similar to the 2012 map.
2018:	The Subject Property and vicinity appear similar to the 2015 map.

In summary, available topographic maps show the Subject Property as undeveloped land from the late 1930s to the early 2010s.

6.4.4 City Directories

Northgate reviewed a summary of local city directory listings for the Subject Property and nearby vicinity available at various intervals from 1971 to 2020, obtained from EDR. A copy of the EDR summary report is provided in Appendix G (EDR, 2023h).

The city directory summary did not indicate any listings for the Subject Property or adjacent sites. Private owners were identified along Quarry and Cordova Roads between 1971 and 2020. The property located approximately two miles west of the Subject Property at 21050 Cordova Road was identified as a custom design fabrication facility in 2005 followed by a cleaning service in 2010.

None of the identified city directory listings appear to represent a significant potential threat to soil, soil vapor, or groundwater quality at the Subject Property based on their location and years of operation.

6.5 Building Permits

Northgate reviewed a summary of building permits for the Subject Property and adjacent properties obtained from EDR on May 11, 2023. However, no permits for the Subject Property or for properties in the vicinity of the Subject Property were found. A copy of the Building Permit Report is provided in Appendix H (EDR, 2023i).

6.6 Property Tax Map

Northgate reviewed a property tax map report for the Subject Property and adjacent properties obtained from EDR on May 11, 2023. The Subject Property was identified as APNs 0463-213-01-0000, -30-0000, and -32-0000 and reported to consist of 97.78 acres. A copy of the Property Tax Map Report is provided in Appendix I (EDR, 2023j).

6.7 Previous Reports

No previous reports, with the exception of the Preliminary Title Reports provided by the User, as discussed in Section 3.0, were available for the Subject Property.

6.8 Non-Scope Considerations

The following potential environmental concerns that are not within the scope of the ASTM Standard were evaluated as part of this assessment.

6.8.1 Floodplain Maps

Northgate viewed an online version of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Town of Apple Valley, Panel 5830H. This panel is unavailable for viewing (FEMA, 2008). According to the Local Hazard Mitigation Plan prepared for the Town of Apple Valley (TAV, 2017), the Subject Property does not lie within the 100- or the 500-year flood zones.

6.8.2 Radon

The California Department of Health Services' (DHS's) online list of indoor radon levels indicates that radon concentrations from all but one of 30 indoor air samples collected in zip code area 92307 were less than 4.0 pico-curies per liter (pCi/L) (DHS, 2010). According to the EDR Radius Report (Appendix B), the federal Environmental Protection Agency (EPA) radon zone for an Bernardino County is Zone 2 (indoor average level greater than or equal to 2 pCi/L and less than or equal to 4 pCi/L)

The State of California Division of Drinking Water and Environmental Management maintains a database of radon test results indicating that out of 18 samples collected in San Bernardino County in California, in the living area-first floor, all of the samples in the living area-first floor were less than 4 pCi/L and the average activity was 0.678 pCi/L. The DHS and the EPA recommend that some form of mitigation be conducted for houses with indoor radon concentrations of 4 pCi/L or greater.

These results indicate that radon gas does not appear to constitute a significant environmental concern at the Subject Property.

7.0 INTERVIEWS

7.1 Owner Interview

At the time this report was prepared, Northgate was unable to interview the Subject Property owner as part of this assessment. This constitutes a data gap as defined in the ASTM Standard that could potentially impact Northgate's ability to evaluate environmental conditions at the Subject Property. Northgate will issue an addendum to this report if any response is received from the Subject Property owner within 90 days of the date of this report that significantly changes the conclusions or recommendations of this report.

7.2 Key Subject Property Manager Interview

The Subject Property is unoccupied and therefore no Key Subject Property Manager Interview was conducted.

7.3 Key Subject Property Occupant Interview

The Subject Property is unoccupied and therefore no Key Subject Property Occupant Interview was conducted.

7.4 Regulatory Agency Interview

Northgate did not interview any regulatory agency personnel as part of this Phase I ESA.

8.0 PHASE I ESA CONCLUSIONS AND RECOMMENDATIONS

This report presents the results of a Phase I ESA performed at the property located south of Quarry Road and north of Cordova Road between Dale Evans Parkway and Flint Road in the City of Apple Valley, San Bernardino County, California identified as APNs 0463-213-01-0000, -30-0000, and -32-0000. The purpose of the investigation is to identify the potential presence of RECs at the Subject Property.

A REC refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment.

- Northgate did not identify any RECs during the course of this assessment.

A CREC refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

- Northgate did not identify any CRECs during the course of this assessment.

An HREC refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

- Northgate did not identify any HRECs during the course of this assessment.

A business environmental risk is defined by ASTM E 1527-13 as a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations. The following business environmental risk was identified during the course of this assessment:

- Apple Valley Development Codes regulate protection of all native plant and animal species at developments in Apple Valley. It is likely that a specific evaluation for the presence of endangered species or critical habitat will be required to develop the Subject Property.
- A mining railroad was identified adjacent to the north of the Subject Property since at least 1932.

9.0 REFERENCES

Contacts

- Apple Valley Fire Protection District – *Online resource*
- California Department of Conservation, Geologic Energy Management Division – *Online resource*
- California Department of Toxic Substances Control EnviroStor Website – *Online resource*
- California Environmental Protection Agency Regulated Site Portal Website – *Online resource*
- Regional Water Quality Control Board – Lahontan Region – *rb6s-pra@waterboards.ca.gov*
- San Bernardino County Public Health Department, Division of Environmental Health Services – *Online resource*
- San Bernardino County – Various Departments – *Online resource*
- State Water Resource Control Board GeoTracker Website – *Online resource*
- Town of Apple Valley – Various Departments – *records@applevalley.org*

Publications and Reports

Associated Consulting Civil & Environmental Services (A.C.C.E.S.), 2010. *Additional Subsurface Soil Investigation at Aztek Aviation, Aztek Aviation, 21600 Corwin Road, Apple Valley, CA 92307*. April 23.

California Department of Health Services (DHS), 2010. C*alifornia Indoor Radon Levels Sorted by Zip Code*. Online address: http://www.cdph.ca.gov/healthinfo/environhealth/Pages/Radon.aspx. Updated March 28.

California Department of Water Resources (CDWR), 2004, California's Groundwater, Bulletin 118 - 2004 update.

Environmental Data Resources, Inc. (EDR), 2023a. E*DR Environmental Lien and AUL Search, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 12.

_____, 2023b. E*DR Environmental Lien and AUL Search, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 24.

_____, 2023c. T*he EDR Radius Map™ Report with GeoCheck®, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

_____, 2023d. EDR *Vapor Encroachment Screen, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 15.

_____, 2023e. T*he EDR Aerial Photo Decade Package, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

_____, 2023f. C*ertified Sanborn® Map Report, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

_____, 2023g. T*he EDR Historical Topographic Map Report, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

_____, 2023h. T*he EDR-City Directory Abstract, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 13.

_____, 2023i. *The EDR Building Permit Report, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

_____, 2023j. *The EDR Property Tax Map Report, Apple Valley, Quarry Road, Apple Valley, CA 92307*. May 11.

Federal Emergency Management Agency (FEMA), 2008. *Flood Insurance Rate Map (FIRM) #06071C5830H for Town of Apple Valley, California*. August 28.

Fidelity National Title Company (FDTC), 2023. *Preliminary Report, APN – 0463-213-01-0000, Apple Valley, CA.* March 22.

_____, 2023b. *Preliminary Report, Vacant Land, Apple Valley, CA.* March 2.

First American Title Company (FATC), 2023. *Preliminary Report, Vacant Land, Apple Valley, CA.* February 23.

LOR Geotechnical Group Inc. (LOR), 2008. *Case Closure Evaluation, Rebel Gas, 20230 Highways 18, and Apple Valley, California 92307, LOP Case No. 97035*. August 6.

Northgate Environmental Management, Inc. (Northgate), 2019. *Site Remediation Completion Report, Project Jupiter – 18880 Navajo Road, Apple Valley, California*. March 13.

Town of Apple Valley (TAV), 2017. *Local Hazard Mitigation Plan, 2017 Plan Update*.

US Army Corps of Engineers (USACE), 1995. FUDS Division, (Defense Environmental Restoration Program, Formerly Used Defense Sites.

_____, 2007a. Final Technical Planning Memorandum & Associated Documentation, Victorville Precision Bombing Range No. 1, San Bernardino County, California. April.

_____, 2007b. Technical Project Planning Memorandum, Victorville Precision Bombing Range No. 1, San Bernardino County, California.

10.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

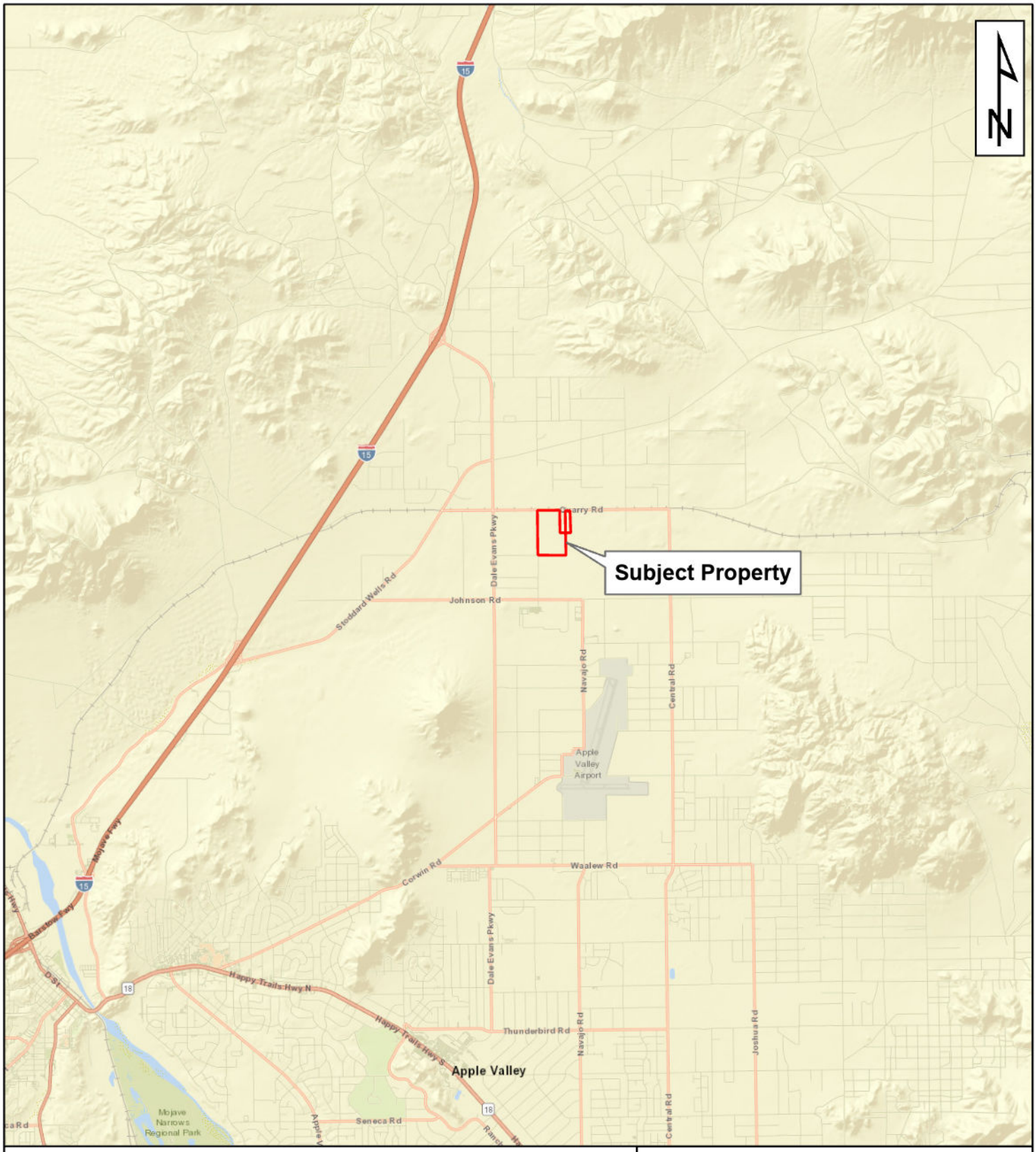
I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312, and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Nicky G. Robinson, PE, QSD/P
Senior Engineer

Derrick S. Willis
Principal

Qualifications of the Environmental Professional are provided in Appendix J.

FIGURES



Legend

Subject Property

0 4,000 8,000 Feet

FIGURE 1

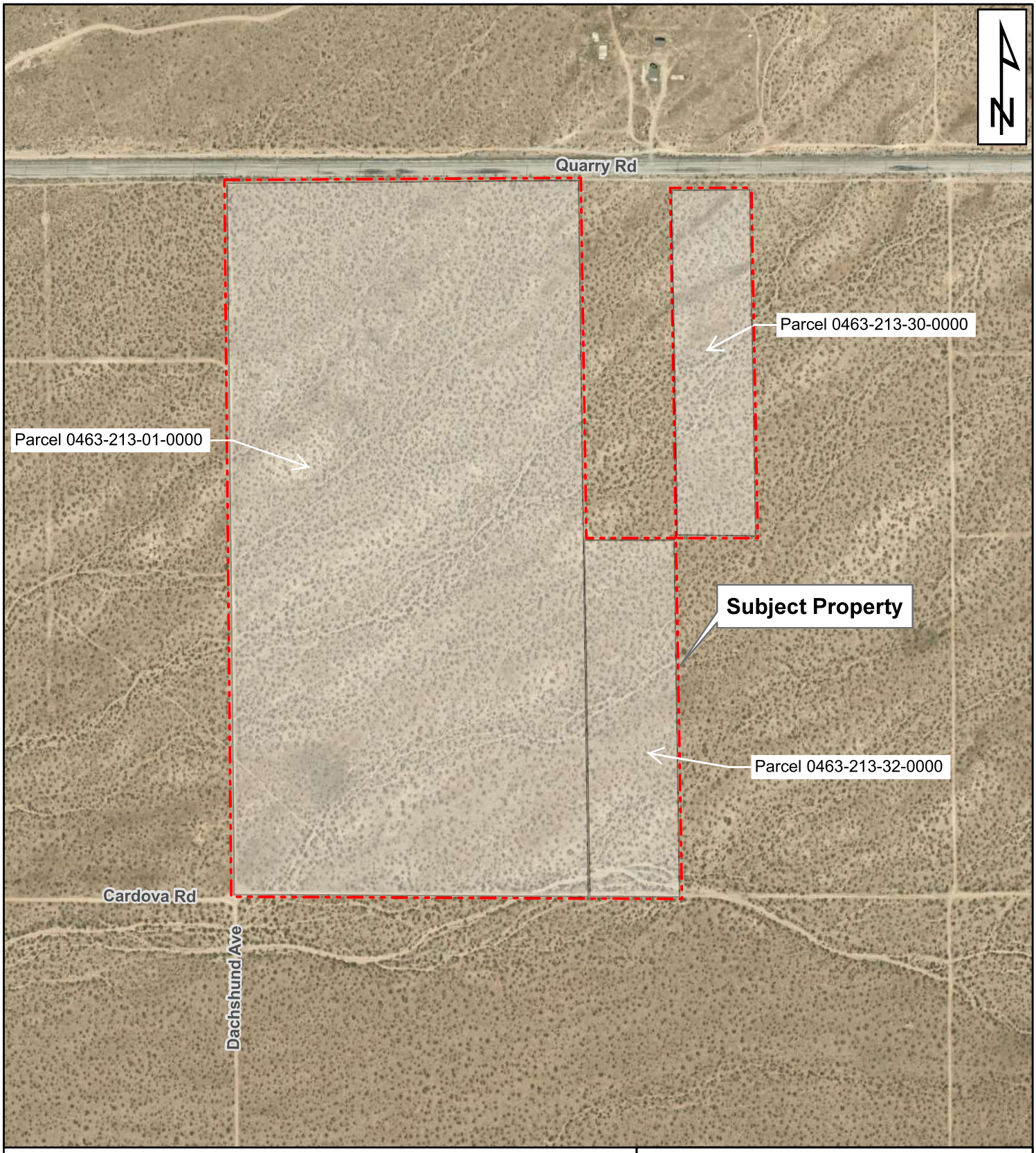
SUBJECT PROPERTY VICINITY MAP

Phase I Environmental Site Assessment
Assessor's Parcel Numbers - 0463-213-01-0000, -30-0000, and -32-0000
Apple Valley, California

DATE	PROJECT NUMBER
5/17/2023	2146.04

northgate environmental management, inc

Document Path: M:\ArcGIS\Packages\2146.04-PhaseI_AppleValley\Figure1.2.aprx



Legend

Subject Property

0 125 250 500 Feet

FIGURE 2

SUBJECT PROPERTY PLAN

Phase I Environmental Site Assessment
Assessor's Parcel Numbers - 0463-213-01-0000, -30-0000, and -32-0000
Apple Valley, California

DATE	PROJECT NUMBER	
5/17/2023	2146.04	northgate environmental management, inc.

Document Path: M:\ArcGIS\Packages\2146.04-PhaseI_AppleValley\Figure2.2.aprx

SUBJECT PROPERTY PHOTOGRAPHS

1. View of Quarry Road and the railroad located adjacent to the north of the Subject Property with the Subject Property shown to the right side of the photo – view facing west.

2. View of Quarry Road and the railroad located adjacent to the north of the Subject Property with the Subject Property shown to the left side of the photo – view facing east.

3. Typical view of the Subject Property APN 0463-213-01-0000 – view of the central portion of the Subject Property facing west.

4. Typical view of the Subject Property APN 0463-213-01-0000 – view of the southern portion of the Subject Property facing north.

5. Vacant desert land with trash/debris located in the northern portion of the Subject Property on APN 0463-213-01-0000 along Quarry Road – view facing north

6. Vacant desert land with trash/debris located in the northern portion of the Subject Property on APN 0463-213-01-0000 along Quarry Road – view facing northeast.

7. Vacant desert land with scattered trash/debris located in the northern portion of the Subject Property – view of the northwestern portion of the Subject Property facing east.

8. Typical view of the northern portion of APN 0463-213-32-0000 at the Subject Property – view facing south.

9. Typical view of the northern portion of APN 0463-213-30-0000 at the Subject Property – view facing south.

10. Typical view of the southern portion of APN 0463-213-30-0000 at the Subject Property – view facing north.

APPENDIX A

EDR ENVIRONMENTAL LIEN AND AUL SEARCH REPORT AND PRELIMINARY TITLE REPORTS

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.7
May 12, 2023

EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

The EDR Environmental LienSearch™ Report

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

Quarry Road
Apple Valley
Apple Valley, CA 92307

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

SAN BERNARDINO COUNTY RECORDER COUNTY CLERK
San Bernardino, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	GRANT DEED
Title is vested in:	LINKUP LLC
Title received from:	LEONARDO CORDOLA AND CARMELA CORDOLA TRUSTEES
Deed Dated	8/21/2021
Deed Recorded:	11/5/2021
Book:	NA
Page:	NA
Volume:	NA
Instrument:	20210503765
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	SEE EXHIBIT
Legal Current Owner:	LINKUP LLC
Parcel # / Property Identifier:	0463-213-01-0000
Comments:	SEE EXHIBIT

Deed Exhibit 1

Electronically
Recorded in Official Records
San Bernardino County
Bob Dutton
Assessor-Recorder-County Clerk

DOC# 2021-0503765

11/05/2021 03:41 PM	Titles: 1	Pages: 2	
SAN	Fees		$27.00
	Taxes		$6050.00
A9730	CA SB2 Fee		$0.00
	Total		$6077.00

RECORDING REQUESTED BY:
Chicago Title Company

When Recorded Mail Document and Tax Statement To:
Chun Han
Linkup LLC
57 Chasma
Irvine, CA 92618

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Escrow Order No.: 7102113840

APN/Parcel ID(s): 0463-213-01-0-000

GRANT DEED

The undersigned grantor(s) declare(s)

☐ This transfer is exempt from the documentary transfer tax.
☑ **The documentary transfer tax is $6,050.00** and is computed on:
  ☐ the full value of the interest or property conveyed.
  ☐ the full value less the liens or encumbrances remaining thereon at the time of sale.
The property is located in ☑ the **City of Apple Valley**.

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Leonardo Cordola and Carmela Cordola, Trustee of The Cordola Family Trust under Declaration of Trust dated July 6, 1995 and Leonardo Cordola and Carmela Cordola

hereby GRANT(S) to Linkup LLC, a California limited liability company

the following described real property in the City of Apple Valley, County of San Bernardino, State of California:

For APN/Parcel ID(s): 0463-213-01-0-000

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF APPLE VALLEY, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS:

THE WEST ONE HALF OF THE NORTHEAST ONE QUARTER OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF APPLE VALLEY, COUNTY OF LOS ANGELES, STATE OF California, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND ON FILE IN IN THE DISTRICT LAND OFFICE..

PROPERTY COMMONLY KNOWN AS: Vacant Land-APN 0463-213-01 Quarry RD, Apple Valley, CA 92307

MAIL TAX STATEMENTS AS DIRECTED ABOVE

GRANT DEED
(continued)

APN/Parcel ID(s): 0463-213-01-0-000

Dated: August 31, 2021

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

The Cordola Family Trust under Declaration of Trust dated July 6, 1995

BY: _____
Leonardo Cordola
Trustee

BY: _____
Carmela Cordola
Trustee

_____
Leonardo Cordola

_____
Carmela Cordola

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of CA
County of Los Angeles

On 9-29-21 before me, Jacob Alexander, Notary Public,
(here insert name and title of the officer)

personally appeared Leonard Cordola and Carmela Cordola,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
Signature

JACOB ALEXANDER
Notary Public - California
Los Angeles County
Commission # 2328740
My Comm. Expires Jun 14, 2024

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7345774.1
May 24, 2023

EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

Quarry Road
Apple Valley
Apple Valley, CA 92307

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

San Bernardino Recorder
San Bernardino, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	deed
Title is vested in:	VVLig UD Holdings LP
Title received from:	Safari Ross TR Safari Ross TR Irwin C Malzman TR
Deed Dated	9/21/2021
Deed Recorded:	10/5/2021
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	VVLig UD Holdings LP
Parcel # / Property Identifier:	0463-213-29-0000
Comments:	See Exhibit

Deed 2:

Type of Deed:	deed
Title is vested in:	oanna K Brewster TR
Title received from:	oanna K & Leonard E Brewster TR
Deed Dated	6/4/2005
Deed Recorded:	6/8/2005
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	Joanna K Brewster TR
Parcel # / Property Identifier:	0463-213-30-0000
Comments:	See Exhibit

Deed 3:

Type of Deed:	deed
Title is vested in:	Season's Land Corp
Title received from:	Larry & Eileen Parker TR
Deed Dated	12/5/2012

Deed Recorded:	12/18/2012
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	Season's Land Corp
Parcel # / Property Identifier:	0463-213-32-0000
Comments:	See Exhibit

Deed Exhibit 1

Electronically
Recorded in Official Records
San Bernardino County
Bob Dutton
Assessor-Recorder-County Clerk

DOC# 2021-0454048

10/05/2021	Titles: 1	Pages: 4	
01:35 PM			
SAN	Fees		$33.00
	Taxes		$5993.90
H6313	CA SB2 Fee		$0.00
	Total		$6026.90

RECORDING REQUESTED BY:
Commonwealth Land Title Company

Escrow No.: 09184890-918-GKD
Title No.: 09184890-09

WHEN RECORDED MAIL DOCUMENT AND TAX STATEMENT TO:
VVLIG US HOLDINGS LP
410 Patti Ann Woods Drive
Henderson, NV. 89002

APN: 0463-213-03,05,07,08,09,29,33,34, 35,36, and 0463-214-06, 07, 08, 09

SPACE ABOVE THIS LINE FOR RECORDER'S USE

The undersigned declares exemption under the following:
Exempt from fee per GC 27388.1 (a) (2); recorded in connection with a transfer subject to the imposition of documentary transfer tax

GRANT DEED

THE UNDERSIGNED GRANTOR(S) DECLARE(S)
DOCUMENTARY TRANSFER TAX IS $ 5,993.90, CITY TAX $ 0.00
computed on full value of property conveyed,
City of APPLE VALLEY, AND

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

Safari Ross, as a Trustee of the Carl E. Ross Living Trust dated May 23, 1991, as to an undivided 52% Interest; Safari Ross, as Trustee of The Safari Ross Family Protection Trust dated June 10, 2004 as to an undivided 24% Interest; Irwin C. Malzman, Trustee of the Remington Ross Family Trust dated June 10, 2004, as to an undivided 24% interest, all as tenants in common

hereby GRANT(S) to

VVLIG US Holdings LP, a Delaware limited partnership

the following described real property in the City of Apple Valley, County of San Bernardino, State of California:

See Exhibit A attached hereto and made a part hereof.

Commonly known as: Quarry Road, Vacant Land (201.80 Acres), Apple Valley, CA

Dated: 9/21/2021

The Carl E. Ross Living Trust
dated May 23, 1991

By: _____
Name: Safari Ross, Trustee

The Safari Ross Family Protection Trust dated
June 10, 2004

By: _____
Name: Safari Ross, Trustee

The Remington Ross Family Trust dated June 10, 2004

By: _____
Name: Irwin C. Malzman, Trustee

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of Nevada)
County of Clark) SS:

On September 21, 2021 before me, Kristen E. Simmons
a Notary Public, personally appeared Safari Ross + Irwin C. Malzman
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

KRISTEN E. SIMMONS
NOTARY PUBLIC
STATE OF NEVADA
APPT. No. 11-6102-1
MY APPT. EXPIRES DECEMBER 16, 2023

Exhibit A

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL A:

THE EAST 1/2 OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO GOVERNMENT SURVEY.

PARCEL B:

THE WEST 1/2 OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF APPLE VALLEY, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL, DATED MAY 19, 1857.

PARCEL C:

THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PARCEL D:

THE NORTH 1/2 OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND ON FILE IN THE DISTRICT LAND OFFICE.

PARCEL E:

THE SOUTH 1/2 OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN.

EXCEPTING THEREFROM A NON-EXCLUSIVE EASEMENT OF 30 FEET ALONG THE SOUTHERLY AND EASTERLY BOUNDARIES FOR INGRESS AND EGRESS AND ALSO EXCEPTING THEREFROM A NON-EXCLUSIVE EASEMENT OF 15 FEET ALONG THE WESTERLY BOUNDARY FOR INGRESS AND EGRESS.

PARCEL F:

PARCEL 1 OF PARCEL MAP 8448, AS RECORDED IN PARCEL MAP BOOK 87, PAGE 75, RECORDS OF SAN BERNARDINO COUNTY.

PARCEL G:

PARCELS 1, 2, 3, AND 4 OF PARCEL MAP 10410 AS RECORDED IN PARCEL MAP BOOK 122, PAGES 93 AND 94, RECORDS OF SAID COUNTY.

PARCEL H:

THE WEST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 15, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL, DATED MAY 19, 1857.

PARCEL I:

THE EAST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 15, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL, DATED May 19, 1857.

PARCEL J:

THE WEST ½ OF THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 15, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL, DATED MAY 19, 1857.

PARCEL K:

THE EAST 1/2 OF THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 15, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL, DATED MAY 19, 1857.

APN: 0463-213-03, 0463-213-05, 0463-213-07, 0463-213-08, 0463-213-09, 0463-213-29, 0463-213-33, 34, 35 AND 0463-213-36

APN: 0463-214-06, 0463-214-07, 0463-214-08 AND 0463-214-09

Deed Exhibit 2

Recorded in Official Records, County of San Bernardino

LARRY WALKER
Auditor/Controller – Recorder

6/08/2005
10:49 AM
EF

P Counter

RECORDING REQUESTED BY

WHEN RECORDED MAIL TO

NAME | Joanna K. Brewster, Trustee
ADDRESS | PO Box 2224
CITY | Apple Valley
STATE & ZIP | CA 92307

Title Order No.

Doc#: 2005–0408809

Titles: 1 **Pages:** 1

Fees	6.00
Taxes	0.00
Other	0.00
PAID	$6.00

SPACE ABOVE THIS LINE FOR RECORDER'S USE

APN 0463 213 30

GRANT DEED

The undersigned declares that the documentary transfer tax is NONE **and is**

☐ **Computed on the full value of the interest or property conveyed, or is**

☐ **Computed on the full value less the value of liens or encumbrances remaining at time of sale. The land, tenements realty is located in**

☐ **Unincorporated area of:** ☒ **City of:** Town of Apple Valley **and**

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged. The Brewster Family Trust, dated Nov.19,1991, Leonard E. Brewster and Joanna K. Brewster,Trustor(s)/Trustee(s)

hereby GRANT(S) to Joanna K. Brewster, as Trustee and Successor Trustee of the "A" Trust under The Brewster Family Trust dated Nov. 19, 1991, wherein Leonard E. Brewster and Joanna K. Brewster are Trustor(s)/ Trustee(s)

the following described real property in the

County of: San Bernardino **, State of:** California

Parcel 2 of Parcel Map No. 8448, Book 87, page 75, Official Records of San Bernardino County.

Dated: June 4, 2005

STATE OF: California

COUNTY OF: San Bernardino } SS

Joanna K. Brewster, Trustee

Joanna K. Brewster, Trustee

On June 4, 2005 **before me, the undersigned, a Notary Public in and for State, personally appeared**

Joanna K. Brewster

personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Signature

DAVID STERN
Commission # 1319171
Notary Public - California
San Bernardino County
My Comm. Expires Sep 27, 2005

(This area for official notary seal)

MAIL TAX STATEMENTS AS DIRECTED ABOVE

Deed Exhibit 3

RECORDED AT THE REQUEST OF
CHICAGO TITLE - INLAND EMPIRE

RECORDING REQUESTED BY

WHEN RECORDED MAIL TO
AND MAIL TAX STATEMENTS to

NAME SEASON'S LAND CORPORATION

ADDRESS 3595 INLAND EMPIRE BLVD. BLDG 3

CITY ONTARIO, CA. 91764
STATE & ZIP

Electronically Recorded in Official Records, County of San Bernardino

12/18/2012
01:01 PM
NC

DENNIS DRAEGER
ASSESSOR - RECORDER - CLERK
719 Chicago Title Company

Doc #: 2012-0538941

Titles: 1 Pages: 1

Fees	15.00
Taxes	93.50
Other	.00
PAID	108.50

GRANT DEED

TITLE ORDER NO. 710124967 DD ESCROW NO. 9537 APN NO 0463-213-32-0-000

THE UNDERSIGNED GRANTOR(s) DECLARE(s)
DOCUMENTARY TRANSFER TAX is $93.50 CITY TAX $,
__ computed on full value of property conveyed, or __ computed on full value less value of liens or encumbrances remaining at time of sale,
__Unicorporated area: __City of _____ and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
LARRY PARKER AND EILEEN PARKER, TRUSTEES UNDER LARRY AND EILEEN PARKER TRUST DATED DECEMBER 5, 1995, AS SUCCESSORS IN TRUST

hereby GRANT(s) to
SEASON'S LAND CORPORATION , A CALIFORNIA CORPORATION

the following described real property in the County of SAN BERNARDINO, State of California:
PARCEL 4 PARCEL MAP NO 8448, IN THE CITY OF APPLE VALLEY, COUNTY OF SAN BERNARDINO, CALIFORNIA AS PER MAP RECORDED IN BOOK 87, PAGE 75, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

Dated: 12/5/12

LARRY & EILEEN PARKER TRUST DTD 12/5/95
Larry Parker Trustee
LARRY PARKER, TRUSTEE

LARRY & EILEEN PARKER TRUST DTD 12/5/95
Eileen Parker Trustee
EILEEN PARKER, TRUSTEE

STATE OF CALIFORNIA
COUNTY OF San Bernardino s.s.

On December 5, 2012 before me, Jennifer Shattles, Notary Public,
personally appeared Larry Parker & Eileen Parker, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) ~~is~~/are subscribed to the within instrument and acknowledged to me that ~~he/she~~/they executed the same in ~~his/her~~/their authorized capacity(ies), and that by ~~his/her~~/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

JENNIFER SHATTLES
Commission # 1930474
Notary Public - California
San Bernardino County
My Comm. Expires Mar 27, 2015

MAIL TAX STATEMENTS TO, Address Above

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

Issuing Policies of Fidelity National Title Insurance Company

Title Officer: Brett Bissett (OC MA)
Escrow Officer: Brenna Ryan

Order No.: 014-**30100408**-BB7

TO:

Redwood West
2250 Newport Blvd, Suite 101
Newport Beach, CA 92663

ATTN: **Christian Heffelman**
YOUR REFERENCE:

PROPERTY ADDRESS: APN - 0463-213-01-0000, Apple Valley, CA

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein, ***Fidelity National Title Company*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Fidelity National Title Insurance Company, a Florida Corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Countersigned by:

Authorized Signature

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

PRELIMINARY REPORT

EFFECTIVE DATE: **March 22, 2023 at 7:30 a.m.**

ORDER NO.: 014-30100408-BB7

The form of policy or policies of title insurance contemplated by this report is:

CLTA Standard Coverage Policy (04-08-14)

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A FEE

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   LINKUP LLC, a California limited liability company

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   See Exhibit A attached hereto and made a part hereof.

EXHIBIT A

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF APPLE VALLEY IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE WEST ONE HALF OF THE NORTHEAST ONE QUARTER OF SECTION 16, TOWNSHIP 6 NORTH, RANGE 3 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF APPLE VALLEY, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND ON FILE IN THE DISTRICT LAND OFFICE.

APN 0463-213-01-0-000

EXCEPTIONS

AT THE DATE HEREOF, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2023-2024.

B. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

1. Water rights, claims or title to water, whether or not disclosed by the public records.

2. Reservations contained in the Patent

   From: The United States of America
   Recording No: Book J, Page 13 of Patents

   Which among other things recites as follows:

   Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of the courts, and the reservation from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

3. Rights of the public to any portion of the Land lying within the area commonly known as

   The boundaries of any road, street or highway.

4. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

   Purpose: Pipeline, utilities and access
   Recording Date: July 29, 1987
   Recording No: 87-260507 of Official Records
   Affects: A portion of said land as more particularly described in said document.

5. Any easements not disclosed by the public records as to matters affecting title to real property, whether or not said easements are visible and apparent.

6. Matters which may be disclosed by an inspection and/or by a correct ALTA/NSPS Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

7. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

   The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

   The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

EXCEPTIONS
(Continued)

8. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

PLEASE REFER TO THE "INFORMATIONAL NOTES" AND "REQUIREMENTS" SECTIONS WHICH FOLLOW FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION.

END OF EXCEPTIONS

REQUIREMENTS SECTION

1. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance from the entity named below:

   Limited Liability Company: Linkup LLC, a California limited liability company

   a) A copy of its operating agreement, if any, and all amendments, supplements and/or modifications thereto, certified by the appropriate manager or member.

   b) If a domestic Limited Liability Company, a copy of its Articles of Organization and all amendments thereto with the appropriate filing stamps.

   c) If the Limited Liability Company is member-managed, a full and complete current list of members certified by the appropriate manager or member.

   d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity is currently domiciled.

   e) If less than all members, or managers, as appropriate, will be executing the closing documents, furnish evidence of the authority of those signing.

   f) If Limited Liability Company is a Single Member Entity, a Statement of Information for the Single Member will be required.

   g) Each member and manager of the LLC without an Operating Agreement must execute in the presence of a notary public the Certificate of California LLC (Without an Operating Agreement) Status and Authority form.

2. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance from the entity named below:

   Limited Liability Company: Butterfly Equity Partners, LLC

   a) A copy of its operating agreement, if any, and all amendments, supplements and/or modifications thereto, certified by the appropriate manager or member.

   b) If a domestic Limited Liability Company, a copy of its Articles of Organization and all amendments thereto with the appropriate filing stamps.

   c) If the Limited Liability Company is member-managed, a full and complete current list of members certified by the appropriate manager or member.

   d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity is currently domiciled.

   e) If less than all members, or managers, as appropriate, will be executing the closing documents, furnish evidence of the authority of those signing.

   f) If Limited Liability Company is a Single Member Entity, a Statement of Information for the Single Member will be required.

   g) Each member and manager of the LLC without an Operating Agreement must execute in the presence of a notary public the Certificate of California LLC (Without an Operating Agreement) Status and Authority form.

REQUIREMENTS
(Continued)

3. Prior to the close of escrow, the Company requires a Statement of Information to be completed by the following party(s),

   Party(s): All Parties

   The Company reserves the right to add additional items or make further requirements after review of the requested Statement of Information.

4. Unrecorded matters which may be disclosed by an Owner's Affidavit or Declaration. A form of the Owner's Affidavit/Declaration is attached to this Preliminary Report/Commitment. This Affidavit/Declaration is to be completed by the record owner of the land and submitted for review prior to the closing of this transaction. Your prompt attention to this requirement will help avoid delays in the closing of this transaction. Thank you.

   The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit/Declaration.

END OF REQUIREMENTS

INFORMATIONAL NOTES SECTION

1. Note: Property taxes, including any personal property taxes and any assessments collected with taxes, are paid. For proration purposes the amounts were:

Tax Identification No.:	0463-213-01-0-000
Fiscal Year:	2022-2023
1st Installment:	$33,672.37
2nd Installment:	$33,672.36
Exemption:	$0.00
Code Area:	021-027

2. None of the items shown in this report will cause the Company to decline to attach CLTA Endorsement Form 100 to an Extended Coverage Loan Policy, when issued.

3. The Company is not aware of any matters which would cause it to decline to attach CLTA Endorsement Form 116 indicating that there is located on said Land Undeveloped Land properties, known as APN - 0463-213-01-0000, located within the city of Apple Valley, California, , to an Extended Coverage Loan Policy.

4. Note: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance coverage.

5. Notice: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

6. Pursuant to Government Code Section 27388.1, as amended and effective as of 1-1-2018, a Documentary Transfer Tax (DTT) Affidavit may be required to be completed and submitted with each document when DTT is being paid or when an exemption is being claimed from paying the tax. If a governmental agency is a party to the document, the form will not be required. DTT Affidavits may be available at a Tax Assessor-County Clerk-Recorder.

7. The following Exclusion(s) are added to preliminary reports, commitments and will be included as an endorsement in the following policies:

   A. 2006 ALTA Owner's Policy (06-17-06).

      6. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

   B. 2006 ALTA Loan Policy (06-17-06).

      8. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

      9. Any claim of invalidity, unenforceability, or lack of priority of the lien of the Insured Mortgage based on the application of a Tribe's law resulting from the failure of the Insured Mortgage to specify State law as the governing law with respect to the lien of the Insured Mortgage.

INFORMATIONAL NOTES
(Continued)

C. ALTA Homeowner's Policy of Title Insurance (12-02-13) and CLTA Homeowner's Policy of Title Insurance (12-02-13).

10. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

D. ALTA Expanded Coverage Residential Loan Policy - Assessments Priority (04-02-15).

12. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

13. Any claim of invalidity, unenforceability, or lack of priority of the lien of the Insured Mortgage based on the application of a Tribe's law resulting from the failure of the Insured Mortgage to specify State law as the governing law with respect to the lien of the Insured Mortgage.

E. CLTA Standard Coverage Policy 1990 (11-09-18).

7. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the public records but that would be disclosed by an examination of any records maintained by or on behalf of a tribe or on behalf of its members.

8. Any claim of invalidity, unenforceability, or lack of priority of the lien of the insured mortgage based on the application of a tribe's law resulting from the failure of the insured mortgage to specify state law as the governing law with respect to the lien of the insured mortgage.

8. Note: The only conveyance(s) affecting said Land, which recorded within 24 months of the date of this report, are as follows:

Grantor:	Leonardo Cordola and Carmela Cordola, Trustee of The Cordola Family Trust under Declaration of Trust dated July 6, 1995 and Leonardo Cordola and Carmela Cordola
Grantee:	Linkup LLC, a California limited liability company
Recording Date:	November 5, 2021
Recording No:	2021-0503765 of Official Records

END OF INFORMATIONAL NOTES

Brett Bissett (OC MA)/jh

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened**. DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

TM and © Fidelity National Financial, Inc. and/or an affiliate. All rights reserved

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

Not all discounts are offered by every FNF Company. The discount will only be applicable to the FNF Company as indicated by the named discount.

FNF Underwritten Title Company	**Underwritten by FNF Underwriters**
CTC – Chicago Title company	CTIC – Chicago Title Insurance Company
CLTC – Commonwealth Land Title Company	CLTIC - Commonwealth Land Title Insurance Company
FNTC – Fidelity National Title Company of California	FNTIC – Fidelity National Title Insurance Company
FNTCCA - Fidelity National Title Company of California	FNTIC - Fidelity National Title Insurance Company
TICOR – Ticor Title Company of California	CTIC – Chicago Title Insurance Company
LTC – Lawyer's Title Company	CLTIC – Commonwealth Land Title Insurance Company
SLTC – ServiceLink Title Company	CTIC – Chicago Title Insurance Company

Available Discounts

DISASTER LOANS (CTIC, CLTIC, FNTIC)
The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within twenty-four (24) months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be fifty percent (50%) of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (CTIC, FNTIC)
On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be fifty percent (50%) to seventy percent (70%) of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be forty (40%) to fifty percent (50%) of the appropriate title insurance rate, depending on the type of coverage selected.

ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990 (11-09-18)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material unless such lien is shown by the public records at Date of Policy.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART II

(Variable exceptions such as taxes, easements, CC&R's, etc., are inserted here)

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE OWNER'S POLICY (02-04-22)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
      i. the occupancy, use, or enjoyment of the Land;
      ii. the character, dimensions, or location of any improvement on the Land;
      iii. the subdivision of land; or
      iv. environmental remediation or protection.
   b. any governmental forfeiture, police, regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:

a. created, suffered, assumed, or agreed to by the Insured Claimant;
b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
c. resulting in no loss or damage to the Insured Claimant;
d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.

4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 9.b.
5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This policy treats any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document are excepted from coverage.

This policy does not insure against loss or damage and the Company will not pay costs, attorneys' fees, or expenses resulting from the terms and conditions of any lease or easement identified in Schedule A, and the following matters:

PART I

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land, or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

PART II

(Variable exceptions such as taxes, easements, CC&R's, etc., are inserted here)

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (07-01-2021)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy and We will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
      i. the occupancy, use, or enjoyment of the Land;
      ii. the character, dimensions, or location of any improvement on the Land;
      iii. the subdivision of land; or
      iv. environmental remediation or protection.
   b. any governmental forfeiture, police, or regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23, or 27.
2. Any power to take the Land by condemnation. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 17.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by You;
   b. not Known to Us, not recorded in the Public Records at the Date of Policy, but Known to You and not disclosed in writing to Us by You prior to the date You became an Insured under this policy;
   c. resulting in no loss or damage to You;

d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 5, 8.f., 25, 26, 27, 28, or 32); or
e. resulting in loss or damage that would not have been sustained if You paid consideration sufficient to qualify You as a bona fide purchaser of the Title at the Date of Policy.

4. Lack of a right:
   a. to any land outside the area specifically described and referred to in Item 3 of Schedule A; and
   b. in any street, road, avenue, alley, lane, right-of-way, body of water, or waterway that abut the Land.
   Exclusion 4 does not modify or limit the coverage provided under Covered Risk 11 or 21.
5. The failure of Your existing structures, or any portion of Your existing structures, to have been constructed before, on, or after the Date of Policy in accordance with applicable building codes. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 14 or 15.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transfer of the Title to You is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 30.
7. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
8. Negligence by a person or an entity exercising a right to extract or develop oil, gas, minerals, groundwater, or any other subsurface substance.
9. Any lien on Your Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 9 does not modify or limit the coverage provided under Covered Risk 8.a. or 27.
10. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.
   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

Our Maximum Dollar

	Your Deductible Amount	Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

ALTA OWNER'S POLICY (07-01-2021)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
   i. the occupancy, use, or enjoyment of the Land;
   ii. the character, dimensions, or location of any improvement on the Land;
   iii. the subdivision of land; or
   iv. environmental remediation or protection.
   b. any governmental forfeiture, police, regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by the Insured Claimant;
   b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   c. resulting in no loss or damage to the Insured Claimant;
   d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
   e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 9.b.
   5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
   6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
   7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This policy treats any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document are excepted from coverage.

This policy does not insure against loss or damage and the Company will not pay costs, attorneys' fees, or expenses resulting from the terms and conditions of any lease or easement identified in Schedule A, and the following matters:

NOTE: The 2021 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed as 1 through 7 below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

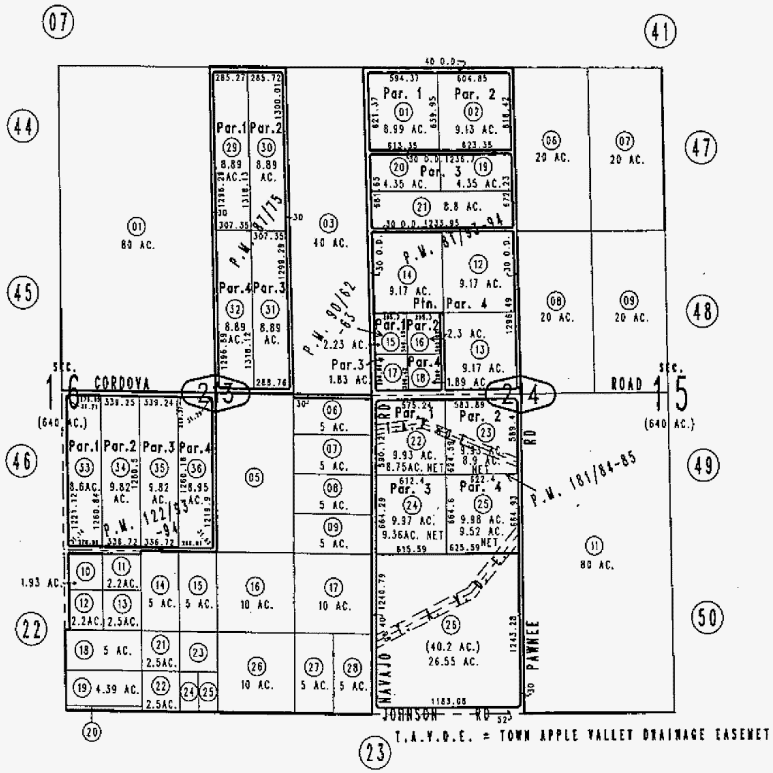
NOTE: The 2006 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed below as 1 through 7 below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land, or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

Sec.15&16, T.6N.,R.3W., S.B.B.&M.

City of Apple Valley 0463- 21
Tax Rate Area
21027



Parcel Map No. 14418, P.M. 181/84-85
Parcel Map No. 10410, P.M. 122/93-94
Parcel Map No. 8585, P.M. 90/62-63
Parcel Map No. 8448, P.M. 87/75
Pln. Parcel Map No. 7960, P.M. 81/93-94

June 2004

REVISED

Assessor's Map
Book 0463 Page 21
San Bernardino County

This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

OWNER'S DECLARATION

Escrow No.: 30100408-014-BR5-BB7
Property Address: APN - 0463-213-01-0000
Apple Valley, CA

The undersigned hereby declares as follows:

1. (Fill in the applicable paragraph and strike the other)

   a. Declarant ("Owner") is the owner or lessee, as the case may be, of certain premises located at APN - 0463-213-01-0000, Apple Valley, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").

   b. Declarant is the _____ of _____ ("Owner"), which is the owner or lessee, as the case may be, of certain premises located at APN - 0463-213-01-0000, Apple Valley, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").

2. (Fill in the applicable paragraph and strike the other)

   a. During the period of six months immediately preceding the date of this declaration no work has been done, no surveys or architectural or engineering plans have been prepared, and no materials have been furnished in connection with the erection, equipment, repair, protection or removal of any building or other structure on the Land or in connection with the improvement of the Land in any manner whatsoever.

   b. During the period of six months immediately preceding the date of this declaration certain work has been done and materials furnished in connection with _____ upon the Land in the approximate total sum of $_____, but no work whatever remains to be done and no materials remain to be furnished to complete the construction in full compliance with the plans and specifications, nor are there any unpaid bills incurred for labor and materials used in making such improvements or repairs upon the Land, or for the services of architects, surveyors or engineers, except as follows: _____. Owner, by the undersigned Declarant, agrees to and does hereby indemnify and hold harmless Fidelity National Title Company against any and all claims arising therefrom.

3. Owner has not previously conveyed the Land; is not a debtor in bankruptcy (and if a partnership, the general partner thereof is not a debtor in bankruptcy); and has not received notice of any pending court action affecting the title to the Land.

4. Except as shown in the above-referenced Preliminary Report/Commitment, there are no unpaid or unsatisfied mortgages, deeds of trust, Uniform Commercial Code financing statements, regular assessments, special assessments, periodic assessments or any assessment from any source, claims of lien, special assessments, or taxes that constitute a lien against the Land or that affect the Land but have not been recorded in the public records. There are no violations of the covenants, conditions and restrictions as shown in the above-referenced Preliminary Report/Commitment.

5. The Land is currently in use as _____; _____ occupy/occupies the Land; and the following are all of the leases or other occupancy rights affecting the Land:

   _____

6. There are no other persons or entities that assert an ownership interest in the Land, nor are there unrecorded easements, claims of easement, or boundary disputes that affect the Land.

7. There are no outstanding options to purchase or rights of first refusal affecting the Land.

8. Between the most recent Effective Date of the above-referenced Preliminary Report/Commitment and the date of recording of the Insured Instrument(s), Owner has not taken or allowed, and will not take or allow, any action or inaction to encumber or otherwise affect title to the Land.

This declaration is made with the intention that Fidelity National Title Company (the "Company") and its policy issuing agents will rely upon it in issuing their title insurance policies and endorsements. Owner, by the undersigned Declarant, agrees to indemnify the Company against loss or damage (including attorneys fees, expenses, and costs) incurred by the Company as a result of any untrue statement made herein.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on _____ at _____.

Signature: _____

First American Title™

First American Title Company

12530 Hesperia Road, Suite 218
Victorville, CA 92395
California Department of Insurance License No. 151

Tracy Hayes
Cimarron Escrow, Inc.
17290 Jasmine Street, Suite 104
Victorville, CA 92395
Phone: (760)241-7204
Fax:

Customer Reference: 164412-TH

Title Officer:	Todd Enos
Phone:	(760)243-4865
Fax No.:	
E-Mail:	TeamEnos@firstam.com
E-Mail Loan Documents to:	Lenders please contact the Escrow Officer for email address for sending loan documents.
Buyer:	Butterfly Equity Partners, LLC
Owner:	Brewster Family Trust A
Property:	Vacant Land Apple Valley, CA

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.* Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

Please be advised that any provision contained in this document, or in a document that is attached, linked or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of February 23, 2023 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

ALTA/CLTA Homeowner's (EAGLE) Policy of Title Insurance and ALTA Ext Loan Policy if the land described is an improved residential lot or condominium unit on which there is located a one-to-four family residence; or ALTA Standard Owner's Policy (with Western Regional Exceptions) and the ALTA Loan Policy if the land described is an unimproved residential lot or condominium unit.

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

The Brewster Family Trust, Dated November 19, 1991, Leonard E. Brewster and Joanna K. Brewster, Trustor(S) And/or Trustee(S), Subject to Exception No(S). 5, 6 and 10

The estate or interest in the land hereinafter described or referred to covered by this Report is:

FEE

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2023-2024, a lien not yet due or payable.

2. General and special taxes and assessments for the fiscal year 2022-2023.

First Installment:	$191.03, PAID
Penalty:	$0.00
Second Installment:	$191.01, OPEN
Penalty:	$0.00
Tax Rate Area:	021027
A. P. No.:	0463-213-30

3. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

4. The following matters shown or disclosed by the filed or recorded map referred to in the legal description: FUTURE BUILDING PROS TO BE ELEVATED ABOVE NATURAL GROUND TO REDUCE DAMAGE DUE TO SHEET OVERFLOW.

5. The effect of a document entitled "AFFIDAVIT-DEATH OF TRUSTEE", recorded MARCH 25, 1993 as INSTRUMENT NO. 93-130826 of Official Records.

6. The effect of a document entitled "GRANT DEED", recorded JUNE 08, 2005 as INSTRUMENT NO. 05-408809 of Official Records.

7. Water rights, claims or title to water, whether or not shown by the Public Records.

8. **WE FIND NO OPEN DEED OF TRUST. THE COMPANY WILL REQUIRE SATISFACTORY PROOF, PRIOR TO INSURING THE CONTEMPLATED TRANSACTION, THAT THE SUBJECT PROPERTY IS FREE FROM ANY ENCUMBRANCES. PLEASE PROVIDE THE FOLLOWING:**

   A. AN AFFIDAVIT (Click Here), EXECUTED BY ALL THE SELLERS/BORROWERS STATING THAT THE PROPERTY IS FREE AND CLEAR, AND NOTARIZED IN FRONT OF A FIRST AMERICAN APPROVED NOTARY;

   B. THE OWNER STATEMENT FROM THE ESCROW INSTRUCTIONS; AND

   C. A WRITTEN STATEMENT FROM ESCROW CONFIRMING WHO THE PROCEEDS WILL BE DISBURSED TO.

Prior to the issuance of any policy of title insurance, the Company will require:

9. With respect to the trust referred to in the vesting:
   a. A certification pursuant to Section 18100.5 of the California Probate Code in a form satisfactory to the Company.
   b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.
   c. Other requirements which the Company may impose following its review of the material required herein and other information which the Company may require.

10. A copy of the Trust Agreement and all amendments should be submitted prior to closing. The Company may make additional requirements following a review of such documents including, but not limited to, a certification of trust confirming the powers of the trustees and the continuing existence of the trust.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. The property covered by this report is vacant land.

2. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:

   None

   NOTE to proposed insured lender only: No Private transfer fee covenant, as defined in Federal Housing Finance Agency Final Rule 12 CFR Part 1228, that was created and first appears in the Public Records on or after February 8, 2011, encumbers the Title except as follows: None

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the Town of Apple Valley, County of San Bernardino, State of California, described as follows:

PARCEL 2 OF PARCEL MAP NO. 8448, AS RECORDED IN PARCEL MAP BOOK 87, PAGE 75, RECORDS OF SAN BERNARDINO COUNTY.

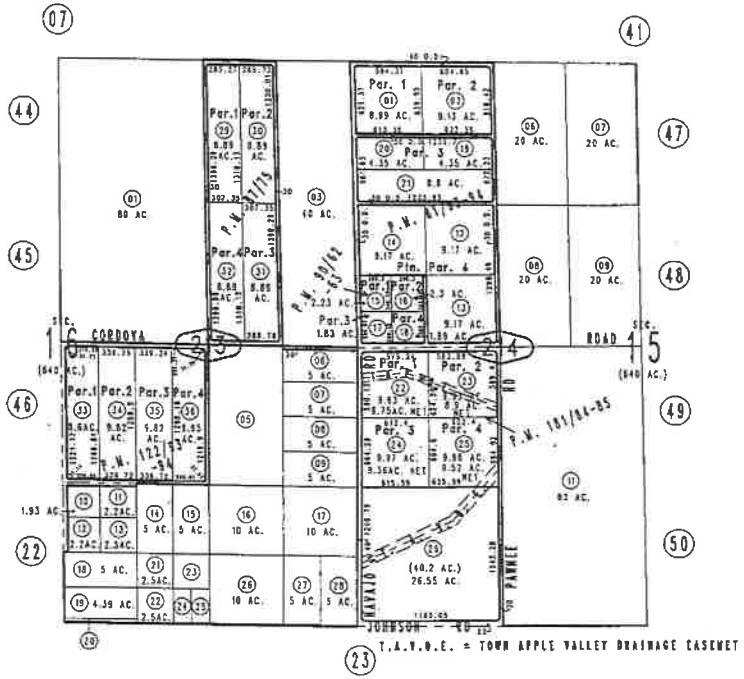
APN: 0463-213-30

THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

Sec.15&16, T.6N.,R.3W., S.B.B.&M.

City of Apple Valley 0463- 21
Tax Rate Area
21027

1"=800'



Parcel Map No. 14418, P.M. 181/84-85
Parcel Map No. 10410, P.M. 122/93-94
Parcel Map No. 8585, P.M. 90/62-63
Parcel Map No. 8448, P.M. 87/75
Pla. Parcel Map No. 7960, P.M. 81/93-94

June 2004

Assessor's Map
Book 0463 Page 21
San Bernardino County

REVISED

First American Title
Page 7 of 11

Order Number: VIC-6963112
Page Number: 7

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE [(07-01-2021) v. 01.00]
EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy and We will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
   i. the occupancy, use, or enjoyment of the Land;
   ii. the character, dimensions, or location of any improvement on the Land;
   iii. the subdivision of land; or
   iv. environmental remediation or protection.
   b. any governmental forfeiture, police, or regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b.
   Exclusion 1 does not modify or limit the coverage provided under Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23, or 27.
2. Any power to take the Land by condemnation. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 17.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by You;
   b. not Known to Us, not recorded in the Public Records at the Date of Policy, but Known to You and not disclosed in writing to Us by You prior to the date You became an Insured under this policy;
   c. resulting in no loss or damage to You;
   d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 5, 8.f., 25, 26, 27, 28, or 32); or
   e. resulting in loss or damage that would not have been sustained if You paid consideration sufficient to qualify You as a bona fide purchaser of the Title at the Date of Policy.
4. Lack of a right:
   a. to any land outside the area specifically described and referred to in Item 3 of Schedule A; and
   b. in any street, road, avenue, alley, lane, right-of-way, body of water, or waterway that abut the Land.
   Exclusion 4 does not modify or limit the coverage provided under Covered Risk 11 or 21.
5. The failure of Your existing structures, or any portion of Your existing structures, to have been constructed before, on, or after the Date of Policy in accordance with applicable building codes. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 14 or 15.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transfer of the Title to You is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 30.
7. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
8. Negligence by a person or an entity exercising a right to extract or develop oil, gas, minerals, groundwater, or any other subsurface substance.
9. Any lien on Your Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 9 does not modify or limit the coverage provided under Covered Risk 8.a. or 27.
10. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$10,000
Covered Risk 18:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 19:	1% of Policy Amount Shown on Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 21:	1% of Policy Amount Shown on Schedule A or $2,500 (whichever is less)	$5,000

ALTA OWNER'S POLICY [(07-01-2021) V. 01.00]
CLTA STANDARD COVERAGE OWNER'S POLICY [(02-04-22) V. 01.00]
EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
   i. the occupancy, use, or enjoyment of the Land;
   ii. the character, dimensions, or location of any improvement on the Land;
   iii. the subdivision of land; or
   iv. environmental remediation or protection.
   b. any governmental forfeiture, police, regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b.

Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.

2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by the Insured Claimant;
   b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   c. resulting in no loss or damage to the Insured Claimant;
   d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
   e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 9.b.
5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

NOTE: The 2021 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed below as numbers 1 through 7. The 2021 CLTA Standard Coverage Owner's Policy will include the Western Regional Standard Coverage Exceptions listed below as numbers 1 through 7.

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This policy treats any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document are excepted from coverage.

This policy does not insure against loss or damage and the Company will not pay costs, attorneys' fees, or expenses resulting from the terms and conditions of any lease or easement identified in Schedule A, and the following matters:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas,

uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

2006 ALTA OWNER'S POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

NOTE: The 2006 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed below as numbers 1 through 7.

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

Issuing Policies of Fidelity National Title Insurance Company

---

Title Officer: Brett Bissett (OC MA)
Escrow Officer: Brenna Ryan

Order No.: 014-**30099785**-BB7

TO:

Redwood West
1111 Bayside Drive, Suite 150
Corona Del Mar, CA 92625

ATTN: **Christian Heffelman**
YOUR REFERENCE:

PROPERTY ADDRESS: Vacant Land, Apple Valley, CA

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein, ***Fidelity National Title Company*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Fidelity National Title Insurance Company, a Florida Corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Countersigned by:

Authorized Signature

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

PRELIMINARY REPORT

EFFECTIVE DATE: **March 2, 2023 at 7:30 a.m.**

ORDER NO.: 014-30099785-BB7

The form of policy or policies of title insurance contemplated by this report is:

CLTA Standard Coverage Policy (04-08-14)

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A FEE

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   SEASON'S LAND CORPORATION, a California corporation

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   See Exhibit A attached hereto and made a part hereof.

EXHIBIT A

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF APPLE VALLEY IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 4 OF PARCEL MAP NO. 8448, IN THE CITY OF APPLE VALLEY, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 87, PAGE 75 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN 0463-231-32-0-000

EXCEPTIONS

AT THE DATE HEREOF, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2023-2024.

B. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	0463-213-32-0-000
Fiscal Year:	2022-2023
1st Installment:	$647.37, PAID
2nd Installment:	$647.35, OPEN (Delinquent after April 10)
Penalty and Cost:	$74.75
Homeowners Exemption:	$0.00
Code Area:	021-027

C. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

1. Water rights, claims or title to water, whether or not disclosed by the public records.

2. Easement(s) in favor of the public over any existing roads lying within said Land.

3. A Deed of Trust to secure an indebtedness in the amount shown below,

Amount:	$85,000.00
Dated:	November 27, 2012
Trustor/Grantor:	Season's Land Corporation, a California corporation
Trustee:	All Pints Property Services, Inc., a California corporation
Beneficiary:	Larry Parker and Eileen Parker, Trustees under Larry and Eileen Parker Trust dated December 5, 1995, as successors in trust
Recording Date:	December 18, 2012
Recording No:	20120538942 of Official Records

This Company will require that the original note, the original deed of trust and a properly executed request for full reconveyance together with appropriate documentation (i.e., copy of trust, partnership agreement or corporate resolution) be in this office prior to the close of this transaction if the above-mentioned item is to be paid through this transaction or deleted from a policy of title insurance.

Any demands submitted to us for payoff must be signed by all beneficiaries as shown on said deed of trust, and/or any assignments thereto. In the event said demand is submitted by an agent of the beneficiary(s), we will require the written approval of the demand by the beneficiary(s). Servicing agreements do not constitute approval for the purposes of this requirement.

If no amounts remain due under the obligation a zero balance demand will be required along with the reconveyance documents.

In addition, we require the written approval of said demand by the trustor(s) on said deed of trust or the current owners if applicable.

EXCEPTIONS
(Continued)

4. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

   The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

   The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

5. Any easements not disclosed by the public records as to matters affecting title to real property, whether or not said easements are visible and apparent.

6. Matters which may be disclosed by an inspection and/or by a correct ALTA/NSPS Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

PLEASE REFER TO THE "INFORMATIONAL NOTES" AND "REQUIREMENTS" SECTIONS WHICH FOLLOW FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION.

END OF EXCEPTIONS

REQUIREMENTS SECTION

1. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance by the corporation named below:

   Name of Corporation: Season's Land Corporation, a California corporation

   a) A Copy of the corporation By-laws and Articles of Incorporation

   b) An original or certified copy of a resolution authorizing the transaction contemplated herein

   c) If the Articles and/or By-laws require approval by a 'parent' organization, a copy of the Articles and By-laws of the parent

   The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

2. Prior to the close of escrow, the Company requires a Statement of Information to be completed by the following party(s),

   Party(s): All Parties

   The Company reserves the right to add additional items or make further requirements after review of the requested Statement of Information.

3. Furnish for review a full and complete copy of any unrecorded agreement, contract, license and/or lease together with all supplements, assignments and amendments thereto, prior to the close of this transaction.

   The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

4. Unrecorded matters which may be disclosed by an Owner's Affidavit or Declaration. A form of the Owner's Affidavit/Declaration is attached to this Preliminary Report/Commitment. This Affidavit/Declaration is to be completed by the record owner of the land and submitted for review prior to the closing of this transaction. Your prompt attention to this requirement will help avoid delays in the closing of this transaction. Thank you.

   The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit/Declaration.

END OF REQUIREMENTS

INFORMATIONAL NOTES SECTION

1. None of the items shown in this report will cause the Company to decline to attach CLTA Endorsement Form 100 to an Extended Coverage Loan Policy, when issued.

2. Note: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance coverage.

3. Notice: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

4. Pursuant to Government Code Section 27388.1, as amended and effective as of 1-1-2018, a Documentary Transfer Tax (DTT) Affidavit may be required to be completed and submitted with each document when DTT is being paid or when an exemption is being claimed from paying the tax. If a governmental agency is a party to the document, the form will not be required. DTT Affidavits may be available at a Tax Assessor-County Clerk-Recorder.

5. The following Exclusion(s) are added to preliminary reports, commitments and will be included as an endorsement in the following policies:

   A. 2006 ALTA Owner's Policy (06-17-06).

      6. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

   B. 2006 ALTA Loan Policy (06-17-06).

      8. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

      9. Any claim of invalidity, unenforceability, or lack of priority of the lien of the Insured Mortgage based on the application of a Tribe's law resulting from the failure of the Insured Mortgage to specify State law as the governing law with respect to the lien of the Insured Mortgage.

   C. ALTA Homeowner's Policy of Title Insurance (12-02-13) and CLTA Homeowner's Policy of Title Insurance (12-02-13).

      10. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

   D. ALTA Expanded Coverage Residential Loan Policy - Assessments Priority (04-02-15).

      12. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the Public Records but that would be disclosed by an examination of any records maintained by or on behalf of a Tribe or on behalf of its members.

      13. Any claim of invalidity, unenforceability, or lack of priority of the lien of the Insured Mortgage based on the application of a Tribe's law resulting from the failure of the Insured Mortgage to specify State law as the governing law with respect to the lien of the Insured Mortgage.

   E. CLTA Standard Coverage Policy 1990 (11-09-18).

INFORMATIONAL NOTES
(Continued)

7. Defects, liens, encumbrances, adverse claims, notices, or other matters not appearing in the public records but that would be disclosed by an examination of any records maintained by or on behalf of a tribe or on behalf of its members.

8. Any claim of invalidity, unenforceability, or lack of priority of the lien of the insured mortgage based on the application of a tribe's law resulting from the failure of the insured mortgage to specify state law as the governing law with respect to the lien of the insured mortgage.

6. Note: There are NO conveyances affecting said Land recorded within 24 months of the date of this report.

END OF INFORMATIONAL NOTES

Brett Bissett (OC MA)/jh

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened**. DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

TM and © Fidelity National Financial, Inc. and/or an affiliate. All rights reserved

Fidelity National Title Company
4400 MacArthur Blvd., Suite 200, Newport Beach, CA 92660
Phone: (949) 622-5000• Fax:

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

Not all discounts are offered by every FNF Company. The discount will only be applicable to the FNF Company as indicated by the named discount.

FNF Underwritten Title Company

CTC – Chicago Title company
CLTC – Commonwealth Land Title Company
FNTC – Fidelity National Title Company of California
FNTCCA - Fidelity National Title Company of California
TICOR – Ticor Title Company of California
LTC – Lawyer's Title Company
SLTC – ServiceLink Title Company

Underwritten by FNF Underwriters

CTIC – Chicago Title Insurance Company
CLTIC - Commonwealth Land Title Insurance Company
FNTIC – Fidelity National Title Insurance Company
FNTIC - Fidelity National Title Insurance Company
CTIC – Chicago Title Insurance Company
CLTIC – Commonwealth Land Title Insurance Company
CTIC – Chicago Title Insurance Company

Available Discounts

DISASTER LOANS (CTIC, CLTIC, FNTIC)
The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within twenty-four (24) months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be fifty percent (50%) of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (CTIC, FNTIC)
On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be fifty percent (50%) to seventy percent (70%) of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be forty (40%) to fifty percent (50%) of the appropriate title insurance rate, depending on the type of coverage selected.

ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990 (11-09-18)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material unless such lien is shown by the public records at Date of Policy.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART II

(Variable exceptions such as taxes, easements, CC&R's, etc., are inserted here)

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE OWNER'S POLICY (02-04-22)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
      i. the occupancy, use, or enjoyment of the Land;
      ii. the character, dimensions, or location of any improvement on the Land;
      iii. the subdivision of land; or
      iv. environmental remediation or protection.
   b. any governmental forfeiture, police, regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:

a. created, suffered, assumed, or agreed to by the Insured Claimant;
b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
c. resulting in no loss or damage to the Insured Claimant;
d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.

4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 9.b.
5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This policy treats any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document are excepted from coverage.

This policy does not insure against loss or damage and the Company will not pay costs, attorneys' fees, or expenses resulting from the terms and conditions of any lease or easement identified in Schedule A, and the following matters:

PART I

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land, or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

PART II

(Variable exceptions such as taxes, easements, CC&R's, etc., are inserted here)

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (07-01-2021)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy and We will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
      i. the occupancy, use, or enjoyment of the Land;
      ii. the character, dimensions, or location of any improvement on the Land;
      iii. the subdivision of land; or
      iv. environmental remediation or protection.
   b. any governmental forfeiture, police, or regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23, or 27.
2. Any power to take the Land by condemnation. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 17.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by You;
   b. not Known to Us, not recorded in the Public Records at the Date of Policy, but Known to You and not disclosed in writing to Us by You prior to the date You became an Insured under this policy;
   c. resulting in no loss or damage to You;

d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 5, 8.f., 25, 26, 27, 28, or 32); or
e. resulting in loss or damage that would not have been sustained if You paid consideration sufficient to qualify You as a bona fide purchaser of the Title at the Date of Policy.

4. Lack of a right:
   a. to any land outside the area specifically described and referred to in Item 3 of Schedule A; and
   b. in any street, road, avenue, alley, lane, right-of-way, body of water, or waterway that abut the Land.
   Exclusion 4 does not modify or limit the coverage provided under Covered Risk 11 or 21.
5. The failure of Your existing structures, or any portion of Your existing structures, to have been constructed before, on, or after the Date of Policy in accordance with applicable building codes. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 14 or 15.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transfer of the Title to You is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 30.
7. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
8. Negligence by a person or an entity exercising a right to extract or develop oil, gas, minerals, groundwater, or any other subsurface substance.
9. Any lien on Your Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 9 does not modify or limit the coverage provided under Covered Risk 8.a. or 27.
10. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.
   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

Our Maximum Dollar

	Your Deductible Amount	Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

ALTA OWNER'S POLICY (07-01-2021)

EXCLUSIONS FROM COVERAGE

The following matters are excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. a. any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) that restricts, regulates, prohibits, or relates to:
   i. the occupancy, use, or enjoyment of the Land;
   ii. the character, dimensions, or location of any improvement on the Land;
   iii. the subdivision of land; or
   iv. environmental remediation or protection.
   b. any governmental forfeiture, police, regulatory, or national security power.
   c. the effect of a violation or enforcement of any matter excluded under Exclusion 1.a. or 1.b. Exclusion 1 does not modify or limit the coverage provided under Covered Risk 5 or 6.
2. Any power of eminent domain. Exclusion 2 does not modify or limit the coverage provided under Covered Risk 7.
3. Any defect, lien, encumbrance, adverse claim, or other matter:
   a. created, suffered, assumed, or agreed to by the Insured Claimant;
   b. not Known to the Company, not recorded in the Public Records at the Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   c. resulting in no loss or damage to the Insured Claimant;
   d. attaching or created subsequent to the Date of Policy (Exclusion 3.d. does not modify or limit the coverage provided under Covered Risk 9 or 10); or
   e. resulting in loss or damage that would not have been sustained if consideration sufficient to qualify the Insured named in Schedule A as a bona fide purchaser had been given for the Title at the Date of Policy.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights law, that the transaction vesting the Title as shown in Schedule A is a:
   a. fraudulent conveyance or fraudulent transfer;
   b. voidable transfer under the Uniform Voidable Transactions Act; or
   c. preferential transfer:
      i. to the extent the instrument of transfer vesting the Title as shown in Schedule A is not a transfer made as a contemporaneous exchange for new value; or
      ii. for any other reason not stated in Covered Risk 9.b.
   5. Any claim of a PACA-PSA Trust. Exclusion 5 does not modify or limit the coverage provided under Covered Risk 8.
   6. Any lien on the Title for real estate taxes or assessments imposed or collected by a governmental authority that becomes due and payable after the Date of Policy. Exclusion 6 does not modify or limit the coverage provided under Covered Risk 2.b.
   7. Any discrepancy in the quantity of the area, square footage, or acreage of the Land or of any improvement to the Land.

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This policy treats any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document are excepted from coverage.

This policy does not insure against loss or damage and the Company will not pay costs, attorneys' fees, or expenses resulting from the terms and conditions of any lease or easement identified in Schedule A, and the following matters:

NOTE: The 2021 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed as 1 through 7 below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

NOTE: The 2006 ALTA Owner's Policy may be issued to afford either Standard Coverage or Extended Coverage. In addition to variable exceptions such as taxes, easements, CC&R's, etc., the Exceptions from Coverage in a Standard Coverage policy will also include the Western Regional Standard Coverage Exceptions listed below as 1 through 7 below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records at Date of Policy but that could be (a) ascertained by an inspection of the Land, or (b) asserted by persons or parties in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records at Date of Policy.
4. Any encroachment, encumbrance, violation, variation, easement, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records at Date of Policy.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor, material or equipment unless such lien is shown by the Public Records at Date of Policy.
7. Any claim to (a) ownership of or rights to minerals and similar substances, including but not limited to ores, metals, coal, lignite, oil, gas, uranium, clay, rock, sand, and gravel located in, on, or under the Land or produced from the Land, whether such ownership or rights arise by lease, grant, exception, conveyance, reservation, or otherwise; and (b) any rights, privileges, immunities, rights of way, and easements associated therewith or appurtenant thereto, whether or not the interests or rights excepted in (a) or (b) appear in the Public Records or are shown in Schedule B.

Order: 30099785
Doc: SB:A 463-21

Requested By: steve.derilo, Printed: 3/17/2023 2:10 PM

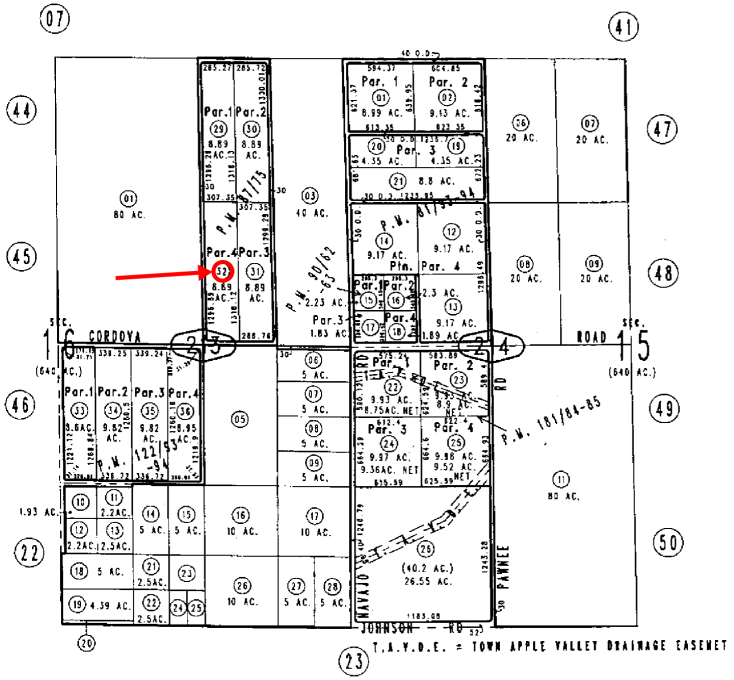
This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

Sec.15&16, T.6N.,R.3W., S.B.B.&M.

City of Apple Valley 0463- 21
Tax Rate Area
21027

1"=800'



Parcel Map No. 14418, P.M. 181/84-85
Parcel Map No. 10410, P.M. 122/93-94
Parcel Map No. 8585, P.M. 90/62-63
Parcel Map No. 8448, P.M. 87/75
Pln. Parcel Map No. 7960, P.M. 81/93-94

June 2004

REVISED

Assessor's Map
Book 0463 Page 21
San Bernardino County

OWNER'S DECLARATION

Escrow No.: 30099785-014-BR5-BB7
Property Address: Vacant Land
Apple Valley, CA

The undersigned hereby declares as follows:

1. (Fill in the applicable paragraph and strike the other)

   a. Declarant ("Owner") is the owner or lessee, as the case may be, of certain premises located at Vacant Land, Apple Valley, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").

   b. Declarant is the _____ of _____ ("Owner"), which is the owner or lessee, as the case may be, of certain premises located at Vacant Land, Apple Valley, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").

2. (Fill in the applicable paragraph and strike the other)

   a. During the period of six months immediately preceding the date of this declaration no work has been done, no surveys or architectural or engineering plans have been prepared, and no materials have been furnished in connection with the erection, equipment, repair, protection or removal of any building or other structure on the Land or in connection with the improvement of the Land in any manner whatsoever.

   b. During the period of six months immediately preceding the date of this declaration certain work has been done and materials furnished in connection with _____ upon the Land in the approximate total sum of $_____, but no work whatever remains to be done and no materials remain to be furnished to complete the construction in full compliance with the plans and specifications, nor are there any unpaid bills incurred for labor and materials used in making such improvements or repairs upon the Land, or for the services of architects, surveyors or engineers, except as follows: _____. Owner, by the undersigned Declarant, agrees to and does hereby indemnify and hold harmless Fidelity National Title Company against any and all claims arising therefrom.

3. Owner has not previously conveyed the Land; is not a debtor in bankruptcy (and if a partnership, the general partner thereof is not a debtor in bankruptcy); and has not received notice of any pending court action affecting the title to the Land.

4. Except as shown in the above-referenced Preliminary Report/Commitment, there are no unpaid or unsatisfied mortgages, deeds of trust, Uniform Commercial Code financing statements, regular assessments, special assessments, periodic assessments or any assessment from any source, claims of lien, special assessments, or taxes that constitute a lien against the Land or that affect the Land but have not been recorded in the public records. There are no violations of the covenants, conditions and restrictions as shown in the above-referenced Preliminary Report/Commitment.

5. The Land is currently in use as _____; _____ occupy/occupies the Land; and the following are all of the leases or other occupancy rights affecting the Land:

   _____

6. There are no other persons or entities that assert an ownership interest in the Land, nor are there unrecorded easements, claims of easement, or boundary disputes that affect the Land.

7. There are no outstanding options to purchase or rights of first refusal affecting the Land.

8. Between the most recent Effective Date of the above-referenced Preliminary Report/Commitment and the date of recording of the Insured Instrument(s), Owner has not taken or allowed, and will not take or allow, any action or inaction to encumber or otherwise affect title to the Land.

This declaration is made with the intention that Fidelity National Title Company (the "Company") and its policy issuing agents will rely upon it in issuing their title insurance policies and endorsements. Owner, by the undersigned Declarant, agrees to indemnify the Company against loss or damage (including attorneys fees, expenses, and costs) incurred by the Company as a result of any untrue statement made herein.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on _____ at _____.

Signature: _____

APPENDIX B

THE EDR RADIUS MAP™ REPORT WITH GEOCHECK®

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.2s
May 11, 2023

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	11
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-9
Physical Setting Source Map Findings	A-11
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. **NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA) INFORMATION PROVIDED IN THIS REPORT.** Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, LLC. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, LLC, or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

QUARRY ROAD
APPLE VALLEY, CA 92307

COORDINATES

Latitude (North):	34.6120770 - 34° 36' 43.47''
Longitude (West):	117.1937520 - 117° 11' 37.50''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	482236.3
UTM Y (Meters):	3829846.0
Elevation:	3092 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015943 APPLE VALLEY NORTH, CA
Version Date:	2018
North Map:	12016031 TURTLE VALLEY, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140601, 20140529
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
QUARRY ROAD
APPLE VALLEY, CA 92307

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	VICTORVILLE PBR N-1	32 MILES NORTH OF VI	ENVIROSTOR	Lower	3005, 0.569, South

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
CERS HAZ WASTE	CERS HAZ WASTE
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data

EXECUTIVE SUMMARY

CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
San Bern. Co. Permit	Hazardous Material Permits
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System

CERS ---------- CERS
NON-CASE INFO ---------- NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ---------- OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ---------- PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ---------- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---------- Well Stimulation Project (GEOTRACKER)
MINES MRDS ---------- Mineral Resources Data System
HWTS ---------- Hazardous Waste Tracking System
PFAS TRIS ---------- List of PFAS Added to the TRI

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk

characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

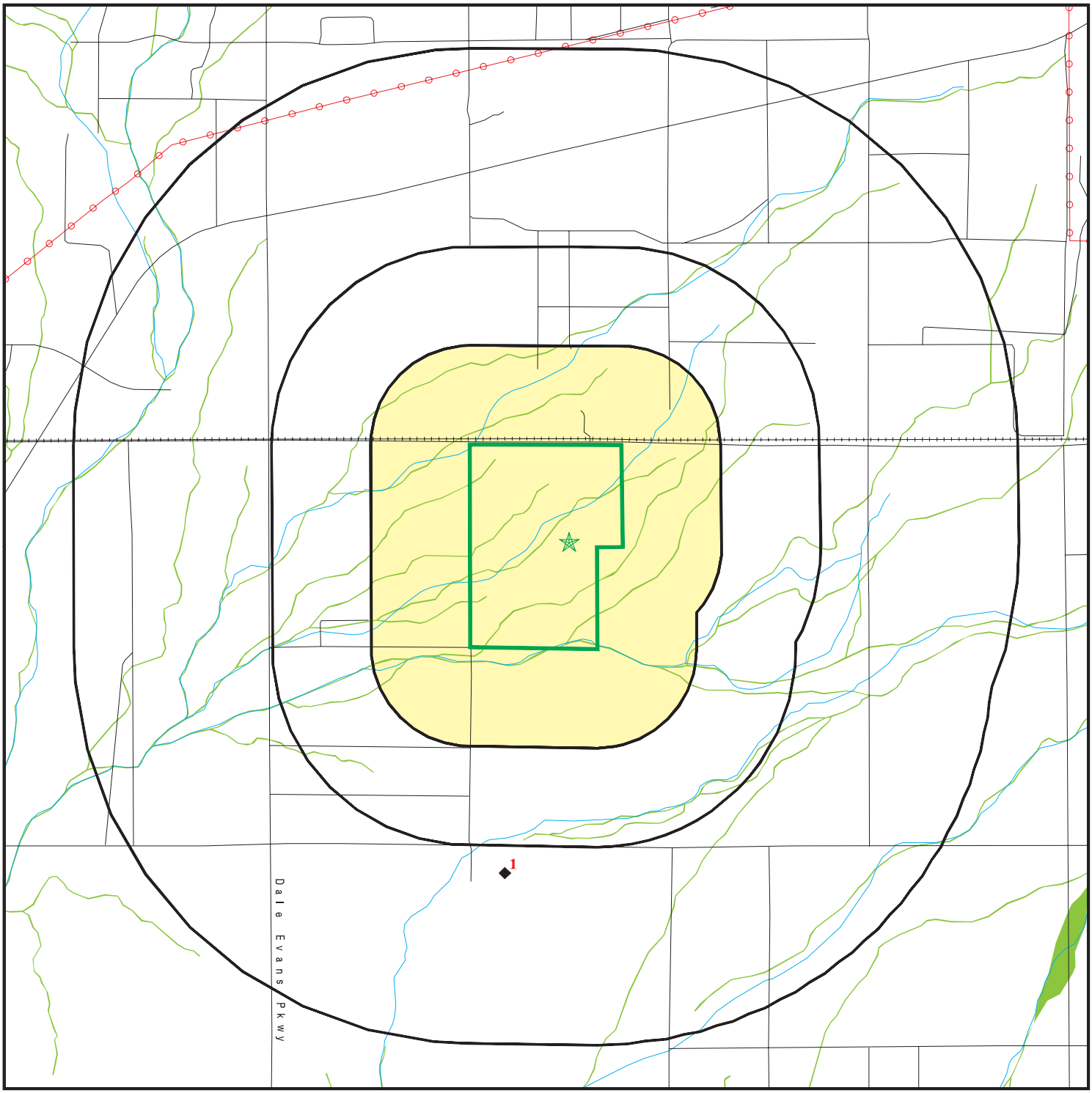
A review of the ENVIROSTOR list, as provided by EDR, and dated 01/23/2023 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
VICTORVILLE PBR N-1 Facility Id: 80000403 Status: Inactive - Action Required	32 MILES NORTH OF VI	S 1/2 - 1 (0.569 mi.)	1	9

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7334651.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

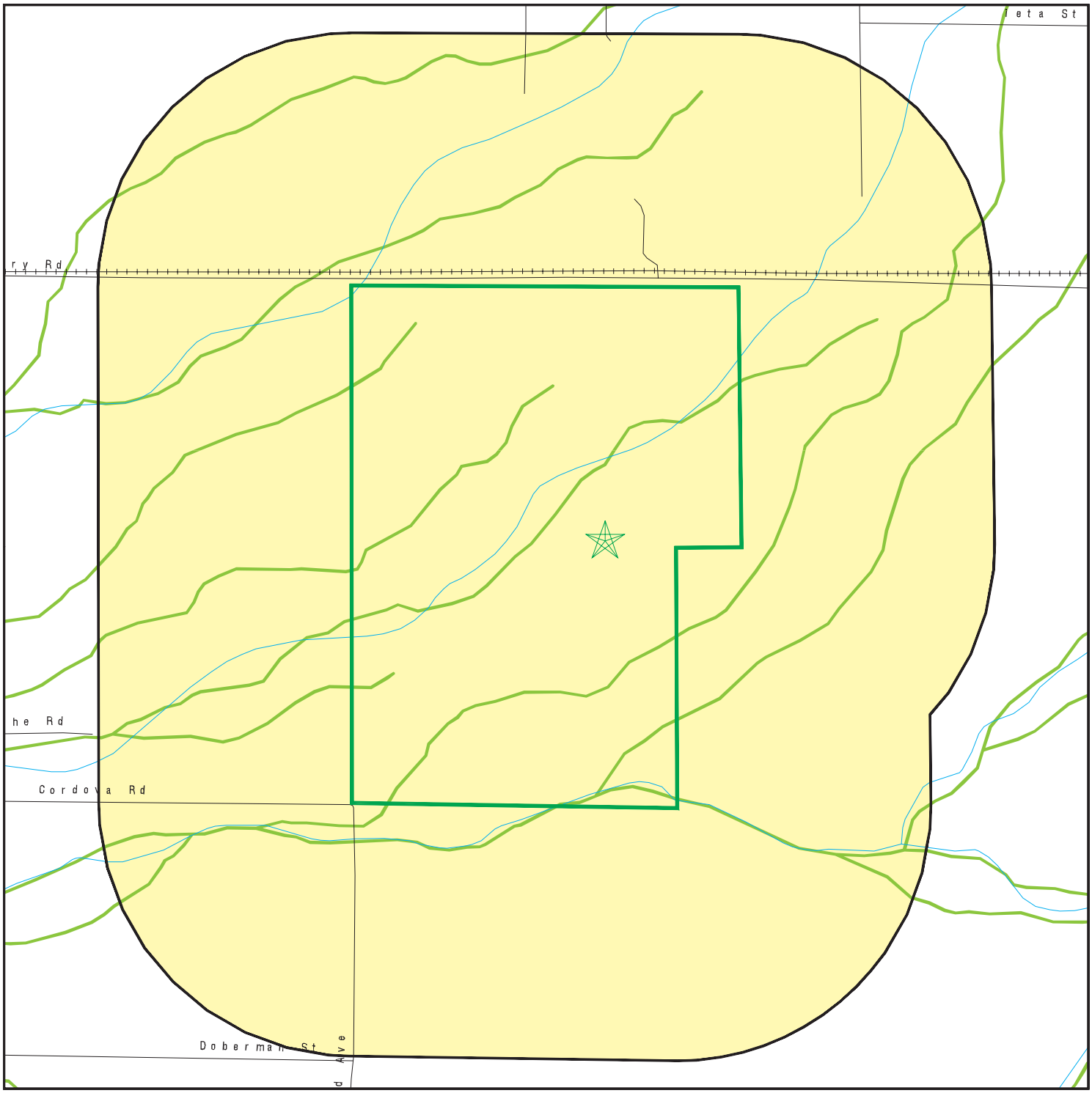
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Apple Valley	CLIENT:	Northgate Env. Management, Inc.
ADDRESS:	Quarry Road Apple Valley CA 92307	CONTACT:	Nicky Robinson
LAT/LONG:	34.612077 / 117.193752	INQUIRY #:	7334651.2s
		DATE:	May 11, 2023 1:53 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

DETAIL MAP - 7334651.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Apple Valley ADDRESS: Quarry Road Apple Valley CA 92307 LAT/LONG: 34.612077 / 117.193752	CLIENT: Northgate Env. Management, Inc. CONTACT: Nicky Robinson INQUIRY #: 7334651.2s DATE: May 11, 2023 1:56 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	1	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		0	0	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
PFAS TRIS	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	1	0	1

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
South
1/2-1
0.569 mi.
3005 ft.

VICTORVILLE PBR N-1
32 MILES NORTH OF VICTORVILLE
VICTORVILLE, CA 92312

ENVIROSTOR **S109348520**
N/A

Relative:
Lower

Actual:
3056 ft.

ENVIROSTOR:

Name:	VICTORVILLE PBR N-1
Address:	32 MILES NORTH OF VICTORVILLE
City,State,Zip:	VICTORVILLE, CA 92312
Facility ID:	80000403
Status:	Inactive - Action Required
Status Date:	08/15/2018
Site Code:	401306
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	560
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Daniel Cordero
Supervisor:	Eileen Mananian
Division Branch:	Cleanup Cypress
Assembly:	33
Senate:	21
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	34.6
Longitude:	-117.1966
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - ARTILLERY, FIRING RANGE - SMALL ARMS ETC...
Potential COC:	Explosives (UXO, MEC Munitions Debris (MD
Confirmed COC:	30011-NO Munitions Debris (MD
Potential Description:	SOIL
Alias Name:	CA99799F565700
Alias Type:	Federal Facility ID
Alias Name:	J09CA0672
Alias Type:	INPR
Alias Name:	401306
Alias Type:	Project Code (Site Code)
Alias Name:	80000403
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	08/07/1992
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	*Site Inspection (SI) Workplan
Completed Date:	11/01/2007
Comments:	Final Site Specific Work Plan submitted with suggested DTSC corrections.
Completed Area Name:	PROJECT WIDE

VICTORVILLE PBR N-1 (Continued) **S109348520**

Completed Sub Area Name:	Not reported
Completed Document Type:	*Site Inspection (SI) Report
Completed Date:	06/30/2008
Comments:	Document finalized with DTSC comments incorporated. Report Complete.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date:	08/20/2007
Comments:	Final TPP memorandum submitted.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/28/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 82

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/20/2023
Date Data Arrived at EDR: 02/21/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/26/2023
Number of Days to Update: 78

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/30/2023
Number of Days to Update: 23

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/26/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87
Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 134

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/09/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/17/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 04/06/2023
Date Data Arrived at EDR: 04/13/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 71
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/03/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/25/2023
Number of Days to Update: 77

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/23/2023
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 03/23/2023
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 76

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 08/02/2022
Date Data Arrived at EDR: 10/17/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/20/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/30/2023
Number of Days to Update: 23

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 02/01/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 77

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/11/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/01/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/13/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 02/16/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 75

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/16/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/17/2023
Date Data Arrived at EDR: 01/18/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 91

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/03/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/27/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/04/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 85

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/03/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/02/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 11/17/2022
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 85

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/22/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 02/27/2023
Date Data Arrived at EDR: 03/01/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 23

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/20/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 24

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/31/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 64

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 04/20/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/07/2023
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 03/30/2023
Date Data Arrived at EDR: 03/30/2023
Date Made Active in Reports: 04/03/2023
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 05/02/2023
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 59

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 09/06/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 10/26/2022
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

DRYCLEAN BAY AREA DIST: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432
Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE CO DIST: Butte County Air Quality Management DistrictDrycleaner Facility Listing
Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1469
Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS CO DIST: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412
Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 04/24/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN EAST KERN DIST: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN GLENN CO DIST: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 04/16/2019
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN GRANT: Grant Recipients List

Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 02/04/2021
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 816

Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL CO DIST: Imperial County Air Pollution Control District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 05/14/2019
Date Data Arrived at EDR: 05/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1445

Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN LAKE CO DIST: Lake County Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 04/29/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455

Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN MENDO CO DIST: Mendocino County Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1441

Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN MOJAVE DESERT DIST: Mojave Desert Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475

Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN MONTEREY BAY DIST: Monterey Bay Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475

Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN NO COAST UNIFIED DIST: North Coast Unified Air Quality Management District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473

Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN NO SIERRA DIST: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN PLACER CO DIST: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN NO SONOMA CO DIST: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

DRYCLEAN SAN DIEGO CO DIST: San Diego County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1461
Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN VENTURA CO DIST: Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB CO DIST: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 04/23/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQ VAL DIST: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/03/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1459
Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN SANTA BARB CO DIST: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO METO DIST: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing
A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/25/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1467
Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA CO DIST: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA CO DIST: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 11/14/2022
Date Data Arrived at EDR: 11/14/2022
Date Made Active in Reports: 02/01/2023
Number of Days to Update: 79
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO DIST: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 05/31/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1425
Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 04/25/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/17/2023
Date Data Arrived at EDR: 02/17/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 81
Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/10/2023
Date Data Arrived at EDR: 01/18/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 76
Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 01/11/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/15/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 83
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Varies

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/03/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 03/21/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 10/31/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/14/2023
Number of Days to Update: 77

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/28/2023
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/14/2023
Number of Days to Update: 77

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/07/2022
Date Data Arrived at EDR: 12/07/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Annually

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 4

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/31/2023
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: No Update Planned

PFAS TRIS: List of PFAS Added to the TRI
Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 03/07/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 12/28/2022
Date Data Arrived at EDR: 12/28/2022
Date Made Active in Reports: 03/17/2023
Number of Days to Update: 79

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 01/31/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 76

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/15/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 6

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 12/28/2022
Date Data Arrived at EDR: 01/24/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 76

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 02/13/2023
Date Data Arrived at EDR: 02/14/2023
Date Made Active in Reports: 05/08/2023
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 04/19/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/13/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 01/30/2023
Date Data Arrived at EDR: 02/01/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 77

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 01/30/2023
Date Data Arrived at EDR: 02/01/2023
Date Made Active in Reports: 04/21/2023
Number of Days to Update: 79

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 79

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/09/2023
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/09/2023
Date Data Arrived at EDR: 01/10/2023
Date Made Active in Reports: 03/23/2023
Number of Days to Update: 72

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/11/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82
Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/18/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/18/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 01/23/2023
Date Data Arrived at EDR: 01/25/2023
Date Made Active in Reports: 04/10/2023
Number of Days to Update: 75

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 89

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/04/2023
Number of Days to Update: 84

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/06/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/08/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/18/2023
Date Data Arrived at EDR: 01/19/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/18/2023
Date Data Arrived at EDR: 01/19/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2023
Date Data Arrived at EDR: 02/09/2023
Date Made Active in Reports: 05/04/2023
Number of Days to Update: 84

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/15/2023
Date Data Arrived at EDR: 02/15/2023
Date Made Active in Reports: 05/09/2023
Number of Days to Update: 83

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/14/2023
Number of Days to Update: 77

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/04/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 02/03/2023
Date Data Arrived at EDR: 02/07/2023
Date Made Active in Reports: 04/26/2023
Number of Days to Update: 78

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 04/28/2023
Date Data Arrived at EDR: 04/28/2023
Date Made Active in Reports: 05/03/2023
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/26/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/14/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 82

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 04/13/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/09/2023
Date Data Arrived at EDR: 02/10/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 84

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/10/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/02/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/10/2023
Date Data Arrived at EDR: 02/10/2023
Date Made Active in Reports: 05/05/2023
Number of Days to Update: 84
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/28/2021
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/05/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 11/17/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 81

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/13/2023
Date Data Arrived at EDR: 01/17/2023
Date Made Active in Reports: 04/04/2023
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 05/10/2023
Next Scheduled EDR Contact: 08/14/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/12/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2022
Date Data Arrived at EDR: 01/26/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 83

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/17/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/21/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2022
Date Data Arrived at EDR: 01/26/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 83

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/17/2023
Next Scheduled EDR Contact: 07/31/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/19/2022
Date Data Arrived at EDR: 12/27/2022
Date Made Active in Reports: 03/17/2023
Number of Days to Update: 80

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/26/2023
Date Data Arrived at EDR: 01/27/2023
Date Made Active in Reports: 04/19/2023
Number of Days to Update: 82

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 05/03/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/06/2023
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/10/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 03/30/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/27/2023
Next Scheduled EDR Contact: 08/07/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/06/2023
Next Scheduled EDR Contact: 07/24/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/10/2022
Next Scheduled EDR Contact: 08/28/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/06/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

APPLE VALLEY
QUARRY ROAD
APPLE VALLEY, CA 92307

TARGET PROPERTY COORDINATES

Latitude (North):	34.612077 - 34° 36' 43.48''
Longitude (West):	117.193752 - 117° 11' 37.51''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	482236.3
UTM Y (Meters):	3829846.0
Elevation:	3092 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015943 APPLE VALLEY NORTH, CA
Version Date:	2018
North Map:	12016031 TURTLE VALLEY, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

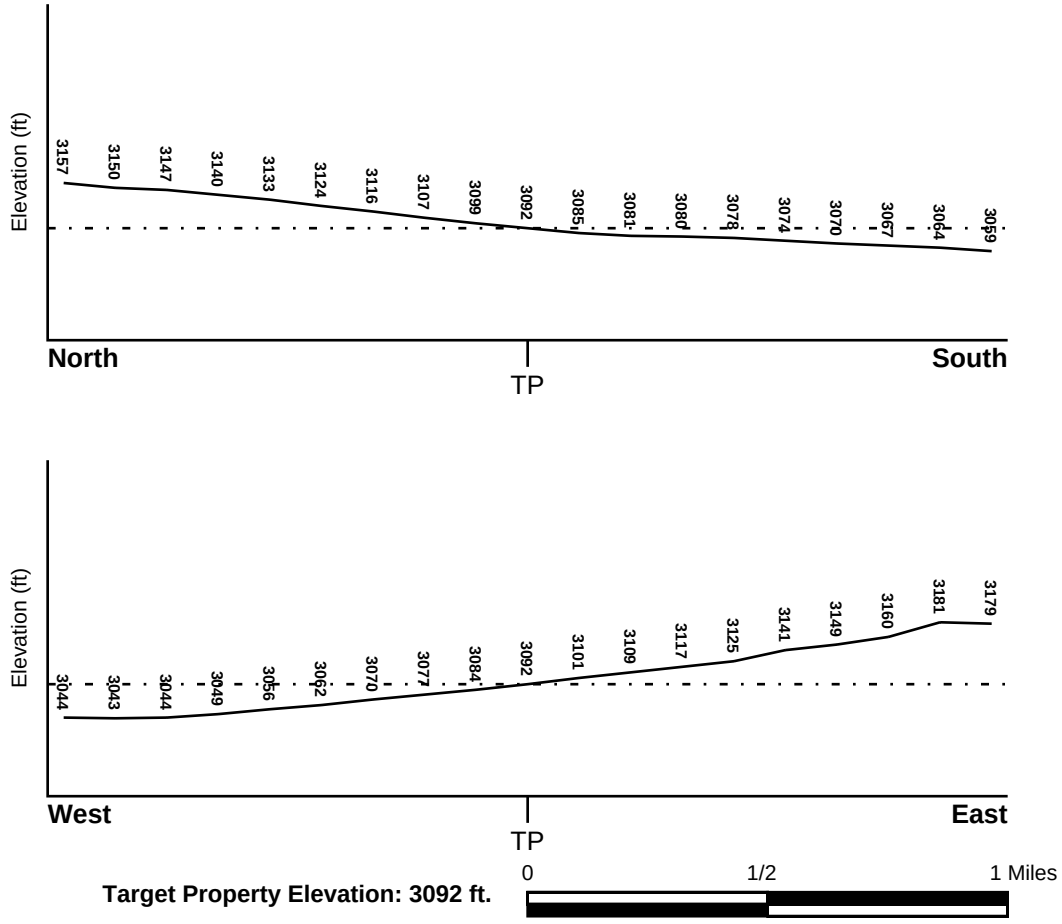
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 3092 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C5850F	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
06071C5175F	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

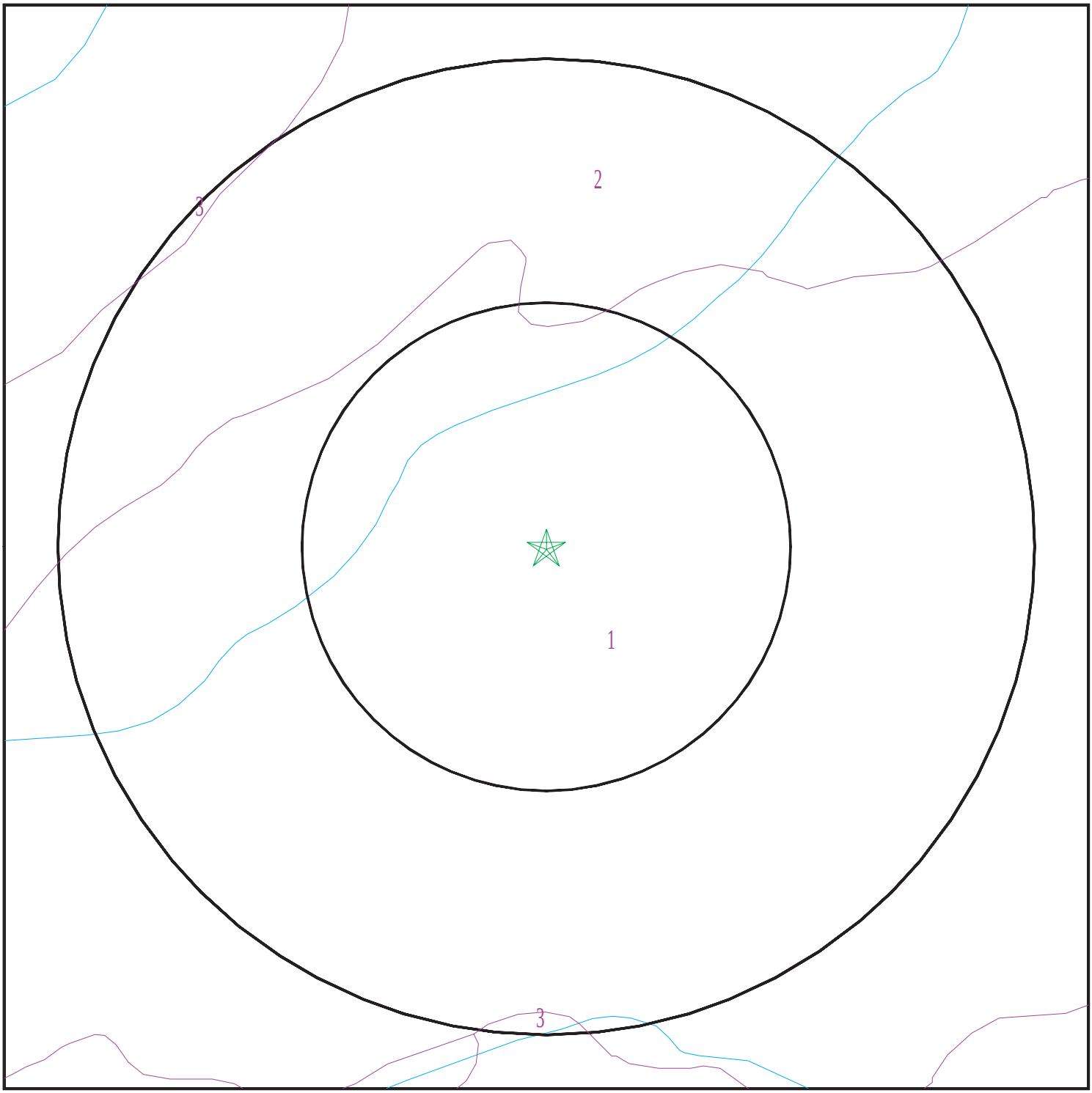
Era:	Paleozoic
System:	Pennsylvanian
Series:	Upper Paleozoic
Code:	uPz *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7334651.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Apple Valley	CLIENT:	Northgate Env. Management, Inc.
ADDRESS:	Quarry Road Apple Valley CA 92307	CONTACT:	Nicky Robinson
LAT/LONG:	34.612077 / 117.193752	INQUIRY #:	7334651.2s
		DATE:	May 11, 2023 1:56 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: NEBONA

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 9 Min: 7.9
2	1 inches	7 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 9 Min: 7.9
3	7 inches	11 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 9 Min: 7.9
4	11 inches	64 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 9 Min: 7.9

Soil Map ID: 2

Soil Component Name: MIRAGE

Soil Surface Texture:
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	5 inches	20 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	20 inches	38 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
4	38 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 3

Soil Component Name: HELENDALE

Soil Surface Texture:

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	5 inches	29 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	29 inches	66 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
4	66 inches	98 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000148478	1/4 - 1/2 Mile WNW
B4	USGS40000148646	1/2 - 1 Mile NE
5	USGS40000148647	1/2 - 1 Mile NW
C6	USGS40000148464	1/2 - 1 Mile West
C7	USGS40000148479	1/2 - 1 Mile West
D8	USGS40000148318	1/2 - 1 Mile West
E11	USGS40000148648	1/2 - 1 Mile WNW
G14	USGS40000148786	1/2 - 1 Mile NW
F15	USGS40000148477	1/2 - 1 Mile East
H16	USGS40000148465	1/2 - 1 Mile West
H17	USGS40000148480	1/2 - 1 Mile West
I18	USGS40000148319	1/2 - 1 Mile West
I19	USGS40000148298	1/2 - 1 Mile West
G20	USGS40000148797	1/2 - 1 Mile NW
21	USGS40000148925	1/2 - 1 Mile North
K23	USGS40000148904	1/2 - 1 Mile NNW
K30	USGS40000148913	1/2 - 1 Mile NNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
J32	USGS40000148176	1/2 - 1 Mile ESE
K34	USGS40000148926	1/2 - 1 Mile NNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

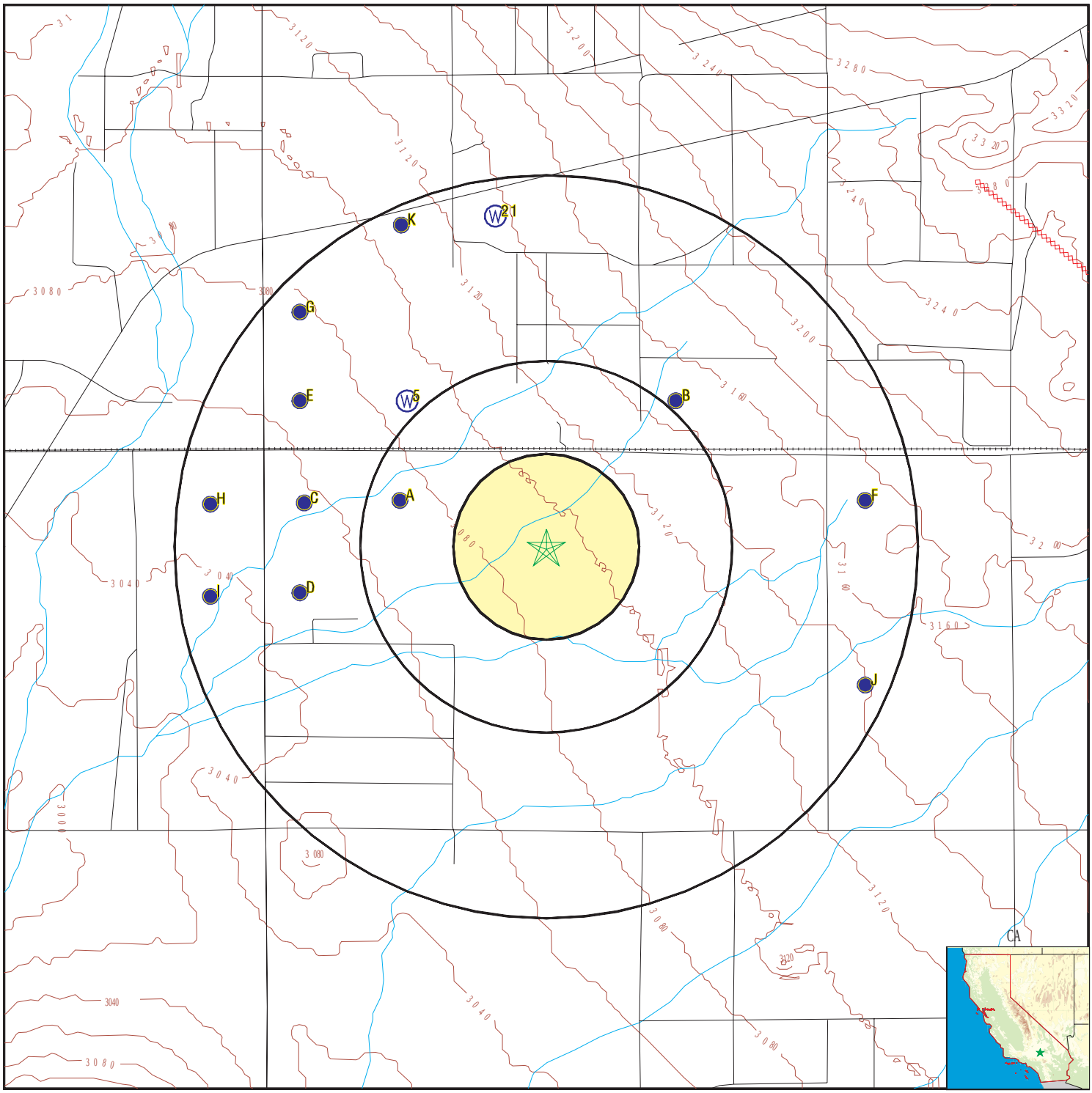
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	CADWR9000010983	1/4 - 1/2 Mile WNW
B3	CADWR9000011028	1/2 - 1 Mile NE
D9	CADWR9000010944	1/2 - 1 Mile West
C10	CADWR9000010984	1/2 - 1 Mile West
E12	CADWR9000011029	1/2 - 1 Mile WNW
F13	CADWR9000010982	1/2 - 1 Mile East
J22	CADWR9000010912	1/2 - 1 Mile ESE
H24	CADWR9000010977	1/2 - 1 Mile West
I25	CADWR9000010945	1/2 - 1 Mile West
H26	CADWR9000010985	1/2 - 1 Mile West
G27	CADWR9000011056	1/2 - 1 Mile NW
I28	CADWR9000010935	1/2 - 1 Mile West
K29	CADWR9000011107	1/2 - 1 Mile NNW
G31	CADWR9000011060	1/2 - 1 Mile NW
K33	CADWR9000011112	1/2 - 1 Mile NNW

PHYSICAL SETTING SOURCE MAP - 7334651.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Apple Valley	CLIENT:	Northgate Env. Management, Inc.
ADDRESS:	Quarry Road Apple Valley CA 92307	CONTACT:	Nicky Robinson
LAT/LONG:	34.612077 / 117.193752	INQUIRY #:	7334651.2s
		DATE:	May 11, 2023 1:56 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
WNW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000148478**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W16C001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	63
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-03-01
Feet below surface:	39.03	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

A2
WNW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR9000010983**

State Well #:	06N03W16C001S	Station ID:	4852
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

B3
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000011028**

State Well #:	06N03W10N001S	Station ID:	4842
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

B4
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000148646**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W10N001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported

Construction Date:	Not Reported	Well Depth:	65
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-26
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was dry (no water level recorded).		

5
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000148647**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09P001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	Not Reported	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

C6
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148464**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W16D002S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	50.2
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

C7
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148479**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W16D001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported

Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-28
Feet below surface:	87.13	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

D8
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148318**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W16E001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	38.17
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-28
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was dry (no water level recorded).		

D9
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010944**

State Well #:	06N03W16E001S	Station ID:	27998
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

C10
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010984**

State Well #:	06N03W16D001S	Station ID:	39849
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E11
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000148648**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09N001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	80.5
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-27
Feet below surface:	52.49	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

E12
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000011029**

State Well #:	06N03W09N001S	Station ID:	27997
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

F13
East
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000010982**

State Well #:	06N03W15B001S	Station ID:	4847
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

G14
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000148786**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09M003S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported

Construction Date:	1940	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-26
Feet below surface:	29.56	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

F15
East **FED USGS** **USGS40000148477**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W15B001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	80.1
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-28
Feet below surface:	76.88	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

H16
West **FED USGS** **USGS40000148465**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W17A002S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-03-01
Feet below surface:	58.66	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

H17
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148480**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W17A001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	130.85
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-03-01
Feet below surface:	73.81	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

I18
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148319**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W17H001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-03-01
Feet below surface:	73.11	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

I19
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000148298**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W17H002S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	33.38

Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-03-01
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was dry (no water level recorded).		

G20
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000148797**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09M002S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	50
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-26
Feet below surface:	30.27	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

21
North
1/2 - 1 Mile
Lower

FED USGS **USGS40000148925**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09G001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/-500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	105.7
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

J22
ESE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000010912**

State Well #:	06N03W15K001S	Station ID:	4849
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K23
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000148904**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09F003S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/-500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-26
Feet below surface:	58.82	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

H24
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010977**

State Well #:	06N03W17A002S	Station ID:	27999
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

I25
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010945**

State Well #:	06N03W17H001S	Station ID:	4995
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

H26
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010985**

State Well #:	06N03W17A001S	Station ID:	4853
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G27
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000011056**

State Well #:	06N03W09M003S	Station ID:	4840
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

I28
West
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000010935**

State Well #:	06N03W17H002S	Station ID:	28299
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

K29
NNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000011107**

State Well #:	06N03W09F003S	Station ID:	27995
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

K30
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000148913**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09F002S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	1948	Well Depth:	94
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-26
Feet below surface:	67.88	Feet to sea level:	Not Reported
Note:	A nearby site that taps the same aquifer was being pumped.		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G31
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000011060**

State Well #:	06N03W09M002S	Station ID:	27996
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

J32
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS40000148176**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W15K001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	76.8
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1957-02-28
Feet below surface:	Not Reported	Feet to sea level:	Not Reported
Note:	The site was dry (no water level recorded).		

K33
NNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000011112**

State Well #:	06N03W09F002S	Station ID:	4838
Well Name:	Not Reported	Basin Name:	Upper Mojave River Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

K34
NNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000148926**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N003W09F001S	Type:	Well
Description:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
HUC:	18090208	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported	Aquifer:	Basin and Range basin-fill aquifers
Formation Type:	Not Reported	Aquifer Type:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Construction Date:	1952	Well Depth:	134
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92307	30	1

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN BERNARDINO COUNTY, CA

Number of sites tested: 18

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.678 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

APPENDIX C

EDR VAPOR ENCROACHMENT SCREEN

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.2s
May 15, 2023

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	**ES1**
Primary Map	**2**
Secondary Map	**3**
Map Findings	**4**
Record Sources and Currency	**GR-1**

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

The EDR Vapor Encroachment Worksheet enables EDR's customers to make certain online modifications that effects maps, text and calculations contained in this Report. As a result, maps, text and calculations contained in this Report may have been so modified. EDR has not taken any action to verify any such modifications, and this report and the findings set forth herein must be read in light of this fact. Environmental Data Resources shall not be responsible for any customer's decision to include or not include in any final report any records determined to be within the relevant minimum search distances.

This report contains information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANYSUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES.ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this report "AS IS". Any analyses, estimates, ratings, or risk codes provided in this report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can produce information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2023 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by EDR. The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Default Area of Concern (Miles)*	property	1/10	> 1/10
Lists of Federal NPL (Superfund) sites	1.0	0	0	0
Lists of Federal Delisted NPL sites	1.0	0	0	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0.5	0	0	0
Lists of Federal CERCLA sites with NFRAP	0.5	0	0	0
Lists of Federal RCRA facilities undergoing Corrective Action	1.0	0	0	0
Lists of Federal RCRA TSD facilities	0.5	0	0	0
Lists of Federal RCRA generators	0.25	0	0	0
Federal institutional controls / engineering controls registries	0.5	0	0	0
Federal ERNS list	0.001	0	0	-
Lists of state- and tribal (Superfund) equivalent sites	1.0	0	0	0
Lists of state- and tribal hazardous waste facilities	1.0	0	0	1
Lists of state and tribal landfills and solid waste disposal facilities	0.5	0	0	0
Lists of state and tribal leaking storage tanks	0.5	0	0	0
Lists of state and tribal registered storage tanks	0.25	0	0	0
State and tribal institutional control / engineering control registries	not searched	-	-	-
Lists of state and tribal voluntary cleanup sites	0.5	0	0	0
Lists of state and tribal brownfield sites	0.5	0	0	0

ADDITIONAL ENVIRONMENTAL RECORDS				
Local Brownfield lists	0.5	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites	0.5	0	0	0
Local Lists of Hazardous waste / Contaminated Sites	1.0	0	0	0
Local Lists of Registered Storage Tanks	0.25	0	0	0
Local Land Records	0.5	0	0	0
Records of Emergency Release Reports	0.5	0	0	0
Other Ascertainable Records	1.0	0	0	0

EDR HIGH RISK HISTORICAL RECORDS				
EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

*The Default Area of Concern may be adjusted by the environmental professional using experience and professional judgement. Each category may include several databases, and each database may have a different distance. A list of individual databases is provided at the back of this report.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

APPLE VALLEY
QUARRY ROAD
APPLE VALLEY, CA 92307

COORDINATES

Latitude (North):	34.612077 - 34° 36′ 43.4729″
Longitude (West):	117.193752 - 117° 11′ 37.494507″
Elevation:	3092 ft. above sea level

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
VICTORVILLE PBR N-1	32 MILES NORTH OF VICTORVILLE	1/2 - 1 S	◆ 1	8
ENVIROSTOR: ENVIROSTOR				

ADDITIONAL ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

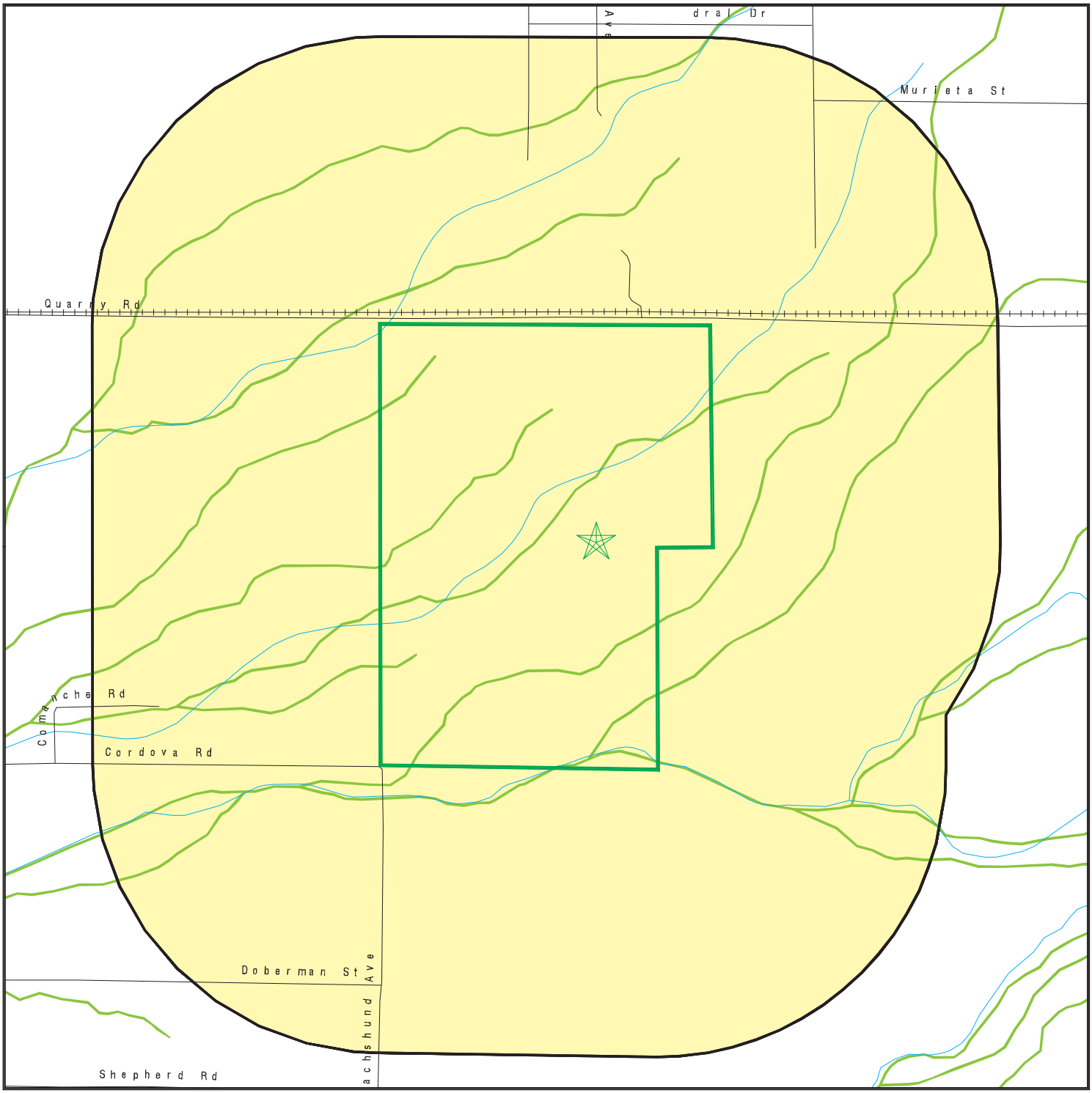
EDR HIGH RISK HISTORICAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

EDR RECOVERED GOVERNMENT ARCHIVES

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 7334651.2S



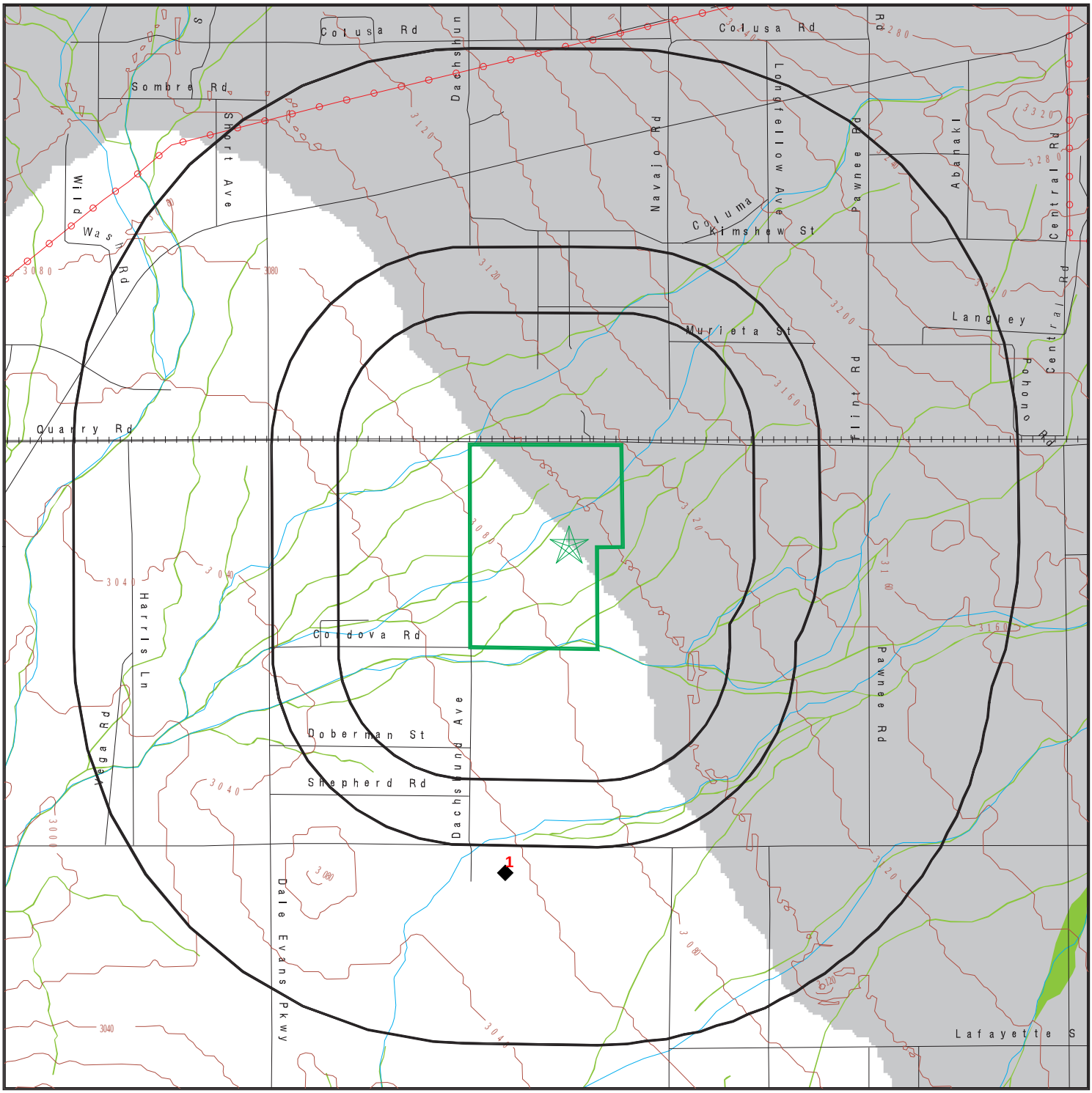
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Apple Valley ADDRESS: Quarry Road Apple Valley CA 92307 LAT/LONG: 34.612077 / 117.193752	CLIENT: Northgate Env. Management, Inc. CONTACT: Nicky Robinson INQUIRY #: 7334651.2s DATE: May 11, 2023 1:54 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

SECONDARY MAP - 7334651.2S



0 1/3 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Upgradient Area
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Apple Valley	CLIENT:	Northgate Env. Management, Inc.
ADDRESS:	Quarry Road Apple Valley CA 92307	CONTACT:	Nicky Robinson
		INQUIRY #:	7334651.2s
LAT/LONG:	34.612077 / 117.193752	DATE:	May 11, 2023 1:53 pm

Copyright © 2023 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**		EDR SITE ID NUMBER
◆ **MAP ID#**	Direction Distance Range (Distance feet / miles) Relative Elevation Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.

Worksheet:

Comments:
Comments may be added on the online Vapor Encroachment Worksheet.

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

VICTORVILLE PBR N-1 32 MILES NORTH OF VICTORVILLE, VICTORVILLE, CA, 92312		S109348520
◆ 1	S 1/2 - 1 (3005 ft. / 0.569 mi.) 36 ft. Lower Elevation 3056 ft. Above Sea Level	Lists of state- and tribal hazardous waste facilities

Worksheet:

Impact on Target Property: VEC does not exist

Comments: The source is not within the area of concern, based on its distance, gradient and suspected chemical of concern (ASTM E 2600: 8.5.2 (1), 8.3.2).

Chemicals of concern are not likely to be present at this source (ASTM E 2600: 8.5.2 (2), 8.5.3.2).

Given the relative distance, downgradient location, and the remedial action completed, this facility does not appear to represent a potential threat to soil, soil vapor, and/or groundwater quality at the Subject Property.

Conditions:

Not Applicable: YES

Groundwater Flow Gradient:

Hydrogeologically: YES

Topographically: YES

Downgradient: YES

ENVIROSTOR: Lists of state- and tribal hazardous waste facilities

Name:	VICTORVILLE PBR N-1
Address:	32 MILES NORTH OF VICTORVILLE
City,State,Zip:	VICTORVILLE, CA 92312
Facility ID:	80000403
Status:	Inactive - Action Required
Status Date:	08/15/2018
Site Code:	401306
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	560

VICTORVILLE PBR N-1, 32 MILES NORTH OF VICTORVILLE, VICTORVILLE, CA 92312 (Continued)

NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Daniel Cordero
Supervisor:	Eileen Mananian
Division Branch:	Cleanup Cypress
Assembly:	33
Senate:	21
Special Program:	Not Reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	34.6
Longitude:	-117.1966
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - ARTILLERY, FIRING RANGE - SMALL ARMS ETC...
Potential COC:	Explosives (UXO, MEC Munitions Debris (MD
Confirmed COC:	30011-NO Munitions Debris (MD
Potential Description:	SOIL
Alias Name:	CA99799F565700
Alias Type:	Federal Facility ID
Alias Name:	J09CA0672
Alias Type:	INPR
Alias Name:	401306
Alias Type:	Project Code (Site Code)
Alias Name:	80000403
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	08/07/1992
Comments:	Not Reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	*Site Inspection (SI) Workplan
Completed Date:	11/01/2007
Comments:	Final Site Specific Work Plan submitted with suggested DTSC corrections.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	*Site Inspection (SI) Report
Completed Date:	06/30/2008
Comments:	Document finalized with DTSC comments incorporated. Report Complete.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not Reported
Completed Document Type:	Preliminary Assessment/Site Inspection Report (PA/SI)

VICTORVILLE PBR N-1, 32 MILES NORTH OF VICTORVILLE, VICTORVILLE, CA 92312 (Continued)

Completed Date:	08/20/2007
Comments:	Final TPP memorandum submitted.
Future Area Name:	Not Reported
Future Sub Area Name:	Not Reported
Future Document Type:	Not Reported
Future Due Date:	Not Reported
Schedule Area Name:	Not Reported
Schedule Sub Area Name:	Not Reported
Schedule Document Type:	Not Reported
Schedule Due Date:	Not Reported
Schedule Revised Date:	Not Reported

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
ENVIRONMENTAL RECORDS						
Federal NPL site list						
US	NPL	National Priority List	EPA	01/25/2023	02/03/2023	02/28/2023
US	Proposed NPL	Proposed National Priority List Sites	EPA	01/25/2023	02/02/2023	02/28/2023
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
Federal CERCLIS list						
US	SEMS	Superfund Enterprise Management System	EPA	01/25/2023	02/02/2023	02/28/2023
Federal RCRA CORRACTS facilities list						
US	CORRACTS	Corrective Action Report	EPA	03/06/2023	03/09/2023	03/20/2023
Federal RCRA TSD facilities list						
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
Federal RCRA generators list						
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
Federal institutional controls / engineering controls registries						
US	LUCIS	Land Use Control Information System	Department of the Navy	02/08/2023	02/09/2023	05/02/2023
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/20/2023	02/21/2023	05/02/2023
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	02/20/2023	02/21/2023	05/02/2023
Federal ERNS list						
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	12/12/2022	12/14/2022	12/19/2022
State and tribal - equivalent NPL						
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	01/23/2023	01/24/2023	04/10/2023
State and tribal - equivalent CERCLIS						
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	01/23/2023	01/24/2023	04/10/2023
State and tribal landfill / solid waste disposal						
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	02/06/2023	02/07/2023	04/26/2023
State and tribal leaking storage tank lists						
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/30/2023
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	11/23/2022	12/06/2022	03/03/2023
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/14/2022	12/06/2022	03/03/2023
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	11/23/2022	12/06/2022	03/03/2023
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/14/2022	12/06/2022	03/03/2023
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	11/26/2022	12/06/2022	03/03/2023
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	10/19/2022	12/06/2022	03/03/2023
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	11/23/2022	12/06/2022	03/03/2023
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	11/23/2022	12/06/2022	04/19/2023
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
State and tribal registered storage tank lists						
CA	UST	Active UST Facilities	SWRCB	12/02/2022	12/02/2022	02/22/2023
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	11/28/2022	12/02/2022	02/23/2023
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	10/14/2022	12/06/2022	03/03/2023
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/19/2022	12/06/2022	03/03/2023
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	11/23/2022	12/06/2022	03/03/2023
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	11/23/2022	12/06/2022	04/19/2023
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/14/2022	12/06/2022	03/03/2023
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
State and tribal voluntary cleanup sites						
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	01/23/2023	01/24/2023	04/10/2023
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
State and tribal Brownfields sites						
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	12/14/2022	12/14/2022	03/07/2023
Other Records						
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	12/31/2022	01/12/2023	04/07/2023
US	ROD	Records Of Decision	EPA	01/25/2023	02/02/2023	02/28/2023
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	01/25/2023	02/02/2023	02/28/2023
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
CA	SWRCY	Recycler Database	Department of Conservation	12/02/2022	12/02/2022	02/22/2023
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	02/03/2023	02/07/2023	04/25/2023
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	07/30/2021	02/03/2023	02/10/2023
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	01/06/2023	02/02/2023	02/10/2023
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	12/13/2022	12/14/2022	03/10/2023
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	01/25/2023	02/02/2023	02/28/2023
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2020	11/30/2021	02/22/2022
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	Delisted NPL	National Priority List Deletions	EPA	01/25/2023	02/02/2023	02/28/2023
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	01/25/2023	02/02/2023	02/28/2023
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/06/2023	03/09/2023	03/20/2023
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	12/13/2022	12/14/2022	03/10/2023
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	01/06/2023	02/02/2023	02/10/2023
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	04/06/2023	04/13/2023	04/19/2023
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	02/01/2023	02/14/2023	05/02/2023
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	02/27/2023	03/01/2023	03/24/2023
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	11/07/2022	11/17/2022	02/10/2023
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	PRP	Potentially Responsible Parties	EPA	10/27/2022	11/01/2022	11/15/2022
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2021	02/16/2023	05/02/2023
US	TSCA	Toxic Substances Control Act	EPA	12/31/2020	06/14/2022	03/24/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	SSTS	Section 7 Tracking Systems	EPA	01/17/2023	01/18/2023	04/19/2023
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	PADS	PCB Activity Database System	EPA	11/03/2022	01/04/2023	04/03/2023
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	10/26/2022	11/22/2022	12/05/2022
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	FINDS	Facility Index System/Facility Registry System	EPA	02/02/2023	02/28/2023	03/24/2023
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RMP	Risk Management Plans	Environmental Protection Agency	04/27/2022	05/04/2022	05/10/2022
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2021	03/09/2023	03/20/2023
US	PWS	Public Water System Data	EPA	12/17/2013	01/09/2014	10/15/2014
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	ABANDONED MINES	Abandoned Mines	Department of Interior	12/20/2022	12/20/2022	03/10/2023
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2020	11/30/2022	02/09/2023
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	08/02/2022	10/17/2022	01/04/2023
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	12/14/2022	12/14/2022	03/07/2023
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	12/07/2021	05/09/2022	05/17/2022
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	11/28/2022	11/29/2022	02/13/2023
CA	DRYCLEAN MOJAVE DESERT DIST	Mojave Desert Air Quality Management District Drycleaner Fac	Mojave Desert Air Quality Management District	04/17/2019	04/17/2019	05/01/2023
CA	DRYCLEAN MONTEREY BAY DIST	Monterey Bay Air Quality Management District Drycleaner Faci	Monterey Bay Air Quality Management District	04/17/2019	04/17/2019	05/01/2023
CA	DRYCLEAN NO COAST UNIFIED DIST	North Coast Unified Air Quality Management District Dryclean	North Coast Unified Air Quality Management Di	11/30/2016	04/19/2019	05/01/2023
CA	DRYCLEAN NO SIERRA DIST	Northern Sierra Air Quality Management District Drycleaner F	Northern Sierra Air Quality Management Distri	05/07/2019	05/07/2019	05/01/2023
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	11/14/2022	11/14/2022	02/01/2023
CA	DRYCLEAN SACRAMENTO METRO DIST	Sacramento Metropolitan Air Quality Management DistrictDrycl	Sacramento Metropolitan Air Quality Managemen	04/24/2019	04/25/2019	05/01/2023
CA	DRYCLEAN SANTA BARB CO DIST	Santa Barbara County Air Pollution Control District Dryclean	Santa Barbara County Air Pollution Control Di	02/19/2019	04/17/2019	05/01/2023
CA	DRYCLEAN SAN JOAQ VAL DIST	San Joaquin Valley Air Pollution Control District District D	San Joaquin Valley Air Pollution Control Dist	05/01/2019	05/03/2019	05/01/2023
CA	DRYCLEAN SAN LUIS OB CO DIST	San Luis Obispo County Air Pollution Control District Drycle	San Luis Obispo County Air Pollution Control	04/23/2019	04/25/2019	05/01/2023
CA	DRYCLEAN SAN DIEGO CO DIST	San Diego County Air Pollution Control District Drycleaner F	San Diego County Air Pollution Control Distri	02/01/2019	05/01/2019	05/01/2023
CA	DRYCLEAN SHASTA CO DIST	Shasta County Air Quality Management District District Drycl	Shasta County Air Quality Management District	04/17/2019	04/19/2019	05/01/2023
CA	DRYCLEAN TEHAMA CO DIST	Tehama County Air Pollution Control District Drycleaner Faci	Tehama County Air Pollution Control District	04/24/2019	04/24/2019	05/01/2023
CA	DRYCLEAN YOLO-SOLANO DIST	Yolo-Solano Air Quality Management District Drycleaner Facil	Yolo-Solano Air Quality Management District	05/31/2019	06/06/2019	05/01/2023
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	DRYCLEAN VENTURA CO DIST	Drycleaner Facility Listing	Ventura County Air Pollution Control District	04/16/2019	04/17/2019	05/01/2023
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	02/17/2023	02/17/2023	05/09/2023
CA	DRYCLEAN NO SONOMA CO DIST	Norther Sonoma County County Air Pollution Control District	Santa Barbara County Air Pollution Control Di	04/17/2019	04/17/2019	05/01/2023
CA	DRYCLEAN PLACER CO DIST	Placer County Air Quality Management District Drycleaner Fac	Placer County Air Quality Management District	01/16/2018	04/19/2019	05/01/2023
CA	DRYCLEAN BAY AREA DIST	Bay Area Air Quality Management District Drycleaner Facility	Bay Area Air Quality Management District	02/20/2019	05/30/2019	05/01/2023
CA	DRYCLEAN BUTTE CO DIST	Butte County Air Quality Management DistrictDrycleaner Facil	Butte County Air Quality Management District	12/31/2018	04/23/2019	05/01/2023
CA	DRYCLEAN CALAVERAS CO DIST	Calaveras County Environmental Management Agency Drycleaner	Calaveras County Environmental Management Age	06/17/2019	06/19/2019	05/01/2023
CA	DRYCLEAN EAST KERN DIST	Eastern Kern Air Pollution Control District District Dryclea	Eastern Kern Air Pollution Control District	04/17/2019	04/17/2019	05/01/2023
CA	DRYCLEAN GLENN CO DIST	Glenn County Air Pollution Control District Drycleaner Facil	Glenn County Air Pollution Control District	04/17/2019	04/17/2019	05/01/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	DRYCLEAN GRANT	Grant Recipients List	California Air Resources Board	12/31/2020	02/04/2021	05/01/2023
CA	DRYCLEAN IMPERIAL CO DIST	Imperial County Air Pollution Control District Drycleaner Fa	Imperial County Air Pollution Control Distric	05/14/2019	05/17/2019	05/01/2023
CA	DRYCLEAN LAKE CO DIST	Lake County Air Quality Management District Drycleaner Facil	Lake County Air Quality Management District	04/29/2019	05/07/2019	05/01/2023
CA	DRYCLEAN MENDO CO DIST	Mendocino County Air Quality Management District Drycleaner	Mendocino County Air Quality Management Distr	02/08/2019	05/21/2019	05/01/2023
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2020	06/13/2022	08/30/2022
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	01/10/2023	01/18/2023	04/04/2023
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	01/11/2023	01/17/2023	04/04/2023
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	02/06/2023	02/15/2023	05/09/2023
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	11/16/2022	11/22/2022	02/13/2023
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2021	07/05/2022	09/19/2022
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	02/13/2023	02/14/2023	05/08/2023
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	01/03/2023	01/04/2023	03/21/2023
CA	ICE	ICE	Department of Toxic Subsances Control	02/13/2023	02/14/2023	05/08/2023
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	03/06/2023	03/07/2023	03/30/2023
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	02/23/2023	02/24/2023	03/23/2023
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	MINES	Mines Site Location Listing	Department of Conservation	12/02/2022	12/02/2022	02/22/2023
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	10/31/2022	11/29/2022	02/14/2023
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	02/06/2023	02/07/2023	04/28/2023
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	11/28/2022	11/29/2022	02/14/2023
CA	PROC	Certified Processors Database	Department of Conservation	03/06/2023	03/07/2023	03/31/2023
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	12/07/2022	12/07/2022	03/01/2023
CA	SAN JOSE HAZMAT	Hazardous Material Facilities	City of San Jose Fire Department	11/03/2020	11/05/2020	01/26/2021
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	01/23/2023	01/24/2023	04/10/2023
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	03/06/2023	03/07/2023	03/31/2023
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	02/11/2021	07/01/2021	09/29/2021
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
US	PFAS TSCA	PFAS Manufacture and Imports Information	Environmental Protection Agency	01/03/2022	03/31/2022	11/08/2022
US	PFAS NPDES	Clean Water Act Discharge Monitoring Information	Environmental Protection Agency	03/30/2023	03/30/2023	04/07/2023
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
US	PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	03/30/2023	03/30/2023	04/03/2023
US	PFAS FEDERAL SITES	Federal Sites PFAS Information	Environmental Protection Agency	03/30/2023	03/30/2023	04/07/2023
US	PFAS NPL	Superfund Sites with PFAS Detections Information	Environmental Protection Agency	02/23/2022	07/08/2022	11/08/2022
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	01/05/2023	01/06/2023	01/10/2023
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	04/05/2022	04/05/2022	04/26/2022
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	11/28/2022	11/29/2022	02/13/2023
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	12/02/2022	12/02/2022	02/23/2023
US	PFAS WQP	Ambient Environmental Sampling for PFAS	Environmental Protection Agency	03/30/2023	03/30/2023	05/02/2023
US	PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing	Environmental Protection Agency	03/30/2023	03/30/2023	05/02/2023
US	AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing	Environmental Protection Agency	04/27/2023	04/27/2023	05/02/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	03/06/2023	03/07/2023	05/05/2023
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	03/06/2023	03/07/2023	03/31/2023
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
US	PFAS ATSDR	PFAS Contamination Site Location Listing	Department of Health & Human Services	06/24/2020	03/17/2021	11/08/2022
US	PFAS TRIS	List of PFAS Added to the TRI	Environmental Protection Agency	03/07/2023	03/07/2023	03/24/2023
US	UXO	Unexploded Ordnance Sites	Department of Defense	11/09/2021	10/20/2022	01/10/2023
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	02/13/2023	02/14/2023	04/19/2023
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	12/20/2022	12/21/2022	03/10/2023
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	01/01/2023	01/04/2023	04/03/2023
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	03/06/2023	03/07/2023	03/31/2023
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	09/06/2022	09/06/2022	10/26/2022
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	01/05/2023	01/06/2023	01/11/2023
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	01/06/2023	01/06/2023	01/11/2023
US	MINES MRDS	Mineral Resources Data System	USGS	08/23/2022	11/22/2022	02/28/2023
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
HISTORICAL USE RECORDS						
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013
COUNTY RECORDS						
CA	CS ALAMEDA	Contaminated Sites	Alameda County Environmental Health Services	01/09/2019	01/11/2019	03/05/2019
CA	UST ALAMEDA	Underground Tanks	Alameda County Environmental Health Services	12/28/2022	12/28/2022	03/17/2023
CA	CUPA AMADOR	CUPA Facility List	Amador County Environmental Health	01/31/2023	02/02/2023	04/19/2023
CA	CUPA BUTTE	CUPA Facility Listing	Public Health Department	04/21/2017	04/25/2017	08/09/2017
CA	CUPA CALVERAS	CUPA Facility Listing	Calveras County Environmental Health	12/13/2022	12/15/2022	12/21/2022
CA	CUPA COLUSA	CUPA Facility List	Health & Human Services	04/06/2020	04/23/2020	07/10/2020
CA	SL CONTRA COSTA	Site List	Contra Costa Health Services Department	12/28/2022	01/24/2023	04/10/2023
CA	CUPA DEL NORTE	CUPA Facility List	Del Norte County Environmental Health Divisio	02/13/2023	02/14/2023	05/08/2023
CA	CUPA EL DORADO	CUPA Facility List	El Dorado County Environmental Management Dep	08/08/2022	08/09/2022	09/01/2022
CA	CUPA FRESNO	CUPA Resources List	Dept. of Community Health	06/28/2021	12/21/2021	03/03/2022
CA	CUPA GLENN	CUPA Facility List	Glenn County Air Pollution Control District	01/22/2018	01/24/2018	03/14/2018
CA	CUPA HUMBOLDT	CUPA Facility List	Humboldt County Environmental Health	08/12/2021	08/12/2021	11/08/2021
CA	CUPA IMPERIAL	CUPA Facility List	San Diego Border Field Office	01/13/2023	01/17/2023	04/04/2023
CA	CUPA INYO	CUPA Facility List	Inyo County Environmental Health Services	04/02/2018	04/03/2018	06/14/2018
CA	CUPA KERN	CUPA Facility List	Kern County Public Health	01/30/2023	02/01/2023	04/19/2023
CA	UST KERN	Underground Storage Tank Sites & Tank Listing	Kern County Environment Health Services Depar	01/30/2023	02/01/2023	04/21/2023
CA	CUPA KINGS	CUPA Facility List	Kings County Department of Public Health	12/03/2020	01/26/2021	04/14/2021
CA	CUPA LAKE	CUPA Facility List	Lake County Environmental Health	11/04/2022	11/07/2022	01/25/2023
CA	CUPA LASSEN	CUPA Facility List	Lassen County Environmental Health	07/31/2020	08/21/2020	11/09/2020

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	AOCONCERN	Key Areas of Concerns in Los Angeles County		03/30/2009	03/31/2009	10/23/2009
CA	HMS LOS ANGELES	HMS: Street Number List	Department of Public Works	01/09/2023	01/12/2023	03/29/2023
CA	LF LOS ANGELES	List of Solid Waste Facilities	La County Department of Public Works	01/09/2023	01/10/2023	03/23/2023
CA	LF LOS ANGELES CITY	City of Los Angeles Landfills	Engineering & Construction Division	12/31/2022	01/12/2023	03/29/2023
CA	LOS ANGELES AST	Active & Inactive AST Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	LOS ANGELES CO LF METHANE	Methane Producing Landfills	Los Angeles County Department of Public Works	01/10/2022	01/12/2022	04/04/2022
CA	LOS ANGELES HM	Active & Inactive Hazardous Materials Inventory	Los Angeles Fire Department	11/01/2022	12/14/2022	03/07/2023
CA	LOS ANGELES UST	Active & Inactive UST Inventory	Los Angeles Fire Department	11/01/2022	12/14/2022	03/07/2023
CA	SITE MIT LOS ANGELES	Site Mitigation List	Community Health Services	05/26/2021	07/09/2021	09/29/2021
CA	UST EL SEGUNDO	City of El Segundo Underground Storage Tank	City of El Segundo Fire Department	01/21/2017	04/19/2017	05/10/2017
CA	UST LONG BEACH	City of Long Beach Underground Storage Tank	City of Long Beach Fire Department	04/22/2019	04/23/2019	06/27/2019
CA	UST TORRANCE	City of Torrance Underground Storage Tank	City of Torrance Fire Department	10/18/2022	10/19/2022	01/10/2023
CA	CUPA MADERA	CUPA Facility List	Madera County Environmental Health	08/10/2020	08/12/2020	10/23/2020
CA	UST MARIN	Underground Storage Tank Sites	Public Works Department Waste Management	09/26/2018	10/04/2018	11/02/2018
CA	UST MENDOCINO	Mendocino County UST Database	Department of Public Health	09/22/2021	11/18/2021	11/22/2021
CA	CUPA MERCED	CUPA Facility List	Merced County Environmental Health	02/15/2022	02/17/2022	05/11/2022
CA	CUPA MONO	CUPA Facility List	Mono County Health Department	02/22/2021	03/02/2021	05/19/2021
CA	CUPA MONTEREY	CUPA Facility Listing	Monterey County Health Department	10/04/2021	10/06/2021	12/29/2021
CA	LUST NAPA	Sites With Reported Contamination	Napa County Department of Environmental Manag	01/09/2017	01/11/2017	03/02/2017
CA	UST NAPA	Closed and Operating Underground Storage Tank Sites	Napa County Department of Environmental Manag	09/05/2019	09/09/2019	10/31/2019
CA	CUPA NEVADA	CUPA Facility List	Community Development Agency	01/23/2023	01/25/2023	04/10/2023
CA	IND_SITE ORANGE	List of Industrial Site Cleanups	Health Care Agency	02/02/2023	02/09/2023	05/09/2023
CA	LUST ORANGE	List of Underground Storage Tank Cleanups	Health Care Agency	02/02/2023	02/09/2023	05/04/2023
CA	UST ORANGE	List of Underground Storage Tank Facilities	Health Care Agency	02/06/2023	02/09/2023	05/03/2023
CA	MS PLACER	Master List of Facilities	Placer County Health and Human Services	08/26/2022	08/29/2022	11/15/2022
CA	CUPA PLUMAS	CUPA Facility List	Plumas County Environmental Health	03/31/2019	04/23/2019	06/26/2019
CA	LUST RIVERSIDE	Listing of Underground Tank Cleanup Sites	Department of Environmental Health	01/18/2023	01/19/2023	04/04/2023
CA	UST RIVERSIDE	Underground Storage Tank Tank List	Department of Environmental Health	01/18/2023	01/19/2023	04/04/2023
CA	CS SACRAMENTO	Toxic Site Clean-Up List	Sacramento County Environmental Management	11/07/2022	12/21/2022	03/16/2023
CA	ML SACRAMENTO	Master Hazardous Materials Facility List	Sacramento County Environmental Management	11/07/2022	12/09/2022	03/01/2023
CA	CUPA SAN BENITO	CUPA Facility List	San Benito County Environmental Health	02/08/2023	02/09/2023	05/04/2023
CA	PERMITS SAN BERNARDINO	Hazardous Material Permits	San Bernardino County Fire Department Hazardo	02/15/2023	02/15/2023	05/09/2023
CA	HMMD SAN DIEGO	Hazardous Materials Management Division Database	Hazardous Materials Management Division	11/28/2022	11/29/2022	02/14/2023
CA	LF SAN DIEGO	Solid Waste Facilities	Department of Health Services	10/27/2021	03/04/2022	05/31/2022
CA	SAN DIEGO CO LOP	Local Oversight Program Listing	Department of Environmental Health	07/22/2021	10/19/2021	01/13/2022
CA	SAN DIEGO CO SAM	Environmental Case Listing	San Diego County Department of Environmental	03/23/2010	06/15/2010	07/09/2010
CA	CUPA SAN FRANCISCO CO	CUPA Facility Listing	San Francisco County Department of Environmen	02/03/2023	02/07/2023	04/26/2023
CA	LUST SAN FRANCISCO	Local Oversite Facilities	Department Of Public Health San Francisco Cou	09/19/2008	09/19/2008	09/29/2008
CA	UST SAN FRANCISCO	Underground Storage Tank Information	Department of Public Health	04/28/2023	04/28/2023	05/03/2023
CA	SAN FRANCISCO MAHER	Maher Ordinance Property Listing	San Francisco Planning	10/11/2022	10/14/2022	01/04/2023
CA	UST SAN JOAQUIN	San Joaquin Co. UST	Environmental Health Department	06/22/2018	06/26/2018	07/11/2018
CA	CUPA SAN LUIS OBISPO	CUPA Facility List	San Luis Obispo County Public Health Departme	02/09/2023	02/10/2023	05/05/2023
CA	BI SAN MATEO	Business Inventory	San Mateo County Environmental Health Service	02/20/2020	02/20/2020	04/24/2020
CA	LUST SAN MATEO	Fuel Leak List	San Mateo County Environmental Health Service	03/29/2019	03/29/2019	05/29/2019
CA	CUPA SANTA BARBARA	CUPA Facility Listing	Santa Barbara County Public Health Department	09/08/2011	09/09/2011	10/07/2011
CA	CUPA SANTA CLARA	Cupa Facility List	Department of Environmental Health	02/10/2023	02/10/2023	05/05/2023
CA	HIST LUST SANTA CLARA	HIST LUST - Fuel Leak Site Activity Report	Santa Clara Valley Water District	03/29/2005	03/30/2005	04/21/2005

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST SANTA CLARA	LOP Listing	Department of Environmental Health	03/03/2014	03/05/2014	03/18/2014
CA	CUPA SANTA CRUZ	CUPA Facility List	Santa Cruz County Environmental Health	01/21/2017	02/22/2017	05/23/2017
CA	CUPA SHASTA	CUPA Facility List	Shasta County Department of Resource Manageme	06/15/2017	06/19/2017	08/09/2017
CA	LUST SOLANO	Leaking Underground Storage Tanks	Solano County Department of Environmental Man	06/04/2019	06/06/2019	08/13/2019
CA	UST SOLANO	Underground Storage Tanks	Solano County Department of Environmental Man	09/15/2021	09/16/2021	12/09/2021
CA	CUPA SONOMA	Cupa Facility List	County of Sonoma Fire & Emergency Services De	07/02/2021	07/06/2021	07/14/2021
CA	LUST SONOMA	Leaking Underground Storage Tank Sites	Department of Health Services	06/30/2021	06/30/2021	09/24/2021
CA	CUPA STANISLAUS	CUPA Facility List	Stanislaus County Department of Ennvironmenta	02/08/2022	02/10/2022	05/04/2022
CA	UST SUTTER	Underground Storage Tanks	Sutter County Environmental Health Services	08/03/2022	08/25/2022	11/14/2022
CA	CUPA TEHAMA	CUPA Facility List	Tehama County Department of Environmental Hea	11/17/2022	11/21/2022	02/10/2023
CA	CUPA TRINITY	CUPA Facility List	Department of Toxic Substances Control	01/13/2023	01/17/2023	04/04/2023
CA	CUPA TULARE	CUPA Facility List	Tulare County Environmental Health Services D	10/07/2022	10/07/2022	12/21/2022
CA	CUPA TUOLUMNE	CUPA Facility List	Divison of Environmental Health	04/23/2018	04/25/2018	06/25/2018
CA	BWT VENTURA	Business Plan, Hazardous Waste Producers, and Operating Unde	Ventura County Environmental Health Division	12/27/2022	01/26/2023	04/19/2023
CA	LF VENTURA	Inventory of Illegal Abandoned and Inactive Sites	Environmental Health Division	12/01/2011	12/01/2011	01/19/2012
CA	LUST VENTURA	Listing of Underground Tank Cleanup Sites	Environmental Health Division	05/29/2008	06/24/2008	07/31/2008
CA	MED WASTE VENTURA	Medical Waste Program List	Ventura County Resource Management Agency	12/27/2022	01/26/2023	04/19/2023
CA	UST VENTURA	Underground Tank Closed Sites List	Environmental Health Division	11/28/2022	12/02/2022	02/23/2023
CA	UST YOLO	Underground Storage Tank Comprehensive Facility Report	Yolo County Department of Health	12/19/2022	12/27/2022	03/17/2023
CA	CUPA YUBA	CUPA Facility List	Yuba County Environmental Health Department	01/26/2023	01/27/2023	04/19/2023

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

APPENDIX D

THE EDR AERIAL PHOTO DECADE PACKAGE

Apple Valley

Quarry Road

Apple Valley, CA 92307

Inquiry Number: 7334651.11

May 11, 2023

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

05/11/23

Site Name:

Apple Valley
Quarry Road
Apple Valley, CA 92307
EDR Inquiry # 7334651.11

Client Name:

Northgate Env. Management, Inc.
92 Argonaut
Aliso Viejo, CA 92656
Contact: Nicky Robinson

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2020	1"=500'	Flight Year: 2020	USDA/NAIP
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1994	1"=500'	Acquisition Date: January 01, 1994	USGS/DOQQ
1984	1"=500'	Flight Date: October 07, 1984	USDA
1979	1"=500'	Flight Date: June 01, 1979	USGS
1973	1"=500'	Flight Date: June 04, 1973	USGS
1969	1"=500'	Flight Date: July 10, 1969	USGS
1953	1"=500'	Flight Date: January 15, 1953	USDA
1948	1"=500'	Flight Date: July 07, 1948	USGS

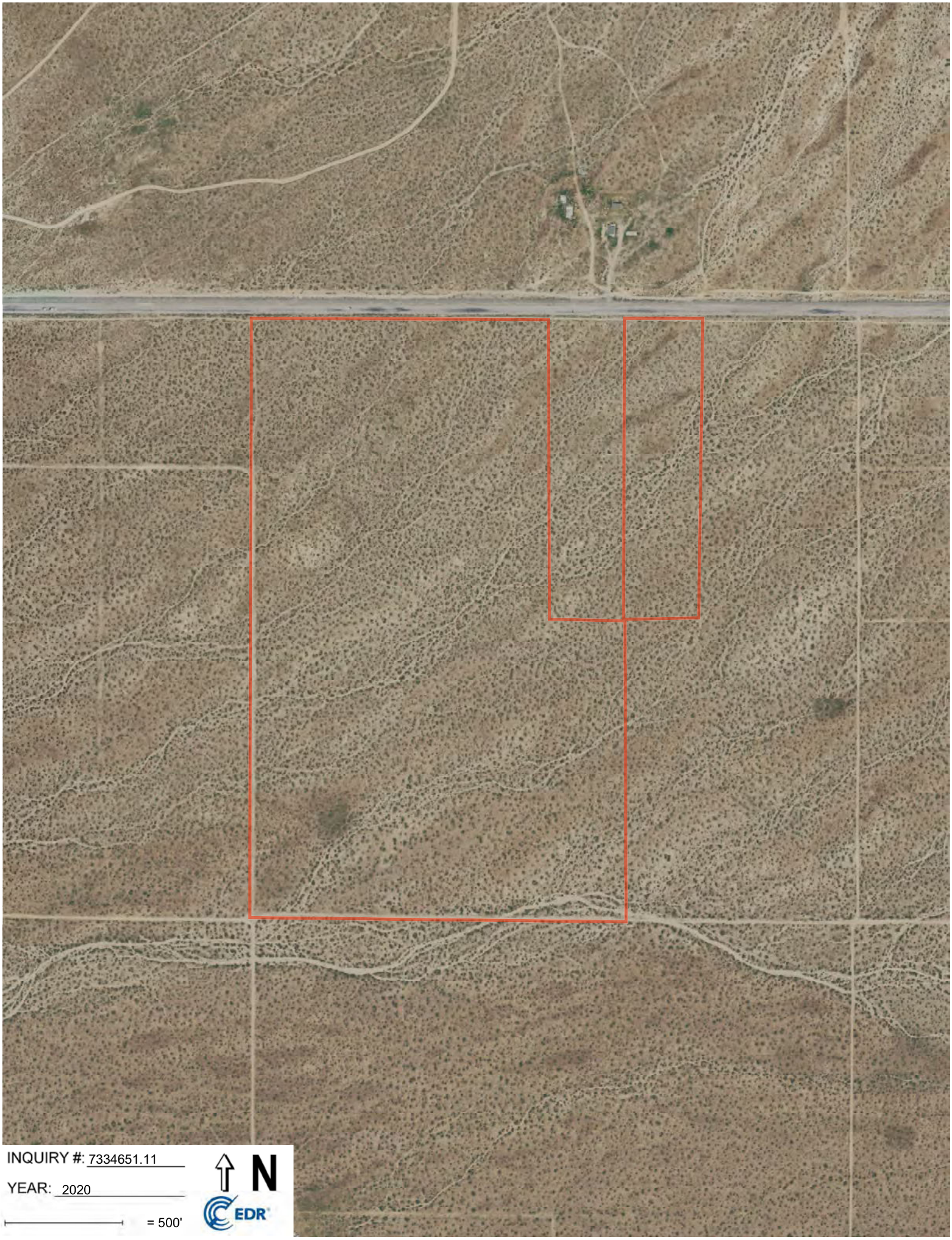
When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA), ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT. Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.



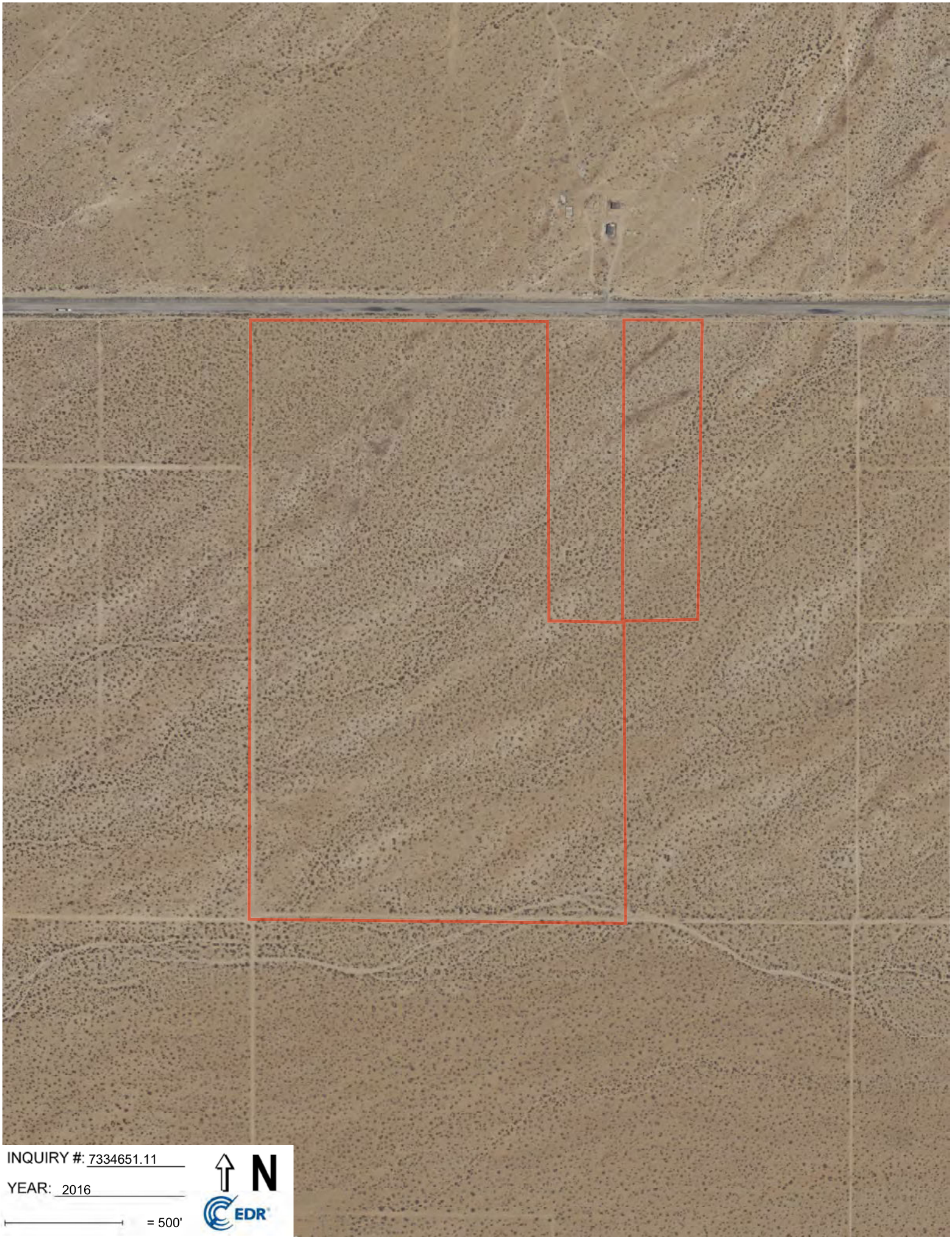
INQUIRY #: 7334651.11

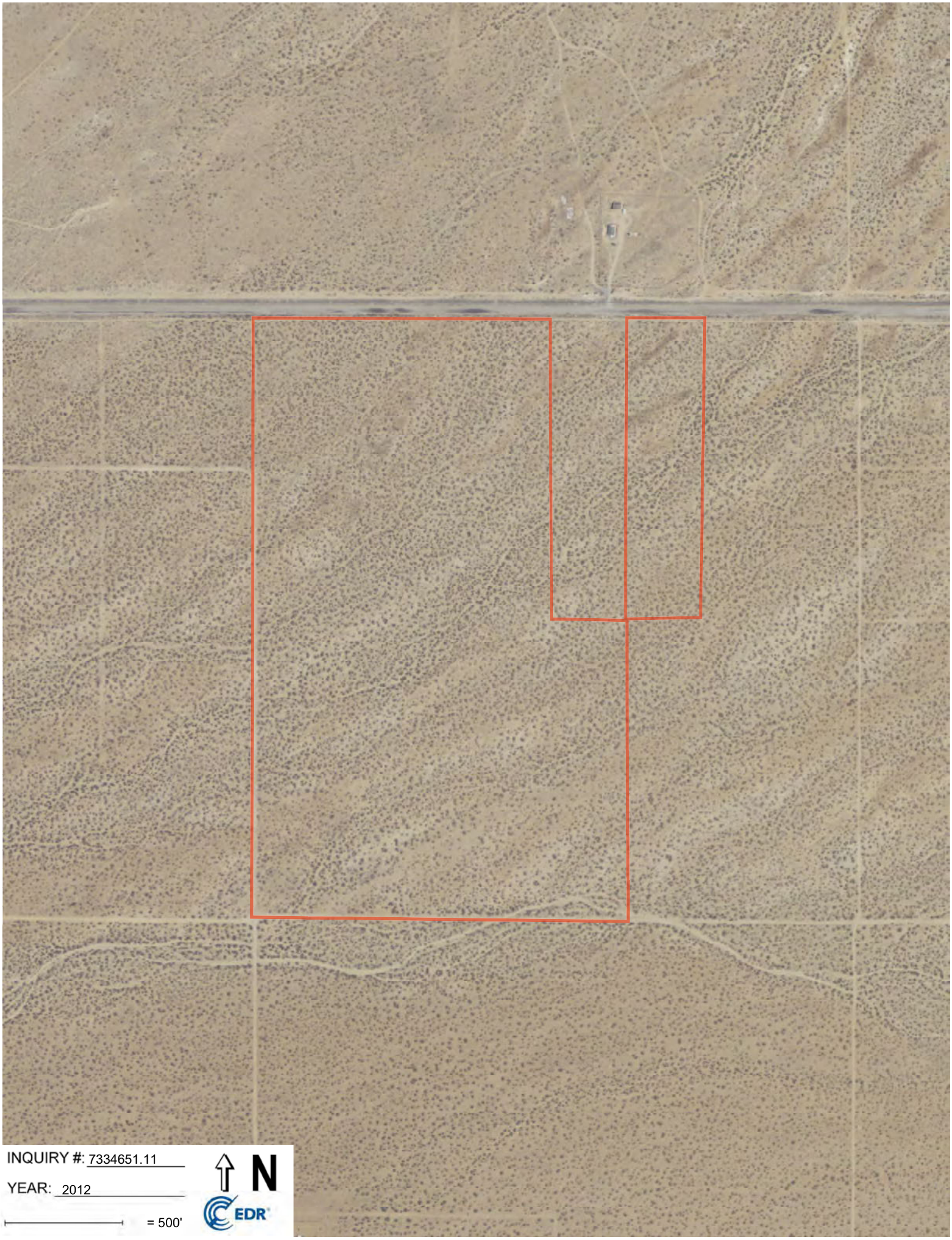
YEAR: 2020

= 500'

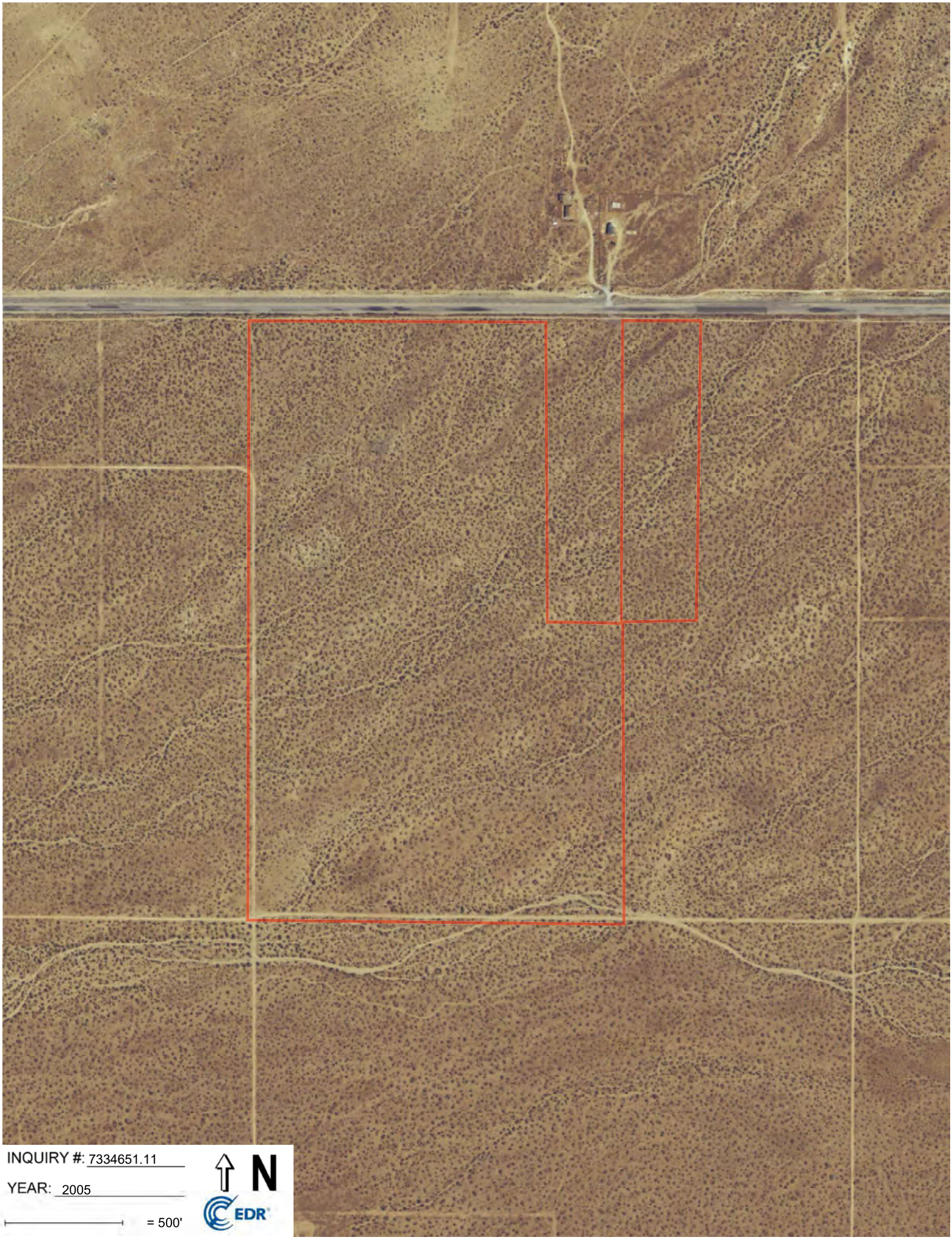
N

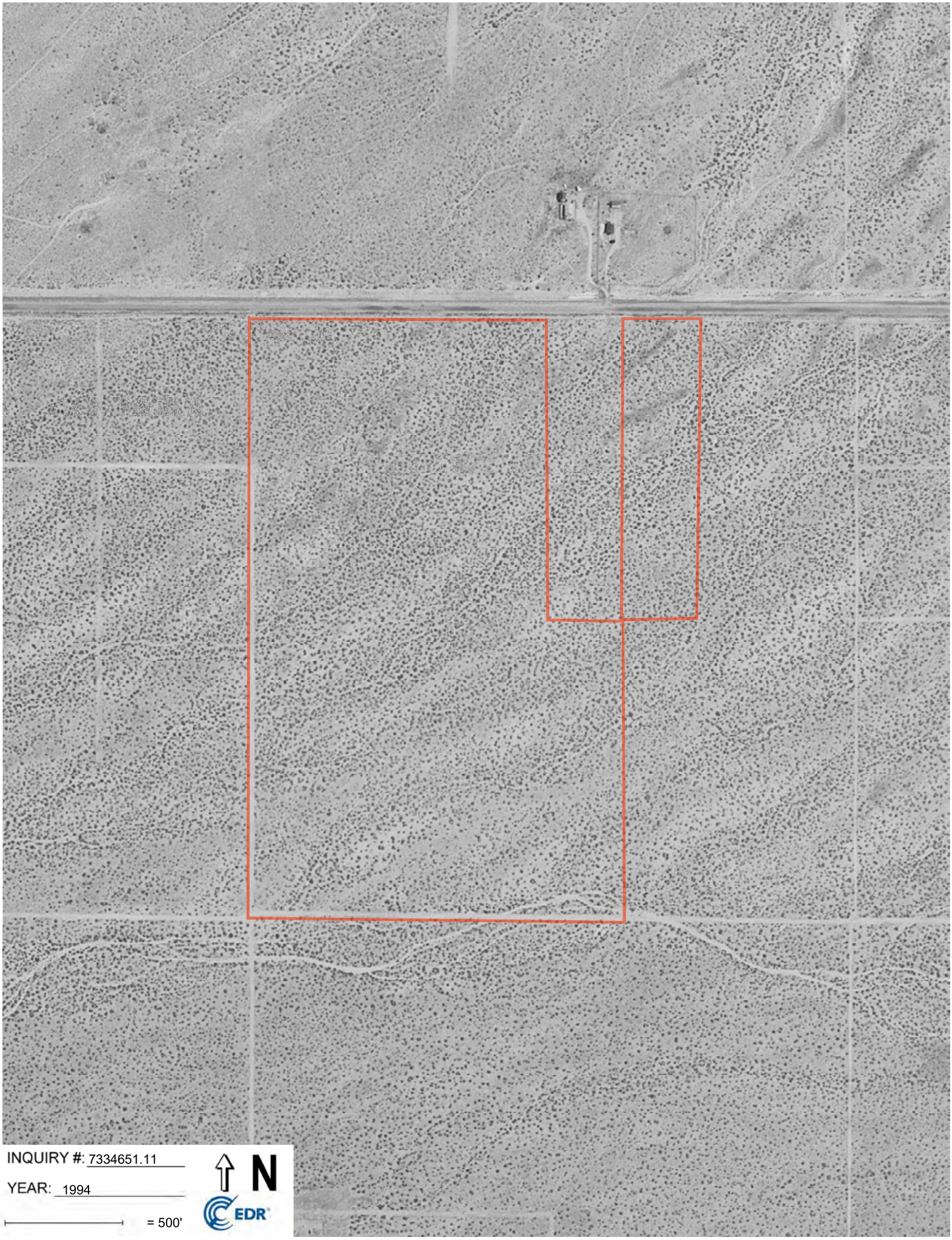
EDR


INQUIRY #: 7334651.11
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 7334651.11
YEAR: 2012
= 500'
N
EDR

INQUIRY #: 7334651.11
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 7334651.11
YEAR: 2005
= 500'
N
EDR


INQUIRY #: 7334651.11
YEAR: 1994
= 500'
N
EDR

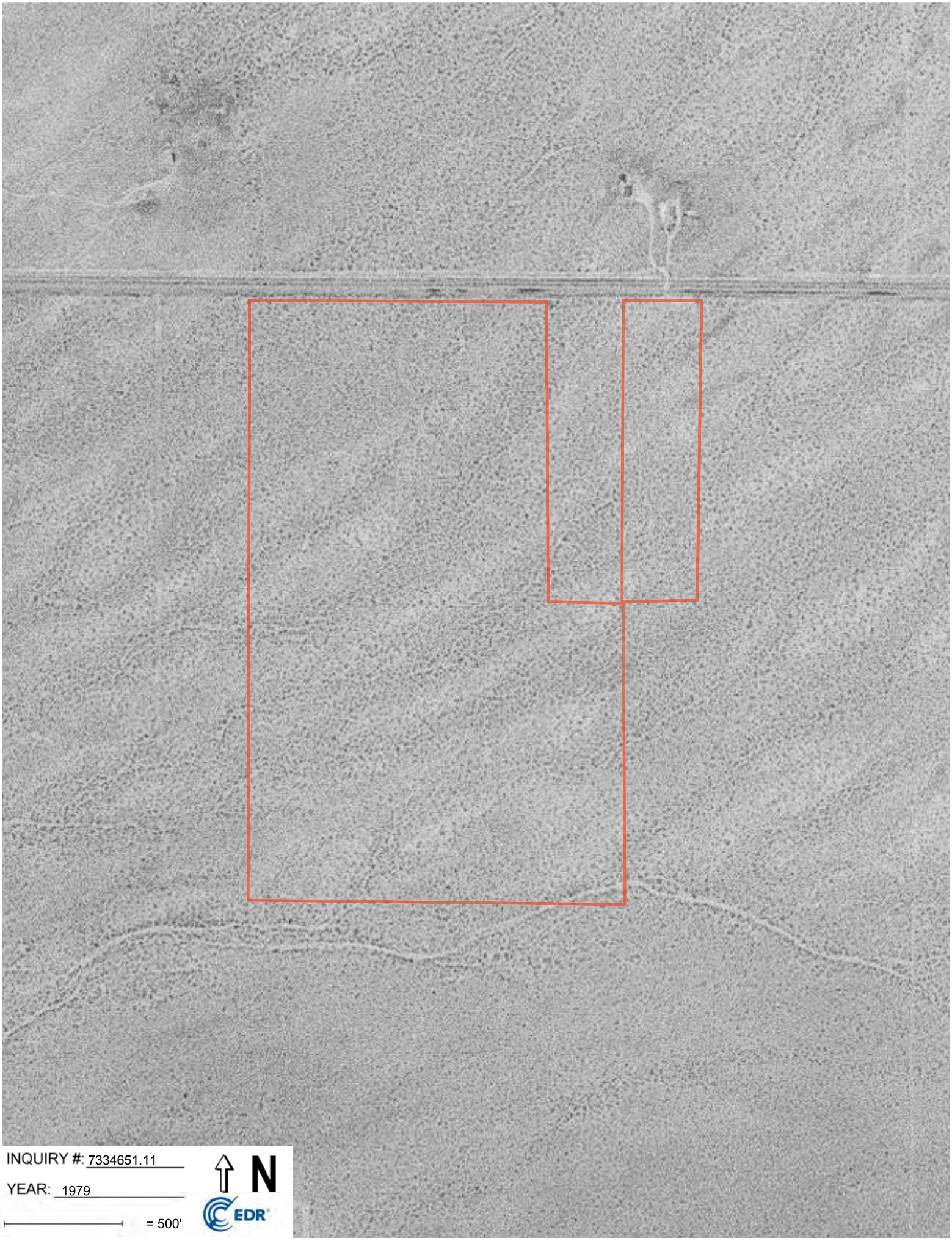
INQUIRY #: 7334651.11

YEAR: 1984

= 500'

N

EDR



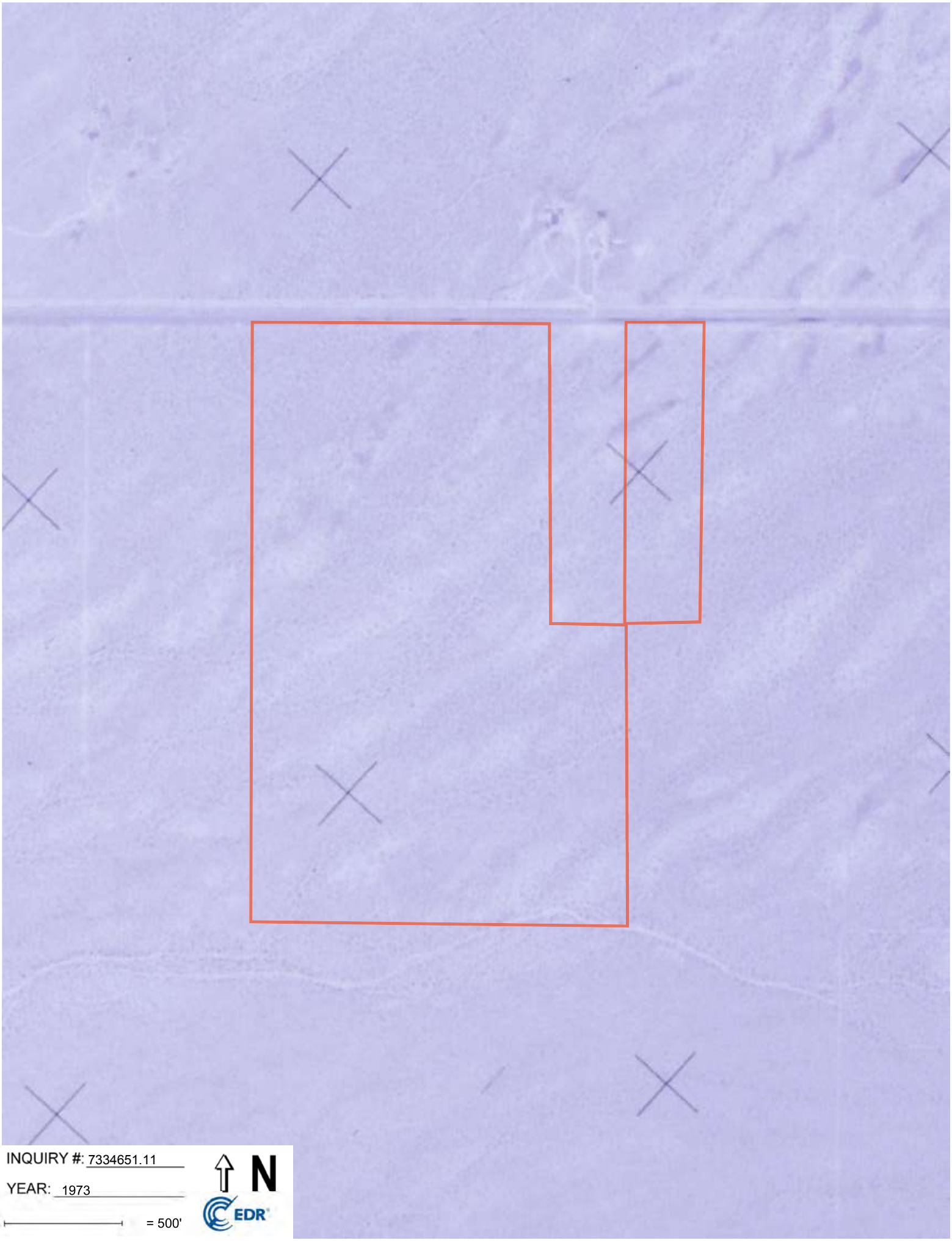
INQUIRY #: 7334651.11

YEAR: 1979

= 500'

N

EDR



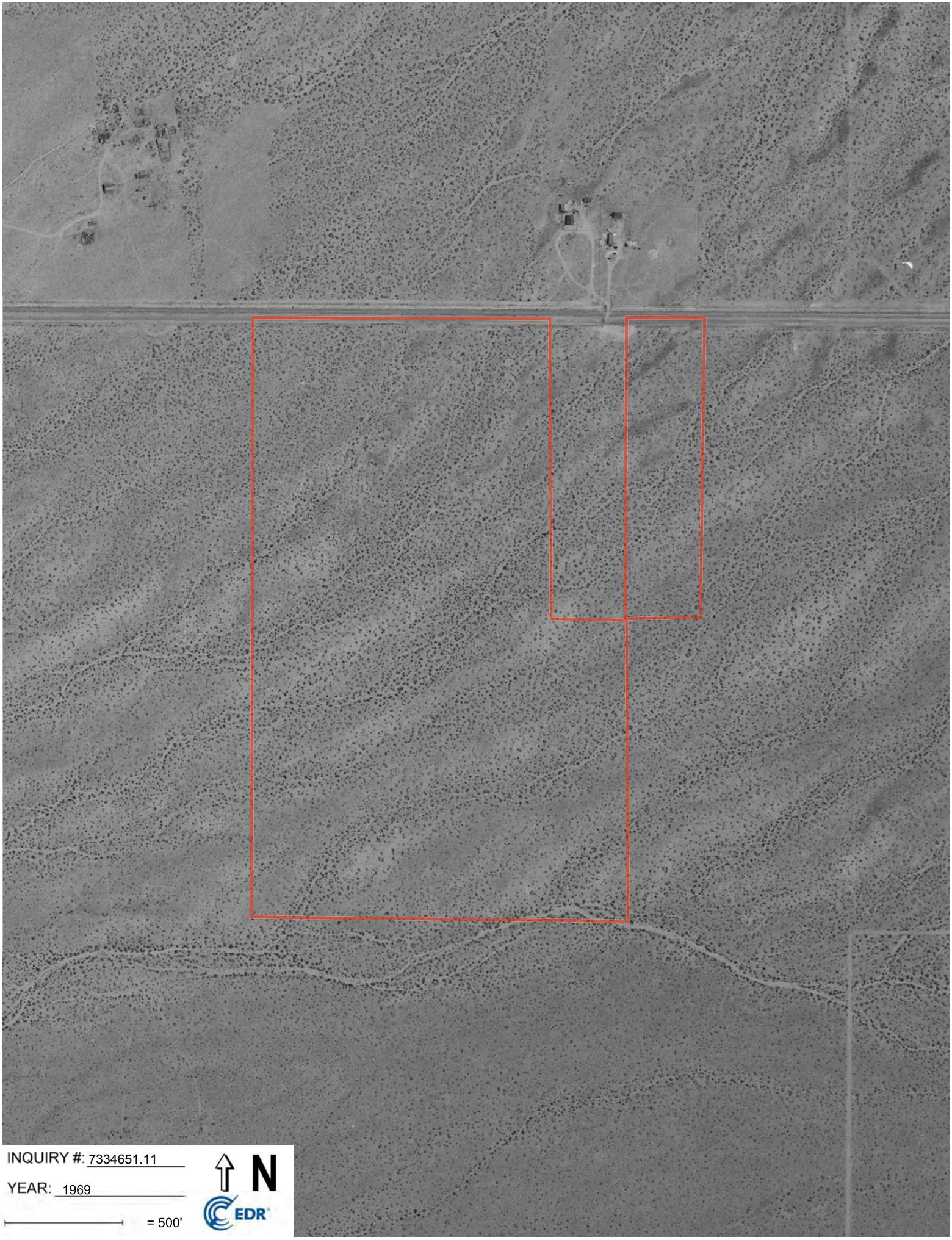
INQUIRY #: 7334651.11

YEAR: 1973

= 500'

N

EDR



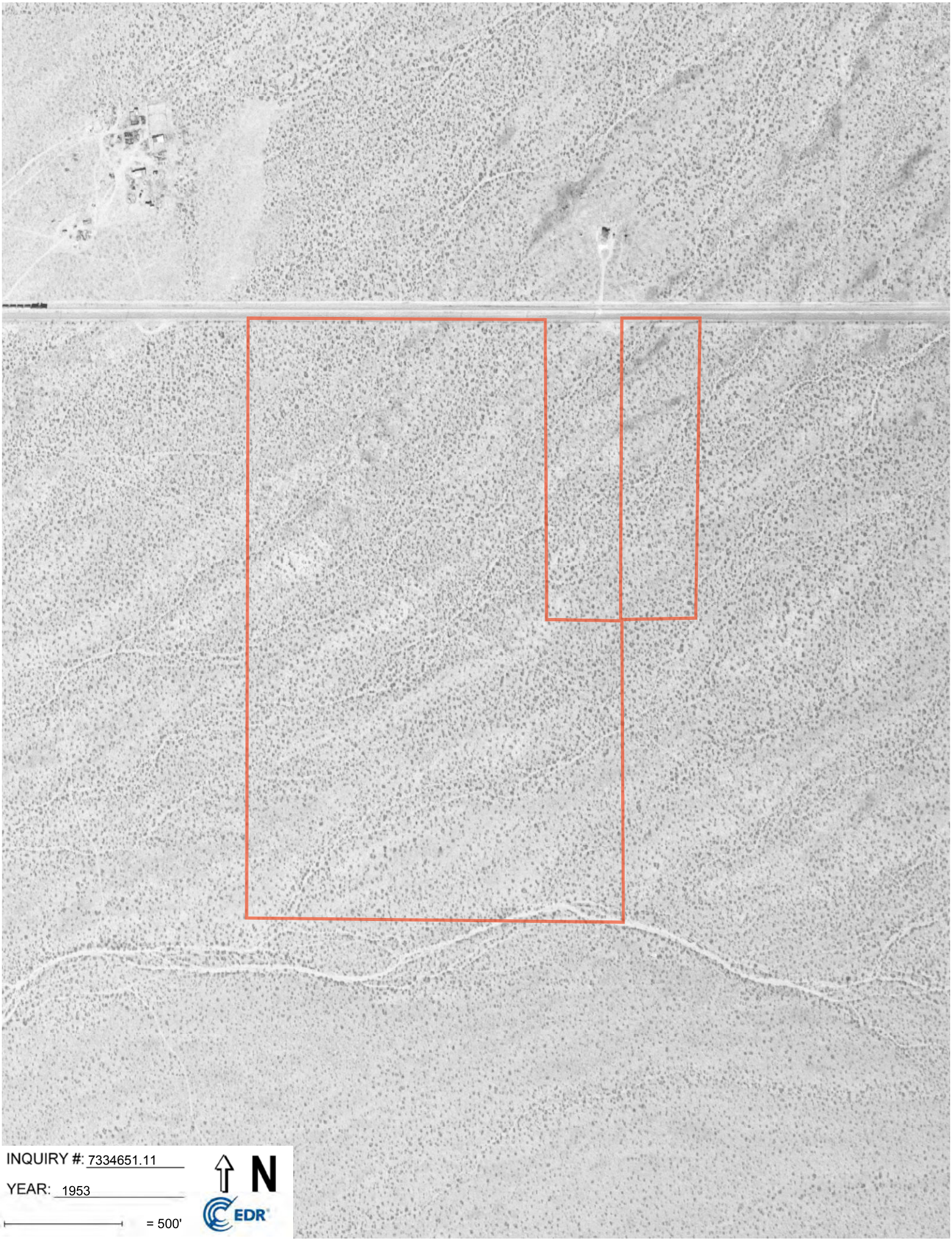
INQUIRY #: 7334651.11

YEAR: 1969

= 500'

N

EDR


INQUIRY #: 7334651.11
YEAR: 1953
= 500'
N
EDR

INQUIRY #: 7334651.11

YEAR: 1948

= 500'

N

EDR

APPENDIX E

CERTIFIED SANBORN® MAP REPORT

Apple Valley

Quarry Road

Apple Valley, CA 92307

Inquiry Number: 7334651.3

May 11, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/11/23

Site Name:

Apple Valley
Quarry Road
Apple Valley, CA 92307
EDR Inquiry # 7334651.3

Client Name:

Northgate Env. Management, Inc.
92 Argonaut
Aliso Viejo, CA 92656
Contact: Nicky Robinson

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Northgate Env. Management, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 4CB1-4056-9549

PO # 2146.04

Project Apple Valley

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 4CB1-4056-9549

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Northgate Env. Management, Inc. (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA), ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT. Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.

APPENDIX F

THE EDR HISTORICAL TOPOGRAPHIC MAP REPORT

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.4
May 11, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/11/23

Site Name:

Apple Valley
Quarry Road
Apple Valley, CA 92307
EDR Inquiry # 7334651.4

Client Name:

Northgate Env. Management, Inc.
92 Argonaut
Aliso Viejo, CA 92656
Contact: Nicky Robinson

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Northgate Env. Management, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 2146.04
Project: Apple Valley

Coordinates:

Latitude:	34.612077 34° 36' 43" North
Longitude:	-117.193752 -117° 11' 38" West
UTM Zone:	Zone 11 North
UTM X Meters:	482236.76
UTM Y Meters:	3830042.31
Elevation:	3091.57' above sea level

Maps Provided:

2018	1932
2015	
2012	
1993	
1978	
1970	
1957	
1934	

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA), ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT. Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

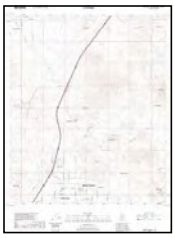
EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Apple Valley North
2018
7.5-minute, 24000



Turtle Valley
2018
7.5-minute, 24000

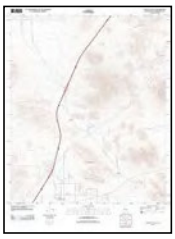
2015 Source Sheets

Apple Valley North
2015
7.5-minute, 24000

Turtle Valley
2015
7.5-minute, 24000

2012 Source Sheets

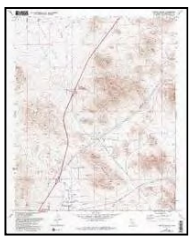
Apple Valley North
2012
7.5-minute, 24000



Turtle Valley
2012
7.5-minute, 24000

1993 Source Sheets

Apple Valley North
1993
7.5-minute, 24000
Aerial Photo Revised 1989

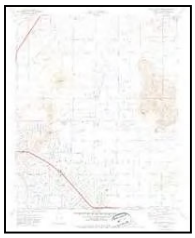


Turtle Valley
1993
7.5-minute, 24000
Aerial Photo Revised 1989

Topo Sheet Key

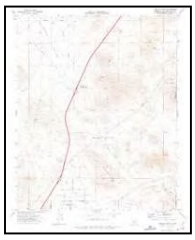
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1978 Source Sheets

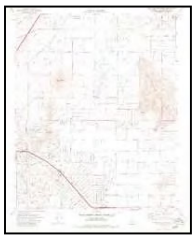


Apple Valley North
1978
7.5-minute, 24000
Aerial Photo Revised 1969

1970 Source Sheets

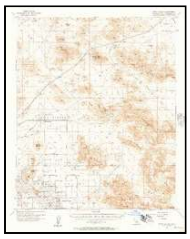


Turtle Valley
1970
7.5-minute, 24000
Aerial Photo Revised 1969



Apple Valley North
1970
7.5-minute, 24000
Aerial Photo Revised 1969

1957 Source Sheets



Apple Valley
1957
15-minute, 62500
Aerial Photo Revised 1952

1934 Source Sheets

Barstow
1934
30-minute, 125000

Topo Sheet Key

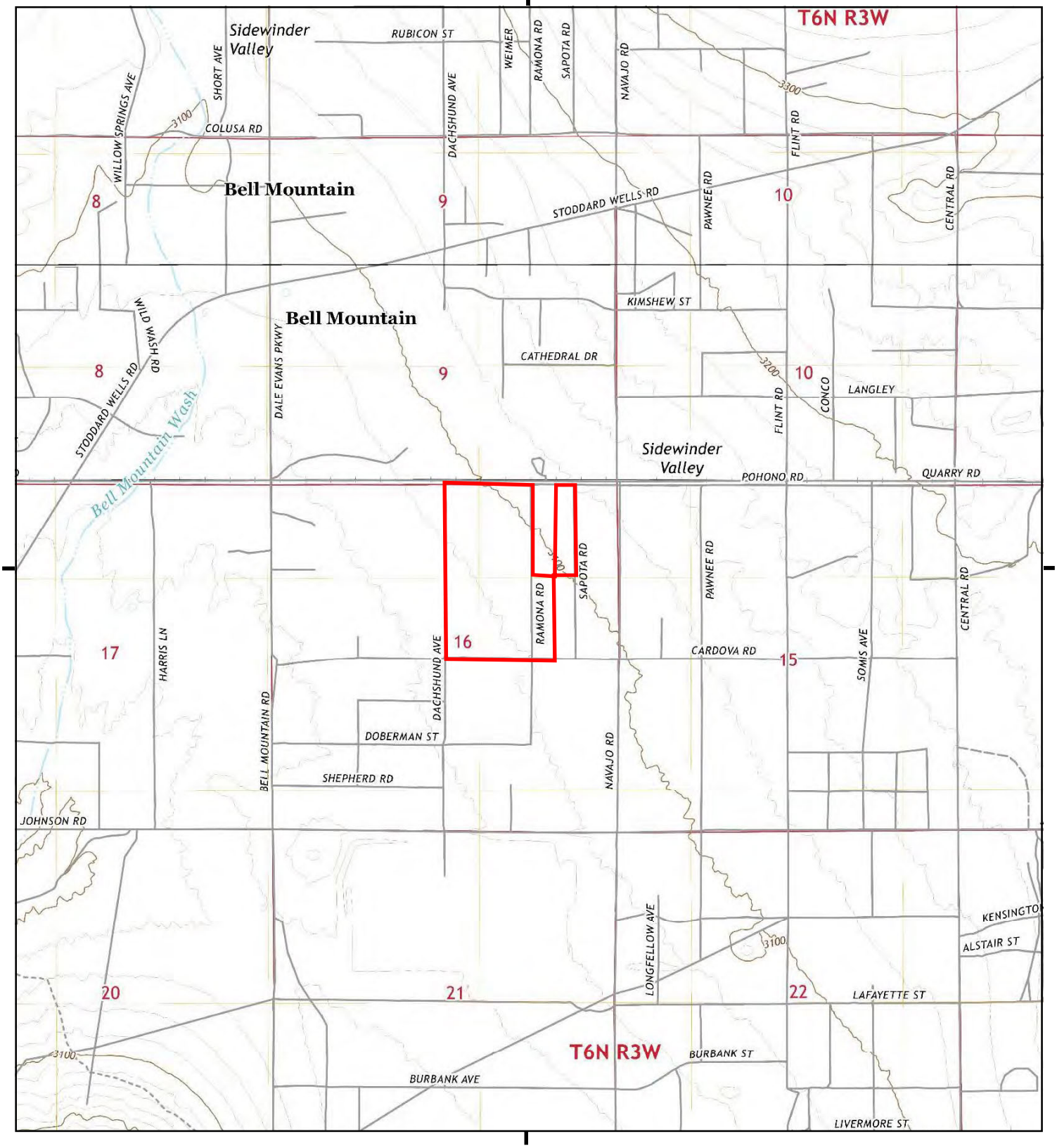
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1932 Source Sheets

Barstow
1932
30-minute, 125000

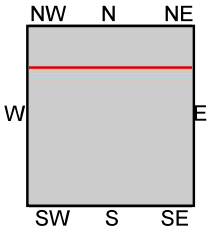
Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



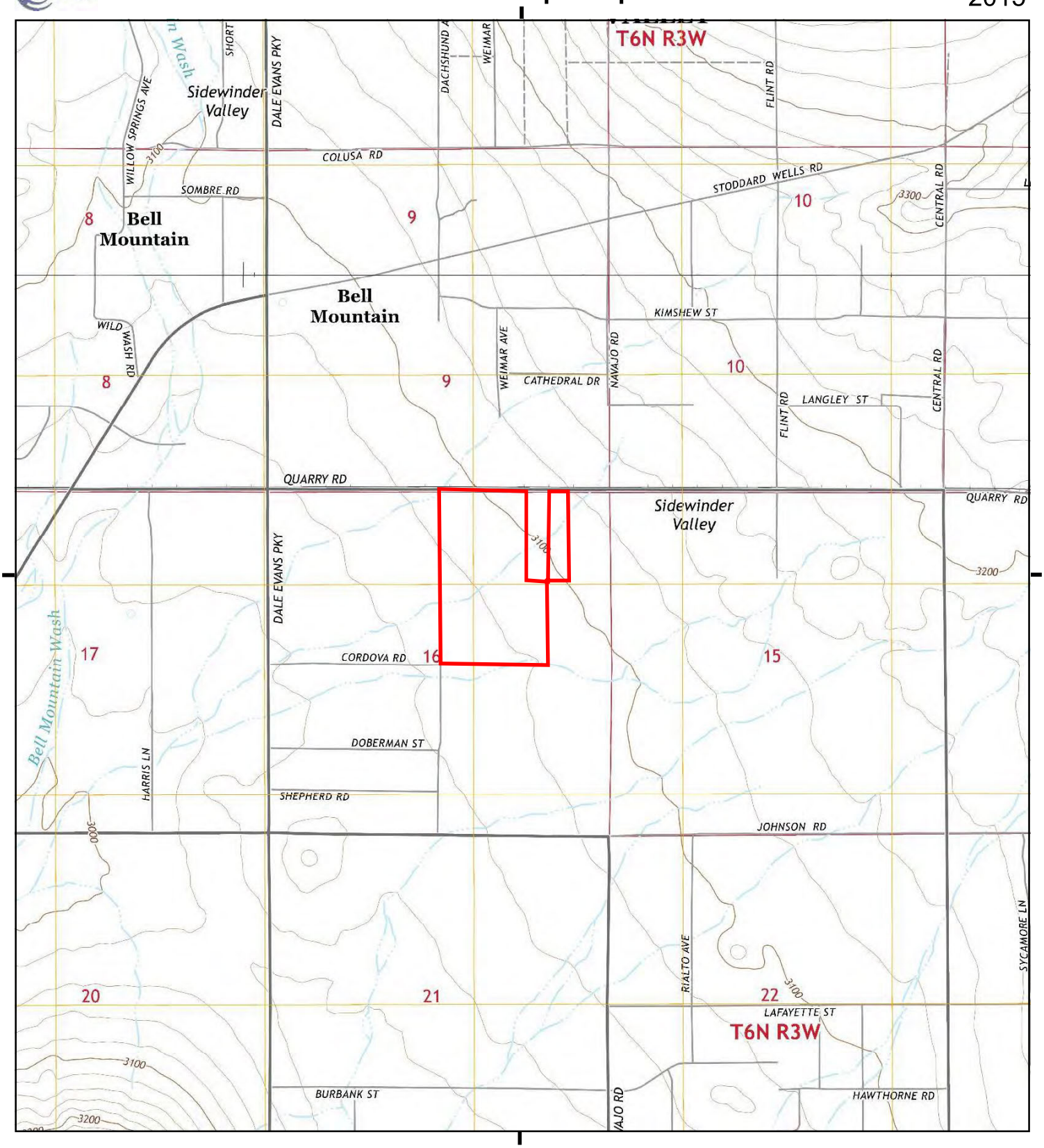
TP, Apple Valley North, 2018, 7.5-minute
N, Turtle Valley, 2018, 7.5-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

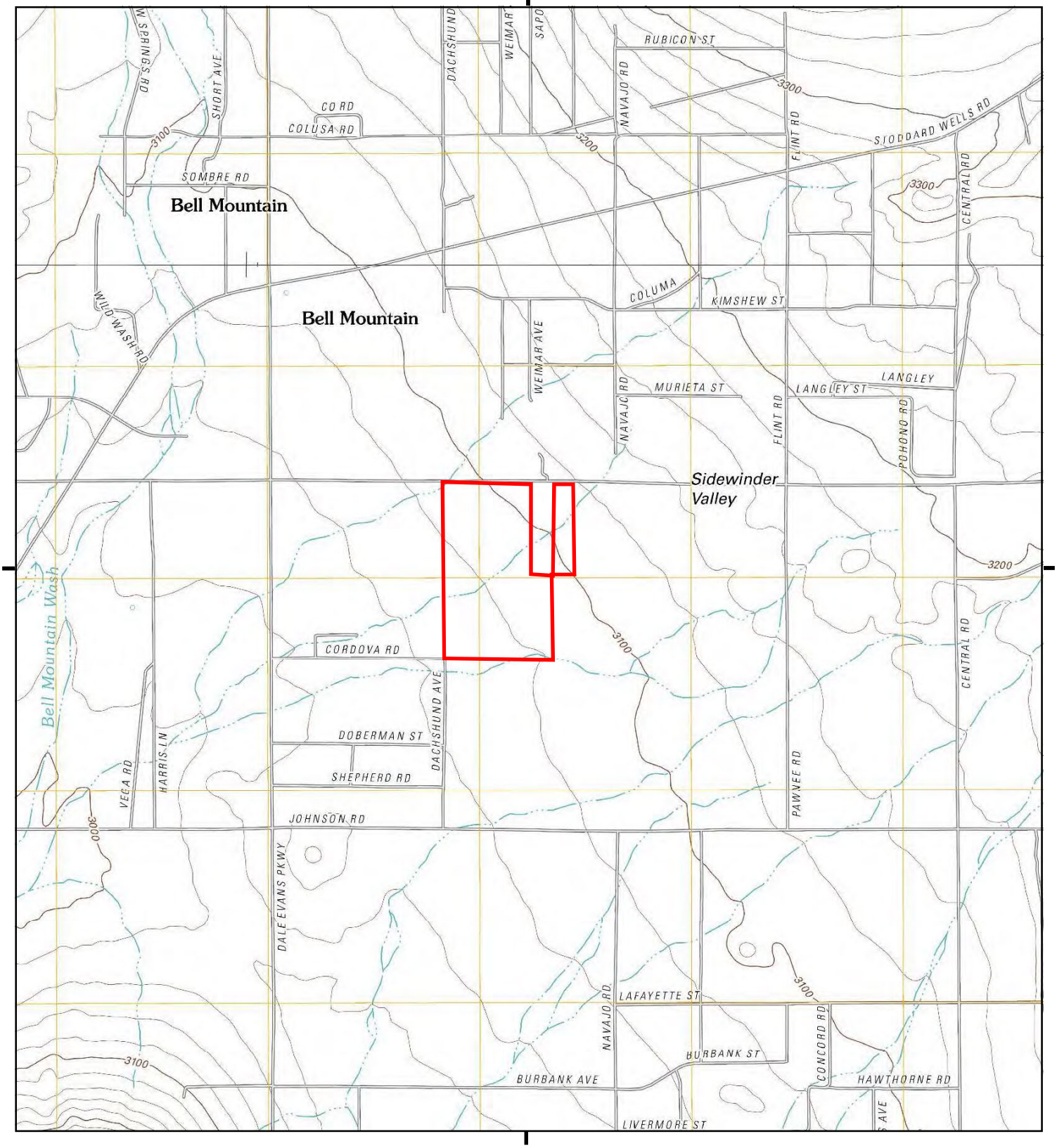
TP, Apple Valley North, 2015, 7.5-minute
N, Turtle Valley, 2015, 7.5-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

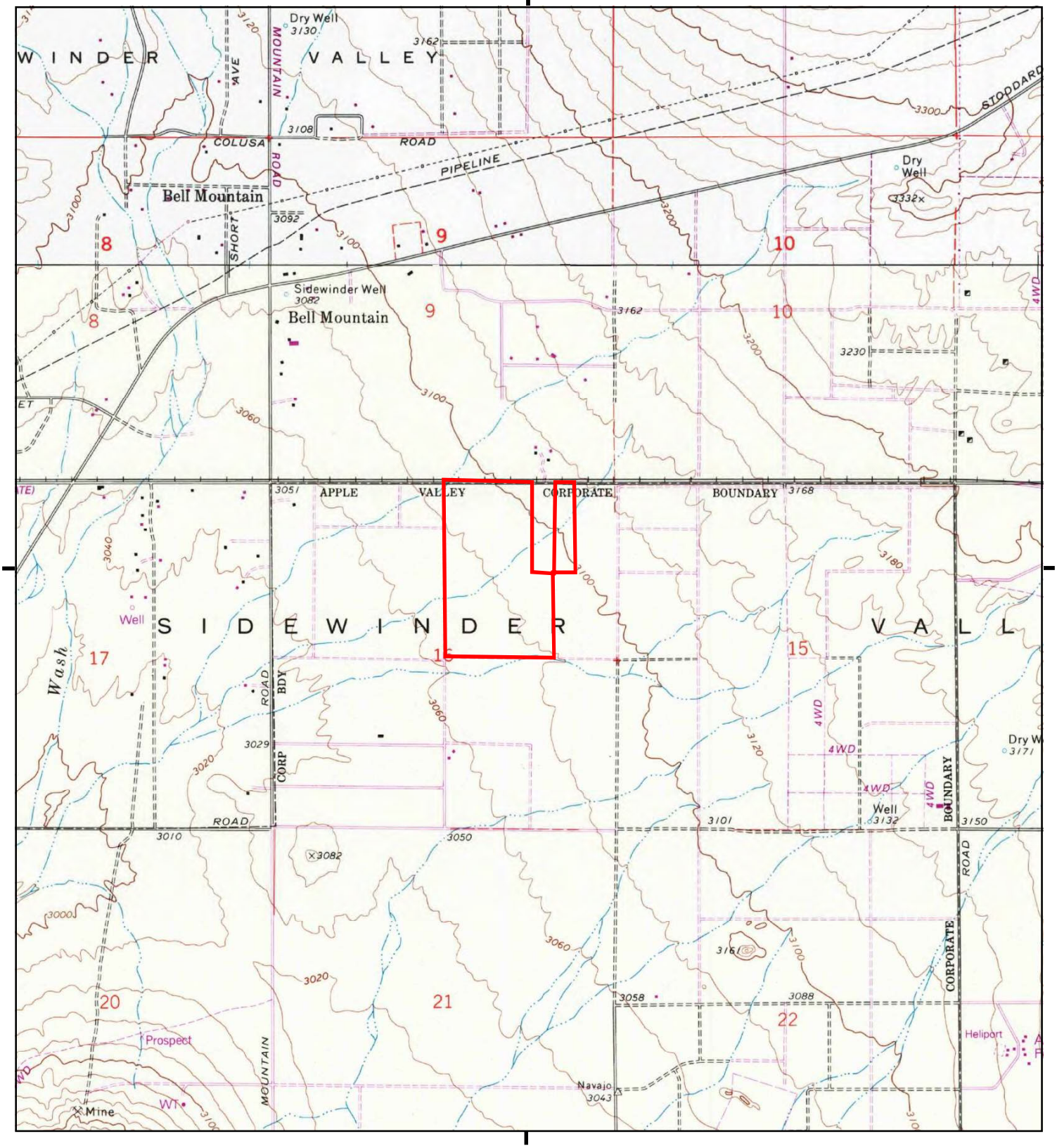
TP, Apple Valley North, 2012, 7.5-minute
N, Turtle Valley, 2012, 7.5-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N

Historical Topo Map

1993



This report includes information from the following map sheet(s).

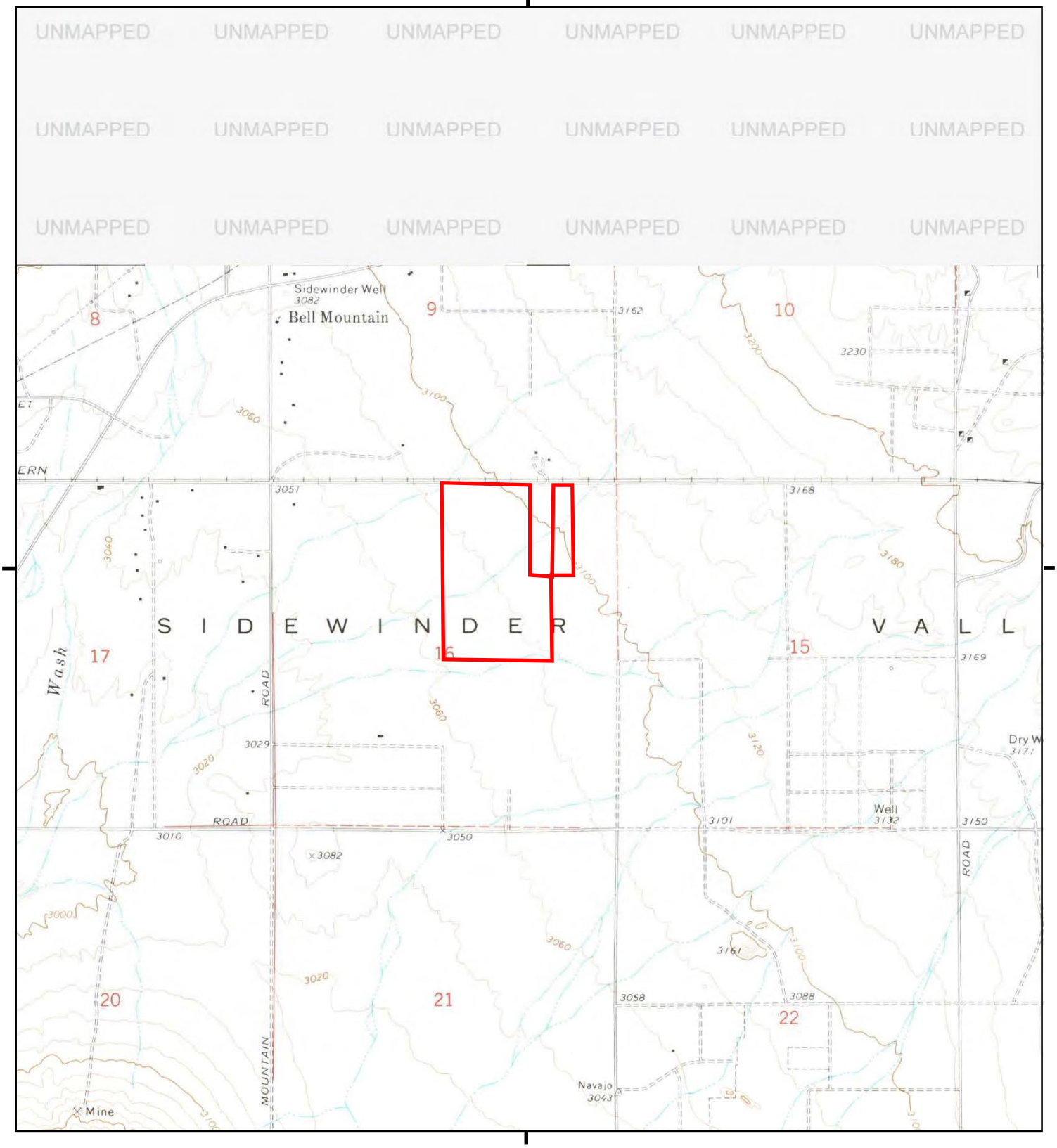
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Apple Valley North, 1993, 7.5-minute
N, Turtle Valley, 1993, 7.5-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N



This report includes information from the following map sheet(s).

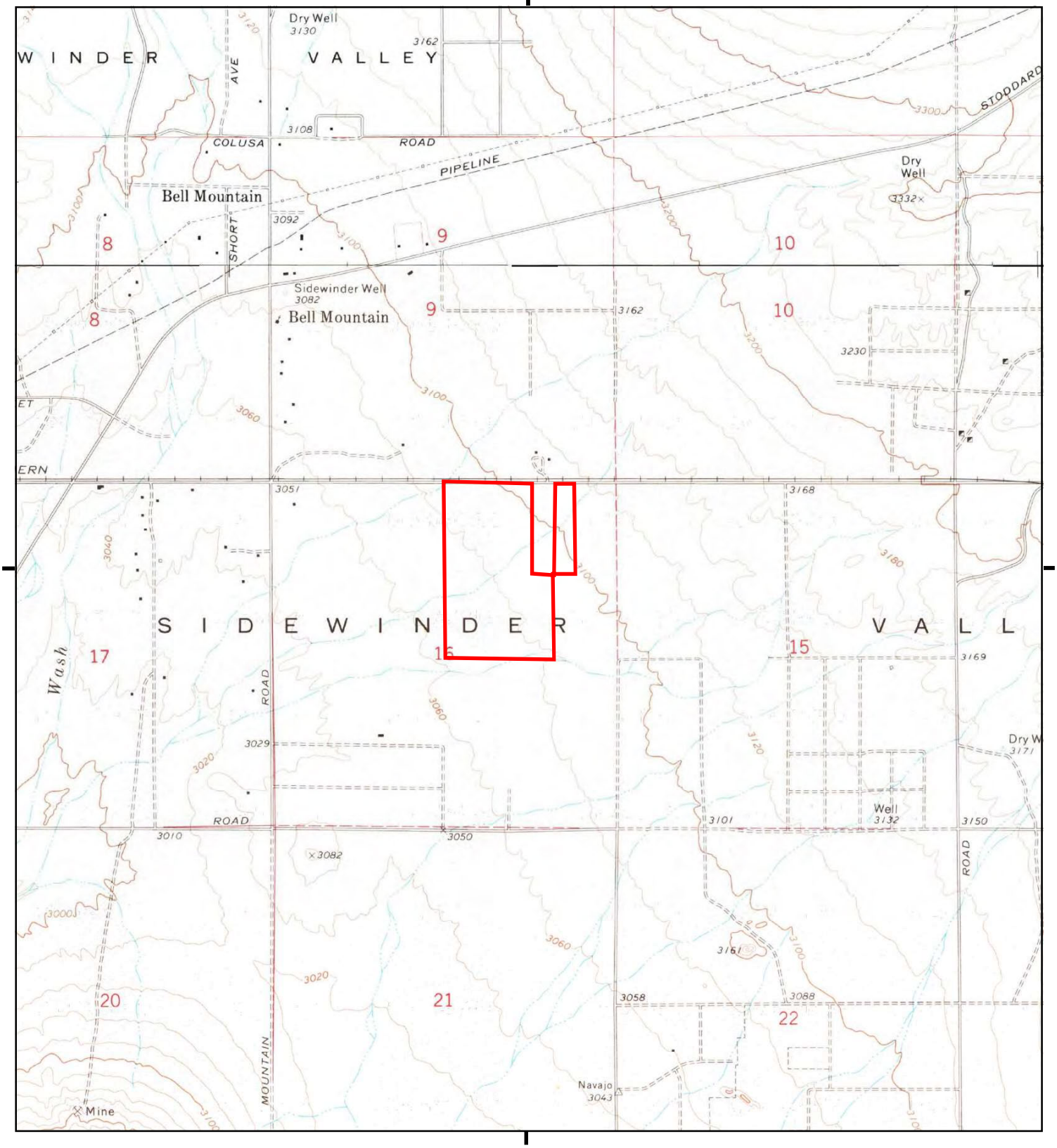
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Apple Valley North, 1978, 7.5-minute

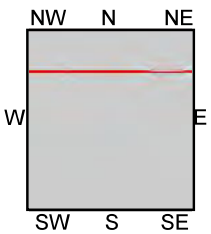
SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N



This report includes information from the following map sheet(s).

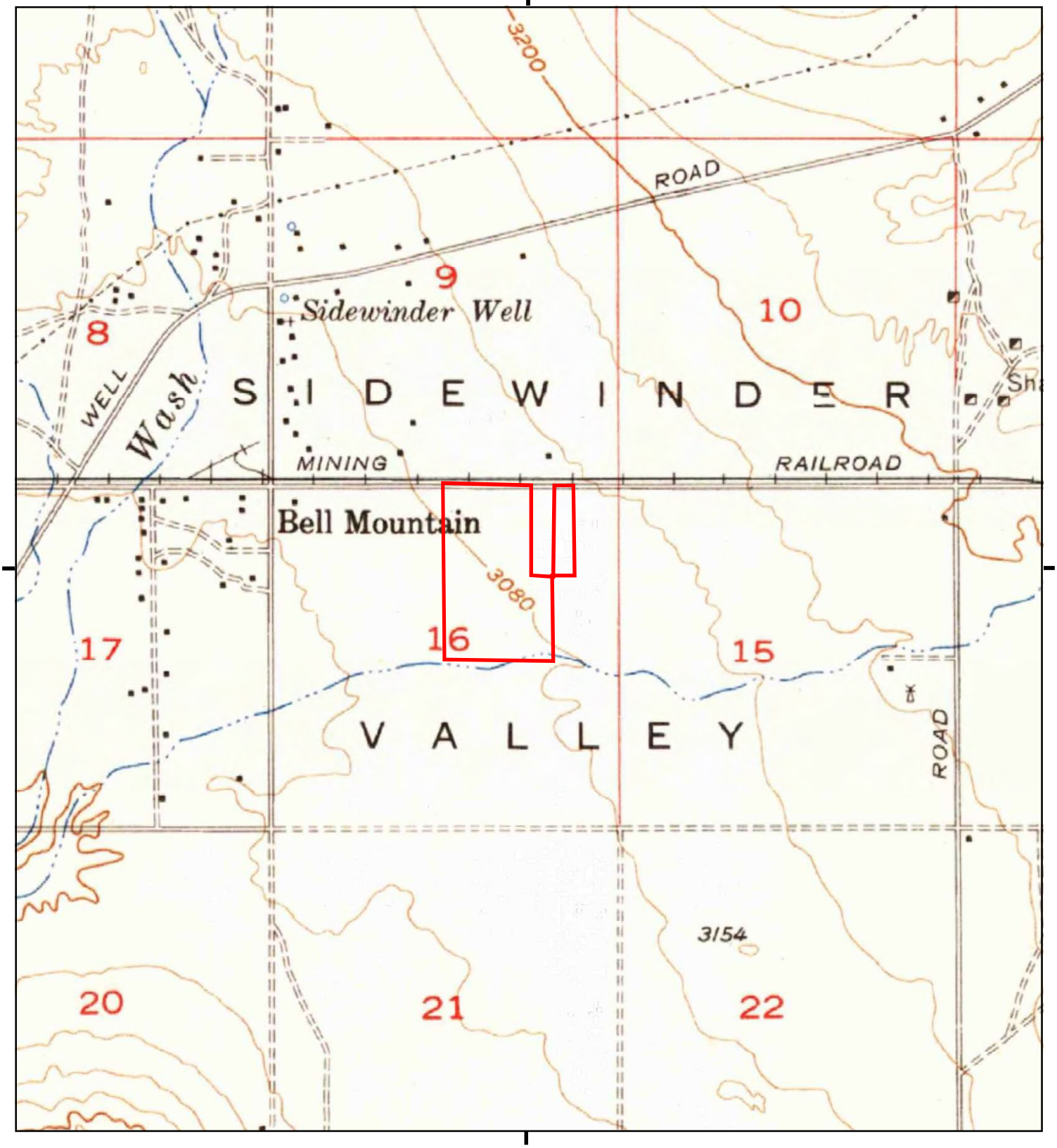
0 Miles 0.25 0.5 1 1.5



TP, Apple Valley North, 1970, 7.5-minute
N, Turtle Valley, 1970, 7.5-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N



This report includes information from the following map sheet(s).

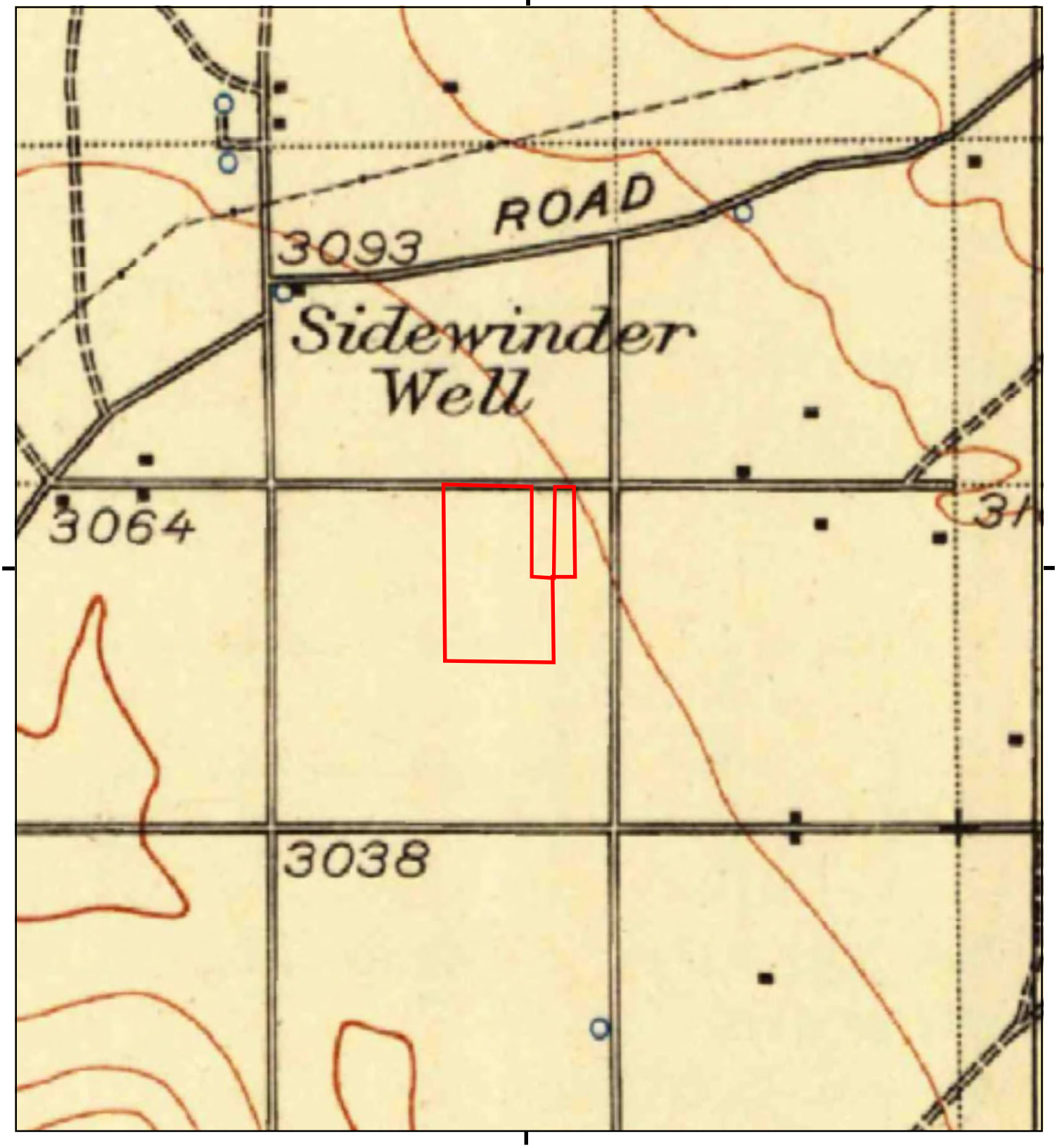
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Apple Valley, 1957, 15-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N



This report includes information from the following map sheet(s).

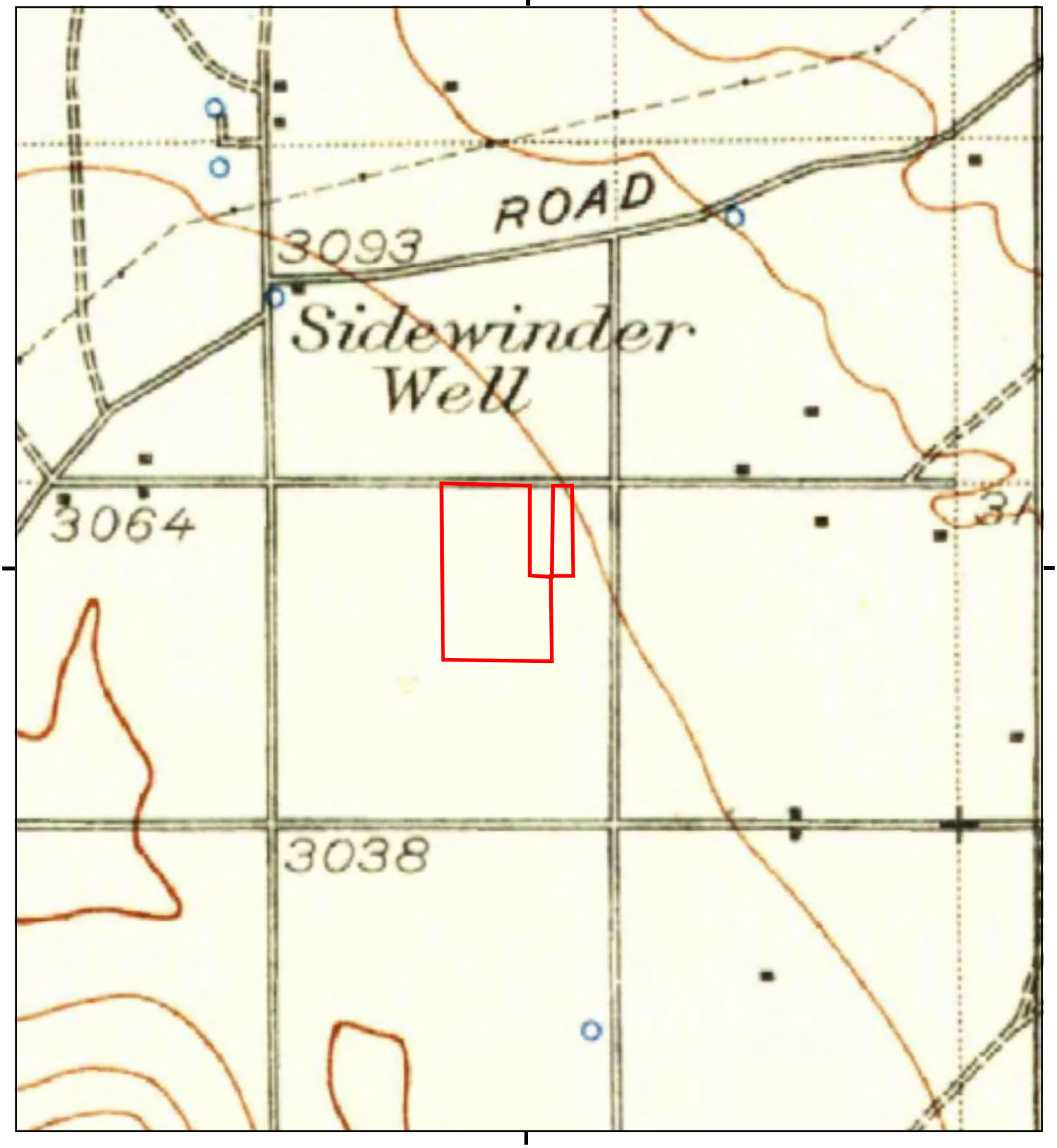
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Barstow, 1934, 30-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Barstow, 1932, 30-minute

SITE NAME: Apple Valley
ADDRESS: Quarry Road
Apple Valley, CA 92307
CLIENT: Northgate Env. Management, Inc.

N

APPENDIX G

THE EDR-CITY DIRECTORY ABSTRACT

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.5
May 13, 2023

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. **NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA), ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT.** Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, LLC. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, LLC, or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☑	☑	EDR Digital Archive
2017	☑	☑	Cole Information
2014	☑	☑	Cole Information
2010	☑	☑	Cole Information
2005	☑	☑	Cole Information
2000	☑	☐	Cole Information
1995	☑	☐	Cole Information
1992	☑	☐	Cole Information
1986	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1976	☑	☐	Haines Criss-Cross Directory
1971	☑	☐	Haines Criss-Cross Directory
1964	☐	☐	Luskey Brothers & Co. Publications

FINDINGS

TARGET PROPERTY STREET

Quarry Road
Apple Valley, CA 92307

Year	*CD Image*	*Source*	
QUARRY RD			
2020	pg A2	EDR Digital Archive	
2017	pg A4	Cole Information	
2014	pg A6	Cole Information	
2010	pg A8	Cole Information	
2005	pg A10	Cole Information	
2000	pg A11	Cole Information	
1995	pg A12	Cole Information	
1992	pg A13	Cole Information	
1986	pg A14	Haines Criss-Cross Directory	
1980	pg A16	Haines Criss-Cross Directory	
1976	pg A18	Haines Criss-Cross Directory	
1971	pg A20	Haines Criss-Cross Directory	
1964	-	Luskey Brothers & Co. Publications	Street not listed in Source
QUERY RD			
1986	pg A15	Haines Criss-Cross Directory	
1980	pg A17	Haines Criss-Cross Directory	
1976	pg A19	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source
1964	-	Luskey Brothers & Co. Publications	Street not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
CORDOVA RD			
2020	pg. A1	EDR Digital Archive	
2017	pg. A3	Cole Information	
2014	pg. A5	Cole Information	
2010	pg. A7	Cole Information	
2005	pg. A9	Cole Information	
2000	-	Cole Information	Street not listed in Source
1995	-	Cole Information	Street not listed in Source
1992	-	Cole Information	Street not listed in Source
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source
1964	-	Luskey Brothers & Co. Publications	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

CORDOVA RD 2020

20077 CAROLYN VILLA
21050 JENNIFER ACOSTA
MICHAEL JORRIN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

QUARRY RD 2020

20501 JOYCE SPICER
RANDECCA STEWARD

Target Street	Cross Street	Source
-	✓	Cole Information

CORDOVA RD 2017

21050 NEVARIL, JOYCE R

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 2017

20501 STEWARD, RANDOLPH W
21576 KHAN, CIRILA M

Target Street	Cross Street	Source
-	✓	Cole Information

CORDOVA RD 2014

21050 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 2014

20501 SPICER, JOHN A
20711 TURNER, THERESA

Target Street	Cross Street	Source
-	✓	Cole Information

CORDOVA RD 2010

20077 WILLIAMS, WILMA C
21050 LESLIES CLEANING SVC
OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 2010

20501	SPICER, K
20711	TURNER, JOSEPH A
21542	RAMSEY, TERESA
21576	HAKEEM, PATRICIA C

Target Street	Cross Street	Source
-	✓	Cole Information

CORDOVA RD 2005

20077 OCCUPANT UNKNOWN,
21050 CASTRO, EDDIE J
CUSTOM DESIGN FABRICATORS

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 2005

20711 TURNER, JOSEPH A
21542 LOCKETT, OLIVER A

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 2000

21542 ROBINSON, DAVID A

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 1995

20711 HASHEM, SAMI A
21542 FREEMAN, OLIVIA

Target Street	Cross Street	Source
✓	-	Cole Information

QUARRY RD 1992

21542 FREEMAN, OLIVIA

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUARRY RD 1986

	GRAHAM STEVEN F	247-9532	+6
13520	XXXX	00	
13623	ROUNDY MERRILL	247-3742	+6
13624	CUNNINGHAM DON	247-2603	+6
13676	EWINGS MILTON C	247-3060	2
*	0 BUS 28 RES	7 NEW	

QUARRY RD 92392
VICTORVILLE

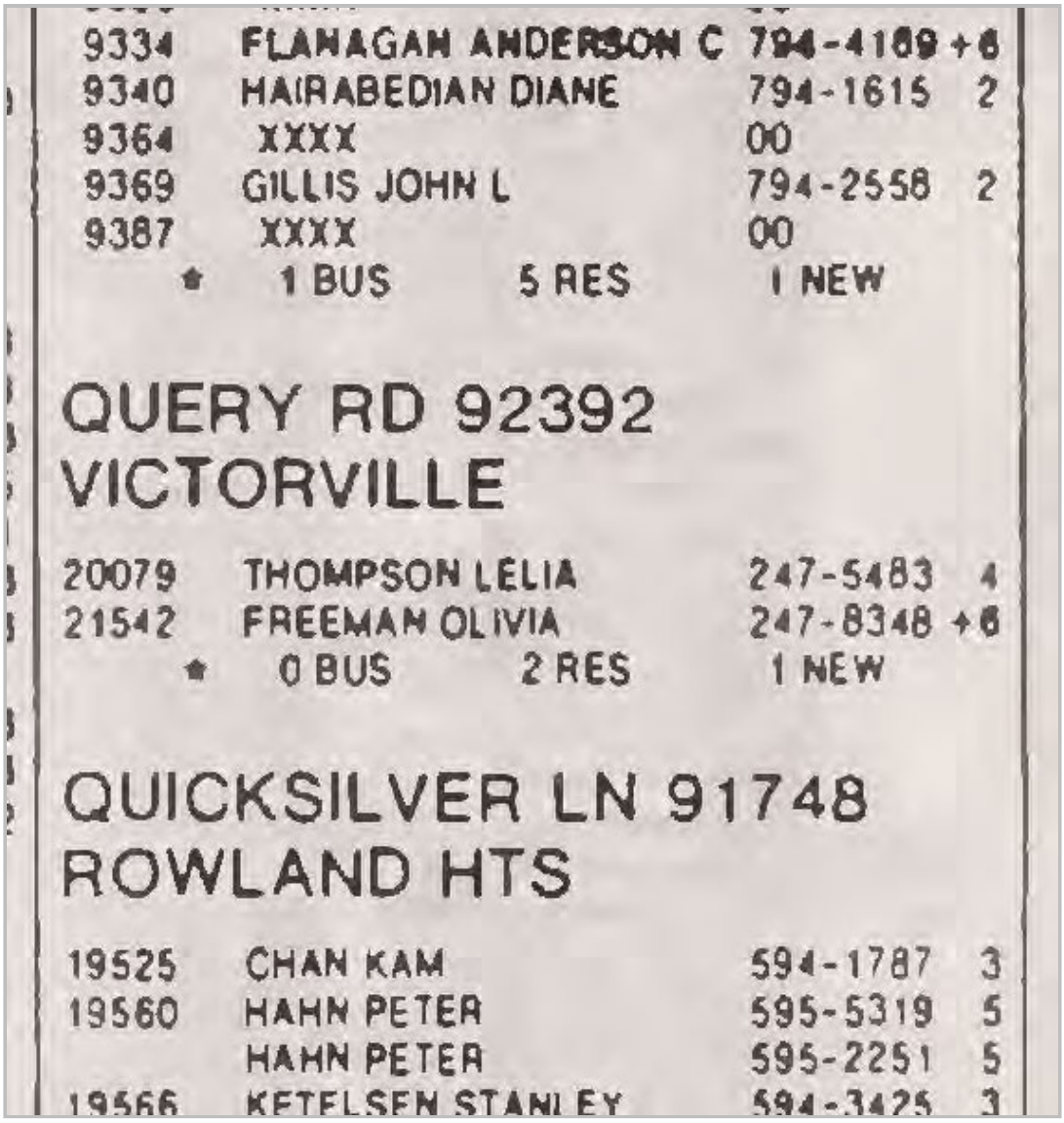
SEE QUERY RD

QUARTER HORSE LN
91701 ALTA LOMA

8517	MUSTO LAWRENCE	987-8468	1
8522	HARRIS ROBT	980-2271	1
8533	KOWAL FRANK	980-0368	3
8534	ZILINSKY VICTOR P	980-6185	3
8547	XXXX	00	
8561	TOURVILLE G	987-7601	3
	TOURVILLE RUSSELL	987-3954	3
8573	MEYER DEAN W	987-5278	8

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUERY RD 1986



9334 FLANAGAN ANDERSON C 794-4169 +6
9340 HAIRABEDIAN DIANE 794-1615 2
9364 XXXX 00
9369 GILLIS JOHN L 794-2558 2
9387 XXXX 00
* 1 BUS 5 RES 1 NEW

QUERY RD 92392
VICTORVILLE

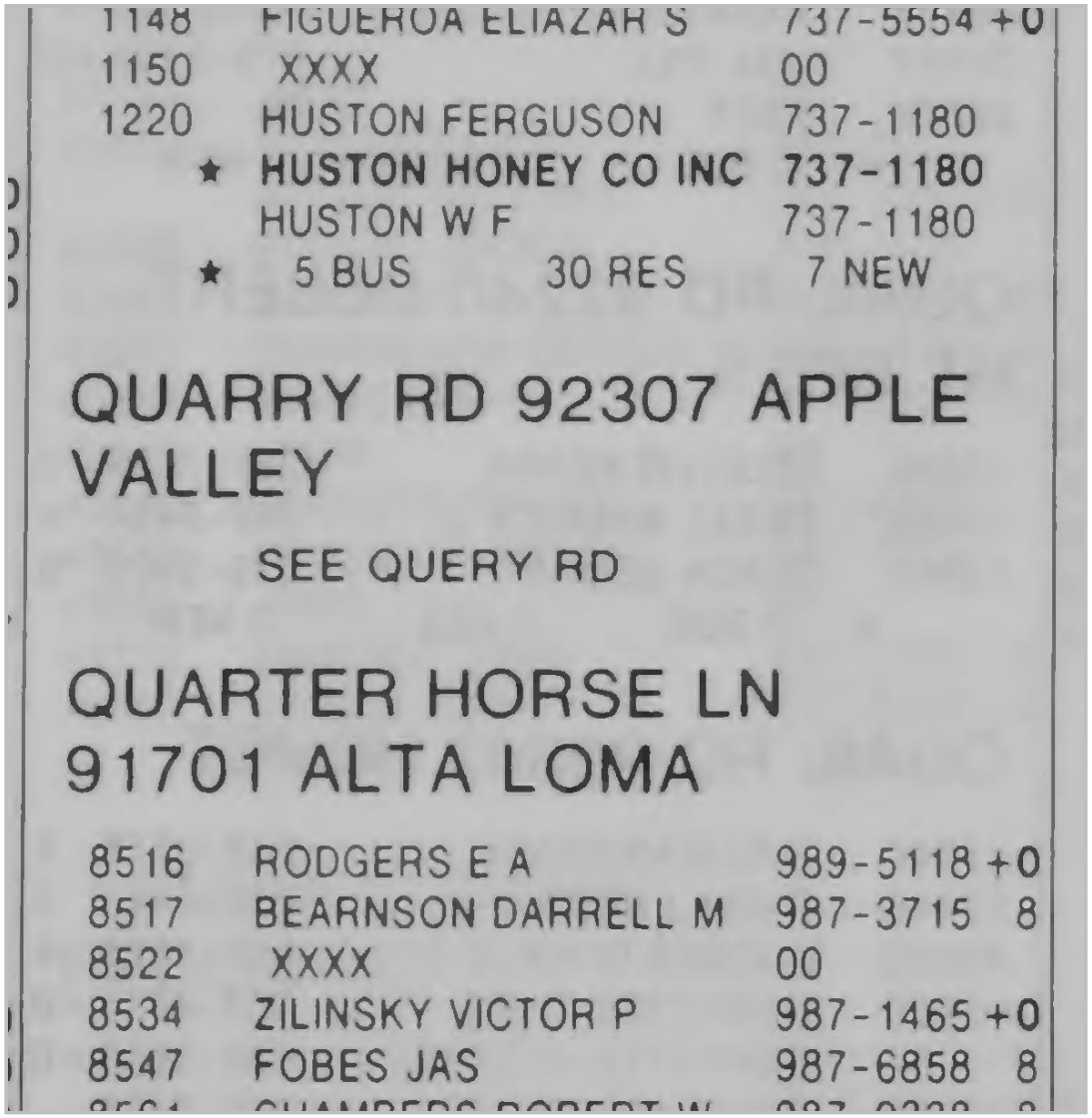
20079 THOMPSON LELIA 247-5483 4
21542 FREEMAN OLIVIA 247-8348 +6
* 0 BUS 2 RES 1 NEW

QUICKSILVER LN 91748
ROWLAND HTS

19525 CHAN KAM 594-1787 3
19560 HAHN PETER 595-5319 5
HAHN PETER 595-2251 5
19566 KETELSEN STANLEY 594-3425 3

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUARRY RD 1980



1148 FIGUEROA ELIAZAR S 737-5554 +0
1150 XXXX 00
1220 HUSTON FERGUSON 737-1180
★ **HUSTON HONEY CO INC 737-1180**
HUSTON W F 737-1180
★ 5 BUS 30 RES 7 NEW

QUARRY RD 92307 APPLE VALLEY

SEE QUERY RD

QUARTER HORSE LN
91701 ALTA LOMA

8516 RODGERS E A 989-5118 +0
8517 BEARNSON DARRELL M 987-3715 8
8522 XXXX 00
8534 ZILINSKY VICTOR P 987-1465 +0
8547 FOBES JAS 987-6858 8

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUERY RD 1980

47820 GOUBER RICHARD 568-3801 9
47830 LINK ALVIN K 568-4251 +0
47840 BRYANT J H 346-7231 9
47850 LOOMIS ARTHUR R 346-0886 9
48872 EVANS MARY D 346-7701 8
48882 CARLSON RICHARD N 568-5169 +0
★ 0 BUS 10 RES 4 NEW

QUERY RD 92307 APPLE VALLEY

21542 FREEMAN I F 247-8348 4
★ 0 BUS 1 RES 0 NEW

QUICKSILVER DR 92260 PALM DESERT

73875 FIESTA MOBILE HOME 346-2153 +0
74200 CAGE R M 346-1042 +0
★ 0 BUS 2 RES 2 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUARRY RD 1976

1150 XXXX 00
1220*HUSTON HONEY CO 737-1180
HUSTON W F 737-1180
* 3 BUS 27 RES 6 NEW

QUARRY RD 92307 APPLE VALLEY

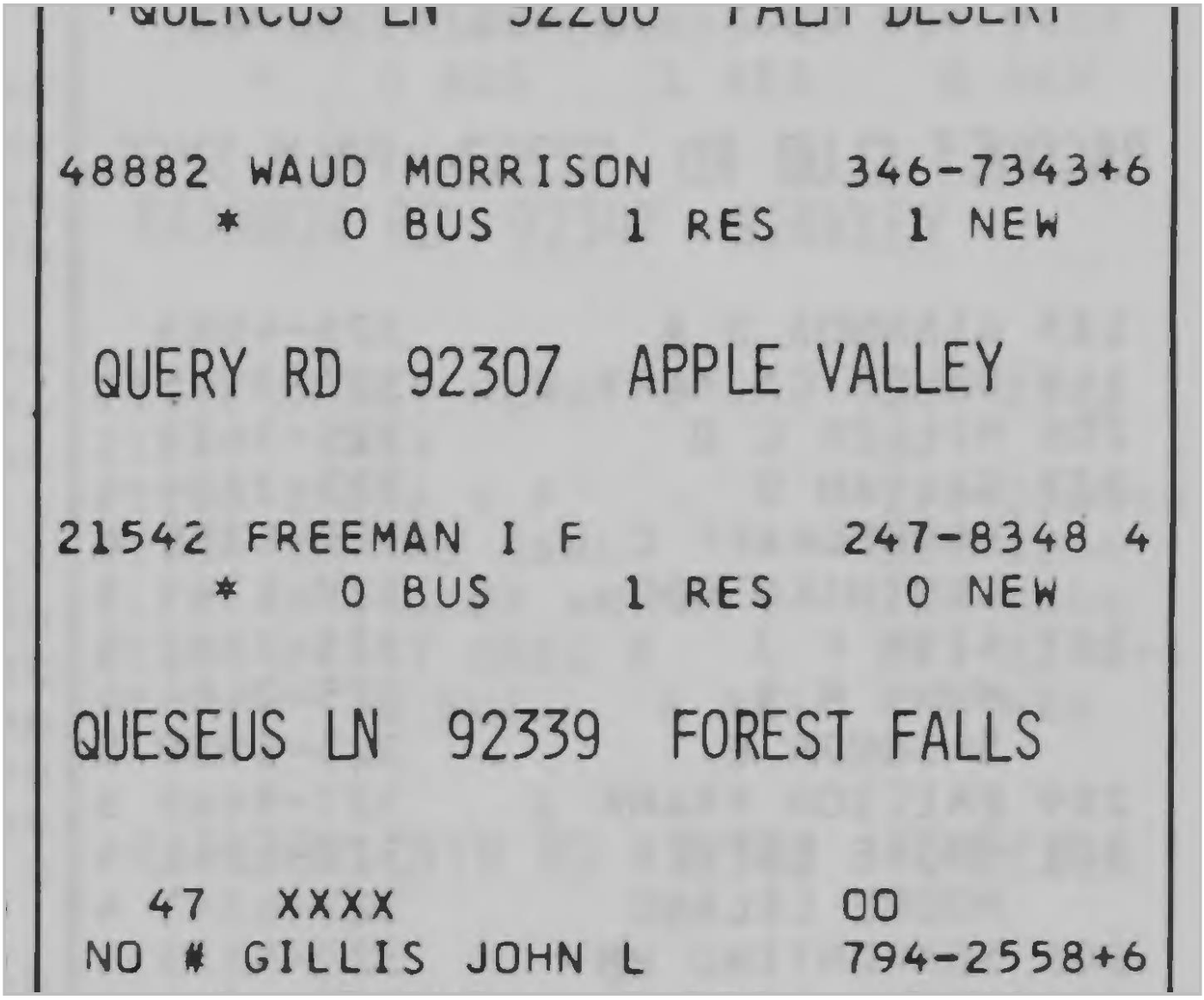
NO LISTINGS

QUARTZ PL 92507 RIVERSIDE

2250 PROUTY STEVE 683-8973

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUERY RD 1976



Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

QUARRY RD 1971

1105 JOHNSON WARREN E 737-3574
1109 WORSHAM L E 737-9655
1122 ROORIQUEZ LORENZO 737-2704
RODRIQUEZ VICTORIA 737-2704
1150*ALMIN X 737-5013
1220*HUSTON HONEY CO 737-1180
HUSTON W F 737-1180
* 4 BUS 26 RES

QUARRY RD 92307 APPLE VALLEY

2501 STEWARO WILL 247-7175
* 0 BUS 1 RES

QUARTZ PL 92507 RIVERSIDE

2250 PROUTY STEVE 683-8973
2255 EIGNER EOWIN M 684-8592
2256 MARTIN WALTER EARL 684-4444
2262 WELLS DAVID G COL 686-7707
2265 HOCKING ROGER W 684-4837

APPENDIX H

EDR BUILDING PERMIT REPORT

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.8
May 11, 2023

EDR Building Permit Report

Target Property and Adjoining Properties

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

About This Report

Executive Summary

Findings

Glossary

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, LLC. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. This Report is provided on an "AS IS", "AS AVAILABLE" basis. **NO WARRANTY EXPRESS OR IMPLIED IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, LLC AND ITS SUBSIDIARIES, AFFILIATES AND THIRD PARTY SUPPLIERS DISCLAIM ALL WARRANTIES, OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, ARISING OUT OF OR RELATED TO THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES REGARDING ACCURACY, QUALITY, CORRECTNESS, COMPLETENESS, COMPREHENSIVENESS, SUITABILITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, MISAPPROPRIATION, OR OTHERWISE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, LLC OR ITS SUBSIDIARIES, AFFILIATES OR THIRD PARTY SUPPLIERS BE LIABLE TO ANYONE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY TYPE OR KIND (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF USE, OR LOSS OF DATA), ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS REPORT OR ANY OF THE DATA AND INFORMATION PROVIDED IN THIS REPORT.** Any analyses, estimates, ratings, environmental risk levels, or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only an assessment performed by a qualified environmental professional can provide findings, opinions or conclusions regarding the environmental risk or conditions in, on or at any property.

Copyright 2023 by Environmental Data Resources, LLC. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, LLC, or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, LLC or its affiliates. All other trademarks used herein are the property of their respective owners.

EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILD FAX PROPERTY HISTORY

EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

A search of building department records was conducted by Environmental Data Resources, Inc (EDR) on behalf of Northgate Env. Management, Inc. on May 11, 2023.

TARGET PROPERTY

Quarry Road
Apple Valley, CA 92307

SEARCH METHODS

EDR searches available lists for both the Target Property and Surrounding Properties.

RESEARCH SUMMARY

Building permits identified: **NO PERMITS IDENTIFIED**

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Name: JurisdictionName
Years: Years
Source: Source
Phone: Phone

BUILDING DEPARTMENT RECORDS SEARCHED

Name: Apple Valley Town
Years: 1994-2022
Source: Town of Apple Valley, Building and Safety, APPLE VALLEY, CA
Phone: (760) 240-7000

Name: Redding
Years: 1926-2023
Source: City of Redding, Development Services, Building Division, SANTA ANA, CA
Phone: 530-225-4014

Name: San Bernardino County
Years: 1970-2023
Source: San Bernardino County, Land Use, Building & Safety, San Bernardino, CA
Phone: (909) 387-8311

TARGET PROPERTY FINDINGS

TARGET PROPERTY DETAIL

Quarry Road
Apple Valley, CA 92307

No Permits Found

ADJOINING PROPERTY FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

No Permits Found

GLOSSARY

General Building Department concepts

- **ICC:** The International Code Council. The governing body for the building/development codes used by all jurisdictions who've adopted the ICC guidelines. MOST of the US has done this. Canada, Mexico, and other countries use ICC codes books and guides as well. There are a few states who have added guidelines to the ICC codes to better fit their needs. For example, California has added seismic retrofit requirements for most commercial structures.
- **Building Department (Permitting Authority, Building Codes, Inspections Department, Building and Inspections):** This is the department in a jurisdiction where an owner or contractor goes to obtain permits and inspections for building, tearing down, remodeling, adding to, re-roofing, moving or otherwise making changes to any structure, Residential or Commercial.
- **Jurisdiction:** This is the geographic area representing the properties over which a Permitting Authority has responsibility.
- **GC:** General Contractor. Usually the primary contractor hired for any Residential or Commercial construction work.
- **Sub:** Subordinate contracting companies or subcontractors. Usually a "trades" contractor working for the GC. These contractors generally have an area of expertise in which they are licensed like Plumbing, Electrical, Heating and Air systems, Gas Systems, Pools etc. (called "trades").
- **Journeymen:** Sub contractors who have their own personal licenses in one or more trades and work for different contracting companies, wherever they are needed or there is work.
- **HVAC (Mechanical, Heating & Air companies):** HVAC = Heating, Ventilation, and Air Conditioning.
- **ELEC (Electrical, TempPole, TPole, TPower, Temporary Power, Panel, AMP Change, Power Release):** Electrical permits can be pulled for many reasons. The most common reason is to increase the AMPs of power in an electrical power panel. This requires a permit in almost every jurisdiction. Other commons reason for Electrical permits is to insert a temporary power pole at a new construction site. Construction requires electricity, and in a new development, power has yet to be run to the lot. The temporary power pole is usually the very first permit pulled for new development. The power is released to the home owner when construction is complete and this sometimes takes the form of a Power Release permit or inspection.
- **"Pull" a permit:** To obtain and pay for a building permit.
- **CBO:** Chief Building Official
- **Planning Department:** The department in the development process where the building /structural plans are reviewed for their completeness and compliance with building codes
- **Zoning Department:** The department in the development process where the site plans are reviewed for their compliance with the regulations associated with the zoning district in which they are situated.
- **Zoning District:** A pre-determined geographic boundary within a jurisdiction where certain types of structures are permitted / prohibited. Examples are Residential structure, Commercial/Retail structures, Industrial/Manufacturing structures etc. Each zoning district has regulations associated with it like the sizes of the lots, the density of the structures on the lots, the number of parking spaces required for certain types of structures on the lots etc.
- **PIN (TMS, GIS ID, Parcel#):** Property Identification Number and Tax Map System number.
- **State Card (Business license):** A license card issued to a contractor to conduct business.
- **Building Inspector (Inspector):** The inspector is a building department employee that inspects building construction for compliance to codes.
- **C.O.:** Certificate of Occupancy. This is the end of the construction process and designates that the owners now have permission to occupy a structure after its building is complete. Sometimes also referred to as a Certificate of Compliance.

GLOSSARY

Permit Content Definitions

- Permit Number: The alphanumerical designation assigned to a permit for tracking within the building department system. Sometimes the permit number gives clues to its role, e.g. a "PL" prefix may designate a plumbing permit.
- Description: A field on the permit form that allows the building department to give a brief description of the work being done. More often than not, this is the most important field for EP's to find clues to the prior use (s) of the property.
- Permit Type: Generally a brief designation of the type of job being done. For example BLDG-RES, BLDG-COM, ELEC, MECH etc.

Sample Building Permit Data

Date: Nov 09, 2000
Permit Type: Bldg -
New Permit Number: 101000000405
Status: Valuation: $1,000,000.00
Contractor Company: OWNER-BUILDER
Contractor Name:

Description: New one store retail (SAV-ON) with drive-thru pharmacy. Certificate of Occupancy.

APPENDIX I

THE EDR PROPERTY TAX MAP REPORT

Apple Valley
Quarry Road
Apple Valley, CA 92307

Inquiry Number: 7334651.6
May 11, 2023

The EDR Property Tax Map Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2022 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

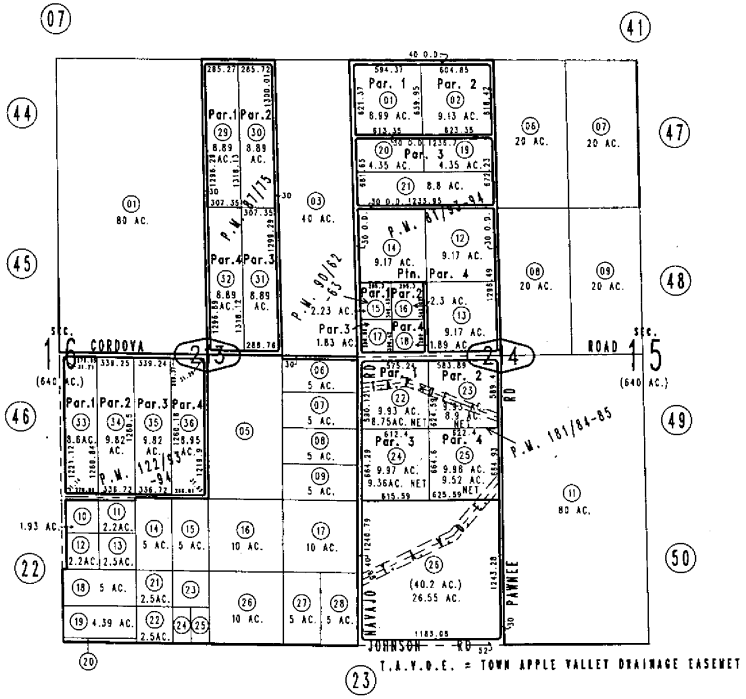
EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

Sec.15&16, T.6N.,R.3W., S.B.B.&M.

City of Apple Valley 0463- 21
Tax Rate Area
21027

1"=800'



Parcel Map No. 14418, P.M. 181/84-85
Parcel Map No. 10410, P.M. 122/93-94
Parcel Map No. 8585, P.M. 90/62-63
Parcel Map No. 8448, P.M. 87/75
Ptn. Parcel Map No. 7960, P.M. 81/93-94

June 2004

Assessor's Map
Book 0463 Page 21
San Bernardino County

REVISED

APPENDIX J

ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS

DERRICK S. WILLIS
PRINCIPAL III

Mr. Willis has over 28 years' experience serving both public sector and private clients in the Western United States and Canada on a wide variety of environmental projects. He has designed and implemented numerous site investigations, feasibility studies, client portfolio remedial cost scenarios, cleanup plans, and economic analyses involving contaminated soil, soil vapor, and groundwater as well as land reuse options. For the last several years, Derrick's focus has been on formulating and facilitating closure and development strategies for large, complex, high profile, environmental projects for aerospace, industrial, and real estate development clients. He specializes in developing closure strategies that integrates remediation with redevelopment/land re-use. Derrick works with his client base to streamline the regulatory and clean-up process and successfully transforms projects for his clients from liabilities to assets. His expertise in fate and transport of chemicals in the environment, risk evaluation, and remedial technologies, regulatory requirements, combined with a keen understanding of client business objectives results in creative, efficient, and successful remediation/ revitalization projects.

REPRESENTATIVE EXPERIENCE

Site Investigation and Remediation

- ***Former Riverton Steel Facility, Southgate, California*** – Project manager on the investigation and remediation of a former steel production facility that is now currently adjacent to a residential development and a newly developed school. Developed remedial approach for lead impacted soil and concrete and air monitoring program (in accordance with SCAQMD Rule 1466) so that demo and concrete crushing operations were protective of adjacent receptors. CMS/RAP for remedial program, which dovetails remediation and development, was approved, and is currently being implemented.
- ***Baker Cold Storage, Port of Long Beach Pier B Facility, California –*** Serves as project manager for investigation, remediation and redevelopment support of a 12-acre former brownfield (wood treatment facility) in the Port of Long Beach. The site is impacted with pentachlorophenol (PCP), metals, VOCs, and dioxins/furans. In addition, tidally influenced groundwater is impacted with PCP and petroleum hydrocarbons and methane charged from oilfield operations. Mr. Willis evaluated investigation data, managed a groundwater investigation program and developed a remedial approach for soil and groundwater. Mr. Willis successfully streamlined the regulatory process by aggregating the remedial work plans including RCRA closure of a drip pad, into one encompassing work plan (Soil and Groundwater Response Plan), which included an air monitoring program during earthmoving of the contaminants on Site, and one Remedial Design Document ([RDD] that incorporated the facility design components into building mitigation design), and securing agency approvals on components of site construction concurrent with development of the RDD. Site was redeveloped with a 250,000 square-foot cold storage facility and is currently undergoing monitored natural attenuation for groundwater.

- ***Black Mountain Industrial Complex Remedial Design and Implementation, Nevada*** – Served as project manager for expedited investigation and remediation program for the Tronox industrial facility within the BMI Complex. Previously the world's largest magnesium production facility during World War II, the site was later utilized for the manufacture of rocket fuel, other products, and most recently alkali and manganese oxide-based chemicals. Historical Industrial operations resulted in subsurface impacts from heavy metals, perchlorate, pesticides, chlorinated solvents, asbestos, radionuclides, and other chemicals. Developed streamlined investigation and remedial approach, prepared remedial plans, including a comprehensive air and dust monitoring program, and rapidly mobilized and managed a team of staff and subcontractors to remove approximately 800,000 cubic yards of soil from the site to meet commercial soil cleanup goals for direct contact exposure in an expedited timeframe.
- ***Kimco Realty Corporation, multiple locations in California and Nevada, –*** Serves Principal-in-Charge and program manager for investigation and remediation of several dry-cleaner sites in California (Cupertino, Daly City, Lakewood, LaVerne, Anaheim, Whittier) and Reno, Nevada. Projects range from investigation of soil and soil vapor impact to remediation of soil, soil vapor and groundwater. Mr. Willis is responsible for developing remedial strategies, negotiating with regulatory agencies, and providing technical direction to staff in order to evaluate and remediate site impacts, and bring sites to regulatory closure.
- ***RREEF, Villa Marina Marketplace, Marina Del Rey, California —*** Mr. Willis managed the design and installation of a groundwater treatment system to treat groundwater impacted from metals and selenium to meet NPDES discharge requirements for a basement dewatering system for a shopping center. He currently manages the operation, maintenance and reporting associated with the ongoing dewatering system.
- ***Hawaii Wood Preserving Company Treatment Facility, Maui, Hawaii –*** Served as project manager, for decommissioning, investigation, remediation, and closure for a former wood treatment facility to allow for redevelopment. The site operated as from 1972 to 2001 to treat lumber with PCP, chromated copper arsenate (CCA), permithrin, and disodium octoborate. Chemicals were profiled, all equipment was decontaminated and decommissioned, and verification sampling was conducted as part of decommissioning. A remedial investigation and remedial alternatives analysis was developed and implemented to investigate and develop a path-forward to closure. The implemented remedial approach consisted of site capping and long-term groundwater monitoring.
- ***Lockheed Martin Former International Light Metals Facility, Torrance, California —*** Served as project manager and principal investigator for a 67-acre aerospace facility where client objective was expedited redevelopment. The project included facility demolition, preparation and implementation of a Resource Conservation and Recovery Act (RCRA) closure plan for 11 permitted RCRA units, negotiations with the Department of Toxic Substance Control (DTSC), preparation of a RCRA Facility Assessment (RFA) (210 features identified that required intrusive investigation), implementation of a RCRA Facility Investigation (RFI) for soil and groundwater, preparation of a health-based risk assessment, and implementation of soil remediation. Site closure for soil was granted only three years after project initiation, in contrast to the normal six to eight year process, and has been used as an example by head DTSC officials as an example of industry and the regulatory community working together to achieve expedited site closures for property redevelopment purposes. Mr. Willis also developed strategy for groundwater investigation and remediation and negotiated the corrective action consent agreement (CACA) with DTSC.

- ***Playa Capital Corporation, Playa Vista Development Project, Los Angeles, California —*** Mr. Willis served as program manager for the Playa Vista project, one of the largest and most visible brownfield development projects in the country. At 1,100 acres, it is the largest underway in Los Angeles County. His primary responsibility included environmental program management (including scoping, developing, scheduling, and tracking environmental activities for the development project), risk management (including developing and negotiating with agencies for appropriate cleanup criteria), remedial strategy/management (including development and implementation of pilot tests and oversight of investigation and remediation activities), agency/RP/buyer negotiations, consultant and contractor selection/oversight, coordination with Playa's infrastructure group on the development/implementation of integrated remedial approach where appropriate, litigation support, data management, and transactional support with respect to the sale of remediated parcels.
- ***Project Manager, Confidential Client, Buena Park, California —*** Served as project manager for multi-media remediation project at a commercial development in Buena Park, California. The site was a former food processing facility that was redeveloped into commercial offices and warehouse space. Evaluated the environmental liability for a Real Estate Investment Trust (REIT) that subsequently purchased the property, and managed remediation program in conjunction with site redevelopment.
- ***Project Manager, Brownfield Redevelopment, Torrance, California —*** Served as project manager for site redevelopment project for a PacTrust. Evaluated environmental liabilities associated with a 12-acre parcel that was part of a butadiene plant (Del Amo Superfund Site) left undeveloped as a brownfield, and formulated a strategy to expedite regulatory closure and redevelopment. A comprehensive investigation was completed on the parcel, and the report submitted to the Environmental Protection Agency (EPA) for review. Successfully negotiated with EPA to conduct a non-Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) closure program. Conducted soil remediation program under EPA oversight in conjunction with site construction activities.
- ***Project Manager, Investigation and Remediation Program, Safety Kleen, Vancouver, British Columbia, Canada —*** Managed remediation of former solvent recycler transfer stations in British Columbia and Alberta, Canada. Sites involved characterization and remediation of soil and perched groundwater zones. Assessed feasibility of vapor extraction for cleanup of vadose zone contamination, and designed and installed a dewatering system for perched water in former tank cavities and surficial saturated zone for Vancouver transfer station. Achieved regulatory site closure two years faster than previous consultant's estimate.
- ***Cupples Manufacturing, Investigation and Remediation Program, La Mirada, California —*** Project manager for soil/groundwater characterization and remediation program at a truck maintenance facility in La Mirada, California. Conducted an underground storage tank and clarifier removal program in conjunction with site characterization activities. Implemented remediation of soil and groundwater impacted with petroleum hydrocarbons. Negotiated and received closure from Regional Water Quality Control Board (RWQCB).
- ***Alberta Environment, Abandoned Wood Treatment Sites, Various Locations, Alberta, Canada —*** Project manager for the Wood Preserving Sites Characterization Program for Alberta Environment. Performed site characterization of four former wood preservation sites in Alberta, Canada. The sites had been used for many years for treating wood poles and railroad ties with a pentachlorophenol/diesel mixture. Soil and/or groundwater were impacted at the sites. Soil borings

and groundwater monitoring wells were installed, and laboratory analysis of soil and groundwater was performed, to help determine the lateral and vertical migration of dissolved-phase hydrocarbons in the groundwater and dense non-aqueous phase liquids (DNAPLs) through glacial tills and several non-confining layers. Detailed drilling and sampling plans were necessary to ensure correct evaluation of vertical DNAPL migration. Aquifer tests were performed and receptor data were collected in order to formulate a quantitative assessment of both health-based and environmental risk.

- ***Texaco Refining and Marketing Inc., Investigation and Remediation Programs, Various Locations, Southern California —*** Responsible for remediation programs at several petroleum retail outlets for Texaco in the southern California area. Projects included soil and groundwater investigation programs, underground storage tank (UST) removals, remedial design (including design and implementation of vapor extraction and aquifer tests), implementation of remedial program, and operation and maintenance of remediation systems. This included designing, specifying, permitting, and installing of all equipment (including piping, downhole pumps, off-gas treatment, and water treatment).
- ***Groundwater Contamination Investigation and Analysis, Technisol, Raymond, Alberta, Canada —*** Conducted a groundwater investigation program at a solvent recycling facility located in southern Alberta, Canada. The program was implemented to determine the lateral and vertical extent of several species of chlorinated volatile organic compounds present in the confined aquifer beneath the facility. Aquifer testing was performed to estimate migration rates and to provide preliminary data for remedial action. Successfully negotiated with Alberta Environment (lead regulatory agency) for monitored natural attenuation approach.
- ***Pier A Railyard, Port of Los Angeles, Los Angeles, California —*** Managed a soil and groundwater investigation program at a Port of Los Angeles rail transfer yard. The objective of the project was to characterize previously identified polynuclear aromatic compounds, volatile organic compounds, and petroleum hydrocarbons in the soil and groundwater, and identify any regulated building materials in the site structures in order to facilitate an expedited redevelopment program. The project was finished ahead of schedule and under budget.
- ***Soil and Groundwater Remediation, Texaco, Various Locations, Southern California —*** Conducted vapor extraction tests, performed data analysis, and generated recommendations for an industrial manufacturing facility to determine the viability of using vapor extraction for remediating chlorinated solvents, primarily tetrachloroethene (PCE), present in the soil beneath the facility. Each test was designed to assess air flow rates and vacuums, vertical interference and crossflow, radii of influence, potential for water upwelling, and effectiveness of vapor extraction in both vadose and capillary zones. Extracted vapors were collected to determine volatile organic compound concentrations. Data were used to determine well spacing and slotting intervals, optimum flow rate/vacuum combinations, extraction blower sizing, and vapor treatment equipment.
- ***Texaco, Various Locations, Southern California—*** Responsible for preparation of South Coast Air Quality Management District (SCAQMD) permitting, installation, operation and maintenance of thermal and catalytic oxidizers/vapor extraction systems for the remediation of soil (containing petroleum hydrocarbons) beneath operating service stations.

Environmental Site Assessments

- ***RREEF, Multiple Sites, Southern California —*** Mr. Willis serves as client director for RREEF on multiple projects including acquisition studies (which include mold, asbestos and indoor air quality surveys), tenant audit programs, soil remediation, groundwater investigation and remediation, third party oversight, agency negotiation, and mold and asbestos abatement programs.
- ***Watson Land Company, Multiple Sites, Southern California —*** Mr. Willis has directed over 40 acquisition-related due diligence investigations for Watson Land Company (Watson). Scope of work has included Phase I ESAs, soil and groundwater investigations, risk evaluations, agency negotiation, and aiding Watson in evaluating and quantifying the potential risk associated with recognized environmental concerns.
- ***Various Clients, Various Locations, Southern California —*** Project manager for more than 200 Phase I environmental assessments (ESAs) for industrial facilities including aerospace, furniture and paper manufacturing factories; utility companies, vehicle and equipment maintenance facilities; and landfills as well former agricultural land. The objective of the ESAs was to evaluate and quantify potential liabilities associated with the acquisition and development of the properties.

Litigation Support

- ***Litigation Support, Confidential Client, City of Commerce, California –*** Conducted site review of historical records, developed and implemented soil, soil vapor, and groundwater investigation, and developed Site Conceptual Model (SCM) for former aerospace facility that was now developed as a multi-tenant warehouse. Successful in being able reconstruct historical SCM to show that environmental impacts were caused by historic aerospace operations from the 1940s to 1960s and not from the more recent tenant operations. Provided information and deposition for property management firm's counsel.
- ***Mediation Support, Confidential Client, Los Angeles, California –*** Project manager for mediation support of insurance claim for cost reimbursement for handling, transportation and disposal of petroleum contaminated soil encountered during development of a high rise on a former hospital site. Work consisted of using photogrammetry and historical records to develop a volume of contaminated soil and expert witness report using spatial data analysis, rebuttal of expert witness reports, and expert witness testimony as part of mediation where a judgement was made in favor of our client for the full reimbursement cost.

EDUCATION

B.S., Geology, University of Alberta, Alberta, 1988

PROFESSIONAL HISTORY

Northgate Environmental Management, Principal, 2006 to date
LFR Levine Fricke, Principal Geologist, 2002 – 2006
Integrated Environmental Services, Director of Operations/Senior Program Manager, 1999– 2002
ARCADIS Geraghty & Miller, Inc. Senior Geologist, 1993 – 1999
Environmental Design Corporation, Vice President, 1992
Environmental Science & Engineering, Inc., Staff Geologist, 1991
Terracon Geotechnique, Ltd., Geologist, 1989 – 1991
Contract Positions, Various Locations, Geologist, 1988

REGISTRATIONS

Certified Environmental Manager, Nevada, No. EM 2252

NICKY G. ROBINSON, PE, QSD, QSP
SENIOR I ENGINEER

Ms. Robinson is a Professional Engineer with a variety of experience serving both public sector and private clients. Her professional engineering and management experience has been focused in remediation design and construction site oversight, stormwater management, Phase I and II environmental site assessments, environmental field sampling and air monitoring, site inspections, and technical data review. Ms. Robinson's environmental field experience includes soil and groundwater sampling, soil vapor studies, stormwater sampling, indoor air quality studies, air monitoring activities, and site cleanups. She has considerable experience managing and performing environmental due diligence and property transfer projects. Ms. Robinson's project experience also includes management of Total Maximum Daily Loading (TMDL) studies in surface waters; collecting storm water samples to quantify "first-flush" impacts and composite samples for pollutant loading characterization; and obtaining NPDES permits and managing the water sample collection and analysis process to ensure permit compliance. Ms. Robinson is a licensed Civil Engineer in the state of California. She is a California licensed Qualified SWPPP Developer and Qualified SWPPP Practitioner and has received the OSHA 40 Hour HAZWOPER Training.

REPRESENTATIVE EXPERIENCE

Environmental Characterization and Remediation

- ***Southern California Edison (SCE) Power Pole Relocation into Closed and Capped Landfill, Carson, California –*** Ms. Robinson was the project manager for the environmental component of a power pole relocation project that required removing two power poles and installing two new power poles with associated anchors and wires into a closed and capped landfill under the regulatory oversight of the DTSC. Ms. Robinson was responsible for providing environmental and engineering direction to SCE to guide their overall design and construction sequencing, soil handling and monitoring procedures, and air monitoring program. On behalf of SCE, she obtained necessary permits including a Rule 1150 permit from the AQMD, developed soil handling and monitoring procedures, prepared work plans for a field investigation program to obtain environmental and geotechnical design data to direct the final power pole design and for the final power pole installation work, and developed an air monitoring activities related to operations at the landfill. Ms. Robinson provided direct field oversight of the field investigation program and the final power pole relocation work, which included air monitoring for SCAQMD Rules 1150, 402, and 403. She coordinated with various entities including the DTSC, the client, the landowner, the site occupant, the engineer of record for the landfill, and the AQMD for the various components of this project. Ms. Robinson was also responsible for preparing technical documents including work plans and completion reports and management to ensure the overall project success and quality.
- ***Former Riverton Steel Facility, Southgate, California –*** Ms. Robinson performed initial due diligence and reviewed field data for the investigation and remediation of a former steel production facility that is now currently adjacent to a residential development and a newly developed school. She assisted with scoping for remediation of leak impacted soil and concrete. Ms. Robinson

developed and oversaw the implementation of an air monitoring program during demolition and concrete crushing operations to ensure protection of adjacent receptors. The CMS/RAP for the remedial approach at the facility, which dovetails remediation and development, is currently pending agency approval. The remedial activities will include perimeter dust monitoring in addition to air monitoring in compliance with SCAQMD Rules 1166 and 1466 permits and SCAQMD Rules 401, 402, and 403. Ms. Robinson is responsible for the management and oversight of these air monitoring activities in addition to review and submittal of data and documentation to the agency.

- ***Baker Cold Storage Facility Brownfield Clean-up, Long Beach, California –*** Ms. Robinson is the engineer of record for the remedial design for a site that is impacted with pentachlorophenol (PCP), metals, VOCs, and dioxins/furans and under the regulation of the DTSC. She assisted with the development of the Soil and Groundwater Response Plan and the Remedial Design Document for the site that is developed with a 250,000 square-foot cold storage facility. During development, Ms. Robinson conducted oversight of the site activities, including soil import/export, excavation, construction, and the installation of a methane barrier, and she has performed work zone and perimeter air monitoring. She also prepared daily activity reports including the analysis of air monitoring and Rule 1166 monitoring data to submit to the DTSC. Ms. Robinson coordinated field activities including the decontamination and sampling of former drip pads, air monitoring activities, and wastewater sampling. She managed the data obtained from daily field activities and trained the field staff. Ms. Robinson prepared the Remedial Action Completion Report and the Operation and Maintenance Plan for the remedial activities.
- ***Black Mountain Industrial Complex, Henderson, Nevada –*** Ms. Robinson was a field engineer on site for the remediation of Tronox's industrial facility in Henderson, Nevada in which approximately 800,000 cubic yards of impacted soil were removed. Previously the world's largest magnesium production facility during World War II, the site was later utilized for the manufacture of rocket fuel, other products, and most recently alkali and manganese oxide-based chemicals. Historical industrial operations resulted in subsurface impacts from heavy metals, perchlorate, pesticides, chlorinated solvents, asbestos, radionuclides, and other chemicals. Her responsibilities included providing technical oversight of excavation, construction, and groundwater pumping well installation activities; collecting groundwater samples; obtaining soil and air samples; monitoring dust levels; overseeing the perimeter and work zone air monitoring programs; and conducting weekly site inspections for SWPPP compliance. Ms. Robinson coordinated with design engineers to oversee the installation of their remediation and monitoring systems and provide field support and input for design revisions.

Environmental Assessments, Investigations, and Characterization

- ***CenterCal Development, Long Beach, California –*** Ms. Robinson is the engineer of record for the remedial design of a property in Long Beach that was formerly partially occupied by a gasoline service station with documented leaking underground storage tanks (USTs) impacting the subsurface. Historic site operations also included oil wells and crude oil pipelines. Ms. Robinson assisted with the design of an excavation program to remove impacted materials to accommodate the development of a mixed-use commercial and residential facility. Her work included analyzed historic investigation results and analytical data to determine the remediation program and provide support for the engineering decisions to reach a settlement agreement with the responsible party for the contamination present at the Site. Ms. Robinson also assisted with the preparation of various

documents and reports for the site including a Remedial Action Plan, remedial costing analysis, and responses to questions from regulators and the responsible party.

- ***Kimco Lakewood Plaza, Bellflower, California –*** Ms. Robinson conducted soil and indoor air sampling to help determine a remedial design for soil impacts with VOCs from a former dry cleaning operation. She oversaw excavation activities and collected confirmation samples. Ms. Robinson managed the data and documents associated with the project and assisted with the preparation of final reports.

- ***Historic Oil Fields, Brea, California –*** Ms. Robinson conducted a Phase I ESA of historic oil fields spanning over 3,000 acres in Brea with operations still active across portions of the site. She coordinated a limited Phase II investigation across the site and utilized the results to prepare remedial cost documents, estimate of impacted material, and recommendations for areas of potential concern for redevelopment. She prepared all documentation, figures, and spreadsheets for meetings with developers interested in redeveloping the site.

- ***Park and Market Redevelopment, San Diego, California –*** Ms. Robinson managed and performed field activities, investigations, and oversight of the redevelopment of a property located in downtown San Diego that was formerly occupied by automobile repair facilities and several burn wells and pits associated with historic residential development. During excavation activities, impacted soils were encountered when former burn wells impacted with elevated concentrations of lead up to 60,000 parts per million. Ms. Robinson prepared environmental project documentation including a health and safety plan, a soil management plan, and completion report, collected samples and provided oversight of the handling and removal of lead impacted soil, and performed air monitoring during excavation and handling of lead impacted soil.

- ***Monsanto Former Detergent Manufacturing Facility, Carson, California –*** Ms. Robinson measured groundwater levels and collected groundwater samples to monitor for hydrocarbons, predominantly benzene, which migrated through the soil to the groundwater beneath the site and migrated downgradient. Some samples were collected on the adjacent oil refinery property and Ms. Robinson received the appropriate training to access the refinery.

- ***Oxygen Biosparge Pilot Scale Investigation, Carson, California –*** Ms. Robinson collected groundwater samples using low flow sampling techniques as part of an oxygen biosparge in situ treatment system. Work was performed using supplied air in Level B personal protective equipment. She also routinely works in conjunction with a mobile laboratory to simultaneously collect and analyze soil vapor samples to monitor benzene concentrations as part of the pilot scale investigation.

- ***Los Angeles World Airports, Los Angeles International Airport, Los Angeles, California –*** Ms. Robinson performed reviews of environmental documents including site investigation and remedial reports and agency correspondence for Los Angeles World Airports' tenants at LAX to create summaries of key environmental information for input into the Conceptual Site Model. She also managed the review of similar work by other consultants for the facility. Ms. Robinson utilized the results of these investigation efforts to develop a facility wide groundwater monitoring program.

- ***Former Paint Facility, City of Commerce, California –*** Ms. Robinson was responsible for coordinating the field activities associated with collecting soil vapor and LNAPL samples for a former paint facility. A soil vapor extraction system was operated on the site and sampling was

performed to develop a conceptual site model to assess the effectiveness of continued remediation at the Site. Ms. Robinson was responsible for coordinating the sample collection and analysis with the laboratory and worked to draft the analytical report.

- ***Port of Oakland Embarcadero Cove, Oakland, California –*** Ms. Robinson was a staff engineer on site to oversee the abandonment of existing groundwater monitoring wells and the installation and development of new groundwater monitoring wells. Her responsibilities also included annual groundwater sampling at the site that is known to have been impacted by VOCs, SVOCs, organochlorine pesticides, PCBs, dioxins, and furans from facilities that previously occupied the site that were known to have handled and stored solvents, refined petroleum products, wood, preservatives, pesticides, and herbicides. She also assisted the preparation of the annual report and five-year review for the site.
- ***Former Apartment Complex Close-Out, Carson, California –*** Ms. Robinson was responsible for the oversight of environmental field activities related to the demolition of an existing apartment complex for redevelopment. Field activities included asbestos and lead-based paint surveys and removal, hazardous waste packaging and disposal, geophysical surveys, and air monitoring. Ms. Robinson also prepared close out reports and documents for the site.
- ***Former Dry-Cleaning Facility, Santa Rosa, California –*** Ms. Robinson performed low flow groundwater sampling for quarterly reporting for a site containing both a dry cleaner and a residential apartment building to monitor impacts to the groundwater. The site is known to have existing soil and groundwater impacts from historic use and storage of petroleum products and other hazardous substances on surrounding sites.
- ***Wetland Restoration Project, San Francisco, California –*** Ms. Robinson reviewed contractor submittals, including dust control, decontamination, soil stabilization, and execution plans for compliance with the project specifications and regulatory requirements and prepared responses to requests for information for the restoration of 26.5 acres of tidal wetland habitat. The site is known to have soil containing naturally occurring asbestos, copper, lead, nickel, zinc, TPH, PAHs, pesticides, and PCBs and some metals impacting groundwater.
- ***Environmental Site Assessments, Various Locations, California, Nevada, and Texas –*** Ms. Robinson has managed and conducted dozens of Phase I and Phase II environmental site assessments for commercial, industrial, and residential properties. Her responsibilities included complete site history reviews, identifying recognized environmental conditions and areas of potential concern, as well as field sampling and analysis to investigate potential impacts to soil and groundwater quality. Ms. Robinson assisted with the design of investigation programs, coordinated with field staff and subcontractors, and analyzed results to determine remedial actions. She also managed budgets, schedules, and client communication. Work was performed in general conformance with the ASTM environmental assessment standard and the U.S. EPA *All Appropriate Inquiry* guidelines. She has also conducted and completed preliminary endangerment assessments and obtained necessary permits for construction (NPDES, Rule 1166, etc.) on behalf of the developer to support the redevelopment activities.

Stormwater Monitoring and Compliance

- ***Machado Lake Nutrient TMDL Sampling, Torrance, California –*** Ms. Robinson manages the stormwater monitoring, sampling, and reporting for the City of Torrance in accordance with the

provisions of the Machado Lake TMDL Special Studies Work Plan and the Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrient) TMDL (established by the Los Angeles Regional Water Quality Control Board) to monitor nutrients, including nitrogen and phosphorous discharged from the City of Torrance to Machado Lake. She coordinates routine sampling activities and has been a field lead for activities that include rapid mobilization during wet weather and dry weather events on a monthly basis since 2012 and data collection from data loggers to calculate flow rate and discharge volume and to monitor storm events. Ms. Robinson is also responsible for maintaining a network of flow sensors in subsurface conveyances and storm drains to quantify hydrology of the storm drain system and determine mass-based discharge compliance. She maintains discharge flow and volume calculations for annual reporting and prepares the annual report document. Ms. Robinson is also responsible for communicating with the City of Torrance, maintaining the scheduling, and ensuring the project stays within budget.

- ***Walteria Lake Monitoring Program for Nutrients and Toxics, Torrance, California –*** Ms. Robinson manages a monitoring program for discharge from Walteria Lake in accordance with the Walteria Lake Monitoring Program Nutrients and Toxics Study Work Plan developed by the Los Angeles County Flood Control District. She coordinates with the City of Torrance to conduct field sampling activities during pumping events that discharge from Walteria Lake. Ms. Robinson also maintains and analyzes the analytical and flow data from the stormwater and dry weather flow in relation to the applicable nutrients and toxics TMDL waste load allocations to determine if the lake contributes or removes pollutant loading from the flow. She also maintains communication with the City of Torrance and manages the budget and reporting for the project.
- ***Stormwater Basins Enhancement Project Monitoring and Reporting, Torrance, California –*** Ms. Robinson manages a project for the City of Torrance that includes stormwater sampling and flow measurements at various locations within three stormwater basins. The work is conducted in accordance with a plan approved by the Los Angeles Regional Water Quality Control Board. Ms. Robinson manages communication with the client, field sampling events, the schedule, and the project budget.
- ***Nutrient TMDL Sampling, Peter Weber Equestrian Center, Rolling Hills Estates, California –*** Ms. Robinson manages a project involving the collection of stormwater samples and flow measurements to monitor nutrients, including nitrogen and phosphorous at an active equestrian facility in Rolling Hills Estates following facility upgrades designed to reduce surface water impacts.
- ***Machado Lake Nutrient TMDL Sampling, Rolling Hills Estates, California –*** Ms. Robinson was the field lead for the collection of stormwater samples and flow measurements in accordance with the Palos Verdes Peninsula Coordinated Monitoring Plan and the Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrient) TMDL (established by the Los Angeles RWQCB) to monitor nutrients, including nitrogen and phosphorous discharged from Rolling Hills Estates to Machado Lake. Sampling activities included rapid mobilization during wet weather and dry weather events on a monthly basis between 2012 and 2016 to collect samples from surface waters and confined conveyance systems. She calculated monthly averages of total nitrogen and total phosphorous and compared the results to waste load allocations to determine attainment status.
- ***Anthropogenic Source Nutrient Assessment, Rolling Hills Estates, California –*** Ms. Robinson was a field lead for wet weather event stormwater sampling conducted for identification of nutrient sources to study nutrient load reduction at the Model Equestrian Center Project.

Regulatory Compliance

- ***National Pollutant Discharge Elimination System Monitoring, Marina del Rey, California –*** Ms. Robinson coordinates field activities associated with water quality sampling and analysis, flow data collection and analysis, and system operation and maintenance for a groundwater treatment system for VOCs, selenium, and metals prior to discharge to the storm drain. Her responsibilities also include preparing quarterly and annual monitoring reports for the Regional Water Quality Control Board per requirements in the monitoring and reporting program of the NPDES permit for the project. She currently manages the testing, maintenance, and reporting associated with the ongoing dewatering system.
- ***Environmental Audits, Various Locations, California –*** Ms. Robinson has performed and managed multiple environmental audits at several commercial and industrial facilities in California. Her responsibilities included conducting interviews with current tenants, inspecting site facilities to determine environmental compliance or potential issues, and completing a final audit report of findings. She also managed budgets, schedules, and client communication.

EDUCATION

B.S., Civil and Environmental Engineering, University of California, Los Angeles, 2009

PROFESSIONAL HISTORY

Northgate Environmental Management, Inc., Senior Engineer, January 2020 to date
Northgate Environmental Management, Inc., Project Engineer, January 2015 to December 2019
Northgate Environmental Management, Inc., Staff Engineer, August 2010 to December 2014
Incledon Consulting Group, Civil Engineer, July 2009 to July 2010
Incledon Kirk Engineers, Engineering Intern, June to September 2007 and June to September 2008

REGISTRATIONS / CERTIFICATIONS

Professional Engineer, California, No. 83985
Qualified SWPPP Developer (QSD) and Practitioner (QSP), No. 27442
OSHA 40-hour HAZWOPER
OSHA 8-Hour HAZWOPER, Supervisor

PRESENTATIONS

Brown, D., Dettle, J., and Robinson (Galloway), N., 2016. *Update on City of Torrance Stormwater Quality Project*, presentation, poster, and proceedings for the California Stormwater Quality Association's 12th Annual Conference on Stormwater Evolution: Source to Resource, San Diego, California. September 12-14, 2016.

Robinson, N., and Willis, D. 2018. *Minimizing Environmental Exposure by Incorporating Redevelopment Design in Remediation of Former Wood Treatment Facility*, poster and proceedings for the Association for Environmental, Health and Sciences Foundation's Annual West Coast Conference. March 19-22, 2018.

Appendix H

Preliminary Hydrology Study

PRELIMINARY
HYDROLOGY STUDY

For

Redwood West
APN 0463-213-01 & 32
Apple Valley, CA

September 27, 2023

Prepared by:

Merrell-Johnson Companies

22221 US Highway 18
Apple Valley, CA 92307
(760) 240-8000

Job No. 3813.006

9/28/2023

E. Cary Packer, PE
Associate Engineer
R.C.E. 51752 Exp. 06/30/24

Mark D. Rowan
Project Manager

TABLE OF CONTENTS

DISCUSSION ***SECTION 1***

Introduction
Project Location
Methodology
Description
- General
- Existing Condition
- Developed Condition

Conclusions & Recommendations

EXHIBITS ***SECTION 2***

Vicinity Map
Proposed Development Plan

HYDROLOGY CALCULATIONS ***SECTION 3***

Hydrology Calculations
- Rational Calculations: Q_{100}
- Off-site Hydrology Calculations
- Off-site Drainage Map
- Antecedent Moisture Condition (AMC) Maps

Exhibits
- Soils Mapping and Information
- NOAA Atlas 14 Point Rainfall Information

Town of Apple Valley Master Plan of Drainage (MPD)

SECTION 1

DISCUSSION

INTRODUCTION

The purpose of this study was to determine the impact, if any, of the 100-year storm runoff flow tributary to the project site as delineated on the map contained in this study. The project site encompasses approximately 93 acres of property located on the east side of Dachshund Avenue, between Quarry Road on the north and Cordova Road on the south in the northeastern area of the Town of Apple Valley, San Bernardino County, California. Development of the site will be a proposed distribution warehouse facility.

METHODOLOGY

The method in determining these peak runoff flows was the rational method as specified in the 1986 San Bernardino County Hydrology Manual and the 2010 San Bernardino County Hydrology Manual Addendum for Arid Regions. The existing offsite flow was examined and delineated from U.S.G.S. Map: Apple Valley North, review of the Apple Valley Master Plan of Drainage (MPD) and an examination of the project site.

The tributary watershed areas examined extend westerly from the eastern property boundary. The north tributary area encompasses approximately 45.4 acres and the south tributary area encompasses approximately 129.8 acres respectively. A third tributary area, encompassing approximately 199.1 acres passes the southeast corner of the project site and continues flowing westerly, along the alignment of Cordova Road. The project site was examined and falls outside of the limits of the Apple Valley MPD. Per the Apple Valley MPD, there are no master planned facilities within the project area.

Point rainfalls for the 100-year storm were obtained from the NOAA Atlas 14 per the 2010 Addendum to the County Hydrology Manual. The 100-year 1-hour point rainfall for the site is 1.08”. Per the aforementioned addendum, AMC II was used for the project site and the soil types were determined to be a mix of Type C and Type D soils per the Natural Resources Conservation Service’s “Web Soil Survey”. Soil Type C was used for a conservative analysis. Rainfall and Soils maps are included as exhibits in Section 3 of this report.

The offsite tributary area examined in this study is shown in Table A.

Table A

Sub-area	Elevation Difference (ft.)	Length (ft)	Area (Ac)	Avg. Slope (ft/ft)
Node 11 – 14 (North - Eastern)	50	2,880	45.4	0.0174
Node 21 – 25 (South - Eastern)	98	5,280	129.8	0.0186
Node 31 – 36	120	8,141	199.1	0.0147

EXISTING CONDITIONS

The site encompasses approximately 93 acres of property located on the east side of Dachshund Avenue, between Quarry Road on the north and Cordova Road on the south in the northeastern area of the Town of Apple Valley, San Bernardino County, California. The property is currently vacant, undeveloped land. Dachshund Road and Cordova Road are unimproved dirt roads. Quarry Road is a private, paved road with dirt shoulders. The project site does not have access to Quarry Road.

Tributary off-site flows come from the east as sheet flows entering along the eastern property boundary. There is no runoff flow from areas north of Quarry Road due to existing improvements of the private roadway and an adjacent private railroad which parallels the roadway. The project site is outside the boundaries of the Apple Valley MPD.

The results of the offsite flow analysis are summarized in Table B.

Table B

Sub-Area	Q_{100} (cfs)
Node 11 – 15 (North - Eastern)	61.5
Node 21 – 26 (South - Eastern)	147.5
Node 31 – 36	173.9

CONCLUSIONS AND RECOMMENDATIONS

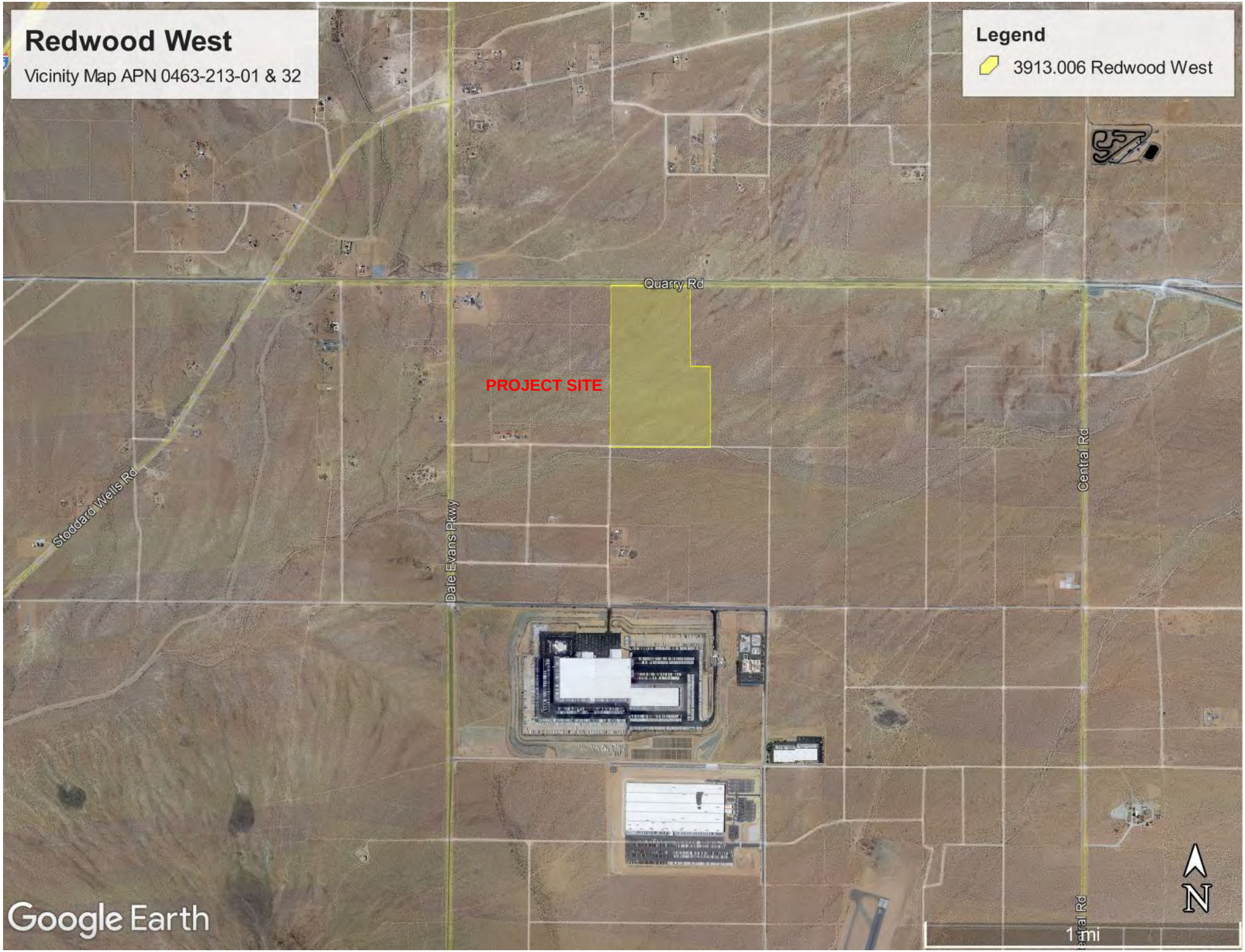
During our field investigation of the site, we observed the existing conditions as stated previously. Future development of the project is being performed in conjunction with engineered improvement plans. Off-site flows from the east will be intercepted along the easterly property boundary within a drainage ditch and storm drain system, conveyed to spreading basins, and outlet as sheet flows onto the new street improvements along Dachshund Avenue and Cordova Road.

On-site runoff flows will be intercepted within two drainage grate and storm drain systems within the on-site parking areas. These flows will be conveyed through the project site and into two separate vortex pre-treatment systems which will outlet into a retention basin located along the southern boundary of the project. Treated on-site runoff will be allowed to infiltrate within the retention basin. Off-site runoff and on-site runoff flows will not comingle. The increased on-site runoff flow due to development of the site will flow to the retention basin along the southern frontage of the project and allowed to infiltrate.

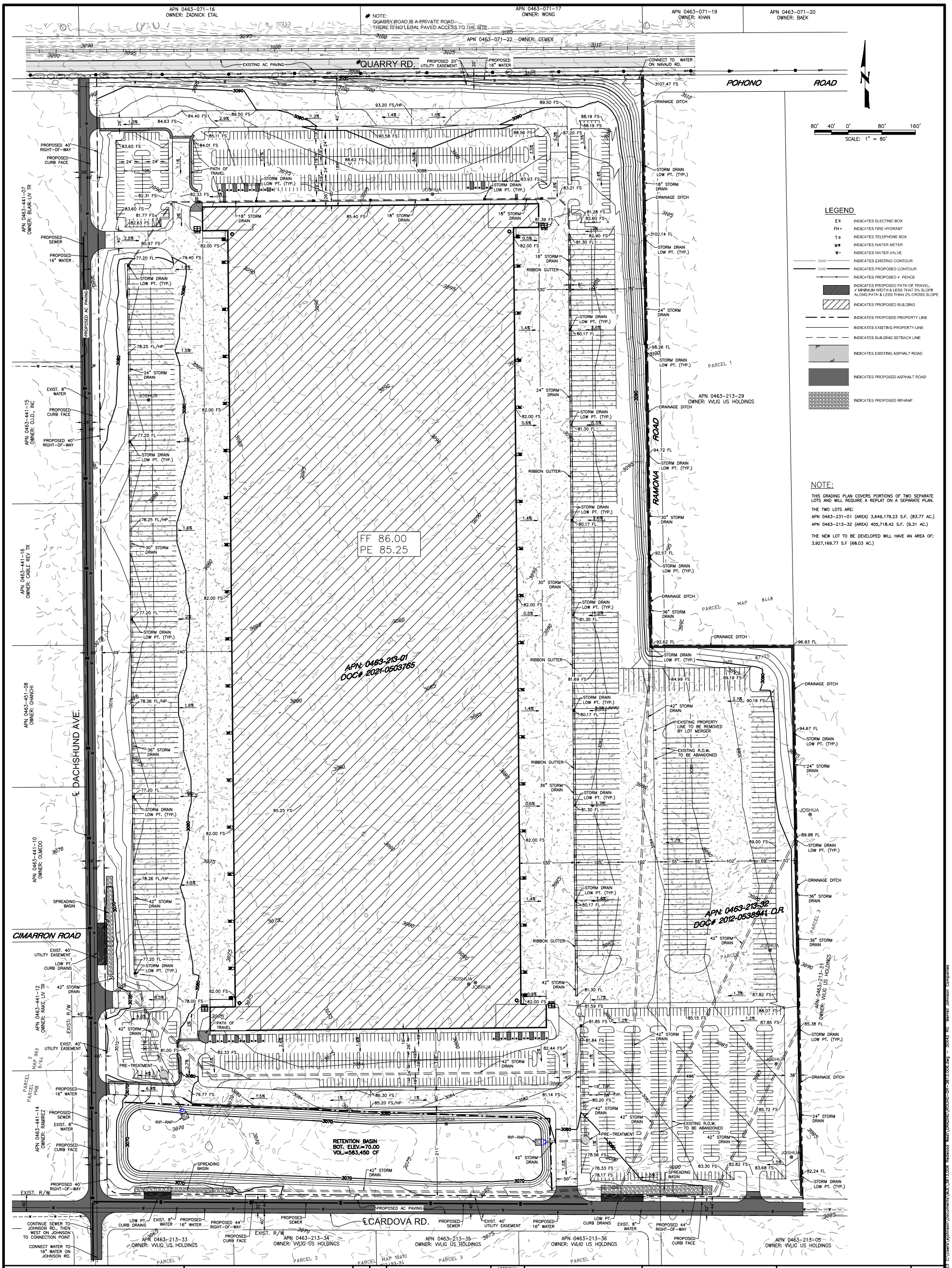
SECTION 2

EXHIBITS

VICINITY MAP


Redwood West
Vicinity Map APN 0463-213-01 & 32
Legend
3913.006 Redwood West
Quarry Rd
PROJECT SITE
Stoddard Wells Rd
Dale Evans Pkwy
Central Rd
Google Earth
N
1 mi

PROPOSED DEVELOPMENT PLAN



NOTE:

THIS GRADING PLAN COVERS PORTIONS OF TWO SEPARATE LOTS AND WILL REQUIRE A REPLAT ON A SEPARATE PLAN.

THE TWO LOTS ARE:
APN 0463-231-01 (AREA) 3,649,179.23 S.F. (83.77 AC.)
APN 0463-213-32 (AREA) 405,718.42 S.F. (9.31 AC.)

THE NEW LOT TO BE DEVELOPED WILL HAVE AN AREA OF:
3,927,169.77 S.F (68.03 AC.)

NOT FOR CONSTRUCTION

OWNER :

BUTTERFLY EQUITY PARTNERS AND/OR
RW APPLEVALLEY II AND/OR LINKUP, LLC
220 NEWPORT CENTER DRIVE, STE 11-557
NEWPORT BEACH, CA 92660

DATE	DELTA	REVISION DESCRIPTION	APPROVAL DATE	APPROVAL BY

MERRELL JOHNSON

MERRELL JOHNSON ENGINEERING, INC.
22221 U.S. HIGHWAY 18, APPLE VALLEY, CA 92307
760 240 8000 | MERRELLJOHNSON.COM

CONCEPTUAL GRADING PLAN
WAREHOUSE
CARDOVA RD & DACHSHUND AVE.
68.2 ACRES

FOR:
REDWOOD WEST

DRAWN BY: EKJ
DATE: 9/18/23

JOB NO. 3813.006

SHEET 1 OF 1

©johnson 11:10am 18 September 2023 C:\Users\ejohnson\Documents\VAULT\3813006 Redwood West\GRADING\ROUGH-GR-3813006.dwg - 30X42 RG Merrell Johnson Companies

SECTION 3

HYDROLOGY CALCULATIONS

Merrell-Johnson Engineering, Inc.
CIVIL ENGINEERING ♦ SURVEYING

RATIONAL CALCULATIONS – Q_{100}

OFF-SITE HYDROLOGY CALCULATIONS

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 09/26/23

REDWOOD WEST - JOB 3813.006
OFF-SITE TRIBUTARY AREA - STREAM 1
NODE 11 - NODE 14
100-YEAR STORM EVENT - AMC II

MERRELL JOHNSON COMPANIES
22221 HIGHWAY 18
APPLE VALLEY, CA 92307
(760) 240-8000 * FAX (760) 240-1400

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.080 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 11.000 to Point/Station 12.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 3143.000(Ft.)
Bottom (of initial area) elevation = 3126.000(Ft.)
Difference in elevation = 17.000(Ft.)
Slope = 0.01700 s(%)= 1.70
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 18.796 min.
Rainfall intensity = 2.434(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.802
Subarea runoff = 11.516(CFS)
Total initial stream area = 5.900(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 12.000 to Point/Station 13.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Depth of flow = 0.665(Ft.), Average velocity = 2.600(Ft/s)
******* Irregular Channel Data **********

```
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
Sub-Channel flow  =     11.516(CFS)
  '     '    flow top width =     13.310(Ft.)
  '     '    velocity=    2.600(Ft/s)
  '     '    area =      4.429(Sq.Ft)
  '     '    Froude number =     0.794

Upstream point elevation =  3126.000(Ft.)
Downstream point elevation =  3111.000(Ft.)
Flow length =   916.000(Ft.)
Travel time  =    5.87 min.
Time of concentration =   24.67 min.
Depth of flow =   0.665(Ft.)
Average velocity =   2.600(Ft/s)
Total irregular channel flow =    11.516(CFS)
Irregular channel normal depth above invert elev. =   0.665(Ft.)
Average velocity of channel(s) =   2.600(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    24.67 min.
Rainfall intensity =      2.012(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.781
Subarea runoff =     17.414(CFS) for   12.500(Ac.)
Total runoff =     28.930(CFS)
Effective area this stream =       18.40(Ac.)
Total Study Area (Main Stream No. 1) =       18.40(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
_____________________________________________________________________
Depth of flow =   0.569(Ft.), Average velocity =   3.237(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              0.00
      4            30.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
```

```
Sub-Channel flow  =     28.930(CFS)
  '     '    flow top width =     21.389(Ft.)
  '     '    velocity=    3.237(Ft/s)
  '     '    area =      8.938(Sq.Ft)
  '     '    Froude number =     0.882

Upstream point elevation =  3111.000(Ft.)
Downstream point elevation =  3093.000(Ft.)
Flow length =   964.000(Ft.)
Travel time  =    4.96 min.
Time of concentration =   29.63 min.
Depth of flow =   0.569(Ft.)
Average velocity =   3.237(Ft/s)
Total irregular channel flow =    28.930(CFS)
Irregular channel normal depth above invert elev. =   0.569(Ft.)
Average velocity of channel(s) =   3.237(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    29.63 min.  Tc
Rainfall intensity =      1.770(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.765
Subarea runoff =     32.549(CFS) for   27.000(Ac.)
Total runoff =     61.479(CFS)  Q100
Effective area this stream =       45.40(Ac.)
Total Study Area (Main Stream No. 1) =       45.40(Ac.)
Area averaged Fm value =    0.265(In/Hr)
End of computations, Total Study Area =           45.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  86.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 09/27/23

REDWOOD WEST - JOB 3813.006
OFF-SITE TRIBUTARY AREA - STREAM 2
NODE 21 - NODE 25
100-YEAR STORM EVENT - AMC II

MERRELL JOHNSON COMPANIES
22221 HIGHWAY 18
APPLE VALLEY, CA 92307
(760) 240-8000 * FAX (760) 240-1400

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.080 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 21.000 to Point/Station 22.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 997.000(Ft.)
Top (of initial area) elevation = 3184.000(Ft.)
Bottom (of initial area) elevation = 3164.000(Ft.)
Difference in elevation = 20.000(Ft.)
Slope = 0.02006 s(%)= 2.01
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 18.162 min.
Rainfall intensity = 2.493(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.804
Subarea runoff = 16.642(CFS)
Total initial stream area = 8.300(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 22.000 to Point/Station 23.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Depth of flow = 0.735(Ft.), Average velocity = 3.078(Ft/s)
******* Irregular Channel Data **********

```
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
Sub-Channel flow  =     16.642(CFS)
  '     '    flow top width =     14.706(Ft.)
  '     '    velocity=    3.078(Ft/s)
  '     '    area =      5.407(Sq.Ft)
  '     '    Froude number =     0.895

Upstream point elevation =  3164.000(Ft.)
Downstream point elevation =  3146.000(Ft.)
Flow length =   896.000(Ft.)
Travel time  =    4.85 min.
Time of concentration =   23.01 min.
Depth of flow =   0.735(Ft.)
Average velocity =   3.078(Ft/s)
Total irregular channel flow =    16.642(CFS)
Irregular channel normal depth above invert elev. =   0.735(Ft.)
Average velocity of channel(s) =   3.078(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       22.000 to Point/Station       23.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    23.01 min.
Rainfall intensity =      2.112(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.787
Subarea runoff =     30.903(CFS) for   20.300(Ac.)
Total runoff =     47.545(CFS)
Effective area this stream =       28.60(Ac.)
Total Study Area (Main Stream No. 1) =       28.60(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       24.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
_____________________________________________________________________
Depth of flow =   0.718(Ft.), Average velocity =   3.855(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              0.00
      4            30.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
```

```
Sub-Channel flow  =     47.545(CFS)
  '     '    flow top width =     24.359(Ft.)
  '     '    velocity=    3.855(Ft/s)
  '     '    area =     12.334(Sq.Ft)
  '     '    Froude number =     0.955

Upstream point elevation =  3146.000(Ft.)
Downstream point elevation =  3120.000(Ft.)
Flow length =  1268.000(Ft.)
Travel time  =    5.48 min.
Time of concentration =   28.50 min.
Depth of flow =   0.718(Ft.)
Average velocity =   3.855(Ft/s)
Total irregular channel flow =    47.545(CFS)
Irregular channel normal depth above invert elev. =   0.718(Ft.)
Average velocity of channel(s) =   3.855(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       23.000 to Point/Station       24.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    28.50 min.
Rainfall intensity =      1.819(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.769
Subarea runoff =     49.078(CFS) for   40.500(Ac.)
Total runoff =     96.623(CFS)
Effective area this stream =       69.10(Ac.)
Total Study Area (Main Stream No. 1) =       69.10(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       25.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.984(Ft.), Average velocity =   4.387(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              2.00
      2            15.00              0.00
      3            30.00              0.00
      4            45.00              2.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =     96.623(CFS)
  '     '    flow top width =     29.761(Ft.)
  '     '    velocity=    4.387(Ft/s)
  '     '    area =     22.024(Sq.Ft)
  '     '    Froude number =     0.899

Upstream point elevation =  3120.000(Ft.)
```

```
Downstream point elevation =  3086.000(Ft.)
Flow length =  2119.000(Ft.)
Travel time  =    8.05 min.
Time of concentration =   36.55 min.
Depth of flow =   0.984(Ft.)
Average velocity =   4.387(Ft/s)
Total irregular channel flow =    96.623(CFS)
Irregular channel normal depth above invert elev. =   0.984(Ft.)
Average velocity of channel(s) =   4.387(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       24.000 to Point/Station       25.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    36.55 min. Tc
Rainfall intensity =      1.528(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.744
Subarea runoff =     50.916(CFS) for   60.700(Ac.)
Total runoff =    147.539(CFS) Q100
Effective area this stream =      129.80(Ac.)
Total Study Area (Main Stream No. 1) =      129.80(Ac.)
Area averaged Fm value =    0.265(In/Hr)
End of computations, Total Study Area =          129.80 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  86.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 09/26/23

REDWOOD WEST - JOB 3813.006
OFF-SITE TRIBUTARY AREA - STREAM 3
NODE 31 - NODE 36
100-YEAR STORM EVENT - AMC II

MERRELL JOHNSON COMPANIES
22221 HIGHWAY 18
APPLE VALLEY, CA 92307
(760) 240-8000 * FAX (760) 240-1400

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.080 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 31.000 to Point/Station 32.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 835.000(Ft.)
Top (of initial area) elevation = 3200.000(Ft.)
Bottom (of initial area) elevation = 3188.000(Ft.)
Difference in elevation = 12.000(Ft.)
Slope = 0.01437 s(%)= 1.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 18.086 min.
Rainfall intensity = 2.500(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.805
Subarea runoff = 19.916(CFS)
Total initial stream area = 9.900(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 32.000 to Point/Station 33.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Depth of flow = 0.838(Ft.), Average velocity = 2.838(Ft/s)
******* Irregular Channel Data **********

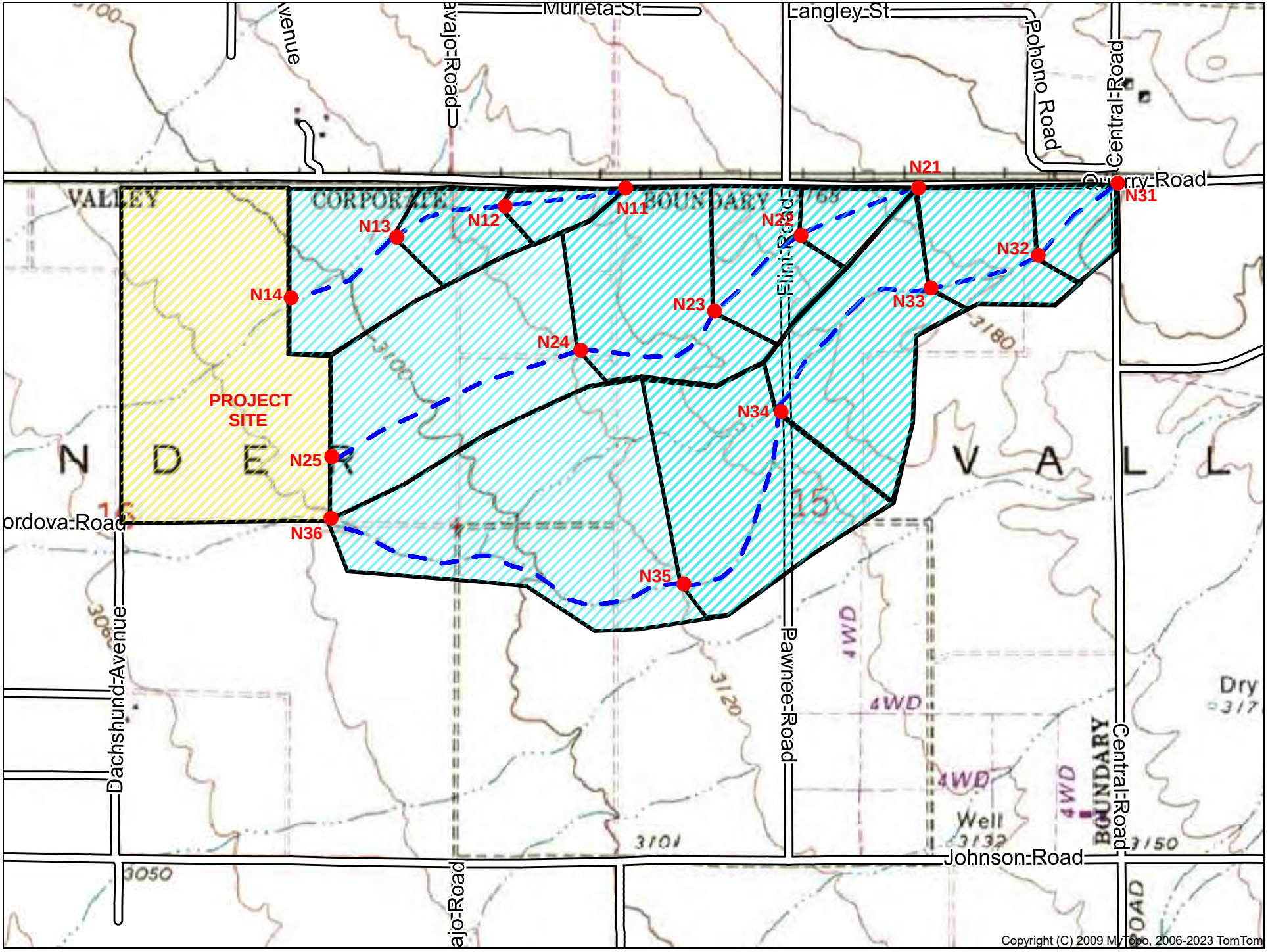
```
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
Sub-Channel flow  =     19.916(CFS)
  '     '    flow top width =     16.755(Ft.)
  '     '    velocity=    2.838(Ft/s)
  '     '    area =      7.018(Sq.Ft)
  '     '    Froude number =     0.773

Upstream point elevation =  3188.000(Ft.)
Downstream point elevation =  3175.000(Ft.)
Flow length =   906.000(Ft.)
Travel time  =    5.32 min.
Time of concentration =   23.41 min.
Depth of flow =   0.838(Ft.)
Average velocity =   2.838(Ft/s)
Total irregular channel flow =    19.916(CFS)
Irregular channel normal depth above invert elev. =   0.838(Ft.)
Average velocity of channel(s) =   2.838(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       32.000 to Point/Station       33.000
**** SUBAREA FLOW ADDITION ****
_____________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    23.41 min.
Rainfall intensity =      2.087(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.786
Subarea runoff =     29.612(CFS) for   20.300(Ac.)
Total runoff =     49.528(CFS)
Effective area this stream =       30.20(Ac.)
Total Study Area (Main Stream No. 1) =       30.20(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       33.000 to Point/Station       34.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
_____________________________________________________________________
Depth of flow =   0.763(Ft.), Average velocity =   3.680(Ft/s)
      ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              1.00
      2            10.00              0.00
      3            20.00              0.00
      4            30.00              1.00
Manning's 'N' friction factor =   0.035
-----------------------------------------------------------------
```

```
Sub-Channel flow  =     49.528(CFS)
  '     '    flow top width =     25.265(Ft.)
  '     '    velocity=    3.680(Ft/s)
  '     '    area =     13.458(Sq.Ft)
  '     '    Froude number =     0.889

Upstream point elevation =  3175.000(Ft.)
Downstream point elevation =  3146.000(Ft.)
Flow length =  1660.000(Ft.)
Travel time  =    7.52 min.
Time of concentration =   30.92 min.
Depth of flow =   0.763(Ft.)
Average velocity =   3.680(Ft/s)
Total irregular channel flow =    49.528(CFS)
Irregular channel normal depth above invert elev. =   0.763(Ft.)
Average velocity of channel(s) =   3.680(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       33.000 to Point/Station       34.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    30.92 min.
Rainfall intensity =      1.718(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.761
Subarea runoff =     43.678(CFS) for   41.100(Ac.)
Total runoff =     93.206(CFS)
Effective area this stream =       71.30(Ac.)
Total Study Area (Main Stream No. 1) =       71.30(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       34.000 to Point/Station       35.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   1.144(Ft.), Average velocity =   4.386(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1             0.00              2.00
      2            20.00              0.00
      3            30.00              0.00
      4            40.00              2.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =     93.206(CFS)
  '     '    flow top width =     27.157(Ft.)
  '     '    velocity=    4.386(Ft/s)
  '     '    area =     21.250(Sq.Ft)
  '     '    Froude number =     0.874

Upstream point elevation =  3146.000(Ft.)
```

```
Downstream point elevation =  3120.000(Ft.)
Flow length =  1742.000(Ft.)
Travel time  =    6.62 min.
Time of concentration =   37.54 min.
Depth of flow =   1.144(Ft.)
Average velocity =   4.386(Ft/s)
Total irregular channel flow =    93.206(CFS)
Irregular channel normal depth above invert elev. =   1.144(Ft.)
Average velocity of channel(s) =   4.386(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       34.000 to Point/Station       35.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    37.54 min.
Rainfall intensity =      1.500(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.741
Subarea runoff =     42.001(CFS) for   50.400(Ac.)
Total runoff =    135.206(CFS)
Effective area this stream =      121.70(Ac.)
Total Study Area (Main Stream No. 1) =      121.70(Ac.)
Area averaged Fm value =    0.265(In/Hr)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       35.000 to Point/Station       36.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Depth of flow =   1.059(Ft.), Average velocity =   4.173(Ft/s)
      ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
      1              0.00              2.00
      2             20.00              0.00
      3             40.00              0.00
      4             60.00              2.00
Manning's 'N' friction factor =   0.035
------------------------------------------------------------------
Sub-Channel flow  =    135.206(CFS)
  '     '    flow top width =     41.184(Ft.)
  '     '    velocity=    4.173(Ft/s)
  '     '    area =     32.404(Sq.Ft)
  '     '    Froude number =     0.829

Upstream point elevation =  3120.000(Ft.)
Downstream point elevation =  3080.000(Ft.)
Flow length =  2998.000(Ft.)
Travel time  =   11.98 min.
Time of concentration =   49.52 min.
Depth of flow =   1.059(Ft.)
Average velocity =   4.173(Ft/s)
Total irregular channel flow =   135.206(CFS)
```

```
Irregular channel normal depth above invert elev. =   1.059(Ft.)
Average velocity of channel(s) =   4.173(Ft/s)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       35.000 to Point/Station       36.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Time of concentration =    49.52 min.  Tc
Rainfall intensity =      1.235(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.707
Subarea runoff =     38.653(CFS) for   77.400(Ac.)
Total runoff =    173.859(CFS)  Q100
Effective area this stream =      199.10(Ac.)
Total Study Area (Main Stream No. 1) =      199.10(Ac.)
Area averaged Fm value =    0.265(In/Hr)
End of computations, Total Study Area =          199.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  86.0
```

TRIBUTARY DRAINAGE MAP


Murieta St
Langley St
Pohono Road
Central Road
Quarry Road
Navajo Road
Elliott Road
Pawnee Road
Dachshund Avenue
Johnson Road
Cordova Road
VALLEY
CORPORATE BOUNDARY
PROJECT SITE
N11
N12
N13
N14
N21
N22
N23
N24
N25
N31
N32
N33
N34
N35
N36
3180
3120
3101
3050
4WD
Well
3132
Dry
3150
Copyright (C) 2009 MyTopo, 2006-2023 TomTom

2010 ANTECEDENT MOISTURE CONDITION (AMC) MAP

Figure ADD-1
Antecedent Moisture Condition (AMC)

5-day Rainfall - NOAA Atlas 14
(50% of Total Rainfall Prior to Peak)*

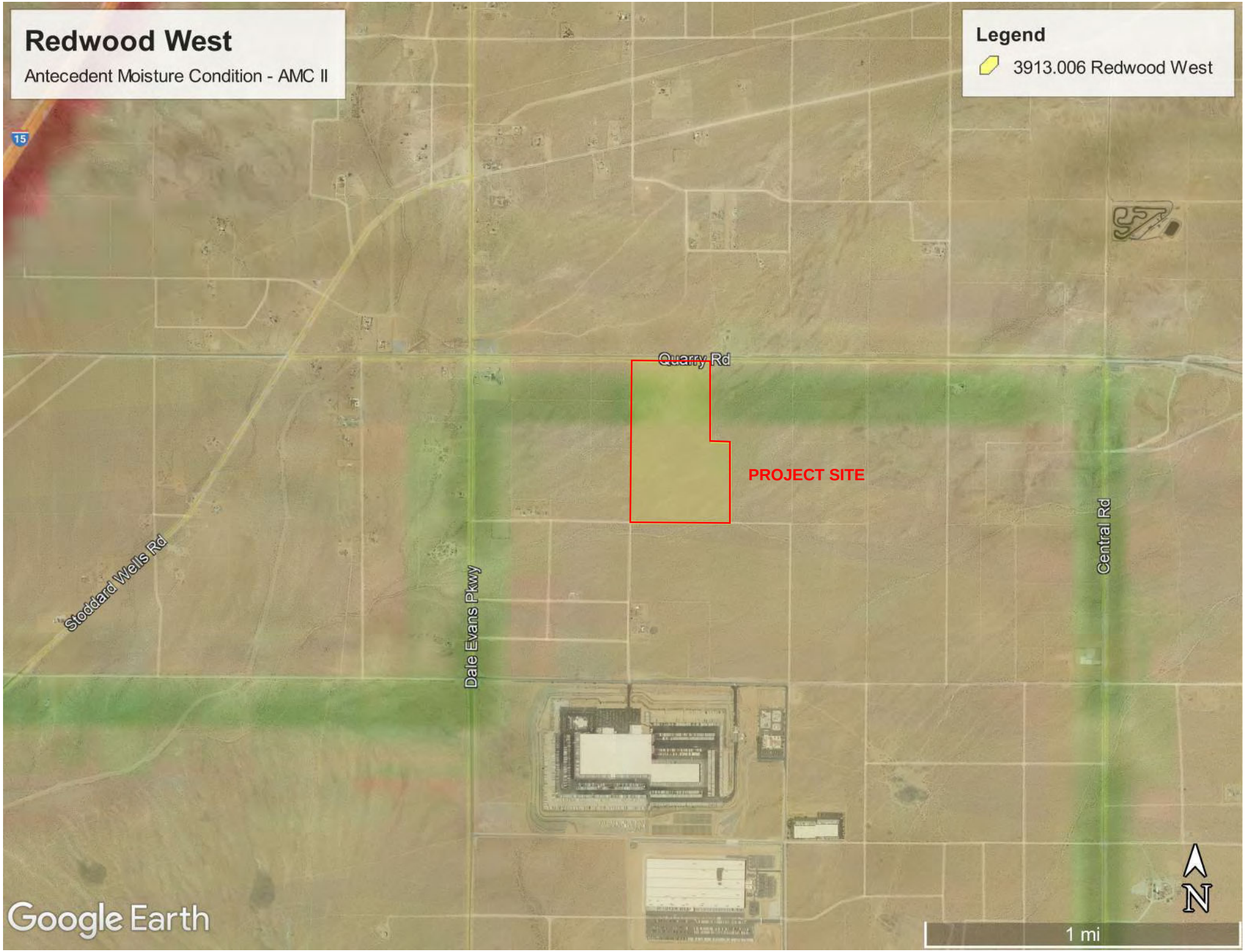
*1/2 (11-day - 1-day) =
1/2 (([10-day] + (1/10 ([20-day] - [10-day]))) - [1-day])

5 0 5 10 15
Miles

N
W E
S

Growing Season
- AMC I
- AMC II
- AMC III

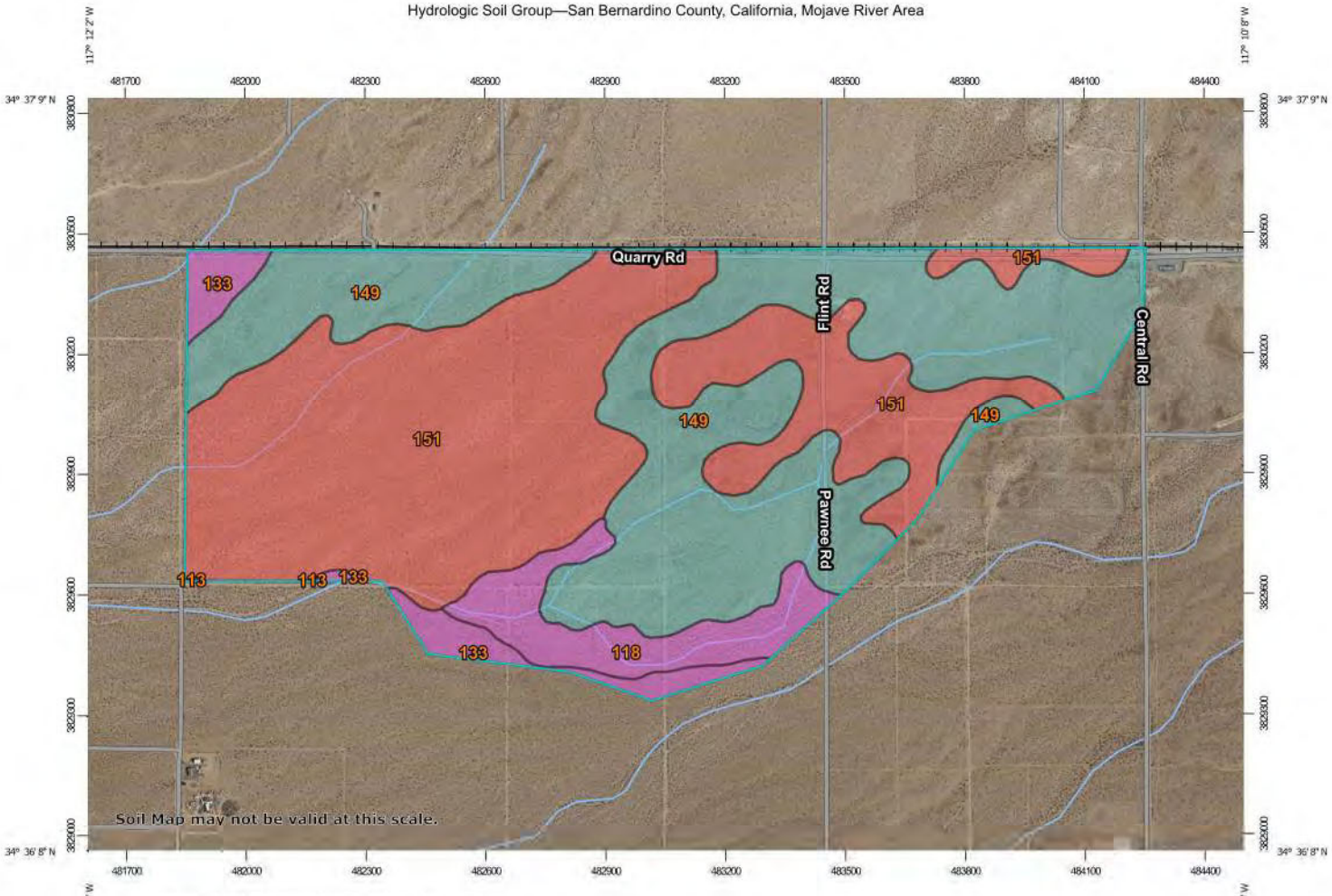
Baxter Valley
Ridgecrest
STATE HWY 127
I-15
Barstow
Boron
US HWY 395
Needles
I-40
Adelanto
George AFB
George AFB
Victorville
Apple Valley
Mountain View Acres
Hesperia
STATE HWY 247
Wrightwood
Big Bear City
Big Bear Lake
Crestline
Lake Arrowhead
Running Springs
Twentynine Palms
STATE HWY 62
Yucca Valley
Joshua Tree
Morongo Valley
Claremont
Parker Dam
Big River


Redwood West
Antecedent Moisture Condition - AMC II
Legend
3913.006 Redwood West
15
Quarry Rd
PROJECT SITE
Stoddard Wells Rd
Dale Evans Pkwy
Central Rd
Google Earth
N
1 mi

EXHIBITS

SOILS MAP

Hydrologic Soil Group—San Bernardino County, California, Mojave River Area



Map Scale: 1:13,200 if printed on A landscape (11" x 8.5") sheet.

N

0 150 300 600 900 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 14, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2022—Jun 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
113	CAJON SAND, 2 TO 9 PERCENT SLOPES	A	0.1	0.0%
118	CAJON-ARIZO COMPLEX, 2 TO 15 PERCENT SLOPES*	A	32.5	6.7%
133	HELENDALE-BRYMAN LOAMY SANDS, 2 TO 5 PERCENT SLOPES*	A	18.5	3.8%
149	MIRAGE-JOSHUA COMPLEX, 2 TO 5 PERCENT SLOPES*	C	200.8	41.1%
151	NEBONA-CUDDEBACK COMPLEX, 2 TO 9 PERCENT SLOPES*	D	236.2	48.4%
Totals for Area of Interest			**488.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA ATLAS 14 POINT RAINFALLS

NOAA Atlas 14, Volume 6, Version 2
Location name: Apple Valley, California, USA*
Latitude: 34.6149°, Longitude: -117.1939°
Elevation: 3104 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.083 (0.068-0.102)	0.116 (0.096-0.143)	0.163 (0.134-0.201)	0.203 (0.165-0.252)	0.261 (0.206-0.335)	0.309 (0.238-0.404)	0.359 (0.271-0.482)	0.415 (0.304-0.571)	0.494 (0.348-0.710)	0.560 (0.381-0.832)
10-min	0.119 (0.098-0.146)	0.167 (0.137-0.205)	0.234 (0.192-0.288)	0.291 (0.237-0.361)	0.374 (0.295-0.480)	0.442 (0.341-0.579)	0.515 (0.388-0.691)	0.594 (0.436-0.819)	0.709 (0.499-1.02)	0.803 (0.546-1.19)
15-min	0.144 (0.118-0.176)	0.202 (0.166-0.248)	0.282 (0.232-0.348)	0.352 (0.286-0.437)	0.453 (0.356-0.580)	0.535 (0.413-0.700)	0.623 (0.469-0.835)	0.719 (0.527-0.991)	0.857 (0.603-1.23)	0.971 (0.661-1.44)
30-min	0.197 (0.163-0.242)	0.277 (0.228-0.340)	0.387 (0.318-0.477)	0.483 (0.393-0.599)	0.621 (0.489-0.796)	0.734 (0.566-0.961)	0.855 (0.644-1.15)	0.986 (0.723-1.36)	1.18 (0.828-1.69)	1.33 (0.907-1.98)
60-min	0.250 (0.206-0.307)	0.351 (0.288-0.431)	0.491 (0.403-0.604)	0.612 (0.498-0.759)	0.787 (0.620-1.01)	0.930 (0.717-1.22)	1.08 (0.816-1.45)	1.25 (0.916-1.72)	1.49 (1.05-2.14)	1.69 (1.15-2.51)
2-hr	0.353 (0.291-0.433)	0.478 (0.393-0.586)	0.649 (0.533-0.799)	0.796 (0.648-0.988)	1.01 (0.793-1.29)	1.18 (0.908-1.54)	1.36 (1.02-1.82)	1.55 (1.14-2.14)	1.83 (1.29-2.63)	2.06 (1.40-3.05)
3-hr	0.428 (0.353-0.525)	0.571 (0.470-0.702)	0.768 (0.630-0.946)	0.936 (0.762-1.16)	1.18 (0.925-1.51)	1.37 (1.06-1.79)	1.57 (1.18-2.10)	1.79 (1.31-2.46)	2.10 (1.48-3.01)	2.35 (1.60-3.48)
6-hr	0.581 (0.478-0.712)	0.767 (0.631-0.942)	1.02 (0.838-1.26)	1.24 (1.00-1.53)	1.54 (1.21-1.97)	1.78 (1.37-2.33)	2.03 (1.53-2.72)	2.30 (1.69-3.17)	2.68 (1.88-3.84)	2.98 (2.03-4.42)
12-hr	0.743 (0.612-0.912)	0.988 (0.813-1.21)	1.32 (1.08-1.62)	1.59 (1.30-1.98)	1.98 (1.56-2.53)	2.28 (1.76-2.98)	2.59 (1.95-3.48)	2.92 (2.14-4.03)	3.38 (2.38-4.86)	3.75 (2.55-5.56)
24-hr	0.974 (0.864-1.12)	1.31 (1.16-1.51)	1.76 (1.56-2.04)	2.14 (1.87-2.49)	2.65 (2.25-3.20)	3.06 (2.54-3.76)	3.47 (2.81-4.38)	3.91 (3.08-5.06)	4.51 (3.41-6.08)	4.98 (3.64-6.96)
2-day	1.15 (1.02-1.32)	1.58 (1.40-1.81)	2.14 (1.89-2.47)	2.60 (2.28-3.03)	3.24 (2.75-3.90)	3.74 (3.10-4.59)	4.24 (3.44-5.35)	4.78 (3.76-6.18)	5.50 (4.16-7.43)	6.07 (4.44-8.48)
3-day	1.25 (1.11-1.44)	1.73 (1.53-1.99)	2.36 (2.08-2.73)	2.88 (2.52-3.35)	3.59 (3.04-4.32)	4.14 (3.44-5.10)	4.71 (3.82-5.94)	5.30 (4.18-6.87)	6.11 (4.62-8.25)	6.75 (4.93-9.43)
4-day	1.32 (1.17-1.52)	1.84 (1.63-2.11)	2.52 (2.22-2.90)	3.07 (2.69-3.58)	3.83 (3.25-4.61)	4.42 (3.67-5.44)	5.03 (4.07-6.33)	5.66 (4.46-7.32)	6.52 (4.93-8.80)	7.19 (5.25-10.1)
7-day	1.44 (1.28-1.66)	1.99 (1.76-2.29)	2.71 (2.39-3.13)	3.31 (2.90-3.85)	4.12 (3.50-4.97)	4.76 (3.95-5.85)	5.42 (4.39-6.82)	6.10 (4.80-7.90)	7.03 (5.31-9.49)	7.76 (5.67-10.8)
10-day	1.53 (1.35-1.76)	2.09 (1.85-2.41)	2.85 (2.52-3.29)	3.48 (3.04-4.05)	4.34 (3.68-5.22)	5.01 (4.16-6.16)	5.71 (4.62-7.19)	6.43 (5.06-8.33)	7.43 (5.61-10.0)	8.21 (6.00-11.5)
20-day	1.75 (1.55-2.01)	2.41 (2.14-2.78)	3.30 (2.92-3.81)	4.04 (3.54-4.71)	5.08 (4.30-6.11)	5.89 (4.89-7.24)	6.73 (5.46-8.48)	7.62 (6.00-9.86)	8.84 (6.68-11.9)	9.81 (7.16-13.7)
30-day	1.98 (1.75-2.28)	2.73 (2.42-3.15)	3.76 (3.33-4.35)	4.63 (4.06-5.39)	5.85 (4.96-7.04)	6.81 (5.65-8.37)	7.81 (6.33-9.84)	8.87 (6.99-11.5)	10.3 (7.81-14.0)	11.5 (8.40-16.1)
45-day	2.32 (2.06-2.67)	3.22 (2.85-3.71)	4.46 (3.94-5.15)	5.51 (4.82-6.41)	7.00 (5.93-8.43)	8.20 (6.81-10.1)	9.45 (7.66-11.9)	10.8 (8.50-14.0)	12.6 (9.56-17.1)	14.1 (10.3-19.8)
60-day	2.55 (2.26-2.93)	3.53 (3.12-4.06)	4.88 (4.32-5.64)	6.05 (5.30-7.04)	7.72 (6.54-9.29)	9.08 (7.53-11.2)	10.5 (8.51-13.2)	12.0 (9.48-15.6)	14.2 (10.7-19.2)	16.0 (11.7-22.3)

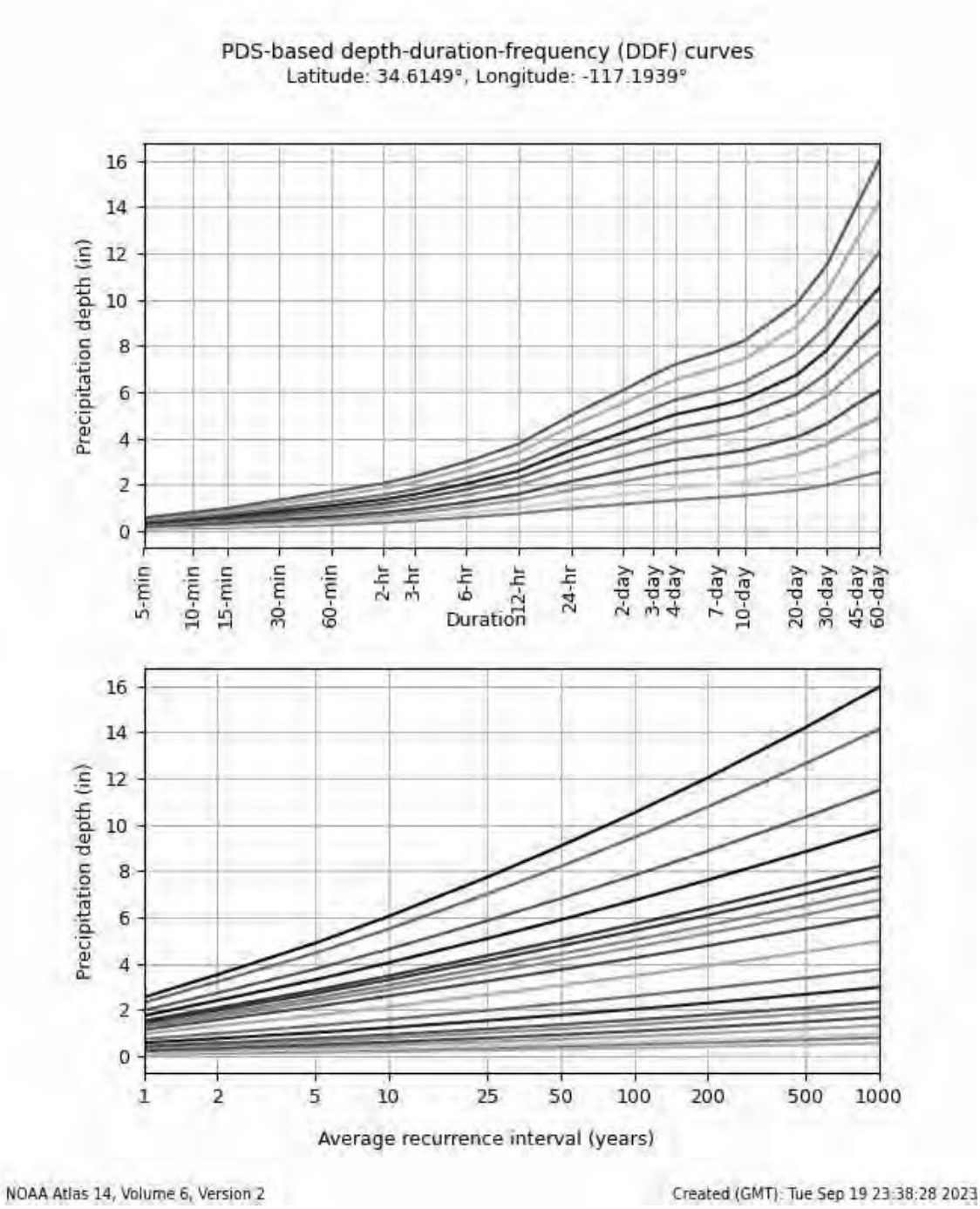
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

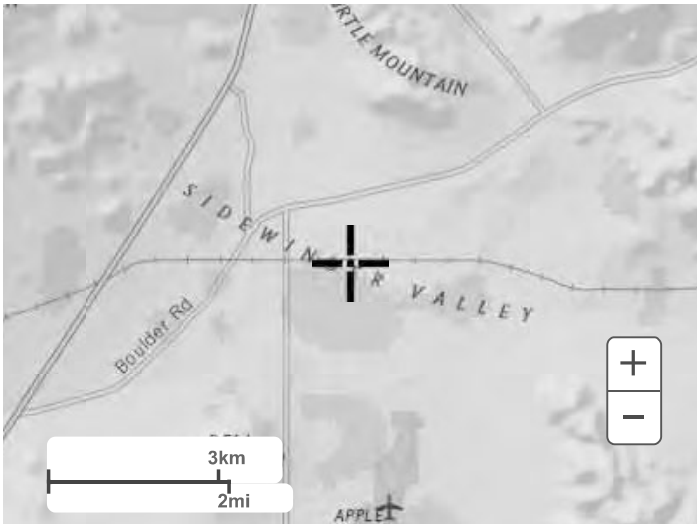
PF graphical



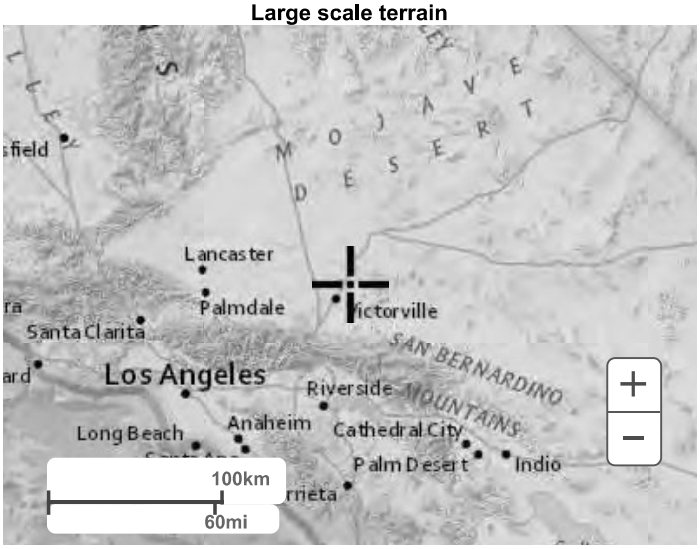
Back to Top

Maps & aerials

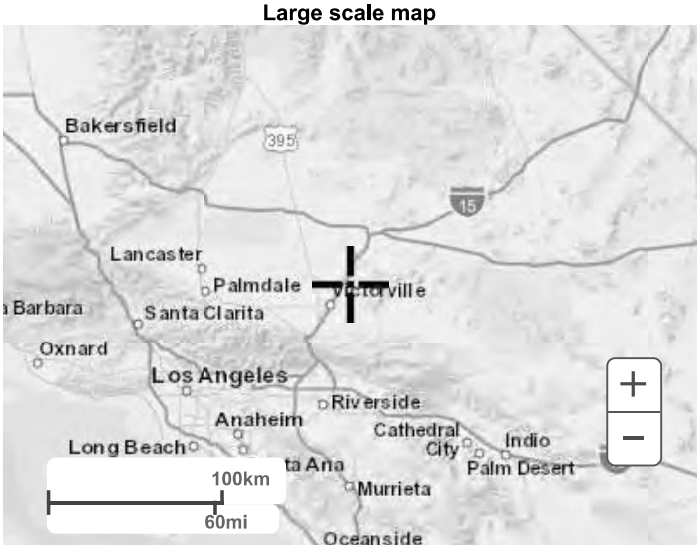
Small scale terrain



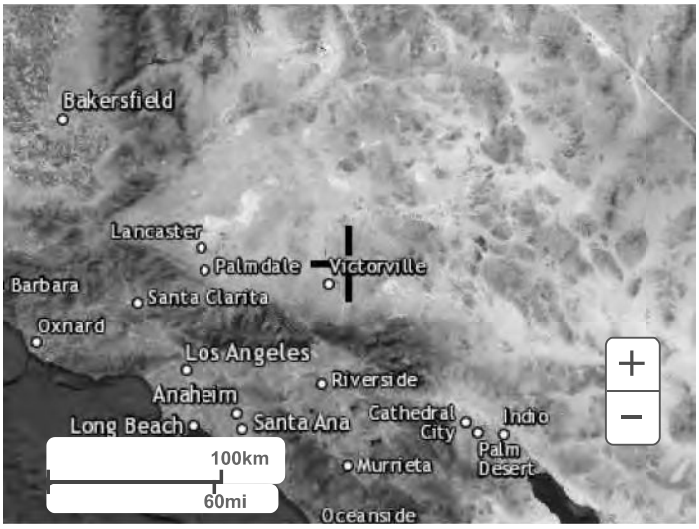
Large scale terrain



Large scale map



Large scale aerial



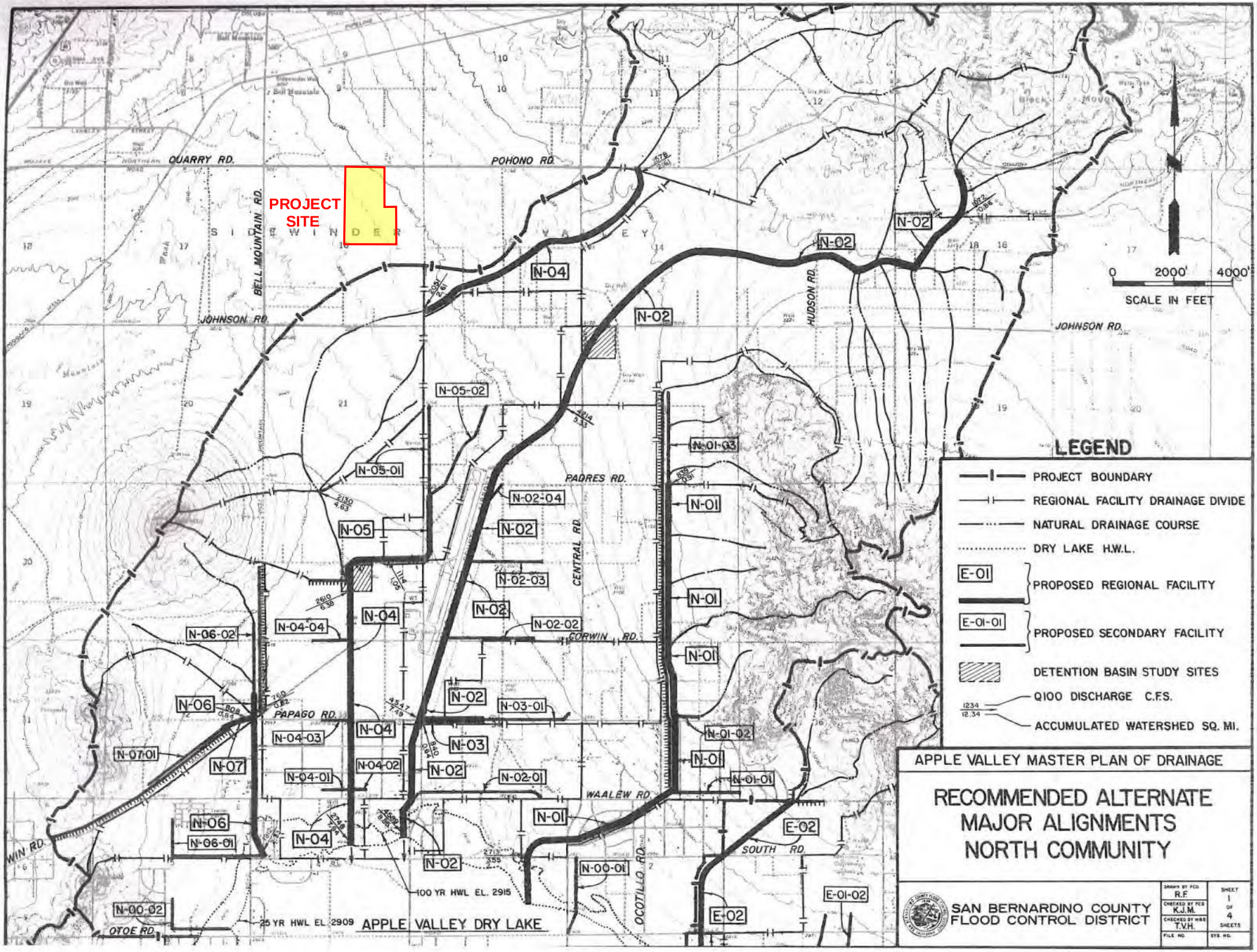
Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

TOWN OF APPLE VALLEY

MASTER PLAN OF DRAINAGE MAP



APPLE VALLEY MASTER PLAN OF DRAINAGE

RECOMMENDED ALTERNATE MAJOR ALIGNMENTS NORTH COMMUNITY

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

DRAWN BY FCD	R.F
CHECKED BY FCD	K.J.M.
CHECKED BY W&S	T.V.H.
FILE NO.	
SHEET	1 OF 4 SHEETS
SYS. NO.	

Appendix I

Water Supply Assessment

Water Supply Assessment

for the

Development at Cordova

Prepared for:
The Town of Apple Valley
14955 Dale Evans Parkway
Apple Valley, California 92307

Prepared by:
Terra Nova Planning and Research, Inc. ®
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

December, 2023

Contents

List of Tables iii
List of Figures iii
List of Exhibits iii
1 – Summary and Requirements 1
1.1 Regulatory Requirements 2
1.1.1 Senate Bill 610 2
1.2 Water Management Planning Documents 3
1.2.1 Urban Water Management Planning Act 3
1.2.2 Sustainable Groundwater Management Act 4
2– Public Water System 5
2.1 Liberty Utilities – Apple Valley 5
2.2 Mojave Basin Area Hydrology 6
3– Public Water System: Existing Supply and Demand 7
3.1 Groundwater 7
3.1.1 Upper Mojave River Valley Groundwater Basin 7
3.1.2 Groundwater Demand 10
3.1.3 Groundwater Sustainability 10
3.2 Imported Water 12
3.2.1 State Water Project 12
3.3 Surface Water 14
3.3.1 River/Stream Diversion 14
3.3.2 Stormwater Capture 14
3.4 Wastewater and Recycled Water 15
3.5 Conservation 15
3.6 Landscape ordinance 16
3.7 Water shortage Contingency Planning 16
4 – Public Water System: Projected Supply and Demand 17
4.1 Projected Demand and Supply 17
4.2 Normal, Single-Dry, Multiple-Dry Year Comparison 18
5 – Project Description 20
6 – Project Water Demands 26
6.1 Projected Indoor Commercial and Industrial Water Demand 26
6.2 Projected Outdoor Irrigation Water Demand 26
6.3 Projected Total Water Demand 27
6.4 Projected Water Sources 27
7 – Assessment: Availability of Sufficient Supplies 28
7.1 Water Supply Assessment 28
8 – References 28

List of Tables

Table 1 Land Use Summary 1
Table 1 Liberty Utilities – Apple Valley, Service Area Population 6
Table 3 Liberty Utilities – Apple Valley Service Area Climate Information (1917 -2015) 6
Table 4 MWA Groundwater Stored by Mojave Basin Subarea (September 2020) 10
Table 5 Groundwater Volume Pumped 10
Table 6 SWP Table A Allocations and Deliveries (values in acre-feet) 13
Table 7 MWA Groundwater Stored by Mojave Basin Subarea (September 2020) 14
Table 8 Urban Water Shortage Contingency Plan Shortage Levels 16
Table 9 Use for Potable and Non-Potable Water – Projected 17
Table 10 Water Supplies - Projected 17
Table 11 Liberty Utilities Normal Year Supply and Demand Comparison 18
Table 12 Liberty Utilities Single Dry Year Supply and Demand Comparison 18
Table 13 Liberty Utilities Multiple Dry Years Supply and Demand Comparison 18
Table 14 Land Use Summary 20
Table 15 Project Indoor Commercial and Industrial Water Demand 26
Table 16 Projected Outdoor Irrigation Water Demand 26
Table 17 Projected Total Water Demand 27

List of Figures

Figure 1 Liberty Utilities' water service area boundary 5
Figure 2 Groundwater Basins and Mojave Water Agency 8
Figure 3 Mojave Basin Area Adjudicated Subareas 9
Figure 4 Long term hydrograph for the Alto Subarea 1930 – 2020 10
Figure 5 Water Level Changes from 2014 to 2015 in the Mojave River and Morongo Groundwater Basins, southwestern Mojave Desert, California 11
Figure 6 MWA Area on the SWP Facility Map 12
Figure 7 SWP Mojave Turnouts 13

List of Exhibits

Exhibit 1 Regional Location Map 21
Exhibit 2 Vicinity Map 22
Exhibit 3 Project Location Map 23
Exhibit 4 Site Plan 24
Exhibit 5 Preliminary Landscape Plan 25

1 – Summary and Requirements

The environmental review of the proposed Development at Cordova (referred to hereafter as Project and/or the Proposed Project) is being prepared in compliance with the California Environmental Quality Act. The Town of Apple Valley is the Lead Agency for the planning and environmental review of the proposed Project and has identified Liberty Utilities – Apple Valley as the Public Water System (PWS). A Water Supply Assessment (WSA) is required as part of the environmental review for the Project.

The Proposed Project is the development of an approximately 90.15-acre property with industrial land uses within the Town of Apple Valley, San Bernardino County, California. The property is currently vacant and located in the northern portion of the Town of Apple Valley. The Proposed Project will include the development of a building comprised of 1,319,390 square feet of warehouse and 53,760 square feet of office space. Table 1 shows the proposed acres and square footage of development for each land use.

Table 1
Land Use Summary

Land Use	Quantity	Acreage
Building Footprint	1,373,150 square feet	31.52 acres
Warehouse:	1,319,390 square feet	
Office:	53,760 square feet	
Parking	2,161 stalls	40.16 acres
Standard:	1,422 stalls	
Trailer:	739 stalls	
Outdoor Irrigated	804,271 square feet	18.46 acres
Landscaping:	669,235 square feet	
Detention:	135,036 square feet	
	TOTAL	**90.15 acres**

Based on the analysis in this Water Supply Assessment, the projected total water demand for the Proposed Project will be 65.13 acre-feet per year (AFY), or 0.72 acre-feet per acre. The Project's water demand of 65.13 AFY accounts for approximately 1.68 percent of Liberty Utilities' total planned increases in demand of 3,881 AF by 2045. This WSA demonstrates that sufficient water supplies will exist to meet the projected demands of the Project, in addition to current and future water demands within Liberty Utilities' service area in normal, single-dry, and multiple-dry years over a 20-year projection. This WSA will be reviewed every five years, or in the event that the water planning assumptions have changed, until the Project begins construction to ensure it remains accurate and no significant changes to either the Project or available water supply has occurred. Consistent with the provisions of SB 610, neither this WSA nor its approval shall be construed to create a right or entitlement to water service or any specific level of water service, and shall not impose, expand, or limit any duty concerning the obligation of Liberty Utilities to provide certain service to its existing customers or to any future potential customers.

This WSA does not constitute an agreement to provide water service to the Project, and does not entitle the Project, Project Applicant, or any other person or entity to any right, priority or allocation in any supply, capacity, or facility. To receive water service, the Project will be subject to an agreement with Liberty Utilities, together with any and all applicable fees, charges, plans and specifications, conditions,

and any and all other applicable Liberty Utilities requirements in place and as amended from time to time. Nor does anything in this WSA prevent or otherwise interfere with Liberty Utilities' discretionary authority to declare a water shortage emergency in accordance with the Water Code.

1.1 Regulatory Requirements

This WSA provides an assessment of the availability of sufficient water supplies during normal, single-dry, and multiple-dry years over a 20-year projection to meet the projected demands of the Project, in addition to existing and planned future water demands of Liberty Utilities, as required by Senate Bill (SB) 610 and SB 1262. This WSA also includes identification of existing water supply entitlements, water rights, water service contracts, or agreements relevant to the identified water supply for the Project and quantities of water received in prior years pursuant to those entitlements, rights, contracts, and agreements.

This WSA has been prepared in compliance with the requirements under SB 610 and SB 1262 by Terra Nova Planning and Research in consultation with Liberty Utilities and the Town of Apple Valley. This WSA does not relieve the Project from complying with all applicable state, county, city, and local ordinances or regulations, including the Town of Apple Valley's Ordinance No. 58 and Ordinance No. 479, as well as indoor water use performance standards provided in the California Water Code (CWC). The Project applicant shall notify Liberty Utilities when construction begins.

1.1.1 Senate Bill 610

Senate Bill 610 (SB 610), also known as the Water Supply Assessment, was enacted in 2001 and became effective as of January 1, 2002. SB 610 amended Section 21151.9 of the Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912 and 10915, repealed Section 10913, and added and amended Section 10657 of the California Water Code. As stated in SB 610, the purpose of a WSA is to determine whether the Public Water Supply's (PWS) "total projected water supplies available during normal, single-dry, and multiple-dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the PWS's existing and planned future uses, including agricultural and manufacturing uses."

According to the California Water Code (CWC) Section 10912, a "project" includes:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- **A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor space;**
- A mixed-use project that includes one or more of the projects specified in this subdivision; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (about 250 acre-feet per year).

The intent of SB 610 is to improve the link between information on water supply availability and certain land-use decisions made by cities and counties.

1.1.2 Senate Bill 1262

On January 1, 2017, Senate Bill 1262 (SB 1262) was enacted and amended CWC Section 10910, requiring that information regarding the Sustainable Groundwater Management Act (SGMA) be included in a WSA if the water supply for a proposed project includes groundwater from a basin that is not adjudicated and was designated medium- or high-priority by the California Department of Water Resources (DWR).

1.2 Water Management Planning Documents

The Proposed Project is within the service area of Liberty Utilities – Apple Valley, a sub-agency of Mojave Water Agency (MWA). Both Liberty Utilities and MWA have prepared long-term planning documents, discussed in the following sections, to support the management of the water supplies within their service areas, as well as for compliance with SB 610.

1.2.1 Urban Water Management Planning Act

The Urban Water Management Planning Act (UWMPA) was established by Assembly Bill 797 (AB 797) on September 21, 1983. This law stipulates that every urban water supplier that either provides over 3,000 acre-feet of water annually or services more than 3,000 urban connects is required to submit an Urban Water Management Plan (UWMP) every five years. UWMPs support the supplier's long-term planning, requiring an assessment of the reliability of water sources, description of water demand management measures and shortage contingency plans, reporting on progress towards urban water consumption targets, and description of the current and planned use of recycled water.[1]

1.2.1.1 Mojave Water Agency 2020 Urban Water Management Plan

The Mojave Water Agency (MWA) was formed in 1960 in order to "to do any and every act necessary to be done so that sufficient water may be available for any present or future beneficial use of the lands and inhabitants of the agency".[2] The MWA is a State Water Project contractor, watermaster for the Mojave Basin Area, and a wholesale water supplier.

The MWA's service area extends over 4,900 square miles in the eastern San Bernardino County, California. The Mojave Basin Area covers the Upper, Middle, and Lower Mojave River Basins. There are five Subareas within the Mojave Basin: Alto, Baja, Centro, Este, and Oeste. The groundwater supply is contained within two aquifers: the Regional Aquifer and Floodplain Aquifer.

The MWA prepared its 2020 Urban Water Management Plan (UWMP) as an update to its 2015 UWMP, documenting the Agency's "existing and future supply reliability, forecasts future water uses, presents demand management progress, and identifies local and regional cooperative efforts to meet projected water use".[3]

The MWA supplies water to many small retail suppliers as well as ten retail water suppliers that are large enough to require their own UWMP, including Liberty Utilities – Apple Valley.[4]

---

1 California Water Code, Section 10610-10656 Urban Water Management Plans.
2 California Water Code Appendix, Mojave Water Agency Law, Section 97-1 et seq., 1960.
3 MWA Urban Water Management Plan (2020), p. 1-2.
4 MWA Urban Water Management Plan (2020), p. 1-1

1.2.1.2 Liberty Utilities – Apple Valley 2020 Urban Water Management Plan

Liberty Utilities was first created in 1947 by Apple Valley Ranchos Development Company. In 2016, Liberty Utilities, a subsidiary of Algonquin Power and Utilities Corp., purchased Apple Valley Ranchos Water Company. Liberty Utilities' service area covers approximately 50 square miles in the High Desert region of San Bernardino County, including the Town of Apple Valley and adjacent unincorporated areas.

Liberty Utilities prepared its 2020 UWMP in compliance with CWC Sections 10608 through 10657 and according to the organization recommended in DWR's 2020 UWMP Guidebook. It provides a reliable management action plan for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs, incorporating water supply reliability determinations accounting for potential prolonged drought, regulatory revisions, and/or changing climate conditions.[5]

1.2.2 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), comprised of Assembly Bill 1739, Senate Bill 1319, and Senate Bill 1168, was passed in 2014. SGMA created a framework to guide local management ensuring the long-term protection of groundwater resources. *California's Groundwater* (Bulletin 118) identified and prioritized groundwater basins, requiring the formation of Groundwater Sustainability Agencies (GSA), and subsequently the development of Groundwater Sustainability Plans (GSP), for basins designated as high- or medium-priority.

The Upper, Middle, and Lower Mojave River Valley Basins are included in the Mojave Basin Area Judgment. Apple Valley is located within the Upper Mojave River Valley Basin (Basin Number 06-42), designated as a very low priority basin according to the SGMA 2019 Basin Prioritization Results.[6] As a result of the low priority designation, the Upper Mojave River Valley Basin is exempt from the requirement to form a GSA and adopt a GSP.

There are five Subareas within the Mojave Basin: Alto, Baja, Centro, Este, and Oeste. Apple Valley is located in the Alto Subarea.

[5] Liberty Utilities Urban Water Management Plan (2020), p.1-2.
[6] DWR Sustainable Groundwater Management Act, 2019 Basin Prioritization (2019).

2 – Public Water System

The Town of Apple Valley is the Lead Agency for this planning and environmental review of the proposed Development at Cordova. The Proposed Project is located within the water service area boundary for Liberty Utilities – Apple Valley (public water system number CA3610003), a sub-agency of the Mojave Water Agency (MWA). Liberty Utilities Corp. (formerly known as Apple Valley Ranchos Water and referred to as Liberty Utilities or Liberty Utilities – Apple Valley) will be the Urban Water Supplier (UWS) for the project.

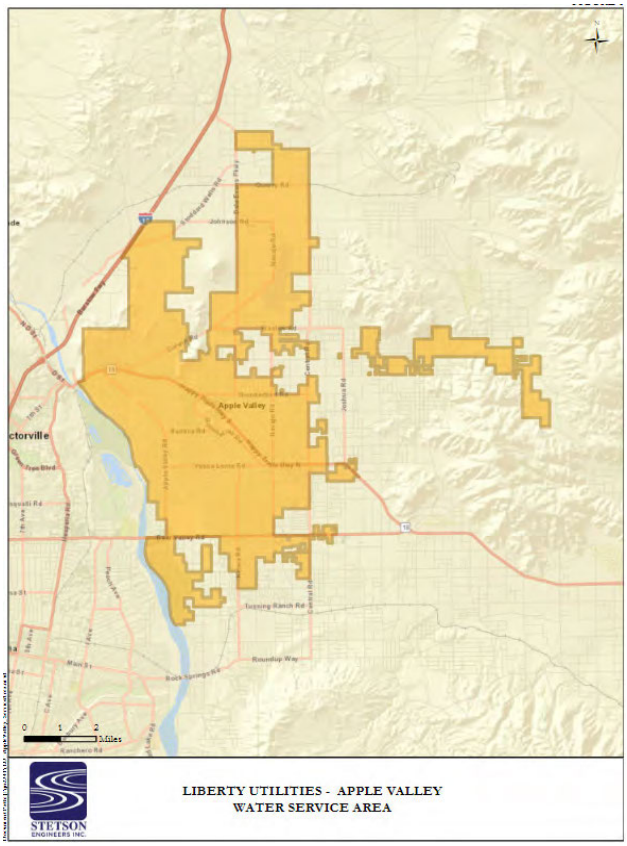
2.1 Liberty Utilities – Apple Valley

Liberty Utilities was first created in 1947 by Apple Valley Ranchos Development Company. In 2016, Liberty Utilities, a subsidiary of Algonquin Power and Utilities Corp., purchased Apple Valley Ranchos Water Company. Liberty Utilities is an "urban water supplier" pursuant to Section 10617 of the CWC and directly serves potable water to more than 3,000 customers.[7] As shown in Figure 1, Liberty Utilities' service area covers approximately 50 square miles in the "High Desert" region of San Bernardino County, including the Town of Apple Valley and adjacent unincorporated areas; it has approximately 21,000 connections.[8] Liberty Utilities is a sub-agency of the Mojave Water Agency.

Groundwater is Liberty Utilities' only water source. All wells supplying Liberty Utilities are within the Mojave Basin Area.[9] Liberty Utilities' existing water supply provides domestic water from potable wells in addition to water for agricultural purposes from groundwater wells.

According to the 2020 UMWP, it is projected that the population will increase in Liberty Utilities' service area over a 25-year period, as shown in Table 2.

Figure 1: Liberty Utilities' Water Service Area Boundary



Source: Liberty Utilities Urban Water Management Plan (2020), Figure 1.

[7] Liberty Utilities Urban Water Management Plan (2020), p.1-1.
[8] MWA Urban Water Management Plan (2020), p. 2-6.
[9] Liberty Utilities Urban Water Management Plan (2020), p.3-3.

Table 2 Liberty Utilities – Apple Valley, Service Area Population Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045 (opt)
	61,444	64,828	68,399	72,166	76,141	80,334

Source: Liberty Utilities Urban Water Management Plan (2020), p.3-7.

2.2 Mojave Basin Area Hydrology

Liberty Utilities relies on groundwater produced from the Mojave Basin Area – Alto. The Mojave Basin Area – Alto Subarea is a subbasin of the Upper Mojave River Valley Groundwater Basin. The groundwater in the Mojave Basin Area is replenished through natural storm water flows, the infiltration of the Mojave river and tributaries, State Water Project (SWP) imports to recharge basins, wastewater imports, as well as irrigation and wastewater return flow.[10] The Mojave River Pipeline provides additional replenishment to the groundwater.

Climate in Liberty Utilities' service area is characterized as a dry climate with an average minimum monthly temperature of approximately 30 degrees Fahrenheit, and warm summers reaching an average maximum monthly temperature of approximately 98 degrees Fahrenheit, as shown in Table 3. Most of the precipitation occurs between December and February.

Table 3 Liberty Utilities – Apple Valley Service Area Climate Information (1917 -2015)					
Month	Average Temperature (F)	Average Min. Temperature (F)	Average Max. Temperature (F)	Average Total Precipitation (In)	ETo (In)
January	44.55	30.14	58.94	0.95	2.22
February	47.79	33.39	62.17	1.01	3.01
March	52.04	37.06	66.98	0.78	4.98
April	58.12	42.01	74.24	0.36	6.48
May	65.18	48.16	82.19	0.11	7.98
June	73.35	54.89	91.81	0.04	9.11
July	79.85	61.47	98.22	0.14	9.53
August	78.95	60.69	97.21	0.19	8.80
September	72.99	54.62	91.35	0.22	6.55
October	62.57	44.91	80.22	0.32	4.52
November	51.21	35.03	67.44	0.48	2.74
December	44.47	29.79	59.22	0.87	2.02
Annual	60.90	44.40	77.38	5.36	67.94

Source: Liberty Utilities Urban Water Management Plan (2020), p.3-5

[10] MWA Urban Water Management Plan (2020), p.2-2.

3– Public Water System: Existing Supply and Demand

The Mojave Water Agency's water supply is almost entirely sourced from groundwater. MWA also supplies its service area with water sourced from the State Water Project (SWP), which, via the Mojave River Pipeline, supports the recharge of the Mojave River Basin groundwater.[11]

Groundwater is the only water source for Liberty Utilities, a sub-agency of MWA. All of Liberty Utilities' wells are located in the Mojave Basin Area. This water supply provides domestic water from potable wells in addition to raw water for agricultural purposes from two groundwater wells, separate from the potable water system.[12]

3.1 Groundwater

Groundwater is the main source of potable water in the Mojave Basin Area. The MWA has the legal authority to manage groundwater in the Mojave Basin Area and serves as Watermaster according to the Mojave Basin Area Adjudication.

The groundwater that Liberty Utilities uses to provide urban potable water is sourced from wells the Mojave Basin Area – Alto Subarea.[13] Liberty Utilities uses groundwater to provide water service to residential, commercial, industrial, institutional, landscape, and agricultural uses.[14]

3.1.1 Upper Mojave River Valley Groundwater Basin

The Upper Mojave River Valley Groundwater Basin covers approximately 413,000 acres along a north-south running valley, from the San Bernardino Mountains in the south, to the Middle Mojave River Valley Groundwater Basin in the north.

The MWA service area covers or partially overlaps with 36 groundwater basins and subbasins. As shown in Figure 2, the Town of Apple Valley is in the Upper Mojave River Valley Basin area (Basin Number 6-042). The Upper Mojave River Valley Basin has been identified as a very-low priority basin according to DWR Bulletin 118.[15] As a very low priority basin, the MWA is not required to form a groundwater sustainability agency (GSA) or a groundwater sustainability plan (GSP).[16]

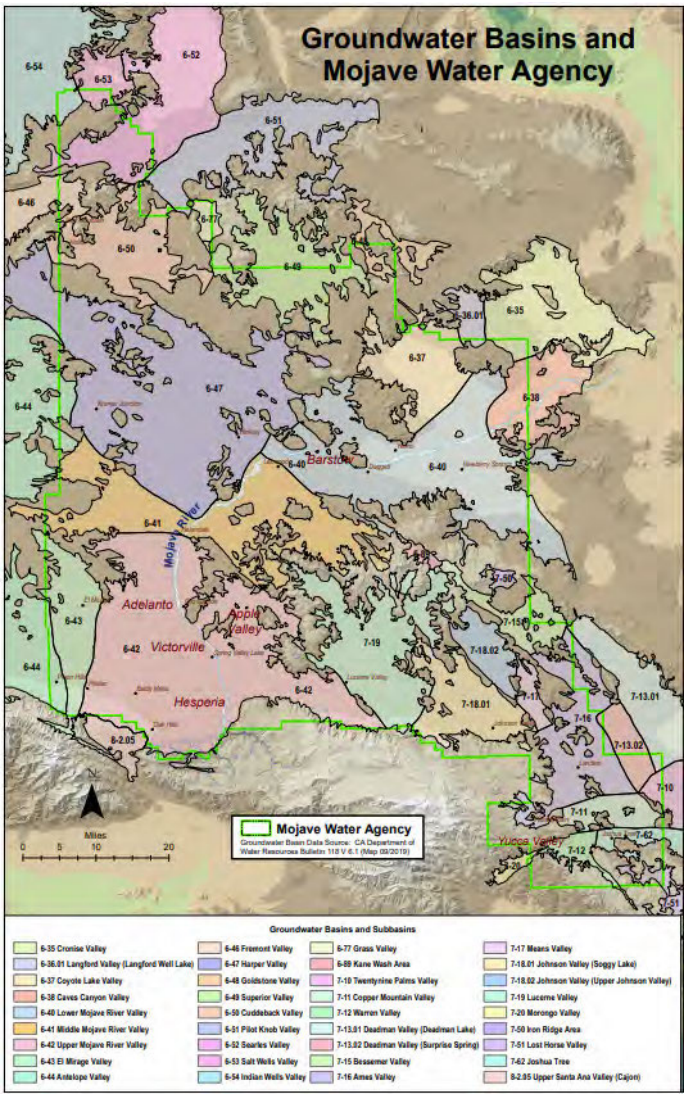
The northern boundary of the Upper Mojave River Valley is demarcated by a line drawn from the basement rock outcrops near the town of Helendale, to the rock outcrops in the Shadow Mountains. The line of contact between Quaternary sedimentary deposits and the unconsolidated basement rocks of the San Bernardino Mountains forms the southern boundary of the basin. Southeastern and eastern boundaries of the Upper Mojave basin are marked by the Helendale fault and the basement exposures of the mountains surrounding Apple Valley, respectively. The boundary to the west is formed by a contact between alluvium and basement rocks that form the Shadow Mountains, and a surface drainage divide between the Upper Mojave Basin and El Mirage Valley Basins.[17]

---

11 Ibid.
12 Liberty Utilities Urban Water Management Plan (2020), p.3-3.
13 Ibid., p.4-20.
14 Ibid., p.4-1
15 Department of Water Resources, SGMA Basin Prioritization Dashboard https://gis.water.ca.gov/app/bp-dashboard/final/
16 Mojave Water Agency: Sustainable Groundwater Management Act https://www.mojavewater.org/basin-management/regional-planning/sgma/
17 Department of Water Resources California's Groundwater Update (2013), South Lahontan Hydrologic Region.

The division of the Mojave Basin Area into subareas is based on a variety of factors, including hydrologic divisions defined in previous studies from the California Department of Water Resources.[18] Groundwater flows between these subareas, in addition to groundwater-surface water and groundwater-atmosphere movement, the Mojave Basin Area is mostly a closed basin.[19] The Mojave River is the primary source of groundwater recharge, however a small proportion of recharge comes from storm runoff from the mountains, wastewater discharge, and imported water.[20]

Figure 2: Groundwater Basins and Mojave Water Agency



Source: Mojave Water Agency – Regional Basins and Subbasins
https://www.mojavewater.org/wp-content/uploads/2022/01/Regional_Basins_Subbasins.pdf

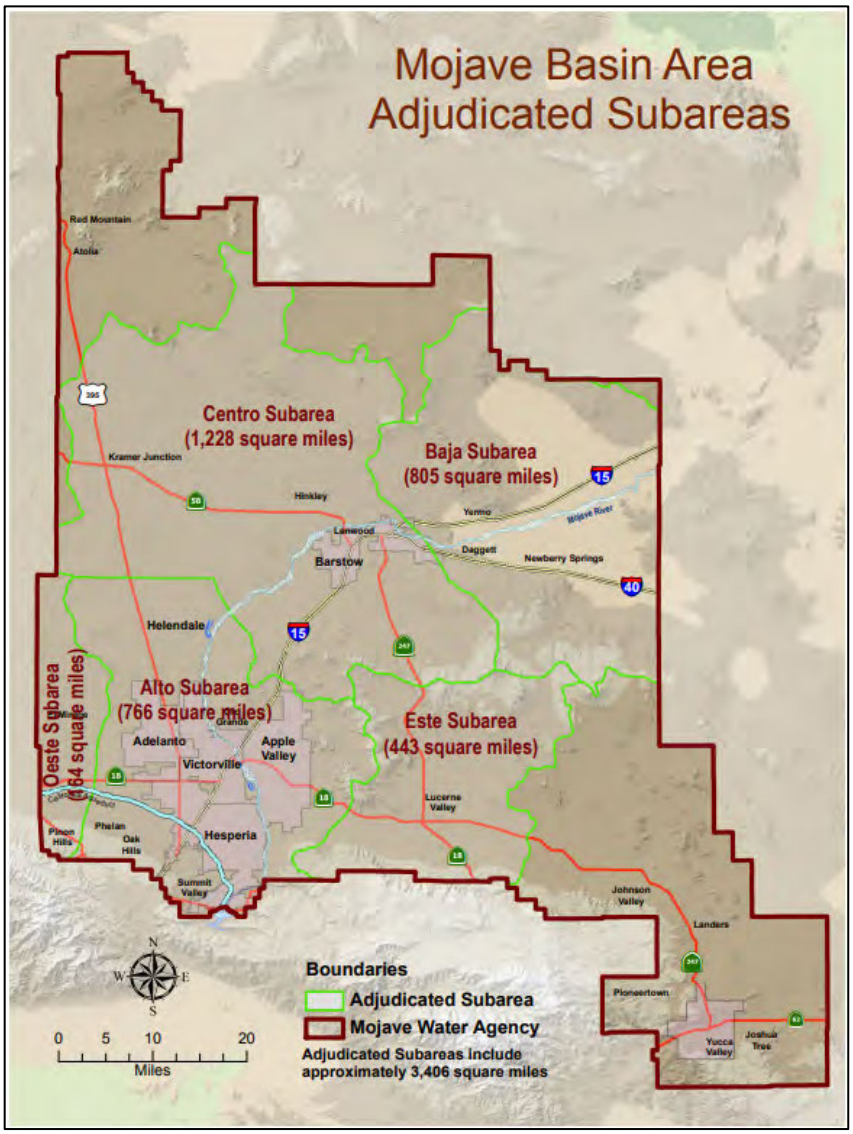
3.1.1.1 Mojave Basin Area – Subareas

The Mojave Basin Area is divided into seven subareas for management purposes: Cuddeback Lake, Centro, Superior Lake, Baja, Kramer, Alto, Oeste, Este, and Morongo. As shown in Figure 3., five of these subareas

[18] MWA Urban Water Management Plan (2020), p.3-17
[19] Ibid., p.3-13
[20] Liberty Utilities Urban Water Management Plan (2020), p.6-10

are adjudicated: Alto, Baja, Centro, Este, and Oeste. The Subarea boundaries have evolved based on "a combination of hydrologic, geologic, engineering, and political considerations".[21] The Upper Mojave River Valley Groundwater Basin approximately underlies the Alto subarea as well as around one third of the Este subarea.[22]

Figure 3: Mojave Basin Area Adjudicated Subareas



Source: Mojave Water Agency https://www.mojavewater.org/wp-content/uploads/2022/01/adjudicatedsubareasmap.pdf. Accessed 07/06/2022.

[21] MWA Urban Water Management Plan (2020), p.3-17

[22] Upper Mojave River Valley Groundwater Basin - California's Groundwater Update 2003 (Bulletin 118).

According to the MWA's 2020 UWMP, the MWA stores a total of 192,948 acre-feet of groundwater. Of the totally groundwater supply, 191,915 AF is stored in the Mojave Basin, and 1,033 AF is stored in the adjacent Ames-Reche and Joshua basins. The capacities of the Mojave Basin adjudicated subareas are shown in Table 4.

Table 4
MWA Groundwater Stored by Mojave Basin Subarea (September 2020)

Mojave Basin	Alto	Baja	Centro	Este	Oeste
191,915	141,219	24,754	24,622	1,320	0

Source: MWA Urban Water Management Plan (2020), p.3-11.

3.1.2 Groundwater Demand

Apple Valley is supplied with potable water from Liberty Utilities, which obtains groundwater from the Mojave Basin Area. Liberty Utilities' production of water from the Mojave Basin Area – Alto Subarea from 2016-2020 is shown in Table 5. Over the past 5-years, Liberty Utilities has produced an average of 14,131 AFY of groundwater from the Mojave Basin Area - Alto Subarea.

Table 5
Groundwater Volume Pumped

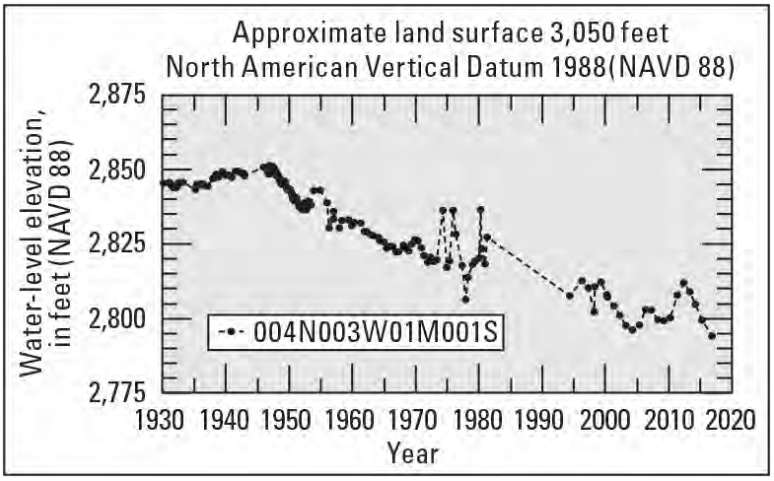
Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	Mojave Basin Area	13,724	14,106	14,307	13,539	14,979
	TOTAL	13,724	14,106	14,307	13,539	14,979

Source: Liberty Utilities Urban Water Management Plan (2020), Table 6-1.

3.1.3 Groundwater Sustainability

Groundwater sustainability is typically assessed based on long term changes in groundwater storage. The USGS National Water Information System constructed groundwater-level hydrographs to show long-term groundwater level changes in the Mojave River groundwater basin from 1930-2016. According to the long-term hydrographs groundwater levels declined more than 50 feet in the Alto subarea of the Mojave River Basin from 1930 to 2020, as shown in Figure 4.

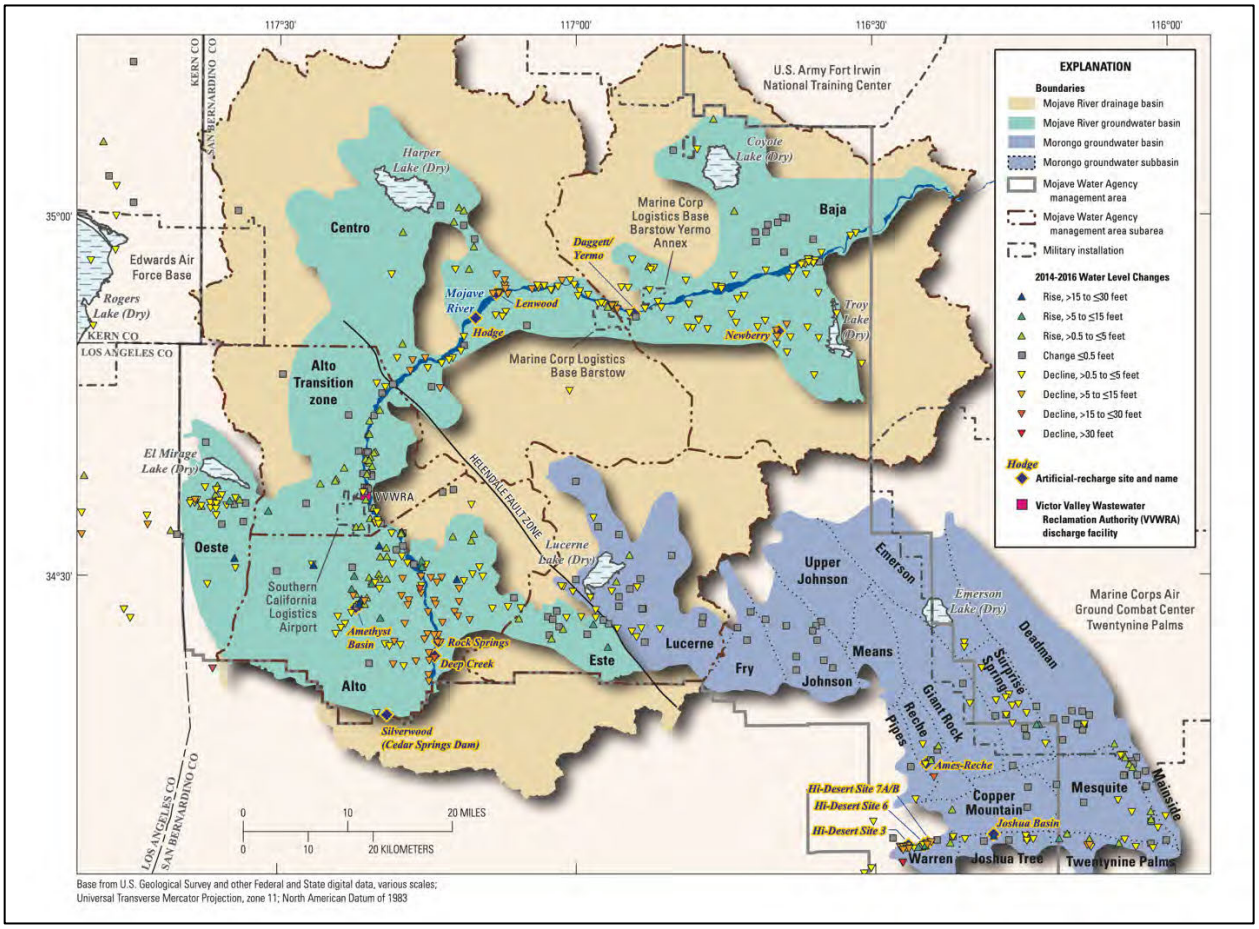
Figure 4: Long term hydrograph for the Alto Subarea 1930 – 2020



Source: USGS, Regional Water Table (2016) In the Mojave River and Morongo Groundwater Basins, Southwestern Mojave Desert, California, by Meghan C. Dick and Adam R. Kjos.

Figure 5, below, shows the groundwater-level changes for wells in the Mojave River and Morongo Groundwater Basins between spring 2014 and spring 2016. While the data overall shows a mix of increases and decreases in groundwater-level, the majority of the groundwater levels in the Alto subarea declines between 5 and 15 ft over the two-year period. Differences in groundwater level trends between wells in the same area are likely anomalies due to fluctuations in pumping and distance to artificial recharge areas.[23]

Figure 5: Water Level Changes from 2014 to 2015 in the Mojave River and Morongo Groundwater Basins, southwestern Mojave Desert, California.



Source: USGS, Regional Water Table (2016) In the Mojave River and Morongo Groundwater Basins, Southwestern Mojave Desert, California, by Meghan C. Dick and Adam R. Kjos.

[23] Regional Water Table (2016) In the Mojave River and Morongo Groundwater Basins, Southwestern Mojave Desert, California, by Meghan C. Dick and Adam R. Kjos, https://ca.water.usgs.gov/mojave/mojave-2016-water-levels.html (accessed November 2022).

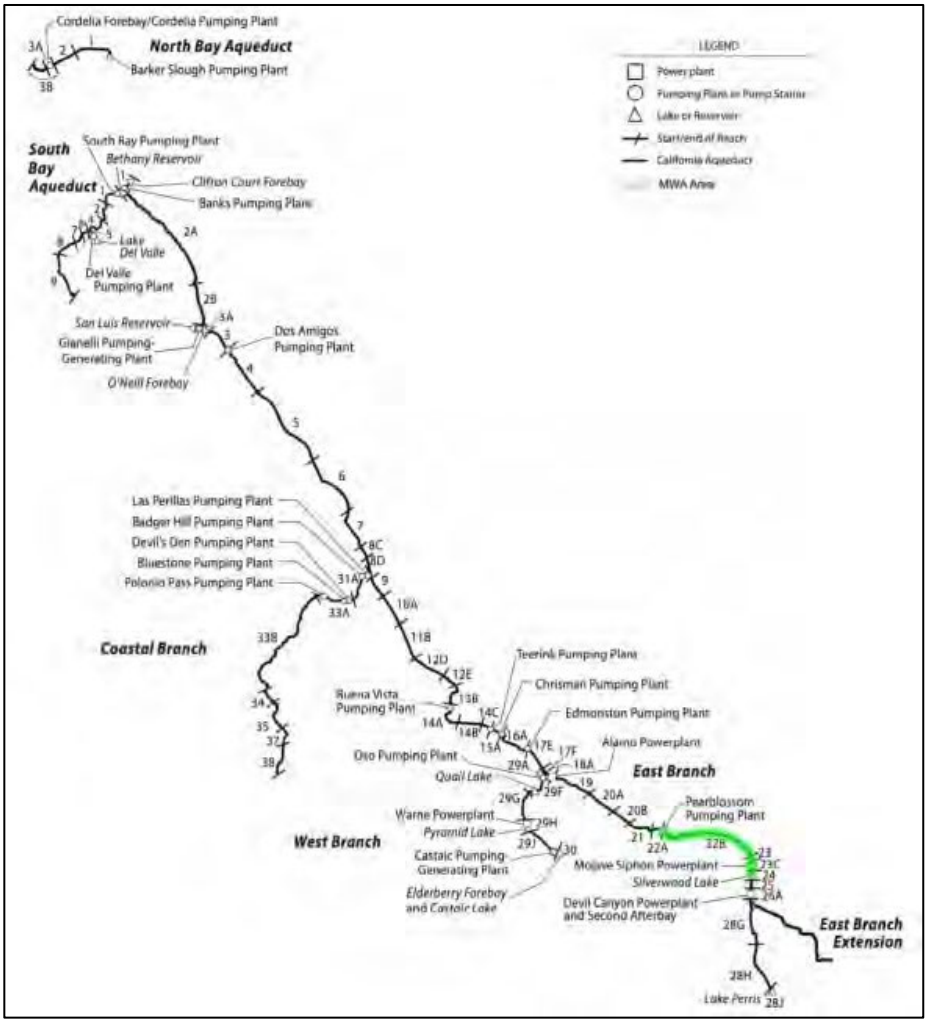
3.2 Imported Water

Liberty Utilities does not directly import water supplies to meet its water demands.[24] However, in order to recharge the groundwater basin, the MWA imports water through the State Water Project (SWP). This imported water is supplied to the groundwater basins in the Mojave Basin Area.[25]

3.2.1 State Water Project

The SWP was built and has been operated by the California Department of Water Resources (DWR) since legislation was passed for the California Aqueduct in 1959. The construction of most SWP facilities was completed by 1973. It remains the largest state-built, multi-purpose water project in the United States.[26] The MWA entered a SWP water service contract with the DWR in June of 1963.[27]

Figure 6: **MWA Area on the SWP Facility Map**

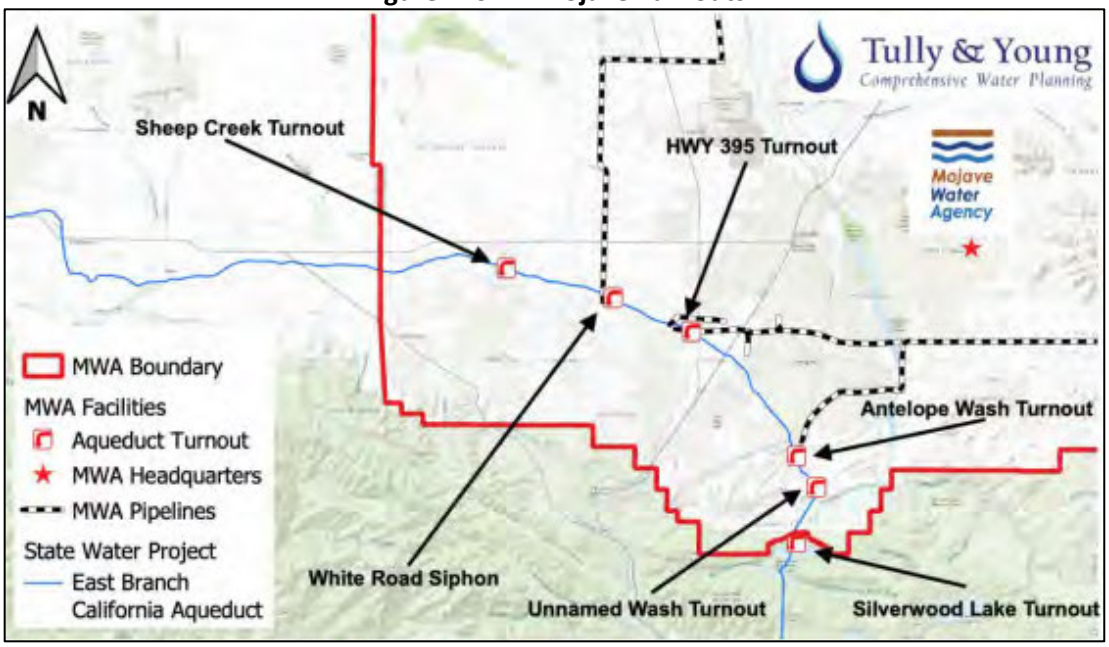


Source: MWA Urban Water Management Plan (2020), Figure 3-1 (Modified Figure B-4 from DWR Bulletin 132-20)

[24] Liberty Utilities Urban Water Management Plan (2020), p.6-4.
[25] MWA Urban Water Management Plan (2020), p. 3-24.
[26] Ibid., p. 3-2.
[27] Ibid., p. 3-1.

As shown in Figure 6, MWA gets its water from the SWP via the east branch of the 444-mile long California Aqueduct. The MWA has six turnout locations on the East Branch, as shown in Figure 7: Sheep Creek Turnout, White Road Turnout, Highway 395 Turnout, Antelope Siphon Turnout, Unnamed Wash, and Cedar Springs Dam (Silverwood Lake). These turnout facilities deliver the SWP supplied water to recharge local groundwater basins within the MWA service area.[28]

Figure 7: SWP Mojave Turnouts



Source: MWA Urban Water Management Plan (2020), Figure 3-3

The Department of Water Resources has SWP with 29 agencies, including the MWA. Each SWP contract contains a "Table A Annual Amount" that lists maximum amount of water an agency may receive through the SWP under its contract. MWA's Table A Annual Amounts are shown in Table 8. The Table A Annual Amount represents the "maximum contract amount that could be available each year assuming that the SWP could deliver 100% of contract supplies to all SWP suppliers".[29] SWP Table A allocations are typically less than the whole Table A Annual Amount – the allocations are determined by the DWR based on hydrology, water storage, and regulatory criteria in the Delta.

Table 6
SWP Table A Allocations and Deliveries (values in acre-feet)

Year	Table A Annual Amount	Percent Allocation	Allocation Amount
2010	82,800	50%	41,00
2011	82,800	80%	66,240
2012	82,800	65%	53,820
2013	82,800	35%	28,980
2014	82,800	5%	4,140
2015	85,800	20%	17,160
2016	85,800	60%	51,480

[28] Ibid.
[29] MWA Urban Water Management Plan (2020), p.3-5

Table 6 SWP Table A Allocations and Deliveries (values in acre-feet)			
Year	Table A Annual Amount	Percent Allocation	Allocation Amount
2017	85,800	85%	72,930
2018	85,800	35%	30,030
2019	85,800	75%	64,350
2020	89,800	20%	17,960

Source: MWA 2020 UWMP p.3-7

MWA directly stores imported SWP water in basins in the MWA service area. MWA's groundwater storage accounts in the various Mojave Basin Adjudication Subareas is shown in Table 7. The total stored water in the MWA service area in September 2020 was approximately 191,915 AF.

Table 7 MWA Groundwater Stored by Mojave Basin Subarea (September 2020)					
Mojave Basin	Alto	Baja	Centro	Este	Oeste
191,915	141,219	24,754	24,622	1,320	0

Source: MWA Urban Water Management Plan (2020), p.46.

MWA's SWP contract permits carryover – forgoing a delivery of its SWP Table A Amount and retaining a portion of that allocated supply for future use. MWA's carryover is stored and regulated in the San Luis Reservoir.[30]

3.3 Surface Water

Liberty Utilities does not currently use or intend to use local surface water to meet its water demands.[31] MWA also does not use local surface water as part of its water supply, but as described in Section 3.2.1, it does import SWP surface water to recharge groundwater basins in its service area. Local stormflow runoff is captured and used for groundwater recharge.[32]

3.3.1 River/Stream Diversion

The Alto, Centro, and Baja Subareas of the Mojave Basin Area contain both the Floodplain Aquifer and the Regional Aquifer. The Floodplain Aquifer is directly recharged through the infiltration of surface flows from the Mojave River during the winter rainy season. The Regional Aquifer is recharged in part by runoff from the San Gabriel and San Bernardino Mountains, as well as from runoff from local intermittent streams and washes.[33] Approximately 80% of natural basin recharge is from the infiltration of water from the Mojave River.[34]

3.3.2 Stormwater Capture

The Mojave River, overlying the Upper, Middle, and Lower Mojave River Valley groundwater basins, is the largest drainage system in the Mojave Desert.[35] The river is an ephemeral stream, deriving its flow from the drainage of 217 square miles of the northern slope of the San Bernardino Mountains.[36] Within the

30 MWA Urban Water Management Plan (2020), p.3-9.
31 Liberty Utilities Urban Water Management Plan (2020).
32 MWA Urban Water Management Plan (2020), p.3-13.
33 Ibid., p.3-15.
34 Liberty Utilities Urban Water Management Plan (2020), p. 6-10.
35 DWR – 2013 South Lahontan Hydrologic Region, p.33.
36 MWA Urban Water Management Plan (2020), p. 2-1.

Mojave Basin Area, the Alto Subarea contains both the Floodplain Aquifer and the Regional Aquifer. The Floodplain Aquifer is composed of sand and gravel weathered from metamorphic and granitic rocks of the San Gabriel and the San Bernardino Mountains, respectively, and deposited in a fluvial environment. The Regional Aquifer underlies and surrounds the Floodplain Aquifer with interconnected alluvial fan and basin fill deposits.

The climate in the MWA service area is extreme and very arid due to its location in the High Desert region of San Bernardino County and the rain shadow effect of the surrounding mountains. While occasional monsoonal thunderstorms bring flash flooding and hail to otherwise extremely hot and dry summers, most of the region's precipitation occurs in the winter, including through occasional snowfall.[37] The average annual precipitation in Liberty Utilities' service area is 5.4 inches[38], and the average in the greater MWA service area is 5.8 inches of rainfall in Victorville and 5.00 inches in Barstow.[39]

Stormflow runoff water from the San Bernardino Mountains into the Mojave River, as well as storm runoff into small streams and desert washes, is the primary means through which the groundwater basin is recharged.[40]

3.4 Wastewater and Recycled Water

Highly treated wastewater can be reused for purposes such as landscape irrigation. As of the preparation of its 2020 UWMP, Liberty Utilities was not using wastewater and recycled water supplies to meet its water demands because the infrastructure was not available. The Victor Valley Wastewater Reclamation Authority (VVWRA) provides wastewater collection and treatment services to Liberty Utilities' service area. A VVWRA subregional water reclamation plant was constructed in Apple Valley in 2018. The Apple Valley Subregional Water Recycling facility is capable of producing one million gallons per day of recycled water, which will be used to irrigate Brewster Park and Civic Center Park in the Town.

MWA imports treated wastewater effluent from three wastewater entities serving communities in the San Bernardino Mountains outside MTA's service area, including wastewater from the Lake Arrowhead Community Service District that is imported to the Alto Subarea. Wastewater imports make up a relatively small portion of MWA's overall water supplies, but for the purposes of its 2020 UWMP, it is assumed that approximately 2,800 acre-feet will be delivered into the MWA Service Area on an annual basis through to 2065.[41]

3.5 Conservation

Both Liberty Utilities and MWA are members of the Alliance for Water Awareness and Conservation (AWAC), a local coalition of agencies committed to reaching water conservation goals in the MWA service area.

Liberty Utilities has utilized multiple programs to promote water conservation in its service area. It runs a tiered conservation pricing rate for both residential and non-residential customers to encourage customers to conserve water. Liberty Utilities also offers free water audits and conservation devices, as well as a rebate program for hot water recirculation pumps.[42]

---

37 MWA Urban Water Management Plan (2020), p.2-7.
38 Liberty Utilities Urban Water Management Plan (2020), p.3-5.
39 MWA Urban Water Management Plan (2020), p.2-8.
40 Ibid., p.3-13.
41 MWA Urban Water Management Plan (2020), p.3-23.
42 Liberty Utilities Urban Water Management Plan (2020), p.9-7.

Liberty Utilities and MWA also promote water conservations using public information programs – such as brochures, public outreach displays, and workshops – as well as awareness campaigns – including paid advertising and media events. Liberty Utilities and MWA each employ conservation coordinators, who work together on the oversight and implementation of water conservation programs. MWA's conservation coordinator also prepares reports and annual conservation budgets.[43]

3.6 Landscape ordinance

Liberty Utilities supports local ordinances to reduce water waste, such as the Town of Apple Valley's Ordinance No. 58 ("Water Conservation Plan"), which includes restrictions to watering hours, duration, and application, and Ordinance No. 479, which regulates water management and waste prevention for existing landscapes.[44] In 2016 the Town of Apple Valley adopted Ordinance No.476 as amendment to the existing code, ensuring compliance with the California Model Water Efficient Landscape Ordinance (MWELO). MWELO (California Code of Regulations, Title 23) establishes practices to reduce the consumption of water the landscape irrigation of new developments.[45]

Liberty Utilities also implements rules approved by the California Public Utilities Commission, such as Rule No. 14.1 ("Water Shortage Contingency Plan"), Schedule 14.1 ("Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions and Drought Surcharges"), and Rule No. 20 ("Water Conservation). These reduction methods include restrictions on the use of potable water for construction, landscaping and for washing buildings and vehicles, the mandatory enactment of conservation restrictions in the case of water shortages and promotes the use of water saving devices.[46]

3.7 Water shortage Contingency Planning

Liberty Utilities' plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels. As shown in Table 8, these levels correspond to progressive ranges from up to 10, 20, 30, 40, and 50 percent shortages, and greater than 50 percent shortage. Liberty Utilities' water shortage plan requires customer to reduce their consumption by the percent corresponding to the declared shortage level. Liberty Utilities may enact additional demand reduction actions such as restrictions to irrigation and other outdoor water use and rate structure changes.[47]

Table 8
Urban Water Shortage Contingency Plan Shortage Levels

2020 Shortage Level	Percent Shortage Range
1	≤10%
2	10 to 20%
3	20 to 30%
4	30 to 40%
5	40 to 50%
6	> 50%

Source: Liberty Utilities Urban Water Management Plan (2020), p.8-9

[43] Ibid., p.9-6, 9-7.
[44] Ibid., p.9-4.
[45] Town of Apple Valley Ordinance No. 479.
[46] Liberty Utilities Urban Water Management Plan (2020), p.9-5.
[47] Ibid., p.8-9.

4 – Public Water System: Projected Supply and Demand

MWA sources its potable and non-potable water supplies from the SWP, natural and recharged groundwater, imported wastewater, return flow, and SWP carryover supplies.[48] MWA and Liberty Utilities' responses to service outages from these sources would depend on the type and location of such an event.

4.1 Projected Demand and Supply

Table 9 shows the projected potable and non-potable water use for the Liberty Utilities service area in five-year increments from 2025 to 2045, broken down by water sectors. These projections are based on Liberty Utilities' review of SB X7-7 calculations, water use factors based on currently demand, and population projections.[49]

Table 9
Use for Potable and Non-Potable Water – Projected

Use Type	Projected Water Use				
	2025	2030	2035	2040	2045
Single Family	7,107	7,579	8,077	8,602	9,156
Commercial	1,837	1,909	1,984	2,064	2,149
Industrial	2	2	2	2	2
Institutional/Government	547	568	591	615	640
Landscape	622	646	672	699	727
Agricultural Irrigation	4,950	4,950	4,950	4,950	4,950
Losses	751	781	812	844	876
Other	30	31	32	34	35
TOTAL	15,846	16,466	17,120	17,810	18,538

Source: Liberty Utilities Urban Water Management Plan (2020), Table 4-2

Table 10 shows a summary of the projected potable and non-potable water supplies in five-year increments from 2025 to 2045 for the Mojave Basin Area. Liberty Utilities' actual water supplies for 2020 was 10,067 AF drinking water, 4,912 AF non-potable water, and 14,979 AF total (all non-desalinated groundwater).[50]

Table 10
Water Supplies - Projected

Water Supply		Projected Water Supply				
Groundwater (not desalinated)	Mojave Basin Area (Potable)	11,256	11876	12,530	13,220	13,948
Groundwater (not desalinated)	Mojave Basin Area (Agricultural)	4,590	4,590	4,590	4,590	4,590
TOTAL		15,846	16466	17,120	17,810	18,538

Source: Liberty Utilities Urban Water Management Plan (2020), Table 6-9

[48] MWA 2020 UWMP, p.5-3
[49] Liberty Utilities 2020 UWMP, p. 4-14
[50] Liberty Utilities 2020 UWMP, p.6-30

4.2 Normal, Single-Dry, Multiple-Dry Year Comparison

The following tables provide Liberty Utilities' projected water supplies and demands in a normal year, single-dry year, and multiple-dry years. Table 11 shows a summary of Liberty Utilities' projected water demand and supplies over the next 25 years, in five-year increments. It indicates that Liberty Utilities will be able to meet current and future water demand during normal years.

Table 11
Liberty Utilities Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply totals	15,846	16,466	17,120	17,810	18,538
Demand totals	15,846	16,466	17,120	17,810	18,538
Difference	0	0	0	0	0

Source: Liberty Utilities Urban Water Management Plan (2020), Table 7-2

Table 12 shows Liberty Utilities' projected water demand and supply over the next 25 years in 5-year increments during single dry years. It indicates that Liberty Utilities can meet water demands during single dry years over the next 25 years.

Table 12
Liberty Utilities Single Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply totals	14,922	15,506	16,122	16,722	17,458
Demand totals	14,922	15,506	16,122	16,722	17,458
Difference	0	0	0	0	0

Source: Liberty Utilities Urban Water Management Plan (2020), Table 7-3

Liberty Utilities' projected water demand and supplies over the next 25 years in five-year increments during five consecutive years of drought it shown in Table 13. It indicates that Liberty Utilities can meet water demands in these conditions over the next 25 years. Liberty Utilities' total water demand in 2020 was 14,979 AF.

Table 13
Liberty Utilities Multiple Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	2025
First year	Supply totals	19,285	20,039	20,835	21,675	22,561
	Demand totals	19,285	20,039	20,835	21,675	22,561
	Difference	0	0	0	0	0
Second year	Supply totals	17,760	18,454	19,188	19,961	20,777
	Demand totals	17,760	18,454	19,188	19,961	20,777
	Difference	0	0	0	0	0
Third year	Supply totals	18,114	18,823	19,571	20,360	21,192
	Demand totals	18,114	18,823	19,571	20,360	21,192
	Difference	0	0	0	0	0
Fourth year	Supply totals	17,440	18,122	18,842	19,602	20,403
	Demand totals	17,440	18,122	18,842	19,602	20,403
	Difference	0	0	0	0	0

Table 13 Liberty Utilities Multiple Dry Years Supply and Demand Comparison						
		2025	**2030**	**2035**	**2040**	**2025**
Fifth year	Supply totals	14,296	14,856	15,446	16,069	16,726
	Demand totals	14,296	14,856	15,446	16,069	16,726
	Difference	0	0	0	0	0

Source: Liberty Utilities Urban Water Management Plan (2020), Table 7-4

5 – Project Description

The Project site is located at the northeast corner of Cordova Road and Dachshund Road, in the Town of Apple Valley, in the County of San Bernardino (Exhibits 1 – 3). The Project site is bordered by Dachshund Road on the west, Cordova Road on the south, and Quarry Road on the north. The subject site is currently vacant and undeveloped. As shown in Exhibit 4, the Development at Cordova proposes a 1,373,150 square foot industrial building on the 90.15-acre site. The proposed building will include 1,319,390 square feet of industrial/warehouse space, and 53,760 square feet of offices. The Project proposes 1,422 standard parking stalls and 739 trailer stalls. Proposed landscaped area (Exhibit 5), including detention area, totals approximately 804,270 square feet, or 20.48% of the site. Table 14 provides a summary of the proposed land uses.

Table 14
Land Use Summary

Land Use	Quantity	Acreage
Building Footprint	1,373,150 square feet	31.52 acres
Warehouse:	1,319,390 square feet	
Office:	53,760 square feet	
Parking	2,161 stalls	40.16 acres
Standard:	1,422 stalls	
Trailer:	739 stalls	
Outdoor Irrigated	804,271 square feet	18.46 acres
Landscaping:	669,235 square feet	
Detention:	135,036 square feet	
TOTAL		**90.15 acres**

Source: Google Maps, 2023

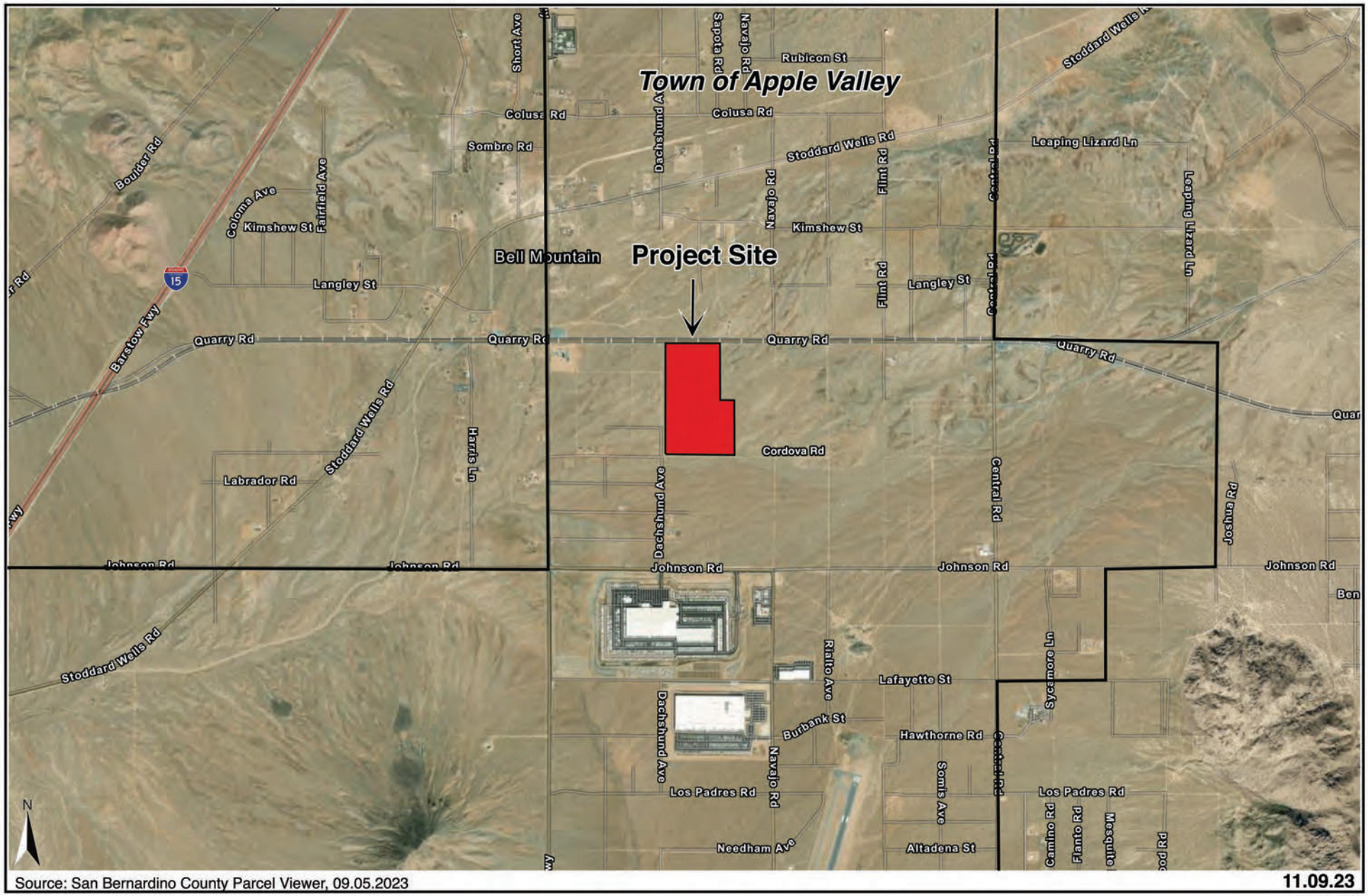
11.09.23

Exhibit

1

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Regional Location Map
Apple Valley, California



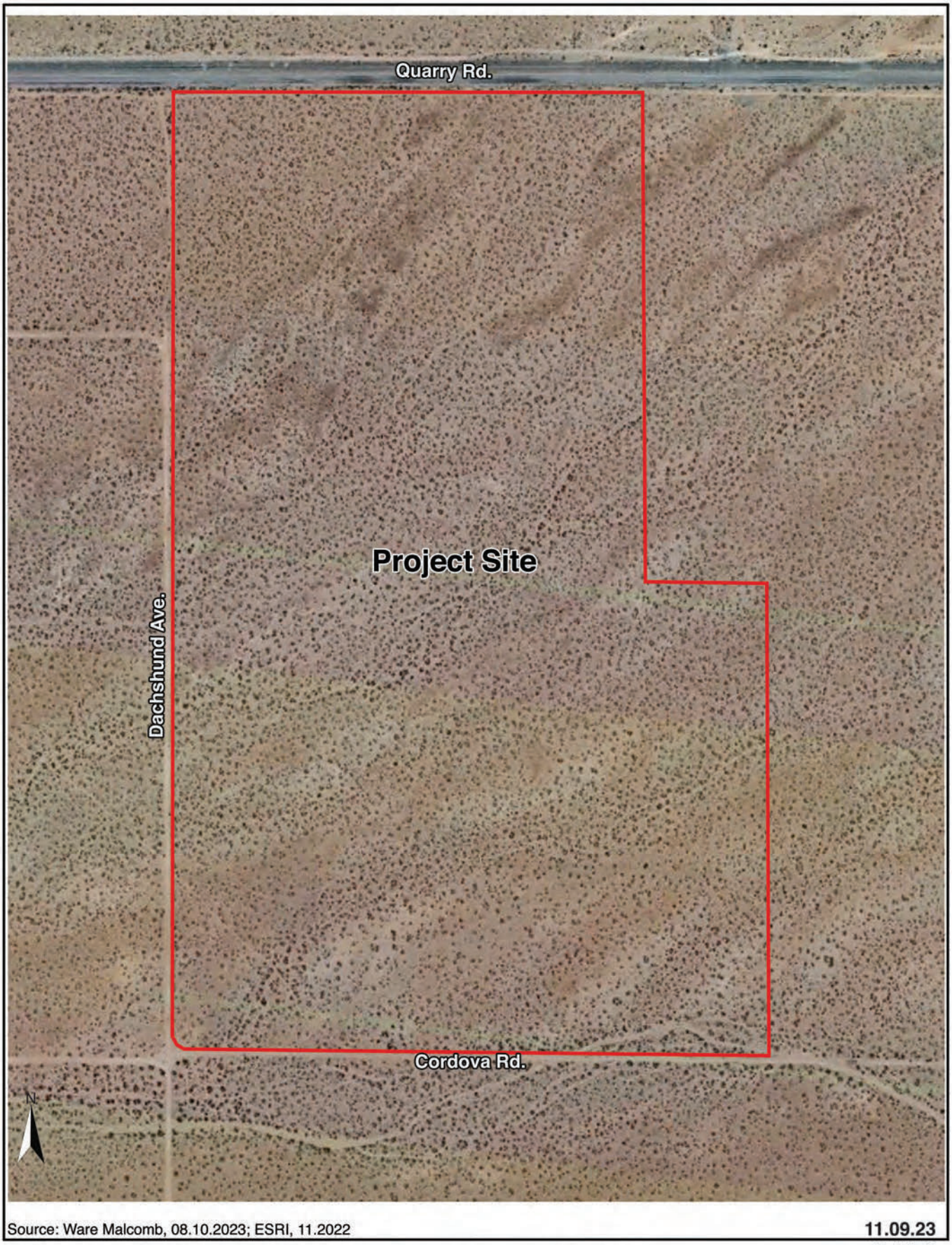
Source: San Bernardino County Parcel Viewer, 09.05.2023

11.09.23

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Vicinity Map
Apple Valley, California

Exhibit
2



Source: Ware Malcomb, 08.10.2023; ESRI, 11.2022

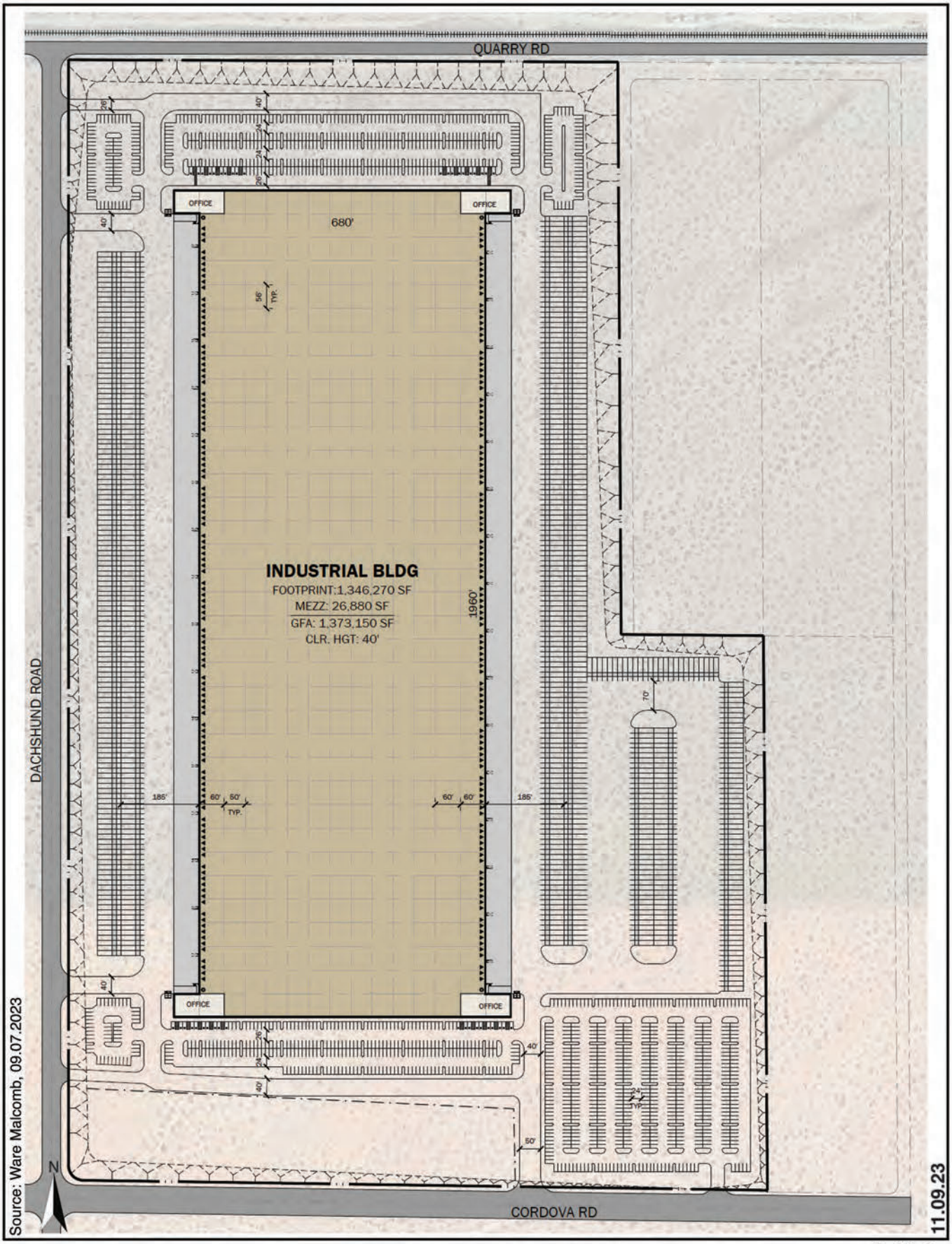
11.09.23

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Location Map
Apple Valley, California

Exhibit

3

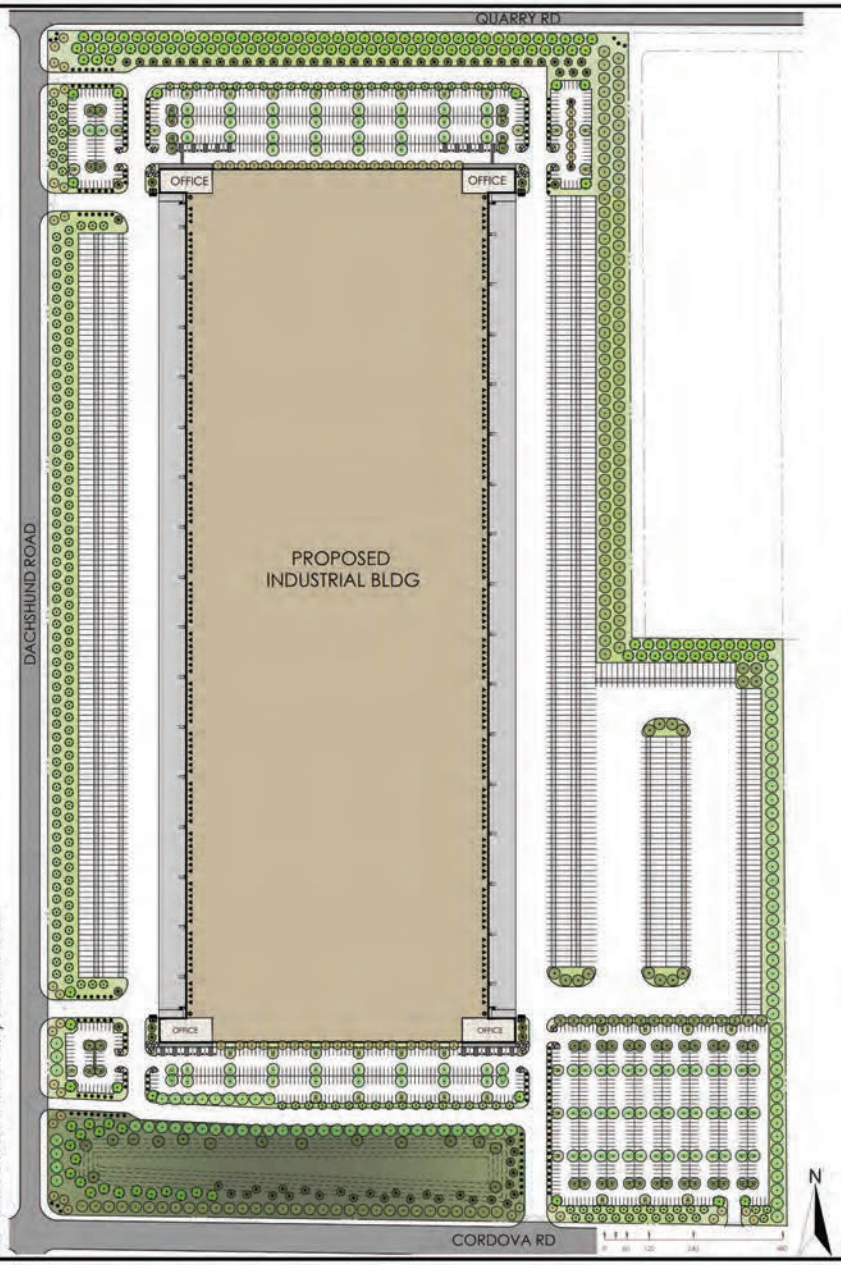


TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Project Site Plan
Apple Valley, California

Exhibit

4



Source: Ware Malcomb, 09.28.2023

PRELIMINARY PLANTING LEGEND

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED TREES		
	CERATONIA SILIQUA / CAROB	24" BOX STANDARD
	ACACIA SMALLII / SWEET ACACIA	24" BOX STANDARD
	KOELREUTERIA PANICULATA / GOLDEN RAIN TREE	24" BOX STANDARD
	PROSOPSIS CHILENSIS / MESQUITE	24" BOX STANDARD
	CERCIDIUM X. 'DESERT MUSEUM' / DESERT MUSEUM PALO VERDE (THORNLESS)	24" BOX STANDARD
	QUERCUS V. 'HERITAGE' / SOUTHERN LIVE OAK	24" BOX STANDARD
	BAUHINIA VARIEGATA / PURPLE ORCHID TREE	24" BOX STANDARD
	BRAHEA ARMATA / MEXICAN BLUE PALM	24" BOX STANDARD
	CHITALPA TASHKENTENSIS / CHITALPA	24" BOX STANDARD

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED SHRUBS		
	AGAVE AMERICANA / CENTURY PLANT	5 GAL / 36" O.C.
	AGAVE ATTENUATA / FOXTAIL AGAVE	1 GAL / 36" O.C.
	AGAVE 'BLUE GLOW' / BLUE GLOW AGAVE	1 GAL / 24" O.C.
	ALOE ARBORESCENS / CANDELABRA ALOE	1 GAL / 36" O.C.
	ALYOGYNE HUEGELII / BLUE HIBISCUS	1 GAL / 42" O.C.
	ARTEMISIA CALIFORNICA / CALIFORNIA SAGEBRUSH	1 GAL / 36" O.C.
	BACCHARIS 'CENTENNIAL' / CENTENNIAL BACCHARIS	1 GAL / 42" O.C.
	BALEYA MULTIRADIATA / DESERT MARIGOLD	1 GAL / 36" O.C.
	BOUGAINVILLEA 'MONKA' / OO-LA-LA BOUGAINVILLEA	1 GAL / 42" O.C.
	CAESALPINEA MEXICANA / MEXICAN BIRD OF PARADISE	5 GAL / 48" O.C.
	CAESALPINEA PULCHERRIMA / RED BIRD OF PARADISE	5 GAL / 48" O.C.
	CALLIANDRA ERIOPHYLLA / FAIRY DUSTER	1 GAL / 36" O.C.
	CALLISTEMON 'LITTLE JOHN' / DWARF BOTTLE BRUSH	1 GAL / 36" O.C.
	CISTUS PURPUREUS / ORCHID ROCKROSE	5 GAL / 48" O.C.
	CONVOLVULUS CNEORUM / BUSH MORNING GLORY	1 GAL / 30" O.C.
	DALEA GREGGII / TRAILING INDIGO BUSH	1 GAL / 36" O.C.
	ELAEAGNUS PUNGENS / SILVERBERRY	5 GAL / 42" O.C.
	ENCELIA CALIFORNIA / CALIFORNIA ENCELIA	1 GAL / 36" O.C.
	HESPERALOE PARVIFLORA / RED/YELLOW YUCCA	1 GAL / 30" O.C.
	LEUCOPHYLLUM F. 'GREEN CLOUD' / GREEN CLOUD TEXAS RANGER	5 GAL / 36" O.C.
	SALVIA CLEVELANDII / CLEVELAND SAGE	1 GAL / 36" O.C.
	SALVIA GREGII 'FURHMAN'S RED' / FURHMANS RED SAGE	1 GAL / 30" O.C.
	SALVIA LEUCANTHA / MEXICAN SAGE	1 GAL / 36" O.C.
PROPOSED DETENTION BASIN		
	CAREX PRAEGRACILIS / CALIFORNIA FIELD SEDGE	1 GAL / 36" O.C.
	DESCHAMPSIA CAESPITOSA / TUFTED HAIRGRASS	1 GAL / 36" O.C.
	JUNCUS PATENS / CALIFORNIA GREY RUSH	1 GAL / 36" O.C.
	MUHLENBERGIA RIGENS / DEER GRASS	1 GAL / 36" O.C.

CERATONIA SILIQUA / CAROB

ACACIA SMALLII / SWEET ACACIA

KOELREUTERIA PANICULATA / GOLDEN RAIN TREE

PROSOPSIS CHILENSIS / MESQUITE

CERCIDIUM X. 'DESERT MUSEUM' / DESERT MUSEUM PALO VERDE (THORNLESS)

QUERCUS V. 'HERITAGE' / SOUTHERN LIVE OAK

BAUHINIA VARIEGATA / PURPLE ORCHID TREE

BRAHEA ARMATA / MEXICAN BLUE PALM

CHITALPA TASHKENTENSE / CHITALPA

11.09.23

Exhibit

5

TERRA NOVA®
PLANNING & RESEARCH, INC.

The Development at Cordova
Preliminary Landscape Plan
Apple Valley, California

6 – Project Water Demands

The Development at Cordova proposes to develop approximately 90.15 acres of vacant land in the Town of Apple Valley to include 1,373,150 square feet of industrial/warehouse uses, and 804,270 square feet of irrigated space. For the purpose of analysis, irrigated space is assumed to include both landscaping and detention space.

6.1 Projected Indoor Commercial and Industrial Water Demand

The proposed industrial building will include approximately 1,319,390 square feet of warehouse area, and 53,760 square feet of supporting office space. The projected indoor commercial (office) water usage factor is based on the American Water Works Associated Research Foundations (AWWARF's) Commercial and Industrial End Uses of Water. The water demand factor for the proposed warehouse area is based on a factor provided in the U.S. Energy Information Administration 2021 Commercial Buildings Energy Survey. As shown in Table 15, the total projected indoor commercial and industrial water demand for the Project is projected to be 19.54 AFY.

Table 15
Project Indoor Commercial and Industrial Water Demand

Use	Indoor Area (ft^2)	Water Demand Factor(gal/SF/year)[1]	Water Demand (gpd)	Water Demand (AFY)
Office	53,760	35	5,155.07	5.77
Warehouse	1,319,390	3.4	12,290.21	13.77
TOTAL	**1,373,150**	**--**	**17,445.28**	**19.54**

[1] Office water demand factor from AWWA Commercial and Industrial End Uses of Water; Warehouse water demand factor from U.S. Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey, Water Consumption in Large Buildings Summary.

6.2 Projected Outdoor Irrigation Water Demand

The projected outdoor irrigation water usage is based on the Maximum Applied Water Allowance (MAWA) equation from the Town of Apple Valley Ordinance No. 479, which is compliant with the Department of Water Resources Code of Regulations Title 23, Division 2, Chapter 2.7 "Model Water Efficient Landscape Ordinance". The projected outdoor irrigation water demand for the Project is 45.59 AFY as shown in Table 16 below.

Table 16
Projected Outdoor Irrigation Water Demand

Planning Area	Landscaped Area (ft^2)	ETo (in/yr)[1]	ETAF[2]	Conversion Factor (gal/ft^2) [3]	Water Demand (gpd)	Water Demand (AFY)
Landscaping	669,235	66.2	0.45	0.62	13,036.14	37.93
Detention	135,036	66.2	0.45	0.62	6,833.12	7.65
TOTAL	**392,656**				**19,869.25**	**45.59**

[1] Reference Evapotranspiration (ETo) from Town of Apple Valley Ordinance No. 479.
[2] Evapotranspiration Adjustment Factor (ETAF) from Town of Apple Valley Ordinance No. 479.
[3] Conversation Factor from Town of Apple Valley Ordinance No. 479.

6.3 Projected Total Water Demand

The total projected water demand for the Project is 65.13 AFY, as shown in Table 17, below.

Table 17
Projected Total Water Demand

Planning Area	Land Area (Acres)	Indoor Commercial and Industrial Demand (AFY)	Outdoor Irrigation Demand (AFY)	Total Water Demand (AFY)
Warehouse	30.29	13.77		13.77
Office	1.23	5.77		5.77
Landscaping	5.91		37.93	37.93
Detention	3.10		7.65	7.65
Hardscape	49.61			0.00
TOTAL	**90.15**	**19.54**	**45.59**	**65.13**

6.4 Projected Water Sources

The anticipated water source for the Project will be Liberty Utilities' groundwater sourced from the Mojave Basin Area potable supply.

7 – Assessment: Availability of Sufficient Supplies

7.1 Water Supply Assessment

Based on the analysis in this Water Supply Assessment, the projected total water demand for the Project will be 65.13 AFY or 0.72 acre-feet per acre. Liberty Utilities' long-term water management planning ensures that adequate water supplies are available to meet existing and futures water needs within its service area. Liberty Utilities' actual potable water demand for 2020 was 10,067 acre-feet (AF), and the projected urban water demand is 13,948 AF for 2045. The Project's water demand of 65.13 AFY accounts for approximately 1.68 percent of the total planned increases in demand of 3,881 AF by 2045.

This WSA provides an assessment of the availability of adequate water supplies during normal, single-dry, and multiple-dry years over a 20-year projection to meet the project demands of the Project, in addition to existing and planned Liberty Utilities, as required by Senate Bill 610 (SB 610). This WSA also includes identification of existing water supply entitlements, water rights, water service contracts, and agreements relevant to the identified water supply for the Project and quantities of water received in prior years pursuant to those entitlements, rights, contracts, and agreements.

This WSA has been prepared in compliance with the requirements of SB 610 by Terra Nova Planning and Research in consultation with Liberty Utilities and the Town of Apple Valley. This WSA does not relieve the Project from complying with all applicable state, county, city, and local ordinances or regulations, including the Town of Apple Valley's Ordinance No. 58 and Ordinance No. 479, as well as indoor water use performance standards provided in the CWC now or in the future.

Consistent with the provisions of SB 610, neither this WSA nor its approval shall be construed to create a right or entitlement to water service or any specific level of water service, and shall not impose, expand, or limit any duty concerning the obligation of Liberty Utilities to provide certain service to its existing customers or to any future potential customers.

This WSA does not constitute an agreement to provide water service to the Project, and does not entitle the Project, Project Applicant, or any other person or entity to any right, priority or allocation in any supply, capacity, or facility. To receive water service, the Project will be subject to an agreement with Liberty Utilities, together with any and all applicable fees, charges, plans and specifications, conditions, and any and all other applicable Liberty Utilities requirements in place and as amended from time to time. Nor does anything in this WSA prevent or otherwise interfere with Liberty Utilities' discretionary authority to declare a water shortage emergency in accordance with the Water Code.

This WSA will be reviewed every five years, or in the event that the water planning assumptions have changed, until the Project begins construction on all planning areas, to ensure it remains accurate and no significant changes to either the Project or available water supply has occurred. The Project applicant shall notify Liberty Utilities when construction of all planning areas begins.

8 – References

American Water Works Association Research Foundation Commercial and Industrial End Uses of Water (2000).

California Water Code, Section 10610-10656 Urban Water Management Plans

California Water Code Appendix, Mojave Water Agency Law, Section 97-1 et seq., 1960.

Department of Water Resources California's Groundwater Update 2003 – Upper Mojave River Valley Groundwater Basin.

Department of Water Resources California's Groundwater Update 2013: A Compilation of Enhanced Content for California Water Plan Update 2013 - South Lahontan Hydrologic Region.

DWR Sustainable Groundwater Management Act, 2019 Basin Prioritization (2019).

Department of Water Resources SGMA Basin Prioritization Dashboard; https://gis.water.ca.gov/app/bp-dashboard/final/ (accessed 11/06/2023).

Liberty Utilities – Apple Valley Urban Water Management Plan (2020).

Mojave Water Agency Mojave Basin Area Adjudicated Subareas; https://www.mojavewater.org/wp-content/uploads/2022/01/adjudicatedsubareasmap.pdf, (accessed 11/06/2023).

Mojave Water Agency Regional Basins and Subbasins; https://www.mojavewater.org/wp-content/uploads/2022/01/Regional_Basins_Subbasins.pdf, (accessed 11/06/2023).

Mojave Water Agency Sustainable Groundwater Management Act; https://www.mojavewater.org/basin-management/regional-planning/sgma/, (accessed 11/06/2023).

Mojave Water Agency Urban Water Management Plan (2020).

Town of Apple Valley, Ordinance No. 479.

U.S. Energy Information Administration Commercial Buildings Energy Consumption Survey, Water Consumption in Large Buildings Summary (2012); https://www.eia.gov/consumption/commercial/reports/2012/water/, (accessed 11/06/2023).

Ware Malcomb, Site Plan for the Development at Cordova (October 2023).

Appendix J

Traffic Generation Assessment Memo

MEMORANDUM

URBAN | CROSSROADS

DATE: February 15, 2024
TO: Nicole Criste, Terra Nova Planning & Research, Inc.
FROM: John Kain and Marlie Whiteman, Urban Crossroads
JOB NO: 15504-04 TG Memo

NORTH APPLE VALLEY INDUSTRIAL AREAS CUMULATIVE TRIP GENERATION ASSESSMENT

Urban Crossroads, Inc. is pleased to submit the following Cumulative Trip Generation Assessment for the North Apple Valley Industrial Areas, (Study Area) shown on Exhibit 1. The study area includes the North Apple Valley Industrial Specific Plan (NAVISP) and four other industrial areas west and south of the NAVISP.

Two scenarios are compared in this cumulative trip generation assessment, as follows:

- **Town General Plan Baseline** with industrial development included in the Town of Apple Valley General Plan Circulation Element Traffic Study (November 24, 2008, referred to as the **2008 Town GP Traffic Study**), which is part of the Environmental Impact Report (**EIR**) (SCH No. 2008091077) for the Apple Valley General Plan and Annexations 2008-001 & 2008-002 (certified August 11, 2009, referred to as the 2009 EIR).
- **Baseline Plus Cumulative Logistics Projects** with existing and planned high-cube warehouse/distribution facilities in the study area which generate traffic somewhat differently than the underlying industrial uses analyzed in the 2008 Town GP Traffic Study.

Exhibit 1 shows the traffic analysis zones (TAZs) used in the 2008 Town GP Traffic Study. Within each TAZ, Urban Crossroads has identified the underlying industrial land uses which were utilized in the 2008 Town GP Traffic Study.

TOWN GENERAL PLAN BASELINE

The General Plan Baseline industrial land use quantities shown for each TAZ in Table 1 were utilized in the 2008 analysis of Town of Apple Valley General Plan buildout traffic volumes and peak hour level of service (LOS).

The NAVISP encompasses the area bounded by Quarry Road to the north, Waalew Road to the south, Dale Evans Parkway to the west, and Central Road to the east, as well as an annexation area extending east from Central Road to Joshua Road (with Quarry Road to the north and Johnson Road / Lafayette Street to the south).

EXHIBIT 1: NORTH APPLE VALLEY INDUSTRIAL AREAS, WITH TOWN GENERAL PLAN TRAFFIC ANALYSIS ZONES (TAZs)

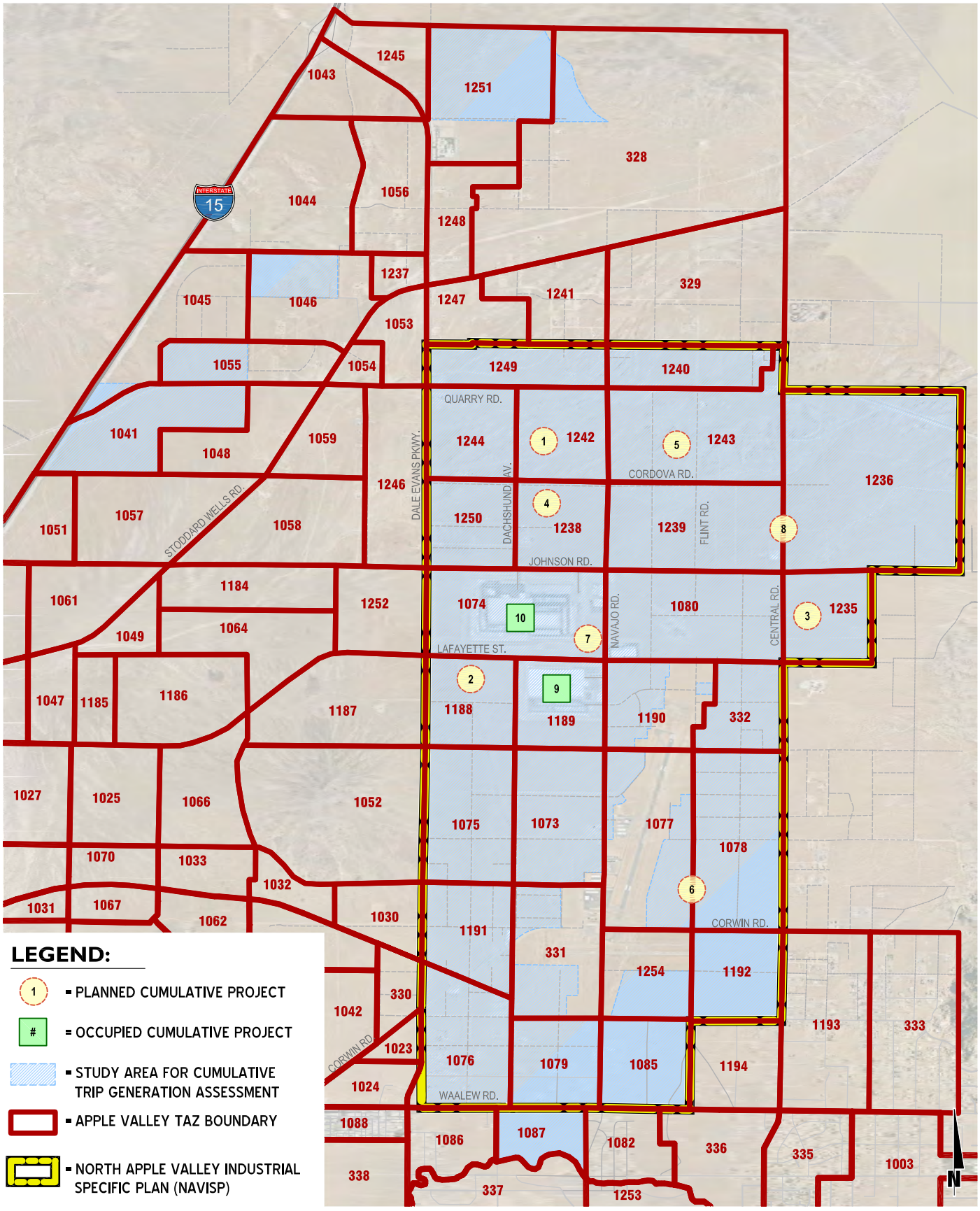


TABLE 1: NORTH APPLE VALLEY INDUSTRIAL AREA
LAND USES AND TRIP GENERATION BY TRAFFIC ANALYSIS ZONE, PAGE 1 OF 2

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
328 Part	Planned Industrial	Industrial Park	289.67	TSF	26	20	46	17	32	50	660
331	Planned Industrial	Industrial Park	982.00	TSF	88	69	157	59	108	167	2,239
332	Planned Industrial	Industrial Park	1,413.00	TSF	128	99	226	85	155	241	3,221
1041	Planned Industrial	Industrial Park	1,715.18	TSF	155	120	275	103	188	292	3,911
1046 Part	Planned Industrial	Industrial Park	747.82	TSF	67	52	120	44	82	127	1,705
1055 Part	Planned Industrial	Industrial Park	457.38	TSF	41	32	73	28	51	77	1,043
1073	Planned Industrial	Industrial Park	2,088.00	TSF	188	146	334	125	230	355	4,760
1075	Planned Industrial	Industrial Park	2,088.00	TSF	188	146	334	125	230	355	4,760
1076	Planned Industrial	Industrial Park	2,008.00	TSF	180	140	321	120	221	341	4,578
1079	Planned Industrial	Industrial Park	1,908.00	TSF	171	133	305	114	210	324	4,350
1080	Planned Industrial	Industrial Park	2,684.00	TSF	241	188	429	161	296	456	6,120
1085	Planned Industrial	Industrial Park	1,333.00	TSF	120	94	213	80	147	226	3,039
1087	Planned Industrial	Industrial Park	724.19	TSF	65	50	115	43	80	123	1,651
1190	Planned Industrial	Industrial Park	1,080.00	TSF	97	76	173	65	118	183	2,462
1191	Planned Industrial	Industrial Park	882.00	TSF	79	62	141	53	97	150	2,011
1240	Planned Industrial	Industrial Park	1,034.60	TSF	93	73	165	62	114	175	2,358
1244	Planned Industrial	Industrial Park	1,150.00	TSF	104	81	184	70	127	196	2,623
1249	Planned Industrial	Industrial Park	1,149.07	TSF	103	80	184	68	126	195	2,620
1250	Planned Industrial	Industrial Park	1,533.00	TSF	138	108	245	92	169	260	3,495
1251	Planned Industrial	Industrial Park	1,722.80	TSF	155	120	275	103	190	293	3,928
1254	Planned Industrial	Industrial Park	2,995.84	TSF	270	210	480	180	330	509	6,830
1188	Lafayette Street Logistics site	Former Industrial Park	1,207.54	TSF	108	84	193	72	133	205	2,753
1188	Lafayette Street Logistics (Source: Urban Crossroads 2022)	Logistics	1,207.54	TSF	176	53	229	85	216	301	4,052
1188	Remainder Industrial Park	Remainder Industrial Park	805.03	TSF	72	56	129	48	88	137	1,835
1188	**GP Baseline**	**TAZ Total**	**2,012.57**	**TSF**	**180**	**140**	**322**	**120**	**221**	**342**	**4,588**
1188	**W/Cumulative Project**	**TAZ Total**	**2,012.57**	**TSF**	**248**	**109**	**358**	**133**	**304**	**438**	**5,887**
1235	1M Warehouse site	Former General Light Industrial	1,462.34	TSF	789	716	1,507	322	526	848	21,793
1235	1M Warehouse (Source: Dudek - 2023 Study)	**Logistics**	1,462.34	TSF	187	44	231	96	150	246	2,784
1235	Remainder Industrial Park	Remainder Industrial Park	1,313.50	TSF	119	92	210	79	144	224	2,995
1235	**GP Baseline**	**TAZ Total**	**2,775.84**	**TSF**	**908**	**808**	**1,717**	**401**	**670**	**1,072**	**24,788**
1235	**W/Cumulative Project**	**TAZ Total**	**2,775.84**	**TSF**	**306**	**136**	**441**	**175**	**294**	**470**	**5,779**
1238	Cordova Quarry Complex site	Former Industrial Park	1,559.95	TSF	140	109	250	94	172	265	3,557
1238	Cordova Quarry Complex (Source: Apple Valley NOP 2023)	Logistics	1,559.95	TSF	226	68	294	109	278	387	5,234
1238	**GP Baseline**	**TAZ Total**	**1,559.95**	**TSF**	**140**	**109**	**250**	**94**	**172**	**265**	**3,557**
1238	**W/Cumulative Project**	**TAZ Total**	**1,559.95**	**TSF**	**226**	**68**	**294**	**109**	**278**	**387**	**5,234**
1242	Cordova Road Logistics site	Former Industrial Park	1,144.33	TSF	103	80	183	68	126	195	2,609
1242	Cordova Road Logistics (Source: Urban Crossroads 2023)	Logistics	1,144.33	TSF	125	39	164	60	152	212	2,864
1242	Remainder Industrial Park	Industrial Park	388.67	TSF	35	27	62	23	43	67	887
1242	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**91**	**169**	**262**	**3,496**
1242	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**160**	**66**	**226**	**83**	**195**	**279**	**3,751**
1243	Quarry at Pawnee site	Former Industrial Park	1,462.34	TSF	131	102	234	88	161	248	3,335
1243	Quarry at Pawnee NOP (Source: Apple Valley NOP 2023)	Logistics	1,462.34	TSF	211	64	275	103	261	364	4,908
1243	Remainder Light Industrial	Remainder General Light Industrial	2,162.66	TSF	1,167	1,059	2,228	476	779	1,254	32,231
1243	**GP Baseline**	**TAZ Total**	**3,625.00**	**TSF**	**1,298**	**1,161**	**2,462**	**564**	**940**	**1,502**	**35,566**
1243	**W/Cumulative Project**	**TAZ Total**	**3,625.00**	**TSF**	**1,378**	**1,123**	**2,503**	**579**	**1,040**	**1,618**	**37,139**

TABLE 1: NORTH APPLE VALLEY INDUSTRIAL AREA
LAND USES AND TRIP GENERATION BY TRAFFIC ANALYSIS ZONE, PAGE 2 OF 2

AVTM TAZ	Project/Location	Land Use[1]	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
1077	Apple Valley Logistics Ctr. Site	Former Industrial Park	649.00	TSF	58	45	104	38	71	110	1,480
1077	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	649.00	TSF	117	35	152	56	144	200	2,742
1077	Remainder Industrial Park	Remainder Industrial Park	531.00	TSF	48	38	85	32	58	90	1,211
1077	**GP Baseline**	**TAZ Total**	**1,180.00**	**TSF**	**106**	**83**	**189**	**70**	**129**	**200**	**2,691**
1077	**W/Cumulative Project**	**TAZ Total**	**1,180.00**	**TSF**	**165**	**73**	**237**	**88**	**202**	**290**	**3,953**
1078	Apple Valley Logistics Ctr. Site	Former Industrial Park	2,831.74	TSF	255	199	453	170	312	481	6,457
1078	Apple Valley Logistics Ctr. (Source: Urban Crossroads 2023)	Logistics	2,831.74	TSF	553	188	741	234	600	834	10,518
1078	**GP Baseline**	**TAZ Total**	**2,831.74**	**TSF**	**255**	**199**	**453**	**170**	**312**	**481**	**6,457**
1078	**W/Cumulative Project**	**TAZ Total**	**2,831.74**	**TSF**	**553**	**188**	**741**	**234**	**600**	**834**	**10,518**
1074	Green Trucking & WalMart Sites	Former Industrial Park	1,585.07	TSF	142	111	254	95	175	269	3,614
1074	WalMart Distribution Center (Source: Urban Crossroads estimates)	Logistics	1,200.00	TSF	128	57	186	67	149	215	2,435
1074	Green Trucking Solutions (Source: LSA TG Memo - 2022)	Logistics	385.07	TSF	44	18	62	27	43	70	1,196
1074	Remainder Industrial Park	Remainder Industrial Park	306.00	TSF	27	21	49	18	33	52	698
1074	**GP Baseline**	**TAZ Total**	**1,891.07**	**TSF**	**169**	**132**	**303**	**113**	**208**	**321**	**4,312**
1074	**W/Cumulative Projects**	**TAZ Total**	**1,891.07**	**TSF**	**199**	**96**	**297**	**112**	**225**	**337**	**4,329**
1236	Apple Valley 3PL Center site	Former General Light Industrial	1,640.00	TSF	885	804	1,689	360	590	952	24,441
1236	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	1,640.00	TSF	16	17	33	16	22	38	633
1236	Remainder Light Industrial	Remainder General Light Industrial	3,257.66	TSF	1,759	1,596	3,356	716	1,173	1,890	48,548
1236	**GP Baseline**	**TAZ Total**	**4,897.66**	**TSF**	**2,644**	**2,400**	**5,045**	**1,076**	**1,763**	**2,842**	**72,989**
1236	**W/Cumulative Project**	**TAZ Total**	**4,897.66**	**TSF**	**1,775**	**1,613**	**3,389**	**732**	**1,195**	**1,928**	**49,181**
1239	Apple Valley 3PL Center site	Former Industrial Park	494.00	TSF	267	242	509	109	178	287	7,362
1239	Apple Valley 3PL Center (Source: Urban Crossroads 2023)	Logistics	494.00	TSF	318	114	432	163	326	489	5,762
1239	Remainder Industrial Park	Remainder Industrial Park	2,766.00	TSF	249	193	443	166	304	471	6,307
1239	**GP Baseline**	**TAZ Total**	**3,260.00**	**TSF**	**516**	**435**	**952**	**275**	**482**	**758**	**13,669**
1239	**W/Cumulative Project**	**TAZ Total**	**3,260.00**	**TSF**	**567**	**307**	**875**	**329**	**630**	**960**	**12,069**
1189	Big Lots Dist site	Former Industrial Park	1,360.88	TSF	122	95	218	82	150	231	3,103
1189	Big Lots Dist (Source: Urban Crossroads 2015)	Logistics	1,360.88	TSF	145	65	211	76	169	244	2,761
1189	Remainder Industrial Park	Remainder Industrial Park	172.13	TSF	16	12	27	11	19	29	393
1189	**GP Baseline**	**TAZ Total**	**1,533.00**	**TSF**	**138**	**107**	**245**	**93**	**169**	**260**	**3,496**
1189	**W/Cumulative Project**	**TAZ Total**	**1,533.00**	**TSF**	**161**	**77**	**238**	**87**	**188**	**273**	**3,154**
	Town General Plan Baseline Land Use and Trip Generation Total		57,085.36	TSF	**9,189**	**7,780**	**16,978**	**4,864**	**8,536**	**13,400**	**243,973**
	Baseline Plus Cumulative Logistics Projects Trip Generation Total		57,085.36	TSF	**8,435**	**5,955**	**14,394**	**4,458**	**8,452**	**12,909**	**209,358**

[1] **Remainder** = Town GP land use within TAZ but outside of the footprint of an existing or planned cumulative project;
Former = Town GP land use within the footprint of an existing or planned cumulative project

[2] **TSF** = Thousand Square Feet of building floor area either (1) evaluated in the 2008 Town GP Traffic Study, or (2) evaluated in conjunction with an existing or planned cumulative project

Industrial land uses utilized in the 2008 Town GP Traffic Study for the Study Area included both General Light Industrial and Industrial Park categories. Industrial Park is generally used throughout the NAVISP area, except in the northeast corner (bounded by Quarry Road, Johnson Road, Flint Road, and Central Road) and within the annexation area. The NAVISP northeast corner and annexation areas were analyzed as General Light Industrial in the 2008 GP Traffic Study. General Light Industrial uses were evaluated within portions of TAZs 1243, 1235, and 1236.

In 2008, the Industrial Park uses were analyzed with Passenger Car Equivalent (PCE) trip generation rates per thousand square feet of gross floor area of 0.09 in the AM peak hour inbound, 0.07 PCE in the AM peak hour outbound, 0.06 PCE in the PM peak hour inbound, 0.11 PCE in the PM peak hour outbound, and 2.28 PCE daily.

The General Light Industrial uses were analyzed with (PCE) trip generation rates per thousand square feet of gross floor area of 0.54 in the AM peak hour inbound, 0.49 PCE in the AM peak hour outbound, 0.22 PCE in the PM peak hour inbound, 0.48 PCE in the PM peak hour outbound, and 14.90 PCE daily.

As shown on Table 1, the total quantity of General Light Industrial within the Study Area amounts to 8,522,660 square feet, whereas the total quantity of Industrial Park is 48,562,700 square feet.

CUMULATIVE PROJECTS

Within the study area, ten existing and planned high-cube warehouse / distribution projects are addressed in this trip generation comparison as indicated on Exhibit 1. Each of these cumulative logistics projects are described below.

1. Cordova Road Logistics (within TAZ 1242)
   - 1,144,330 sf logistics located north of Cordova Road and east of Dachshund Avenue.
2. Lafayette Street Logistics (within TAZ 1188)
   - 1,207,540 square feet (sf) logistics located south of Lafayette Street and east of Dale Evans Parkway.
3. 1M Warehouse (within TAZ 1235)
   - 1,462,340 sf logistics located south of Johnson Road and east of Central Road.
4. Cordova Quarry Complex (within TAZ 1238)
   - 1,559,950 sf logistics located south of Cordova Road and east of Dachshund Avenue.
5. Quarry at Pawnee (within TAZ 1243)
   - 1,462,340 sf logistics located north of Cordova Road and west of Flint Road.
6. Apple Valley Logistics Center (within TAZ 1077/1078)
   - 649,000 sf logistics within TAZ 1077 and 2,831,740 sf industrial park within TAZ 1078 (cumulative total of 3,480,740 sf) located north of Corwin Road and west of Central Road.

7. Green Trucking Solutions (within TAZ 1074)
   - 385,070 sf logistics located north of Lafayette Street and west of Navajo Road.

8. Apple Valley 3PL Center (within TAZ 1236/1239)
   - 1,640,000 sf logistics within TAZ 1236 located north of Johnson Road and east of Central Road and 494,000 sf industrial park within TAZ 1239 (cumulative total of 2,134,000 sf) located north of Johnson Road and west of Central Road.

9. Big Lots Distribution (within TAZ 1189)
   - 1,360,880 sf logistics currently built and occupied, located south of Lafayette Street and west of Navajo Road.

10. WalMart Distribution Center (within TAZ 1074)
    - Approximately 1,200,000 sf logistics currently built and occupied, located south of Johnson Road and east of Dale Evans Parkway.

In each case, where a traffic study or trip generation analysis was available, trip generation data from the available source is used in Table 1.

TRIP GENERATION DIFFERENCES

Table 1 includes the trip generation comparison between **Town General Plan Baseline** industrial land uses previously studied in the 2008 Town GP Traffic Study, and the **Baseline Plus Cumulative Logistics Projects** land uses. As shown, the General Plan Baseline trip generation is greater overall than the Baseline Plus Cumulative Logistics Projects trip generation. The Baseline Plus Cumulative Logistics Projects trip generation is anticipated to be 34,615 fewer two-way PCE trip ends per day with 2,584 fewer PCE AM peak hour trips and 491 fewer PCE PM peak hour trips as compared to the Town General Plan Baseline industrial land uses.

For the following TAZ's, there are no trip generation differences since there are no cumulative projects included in this assessment:

328 Partial	1073	1087	1250
331	1075	1190	1251
332	1076	1191	1254
1041	1079	1240	
1046 Partial	1080	1244	
1055 Partial	1085	1249	

For the following TAZ's, the Baseline Plus Cumulative Logistics Projects daily trip generation decreased in comparison to the Town General Plan Baseline:

- For TAZ 1235, which contains 1M Warehouse, there is a decrease in daily trip generation of 19,009 daily trips.
- For TAZs 1236 & 1239, which contain Apple Valley 3PL Center, there is a decrease in daily trip generation of 25,408 daily trips.
- For TAZ 1189, which contains Big Lots Distribution, there is a decrease in daily trip generation of 342 daily trips.

For the following TAZ's, there is an estimated increase in daily trip generation for the Baseline Plus Cumulative Logistics Projects, in comparison to the Town General Plan Baseline. However, in each instance, updated cumulative project Level of Service studies would address any potential LOS issues in the Study Area:

- For TAZ 1188, which contains Lafayette Street Logistics, there is an increase in daily trip generation of 1,299 daily trips.
- For TAZ 1238, which contains Cordova Quarry Complex, there is an increase in daily trip generation of 1,677 daily trips.
- For TAZ 1242, which contains Cordova Road Logistics, there is an increase in daily trip generation of 255 daily trips.
- For TAZ 1243, which contains Quarry at Pawnee, there is an increase in daily trip generation of 1,573 daily trips.
- For TAZs 1077 & 1078, which contain Apple Valley Logistics Center, there is an increase in daily trip generation of 5,323 daily trips.
- For TAZ 1074, which contains Green Trucking Solutions and WalMart Distribution Center, there is an increase in daily trip generation of 17 daily trips.

Based on the overall comparison with Baseline Plus Cumulative Logistics Projects to the Town General Plan Baseline, the logistics land uses included in the ten existing and planned high-cube warehouse/distribution facilities in the study area fall within the overall envelope of analysis included in the Town of Apple Valley General Plan Circulation Element Traffic Study (November 24, 2008, referred to as the 2008 Town GP Traffic Study), which is part of the Environmental Impact Report (EIR) (SCH No. 2008091077) for the Apple Valley General Plan and Annexations 2008-001 & 2008-002 (certified August 11, 2009, referred to as the 2009 EIR).

If you have any questions regarding this traffic assessment, please contact us at (949) 375-2435 for John or (714) 585-0574 for Marlie.

Appendix K

Project Traffic Analysis

URBAN | CROSSROADS

CORDOVA ROAD LOGISTICS FACILITY

TRAFFIC ANALYSIS

PREPARED BY: Janette Cachola | jcachola@urbanxroads.com
Marlie Whiteman | mwhiteman@urbanxroads.com
John Kain | jkain@urbanxroads.com

Reference Number	Agency	Date
15504-03 TA Report.docx	Town of Apple Valley	December 7, 2023

This Page Intentionally Left Blank

TABLE OF CONTENTS

Table of Contents iii

Appendices v

List of Exhibits vii

List of Tables ix

List of Abbreviated Terms xi

1 Introduction 1

1.1 Summary of Findings 1
1.2 Project Overview 3
1.3 Analysis Scenarios 5
1.4 Study Area 6
1.5 Recommendations 6

2 Methodologies 15

2.1 Level of Service 15
2.2 Intersection Capacity Analysis 15
2.3 Traffic Signal Warrant Analysis Methodology 17
2.4 Minimum Acceptable Levels of Service (LOS) 18
2.5 Deficiency Criteria 19
2.6 Project Fair Share Calculation Methodology 19

3 Area Conditions 21

3.1 Existing Circulation Network 21
3.2 Town of Apple Valley General Plan Circulation Element 21
3.3 Pedestrian Facilities 25
3.4 Transit Service 25
3.5 Truck Routes 25
3.6 Existing (2023) Traffic Counts 25
3.7 Intersection Operations Analysis 28
3.8 Traffic Signal Warrants Analysis 28

4 Projected Future Traffic 33

4.1 Project Trip Generation 33
4.2 Project Trip Distribution 34
4.3 Modal Split 34
4.4 Project Trip Assignment 34
4.5 Background Traffic 34

5 Opening Year Cumulative (2025) Traffic Conditions 45

5.1 Roadway Improvements 45
5.2 Without Project Traffic Volume Forecasts 45
5.3 With Project Traffic Volume Forecasts 45
5.4 Intersection Operations Analysis 52
5.5 Traffic Signal Warrants Analysis 52

6 Horizon Year (2040) Traffic Conditions 55

6.1 Roadway Improvements 55
6.2 Without Project Traffic Volume Forecasts 55
6.3 With Project Traffic Volume Forecasts 55
6.4 Intersection Operations Analysis 55
6.5 Traffic Signal Warrants Analysis 62
6.6 Queuing Analysis 62

7 Local and Regional Funding Mechanisms 65

7.1 Town of Apple Valley Development Impact Fee Program 65
7.2 Measure "I" Funds 65
7.3 Fair Share Contribution 65

8 References 69

APPENDICES

Appendix 1.1: Approved Traffic Study Scoping Agreement

Appendix 3.1: Traffic Counts – November 2023

Appendix 3.2: Existing (2023) Conditions Intersection Operations Analysis Worksheets

Appendix 3.3: Existing (2023) Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 5.1: Opening Year Cumulative (2025) Without Project Conditions
Intersection Operations Analysis Worksheets

Appendix 5.2: Opening Year Cumulative (2025) With Project Conditions
Intersection Operations Analysis Worksheets

Appendix 5.3: Opening Year Cumulative (2025) Without Project Conditions
Traffic Signal Warrant Analysis Worksheets

Appendix 5.4: Opening Year Cumulative (2025) With Project Conditions
Traffic Signal Warrant Analysis Worksheets

Appendix 6.1: Horizon Year (2040) Without Project Conditions
Intersection Operations Analysis Worksheets

Appendix 6.2: Horizon Year (2040) With Project Conditions
Intersection Operations Analysis Worksheets

Appendix 6.3: Horizon Year (2040) Traffic Signal Warrant Analysis Worksheets

Appendix 6.4: Horizon Year (2040) With Project Conditions Queuing Analysis Worksheets

This page intentionally left blank

LIST OF EXHIBITS

Exhibit 1-1: Traffic Analysis Study Area 2
Exhibit 1-2: Preliminary Site Plan 4
Exhibit 1-3: Site Access Recommendations 8
Exhibit 1-4: Truck Access, Driveways 2, 3, and Driveway 5 10
Exhibit 1-5: Cumulative Plus Project (2025) Traffic Controls and Intersection Lane Configurations 11
Exhibit 1-6: Horizon Year (2040) With Project Traffic Controls and Intersection Lane Configurations 12
Exhibit 3-1: Existing Traffic Controls and Intersection Lane Configurations 22
Exhibit 3-2: Town of Apple Valley General Plan Street System 23
Exhibit 3-3: Town of Apple Valley General Plan Roadway Cross-Sections 24
Exhibit 3-4: Pedestrian Facilities 26
Exhibit 3-5: Town of Apple Valley Truck Routes 27
Exhibit 3-6: Existing (2023) AM Peak Hour Intersection Passenger Car Equivalent Volumes 29
Exhibit 3-7: Existing (2023) PM Peak Hour Intersection Passenger Car Equivalent Volumes 30
Exhibit 3-8: Existing (2023) Average Daily Traffic (ADT) Passenger Car Equivalent Volumes 31
Exhibit 4-1: Project (Truck) Trip Distribution 37
Exhibit 4-2: Project (Passenger Car) Trip Distribution 38
Exhibit 4-3: Project Only AM Peak Hour Intersection Passenger Car Equivalent Volumes 39
Exhibit 4-4: Project Only PM Peak Hour Intersection Passenger Car Equivalent Volumes 40
Exhibit 4-5: Project Only Average Daily Traffic (ADT) Passenger Car Equivalent Volumes 41
Exhibit 4-6: Cumulative Development Location Map 43
Exhibit 5-1: Opening Year Cumulative (2025) Without Project AM Peak Hour Intersection Volumes 46
Exhibit 5-2: Opening Year Cumulative (2025) Without Project PM Peak Hour Intersection Volumes 47
Exhibit 5-3: Opening Year Cumulative (2025) Without Project Average Daily Traffic (ADT) 48
Exhibit 5-4: Opening Year Cumulative (2025) With Project AM Peak Hour Intersection Volumes 49
Exhibit 5-5: Opening Year Cumulative (2025) With Project PM Peak Hour Intersection Volumes 50
Exhibit 5-6: Opening Year Cumulative (2025) With Project Average Daily Traffic 51
Exhibit 6-1: Horizon Year (2040) Without Project AM Peak Hour Intersection Volumes 56
Exhibit 6-2: Horizon Year (2040) Without Project PM Peak Hour Intersection Volumes 57
Exhibit 6-3: Horizon Year (2040) Without Project Average Daily Traffic (ADT) 58
Exhibit 6-4: Horizon Year (2040) With Project AM Peak Hour Intersection Volumes 59

Exhibit 6-5: Horizon Year (2040) With Project PM Peak Hour Intersection Volumes 60
Exhibit 6-6: Horizon Year (2040) With Project Average Daily Traffic (ADT) 61

LIST OF TABLES

Table 1-1: Intersection Analysis Locations 6
Table 1-2: Summary of LOS 7
Table 2-1: Signalized Intersection LOS Thresholds 16
Table 2-2: Unsignalized Intersection LOS Thresholds 17
Table 3-1: Intersection Analysis for Existing (2023) Conditions 32
Table 4-1: Project Trip Generation Summary (Actual Vehicles) 35
Table 4-2: Project Trip Generation Summary Passenger Car Equivalent (PCE) 36
Table 4-3: Cumulative Development land use Summary 44
Table 5-1: Intersection Analysis for Opening year Cumulative (2025) Conditions 54
Table 6-1: Intersection Analysis for Horizon Year (2040) Conditions 63
Table 6-2: Queuing Summary for Horizon Year (2040) Conditions With Improvements 64
Table 7-1: Project Fair Share Calculations 67

This page intentionally left blank

LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CMP	Congestion Management Program
DIF	Development Impact Fee
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
PHF	Peak Hour Factor
Project	Cordova Road Logistics Facility
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
sf	Square Feet
TA	Traffic Analysis
v/c	Volume to Capacity
vphgpl	Vehicles per Hour Green per Lane
WP	With Project

This page intentionally left blank

1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Cordova Road Logistics Facility ("Project"), which is located south of Quarry Road and east of Dachshund Rd in the Town of Apple Valley, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This traffic study has been prepared in accordance with the San Bernardino County Transportation Impact Study Guideline (July 9, 2019) as the Town of Apple Valley utilizes the County Guidelines, and consultation with Town staff during the traffic study scoping process. (1) (2) The Town approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

Study area intersections are currently operating at an acceptable LOS under Existing traffic conditions.

For cumulative conditions without the Project, the following intersections are anticipated to operate at an unacceptable LOS:

- Dachshund Av. / Johnson Rd. (#1) - LOS F AM and PM peak hours
- Dale Evans Pkwy. / Johnson Rd. (#2) – LOS F AM and PM peak hours
- Stoddard Wells Rd. / Johnson Rd. (#3) – LOS F AM and PM peak hours
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd. (#4) – LOS F AM and PM peak hours
- Quarry Rd. / Stoddard Wells Rd. (#5) – LOS F PM peak hour
- Quarry Rd. / I-15 SB Ramps (#6) – LOS F PM peak hour

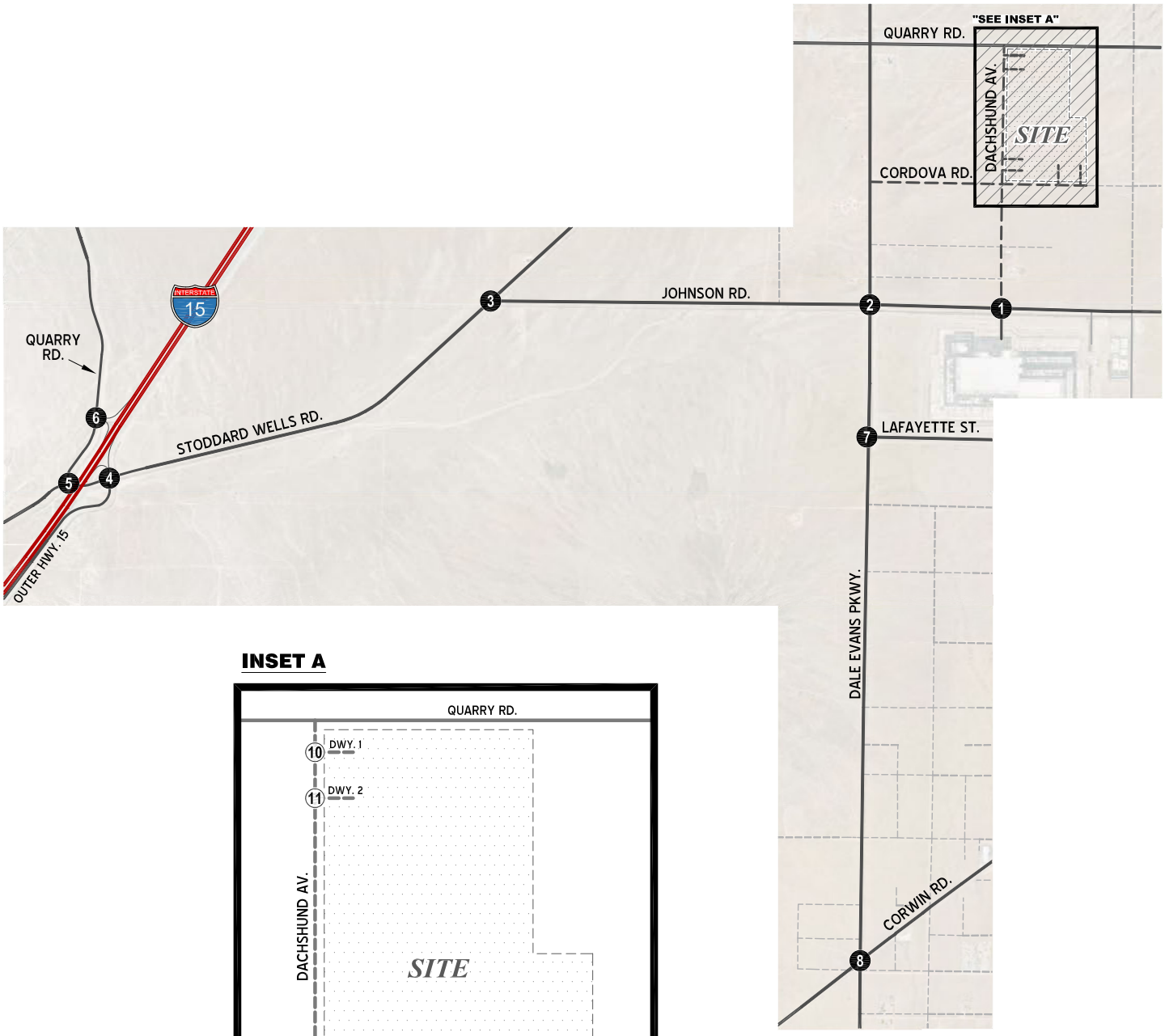
There are no additional study area intersections anticipated to operate at an unacceptable with the addition of Project traffic.

For opening year cumulative conditions without the Project, the following intersections are anticipated to meet peak hour volume warrants for traffic signal control:

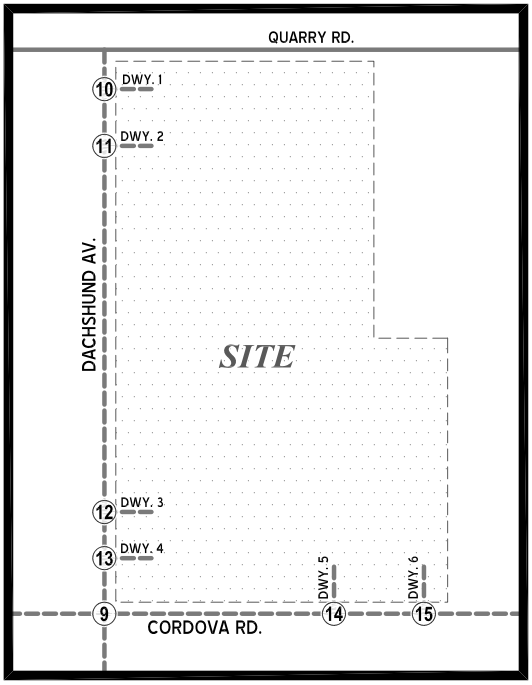
- Dachshund Av. / Johnson Rd. (#1)
- Dale Evans Pkwy. / Johnson Rd. (#2)
- Stoddard Wells Rd. / Johnson Rd. (#3)
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd. (#4)
- Quarry Rd. / Stoddard Wells Rd. (#5)
- Quarry Rd. / I-15 SB Ramps (#6)
- Dale Evans Pkwy. / Lafayette St. (#7)

Additional traffic signals are warranted for long range future conditions, with or without the Project, as documented in Section 6. The addition of Project traffic does not cause a change in traffic control at off-site study area intersections.

EXHIBIT 1-1: TRAFFIC ANALYSIS STUDY AREA



INSET A



LEGEND:

- 9 = EXISTING ANALYSIS LOCATION
- (7) = FUTURE ANALYSIS LOCATION
- = FUTURE ROADWAY

N

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Project to construct Project-adjacent roadways at their ultimate half-section widths in accordance with Town of Apple Valley standards, and including sidewalk, curb-and-gutter, landscaping, etc.:
  - construct Dachshund Avenue at its ultimate easterly half-section width plus 10' as a Secondary Road
  - construct Cordova Road at its ultimate northerly half-section width plus 10' as a Secondary Road
- Project to implement stop control for egress at Project driveways and construct the necessary ingress and egress lanes at each driveway needed to facilitate site access.
- Project Driveways 1, 4, and 6, to be restricted to passenger cars only (no large trucks).
- If adjacent development (Cordova Quarry located at the southeast corner of Dachshund Avenue and Cordova Road) does not construct future roadway connections on 1) Dachshund Avenue from Cordova Road to Johnson Road and 2) Cordova Road from Dachshund Avenue to Dale Evans Parkway prior to occupancy of the Cordova Road Logistics Facility, then the Project should construct both roadways at their ultimate half-section widths plus 10' to provide interim Project site access.

The Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections is fulfilled through payment into pre-existing fee programs (if applicable), and payment of fair share contributions to intersection improvements that are not already addressed in existing fee programs. The Project Applicant would be required to pay requisite fees consistent with the Town's requirements (see Section 7 *Local and Regional Funding Mechanisms*).

1.2 PROJECT OVERVIEW

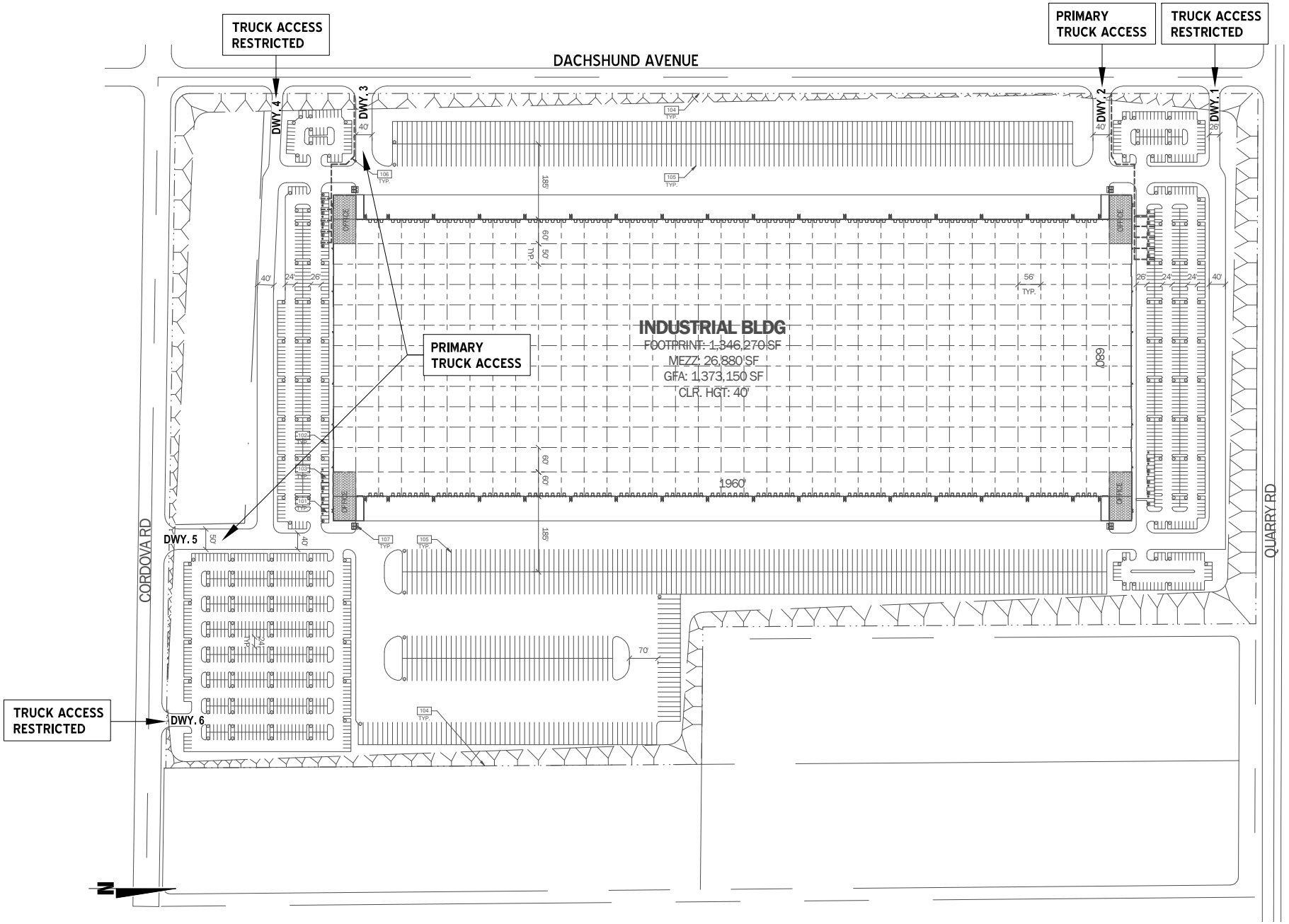
A preliminary site plan for the proposed Project is shown on Exhibit 1-2. The Project is proposed to consist of 1,346,270 square feet (sf) of high cube warehouse/distribution. For purposes of this analysis, the Project is assumed to consist of 1,144,330 square of high cube warehouse floor area (85% of total), and 201,940 square feet of cold storage (15% 0f total). The Project has been evaluated in a single phase. As indicated on Exhibit 1-2, the Project will have four access points along the future Dachshund Avenue and two access points along the future Cordova Road.

Regional access to the Project site is available from the I-15 Freeway via Stoddard Wells Road interchanges. Exhibit 1-1 depicts the location of the proposed Project in relation to the existing roadway network and the study area intersections.

In order to develop the traffic characteristics of the high-cube warehouse land use for the Proposed Project, trip-generation statistics published in the TUMF High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) are used. The purpose of WSP 2019 study was to gather enough data to develop reliable trip generation rates for centers for use in traffic impact studies in the Inland Empire.

For the remaining high-cube cold storage portion of the Proposed Project, the trip generation rates published by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 11th Edition (2021) have been utilized. ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for 201,940 square feet (15% of the overall building square footage). High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



The Project is anticipated to generate a total of 4,518 Passenger Car Equivalent (PCE) trip-ends per day with 253 AM PCE peak vehicle hour trips and 334 PM PCE peak hour vehicle trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2023) Conditions
- Background Without Project (2025)
- Background With Project (2025)
- Cumulative Without Project (2040)
- Cumulative With Project (2040)

1.3.1 EXISTING (2023) CONDITIONS

Information for Existing (2023) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 OPENING YEAR CUMULATIVE (2025) CONDITIONS

The Opening Year Cumulative (2025) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2023) conditions of 4.04% (2 percent per year over 2 year) is included for Opening Year Cumulative (2025) traffic conditions. Conservatively, this TA estimates the area ambient traffic growth and then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed ambient growth rates; and some of these related projects may not be implemented and operational within the 2025 Opening Year time frame assumed for the Project. The resulting traffic growth utilized in the TA (ambient growth factor plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic deficiencies under 2025 traffic conditions.

1.3.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) conditions were derived from the San Bernardino County Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing. The Horizon Year conditions analysis is utilized to determine if General Plan roadway configurations adequately serve projected long range future traffic volumes at the target Level of Service (LOS) identified in the Town of Apple Valley (lead agency) General Plan.

1.4 STUDY AREA

To ensure that this TA satisfies the Town of Apple Valley's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by Town of Apple Valley staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the Town is included in Appendix 1.1 of this TA.

The 15 study area intersections shown on Exhibit 1-1 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with Town of Apple Valley staff. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the Town's traffic study guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within San Bernardino County for estimating a potential area of influence (i.e., study area).

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection	#	Intersection
1	Dachshund Av. / Johnson Rd.	9	Dachshund Av. / Cordova Rd.
2	Dale Evans Pkwy. / Johnson Rd.	10	Dachshund Av. / Dwy. 1
3	Stoddard Wells Rd. / Johnson Rd.	11	Dachshund Av. / Dwy. 2
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.	12	Dachshund Av. / Dwy. 3
5	Quarry Rd. / Stoddard Wells Rd.	13	Dachshund Av. / Dwy. 4
6	Quarry Rd. / I-15 SB Ramps	14	Dwy. 5 / Cordova Rd.
7	Dale Evans Pkwy. / Lafayette St.	15	Dwy. 6 / Cordova Rd.
8	Dale Evans Pkwy. / Corwin Rd.		

Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *Opening Year Cumulative (2025) Traffic Conditions,* and Section 6 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-2.

1.5 RECOMMENDATIONS

1.5.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. On-site and site-adjacent recommendations are shown on Exhibit 1-3.

TABLE 1-2: LEVEL OF SERVICE (LOS) SUMMARY

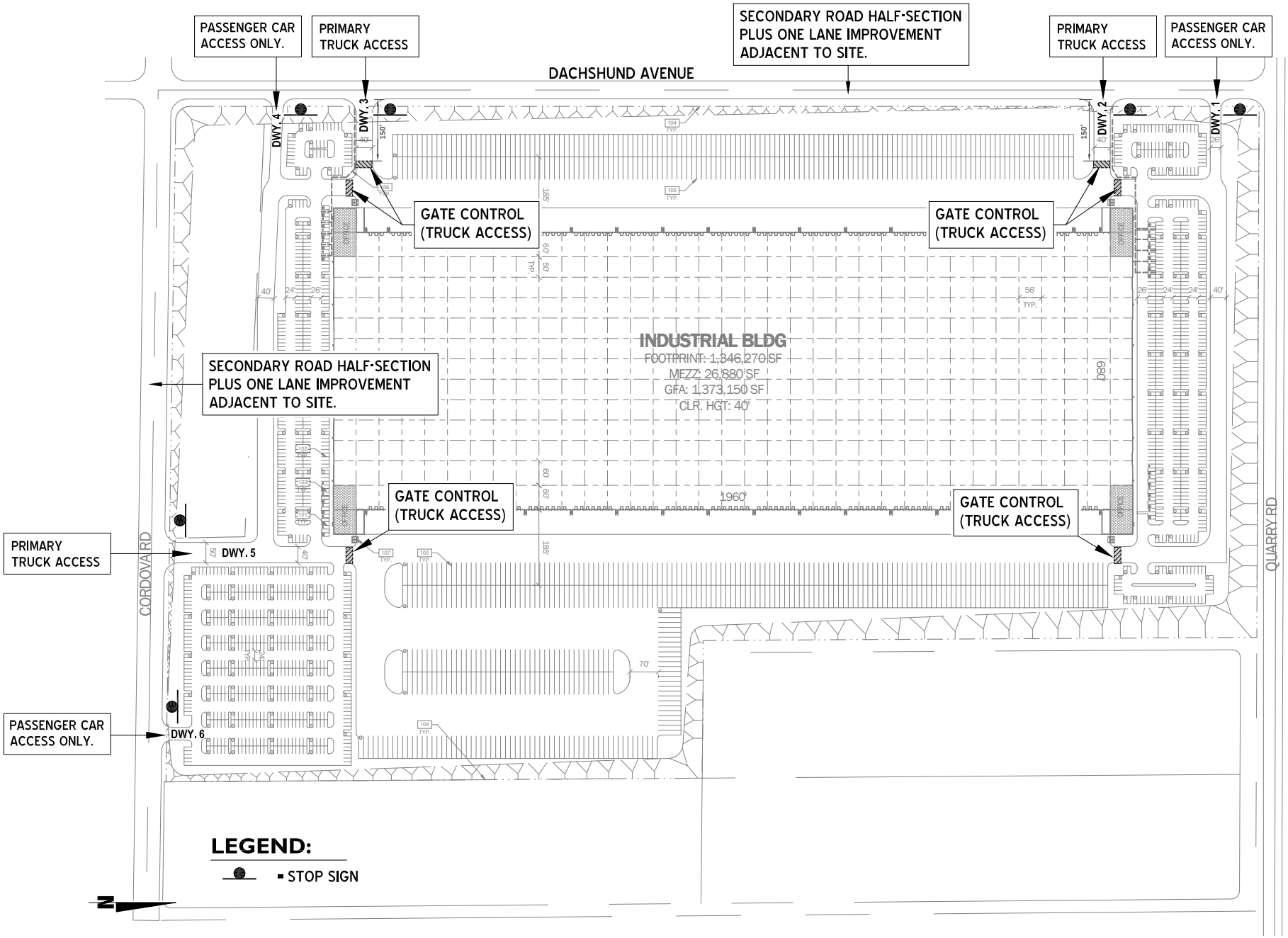
#	Intersection	Existing (2023)		2025 w/o Project		2025 w/ Project		HY (2040) w/o Project		HY (2040) w/ Project	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Dachshund Av. / Johnson Rd.										
	- With Cross-Street Stop	●	●	●	●	●	●	●	●	●	●
	- With Traffic Signal	N/A	N/A	●	●	●	●	●	●	●	●
2	Dale Evans Pkwy. / Johnson Rd.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	●	●	●	●	●	●	●	●
3	Stoddard Wells Rd. / Johnson Rd.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	●	●	●	●	●	●	●	●
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	●	●	●	●	●	●	●	●
5	Quarry Rd. / Stoddard Wells Rd.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	●	●	●	●	●	●	●	●
6	Quarry Rd. / I-15 SB Ramps										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	●	●	●	●	●	●	●	●
7	Dale Evans Pkwy. / Lafayette St.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	N/A	N/A	N/A	N/A	●	●	●	●
8	Dale Evans Pkwy. / Corwin Rd.										
	- Without Improvements	●	●	●	●	●	●	●	●	●	●
	- With Improvements	N/A	N/A	N/A	N/A	N/A	N/A	●	●	●	●
9	Dachshund Av. / Cordova Rd.										
	- With Cross-Street Stop	N/A	N/A	●	●	●	●	●	●	●	●
	- With Traffic Signal	N/A	N/A	N/A	N/A	N/A	N/A	●	●	●	●
10	Dachshund Av. / Dwy. 1	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●
11	Dachshund Av. / Dwy. 2	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●
12	Dachshund Av. / Dwy. 3	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●
13	Dachshund Av. / Dwy. 4	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●
14	Dwy. 5 / Cordova Rd.	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●
15	Dwy. 6 / Cordova Rd.	N/A	N/A	N/A	N/A	●	●	N/A	N/A	●	●

Legend:

● = A - D ● = E ● = F

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]1-1_LOS Summary

EXHIBIT 1-3: SITE ACCESS RECOMMENDATIONS



Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-4). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-4, the curb radius should be updated to 50 feet, in order to accommodate the ingress and egress of heavy trucks.

Traffic control recommendations regarding Opening Year Cumulative conditions are shown on Exhibit 1-5. Exhibit 1-6 shows the intersection lane recommendations for horizon year conditions.

Recommendation 1 – Project to construct Dachshund Avenue at its ultimate easterly half-section width plus 10' as a Secondary Road (88-foot right-of-way) with the Town's standard, from Quarry Road to Cordova Road.

If adjacent development (Cordova Quarry located southeast corner of Dachshund Avenue and Cordova Road) does not construct connection from Dachshund Avenue/Cordova Road intersection to existing roadway to the south prior to occupancy of the Cordova Road Logistics Facility, then the Project should construct Dachshund Avenue to its ultimate half-section widths plus 10' as a Secondary Roadway, from Cordova Road to Johnson Road.

Recommendation 2 – Project to construct Cordova Road at its ultimate northerly half-section width plus 10' as a Secondary Road (88-foot right-of-way) with the Town's standard, from Dachshund Avenue to the easterly Project boundary.

If adjacent development (Cordova Quarry located southeast corner of Dachshund Avenue and Cordova Road) does not construct connection from Dachshund Avenue/Cordova Road intersection to existing roadway to the west prior to occupancy of the Cordova Road Logistics Facility, then the Project should construct, the Project is to also construct Cordova Road to its ultimate half-section widths plus 10' as a Secondary Roadway, from Dachshund Avenue to Dale Evans Parkways.

Recommendation 3 – Dachshund Avenue & Cordova Road (#9) – For horizon year conditions, provide a 200' northbound left turn pocket on Dachshund Avenue approaching Cordova Road, a 200' southbound left turn pocket on Dachshund Avenue approaching Cordova Road, a 200' eastbound left turn pocket on Cordova Road approaching Dachshund Avenue, and a 200' westbound left turn pocket on Cordova Road approaching Dachshund Avenue. A traffic signal is recommended for horizon year conditions. Project fair share contribution (see Section 7.3) towards the traffic signal is recommended.

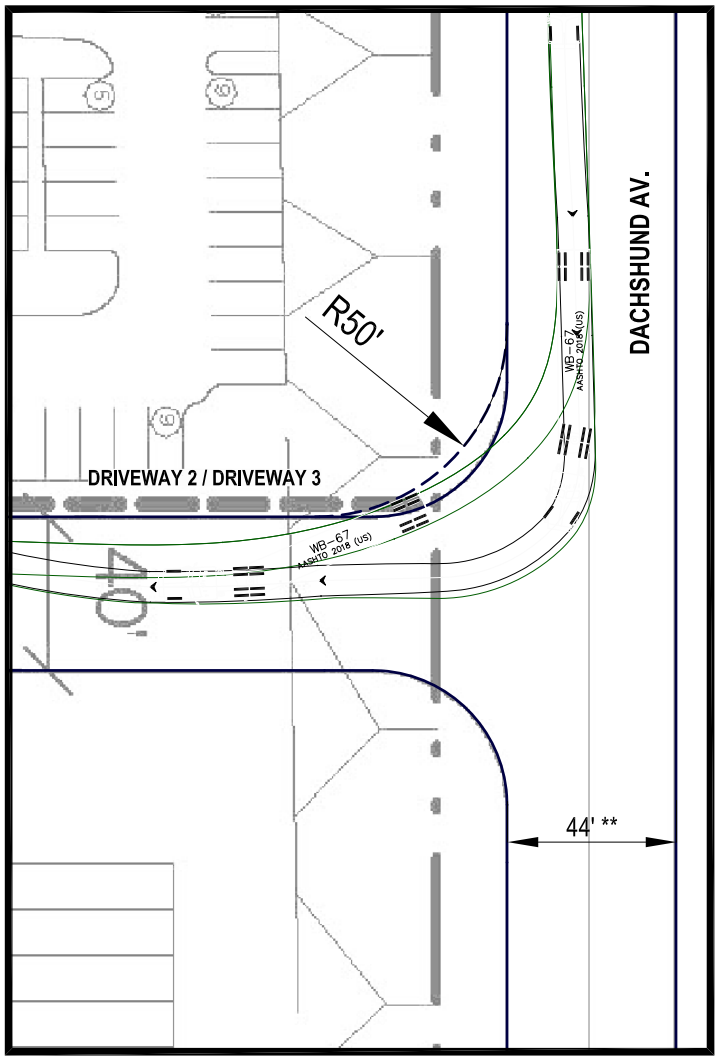
Recommendation 4 – Dachshund Avenue & Driveway 1 (#10) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. Project Driveway 1 is to be restricted to passenger cars only (no large trucks).

Recommendation 5 – Dachshund Avenue & Driveway 2 (#11) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. To accommodate large trucks, adjust the Driveway 2 / Dachshund Avenue on-site curb returns to 50' radii as indicated on Exhibit 1-4.

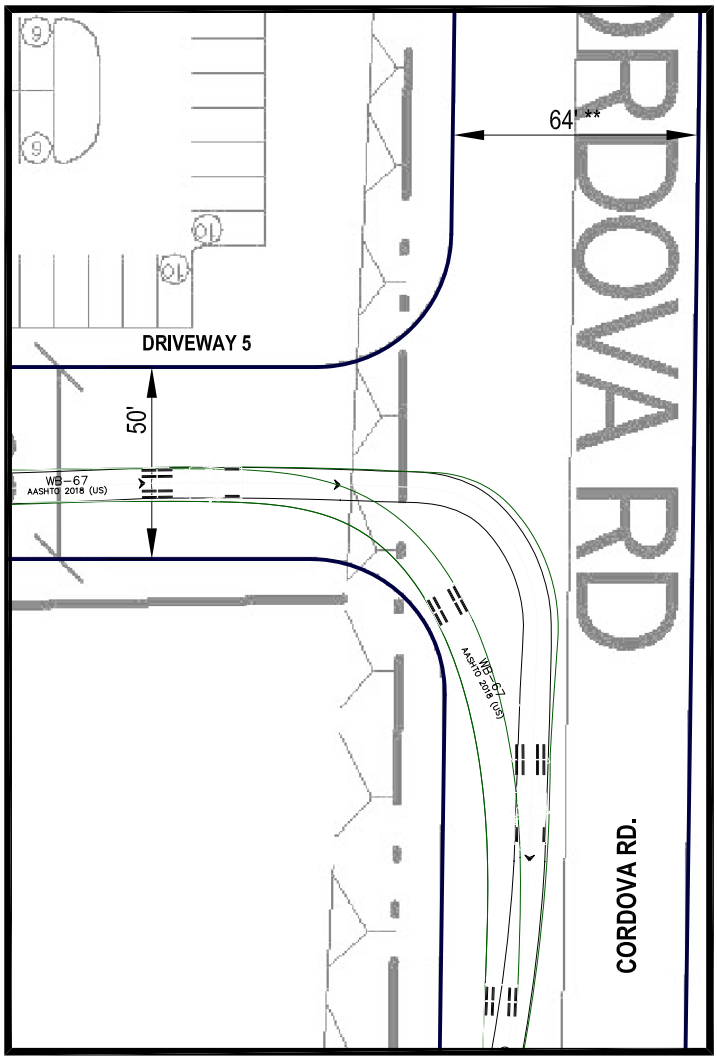
Recommendation 6 – Dachshund Avenue & Driveway 3 (#12) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. To accommodate large trucks, adjust the Dachshund Avenue / Driveway 3 on-site curb returns to 50' radii as indicated on Exhibit 1-4.

EXHIBIT 1-4: TRUCK ACCESS, DRIVEWAYS 2, 3, AND DRIVEWAY 5

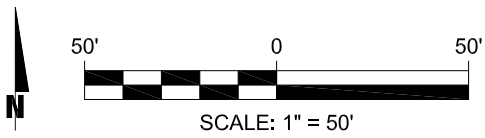
INBOUND ALONG DACHSHUND AV.



OUTBOUND ALONG CORDOVA RD.

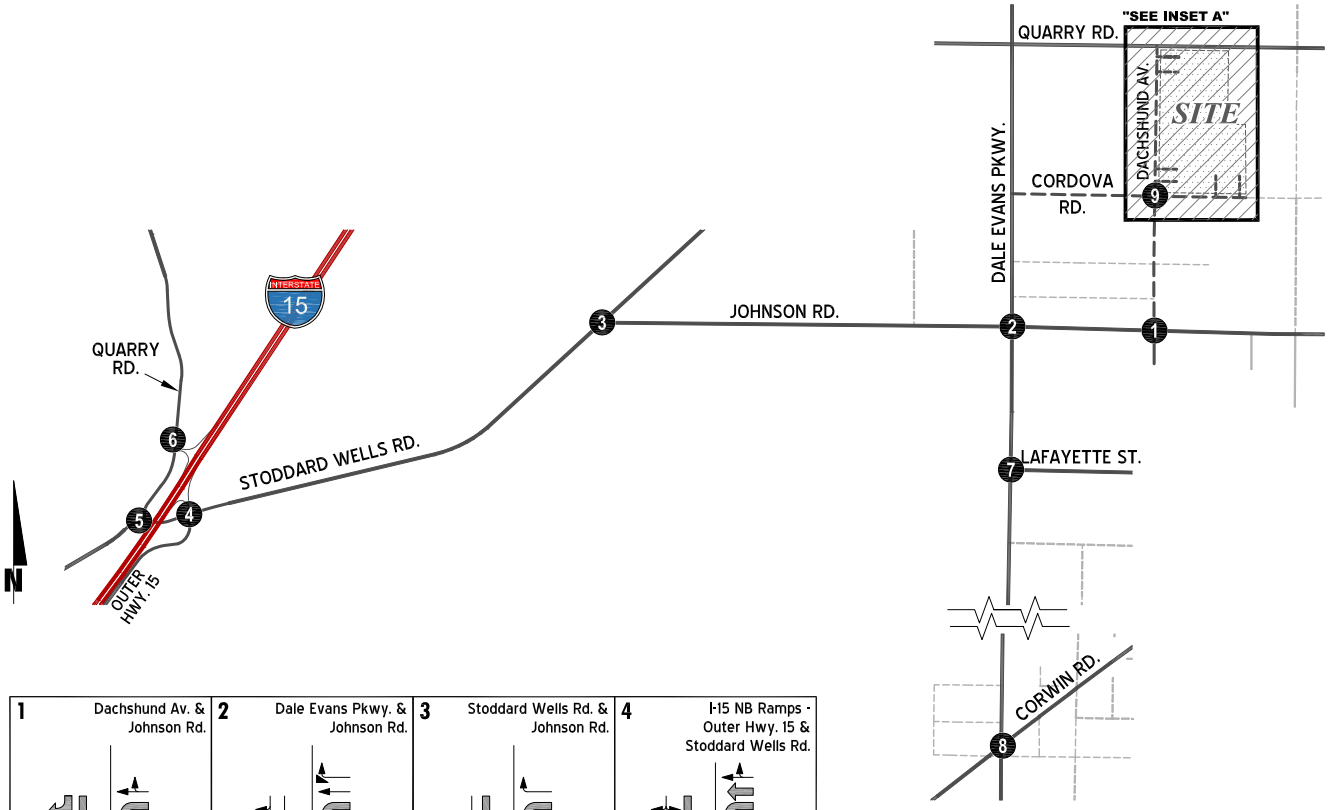


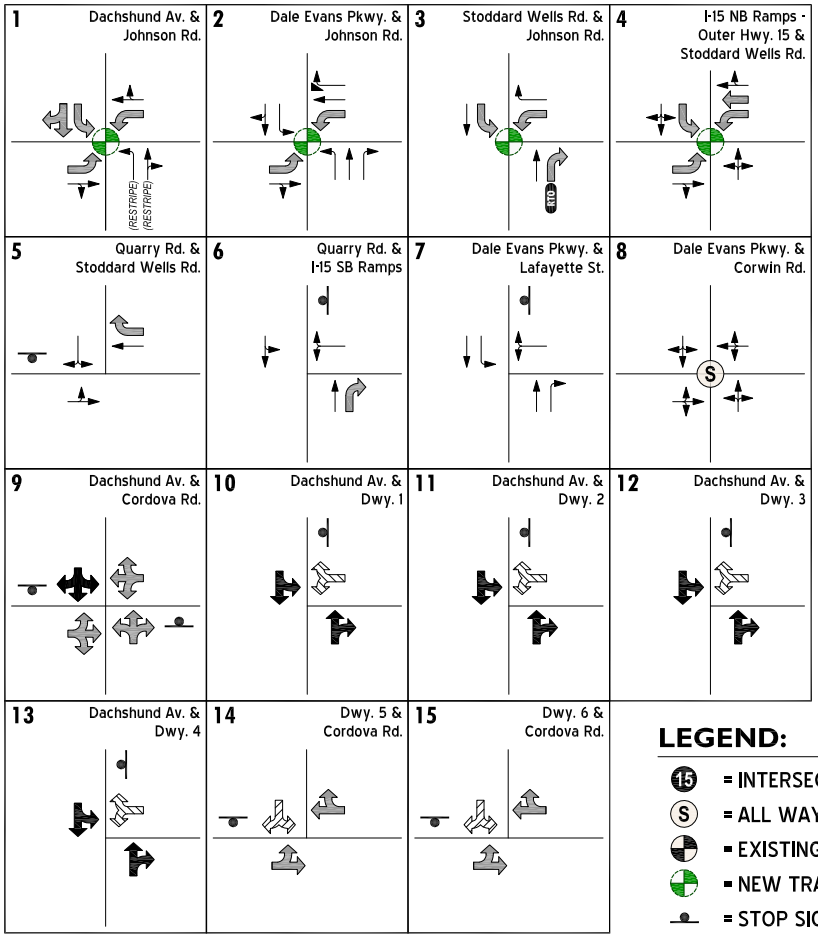
** OUTSIDE CURB TO EASTERLY EDGE OF PAVEMENT IS EQUIVALENT TO THE HALF-SECTION PLUS ONE LANE IMPROVEMENT ON DACHSHUND AVENUE, ADJACENT TO THE SITE



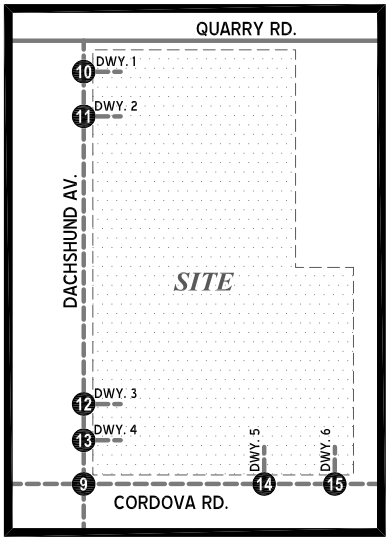
02 - Truck Turn.dwg

EXHIBIT 1-5: CUMULATIVE PLUS PROJECT (2025)
TRAFFIC CONTROLS AND INTERSECTION LANE CONFIGURATIONS





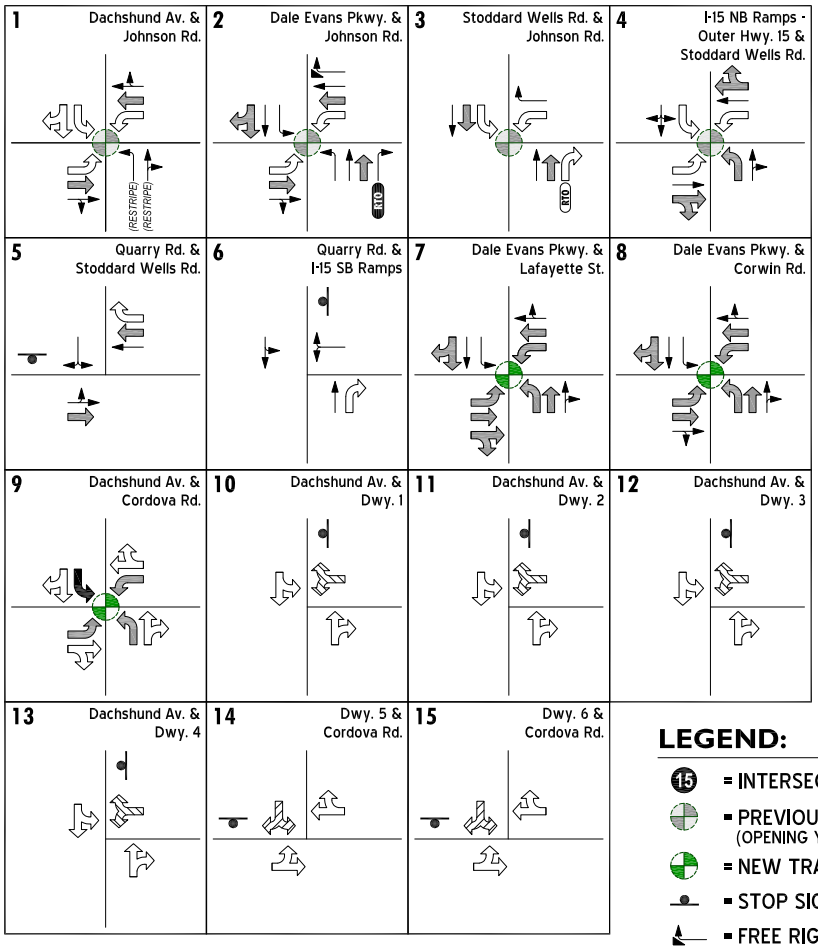
INSET A



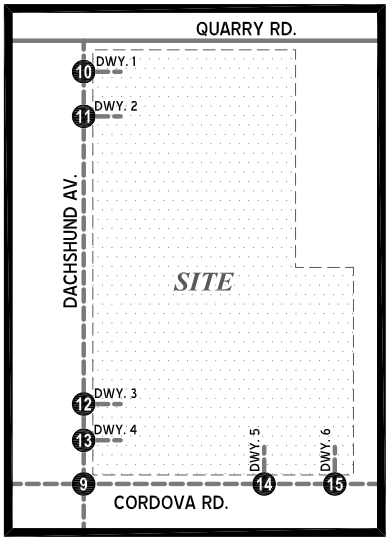
LEGEND:

- 15 = INTERSECTION ID
- S = ALL WAY STOP
- = EXISTING TRAFFIC SIGNAL
- = NEW TRAFFIC SIGNAL
- = STOP SIGN
- = FREE RIGHT TURN
- = EXISTING LANE
- = LANE IMPROVEMENT
- = DRIVEWAY IMPROVEMENT
- = CUMULATIVE IMPROVEMENT
- RTO = RIGHT TURN OVERLAP PHASING IMPROVEMENT

EXHIBIT 1-6: HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONTROLS AND INTERSECTION LANE CONFIGURATIONS



INSET A



LEGEND:

- 15 = INTERSECTION ID
- = PREVIOUS TRAFFIC SIGNAL (OPENING YEAR CONDITIONS)
- = NEW TRAFFIC SIGNAL
- = STOP SIGN
- = FREE RIGHT TURN
- = EXISTING LANE
- = LANE IMPROVEMENT
- = DRIVEWAY IMPROVEMENT
- = CUMULATIVE IMPROVEMENT
- = PREVIOUS IMPROVEMENT (OPENING YEAR CONDITIONS)
- = FUTURE INTERCHANGE
- RTO = RIGHT TURN OVERLAP PHASING IMPROVEMENT
- RTO = PREVIOUS RIGHT TURN OVERLAP PHASING IMPROVEMENT

Recommendation 7 – Dachshund Avenue & Driveway 4 (#13) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. Project Driveway 4 is to be restricted to passenger cars only (no large trucks).

Recommendation 8 – Driveway 5 & Cordova Road (#14) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location.

Recommendation 9 – Driveway 6 & Cordova Road (#15) – Cross-street stop sign control will adequately serve future traffic conditions at this driveway location. Project Driveway 6 is to be restricted to passenger cars only (no large trucks).

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and Town of Apple Valley sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

This Page Intentionally Left Blank

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with Town of Apple Valley's Traffic Study Guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The Town of Apple Valley requires signalized intersection operations analysis based on the methodology described in the HCM. (4) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

Consistent with Appendix B of the San Bernardino County CMP, the following saturation flow rates, in vehicles per hour green per lane (vphgpl), will be utilized in the traffic analysis for signalized intersections:

Existing and Opening Year Cumulative Traffic Conditions:

- Exclusive through: 1800 vphgpl
- Exclusive left: 1700 vphgpl
- Exclusive right: 1800 vphgpl
- Exclusive dual left: 1600 vphgpl
- Exclusive triple left: 1500 vphgpl

Horizon Year (2040) Traffic Conditions:

- Exclusive through: 1900 vphgpl
- Exclusive left: 1800 vphgpl
- Exclusive dual left: 1700 vphgpl
- Exclusive right: 1900 vphgpl
- Exclusive dual right: 1800 vphgpl
- Exclusive triple left: 1600 vphgpl or less

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

2.2.2 UNSIGNALIZED INTERSECTIONS

The Town of Apple Valley requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (5)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Posted speed limits on the major roadways with unsignalized intersections are 40 miles per hour or below, which coincides with using the rural warrants.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for all study area intersections.

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *Opening Year Cumulative (2025) Traffic Conditions, and* Section 6 *Horizon Year (2040) Traffic Conditions* of this report. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies have been obtained from each of the applicable jurisdictions.

2.4.1 TOWN OF APPLE VALLEY

According to the Town of Apple Valley's General Plan, LOS C or better is preferable, but LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, where feasible.

2.4.2 CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, in an effort to overstate as opposed to understate potential deficiencies, LOS D has been utilized for the CMP intersections for the purposes of this analysis. (2)

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. Per the Town's Traffic Study Guidelines: In accordance with the Town's General Plan Circulation Element, at intersections where the LOS falls below, or is expected to fall below an acceptable threshold with or without the addition of the project, feasible measures shall be identified to mitigate the project's impacts for all project scenario conditions. The TA calculates the project's fair share towards each improvement required to serve cumulative conditions with or without the Project.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TA identifies that the Project would contribute additional traffic volumes to traffic deficiencies, Project fair share costs of improvements necessary to address deficiencies have been identified. The Project's fair share cost of improvements is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total future (Horizon Year) traffic less existing baseline traffic:

Project Fair Share % = Project (2040) AM/PM Traffic / (2040 With Project AM/PM Total Traffic – Existing AM/PM Traffic)

The project fair share percentage has been calculated for both the AM peak hour and PM peak hour and the highest of the two has been selected. The Project fair share contribution calculations are presented in Section 7 *Local and Regional Funding Mechanisms* of this TA.

This Page Intentionally Left Blank

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the Town of Apple Valley General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with Town of Apple Valley staff (Appendix 1.1), the study area includes a total of 15 existing and future intersections as shown previously on Exhibit 1-3. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 TOWN OF APPLE VALLEY GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the Town of Apple Valley. The road designations and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the Town of Apple Valley General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the Town of Apple Valley General Plan Street System and Exhibit 3-3 illustrates the Town of Apple Valley General Plan roadway cross-sections.

Dale Evans Parkway is classified as a Major Divided Parkway on the Town of Apple Valley General Plan Street System. The Major Divided Parkway classification has a 142-foot right-of-way and 112-foot curb-to-curb measurement. Bike lanes or parking are included adjacent to the curb.

Major Divided Arterials have a 128-foot right-of-way and 104-foot curb-to-curb measurement. Bike lanes or parking are included adjacent to the curb. Stoddard Wells Road southwest of Johnson Road is classified as a Major Divided Arterial.

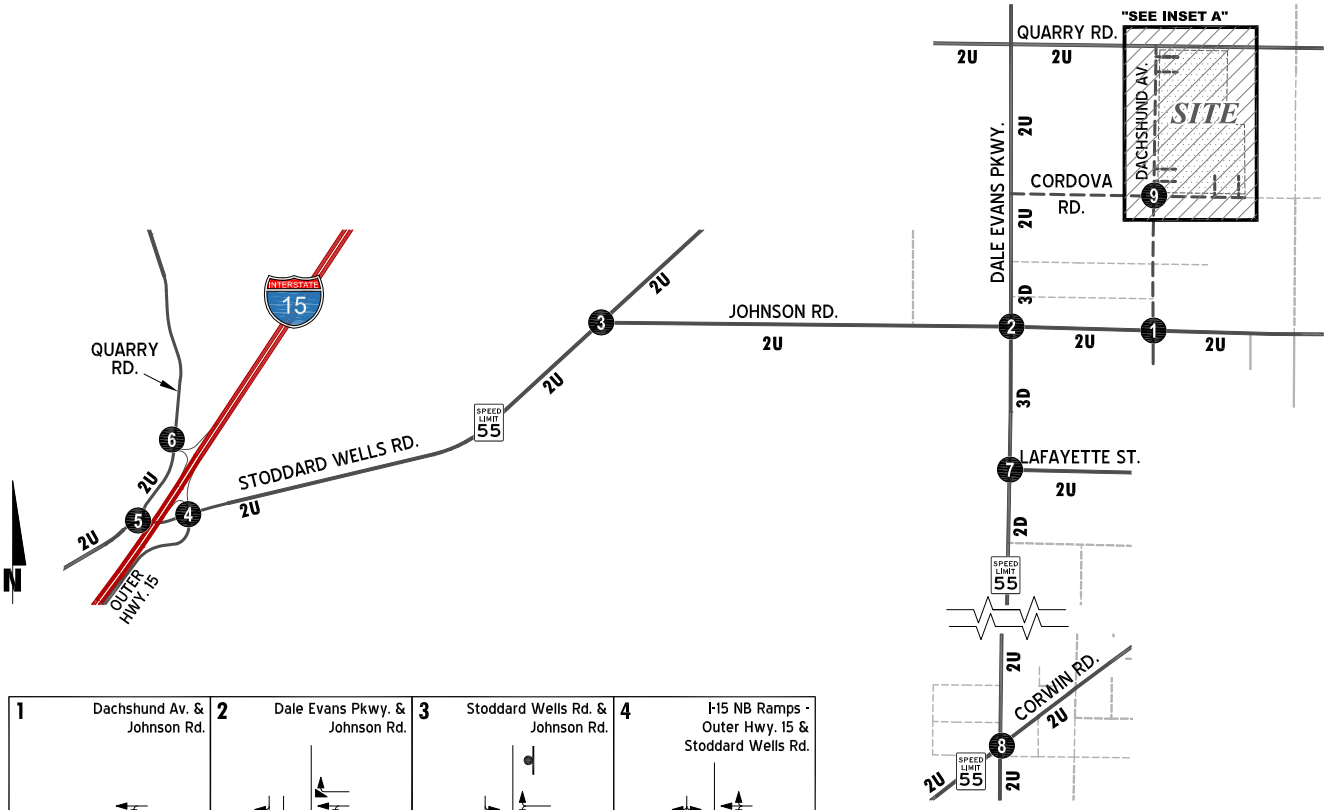
The Major Road classification is identified as having 104-foot right-of-way and 80-foot curb-to-curb measurement. The following study area roadways are classified as a Major Road:

- Johnson Road
- Corwin Road, which has a modified road section southwest of Dale Evans Parkway

The Secondary Arterial designation is identified as having an 88-foot right-of-way and 64-foot curb-to-curb measurement. Bike lanes or parking are included adjacent to the curb. The following study area roadways are classified as a Secondary Arterial:

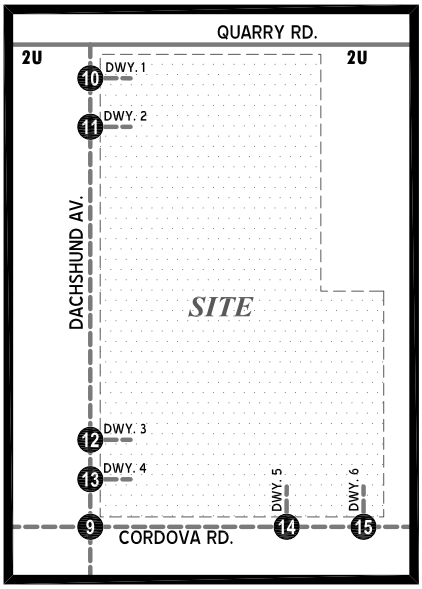
- Quarry Road
- Dachshund Avenue
- Cordova Road
- Lafayette Street

EXHIBIT 3-1: EXISTING TRAFFIC CONTROLS AND INTERSECTION LANE CONFIGURATIONS



1 Dachshund Av. & Johnson Rd.	2 Dale Evans Pkwy. & Johnson Rd.	3 Stoddard Wells Rd. & Johnson Rd.	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd.
5 Quarry Rd. & Stoddard Wells Rd.	6 Quarry Rd. & I-15 SB Ramps	7 Dale Evans Pkwy. & Lafayette St.	8 Dale Evans Pkwy. & Corwin Rd.
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A



LEGEND:

15 = INTERSECTION ID	4 = NUMBER OF LANES
S = ALL WAY STOP	D = DIVIDED
= STOP SIGN	U = UNDIVIDED
= FREE RIGHT TURN	

EXHIBIT 3-2: TOWN OF APPLE VALLEY GENERAL PLAN STREET SYSTEM

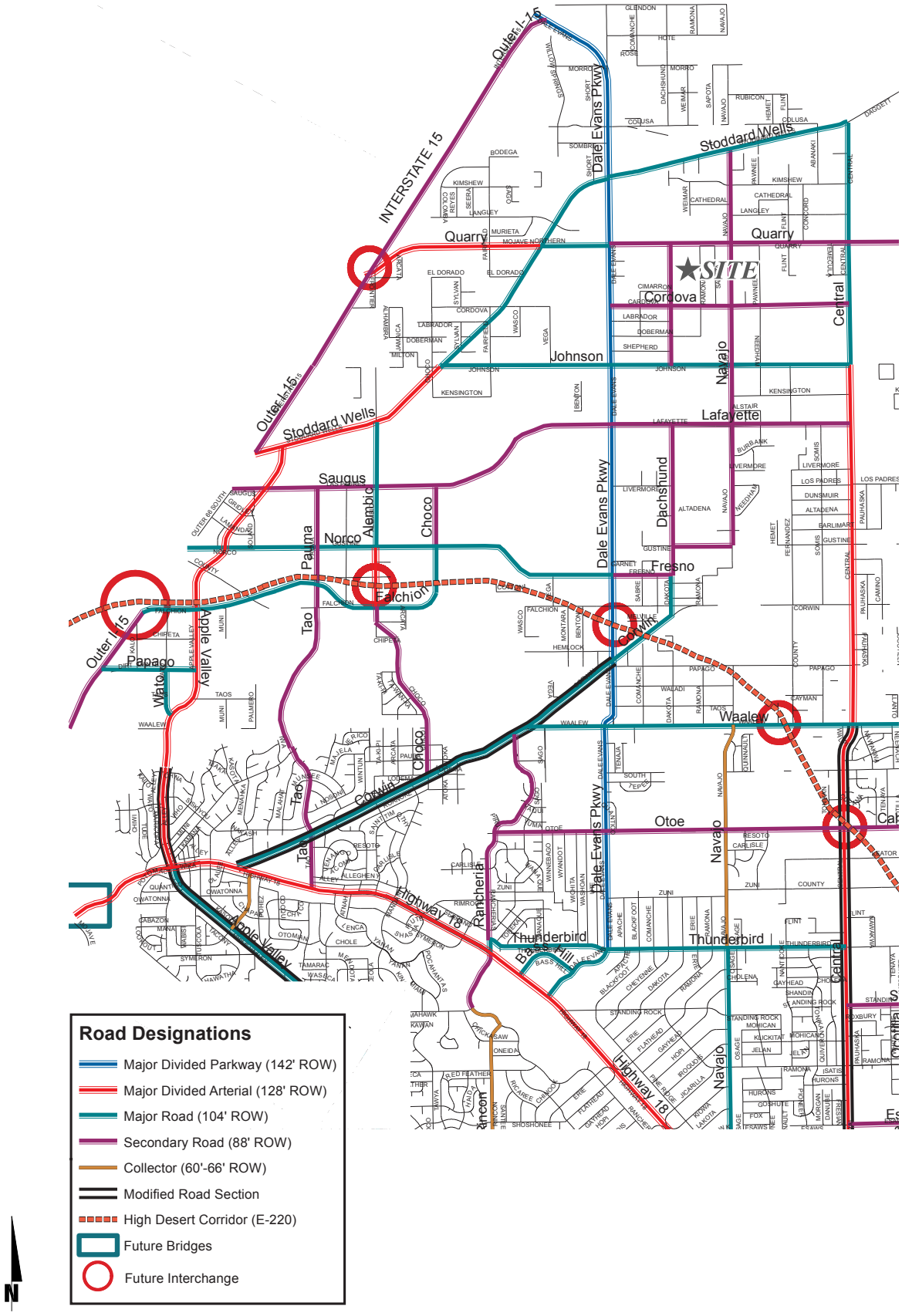
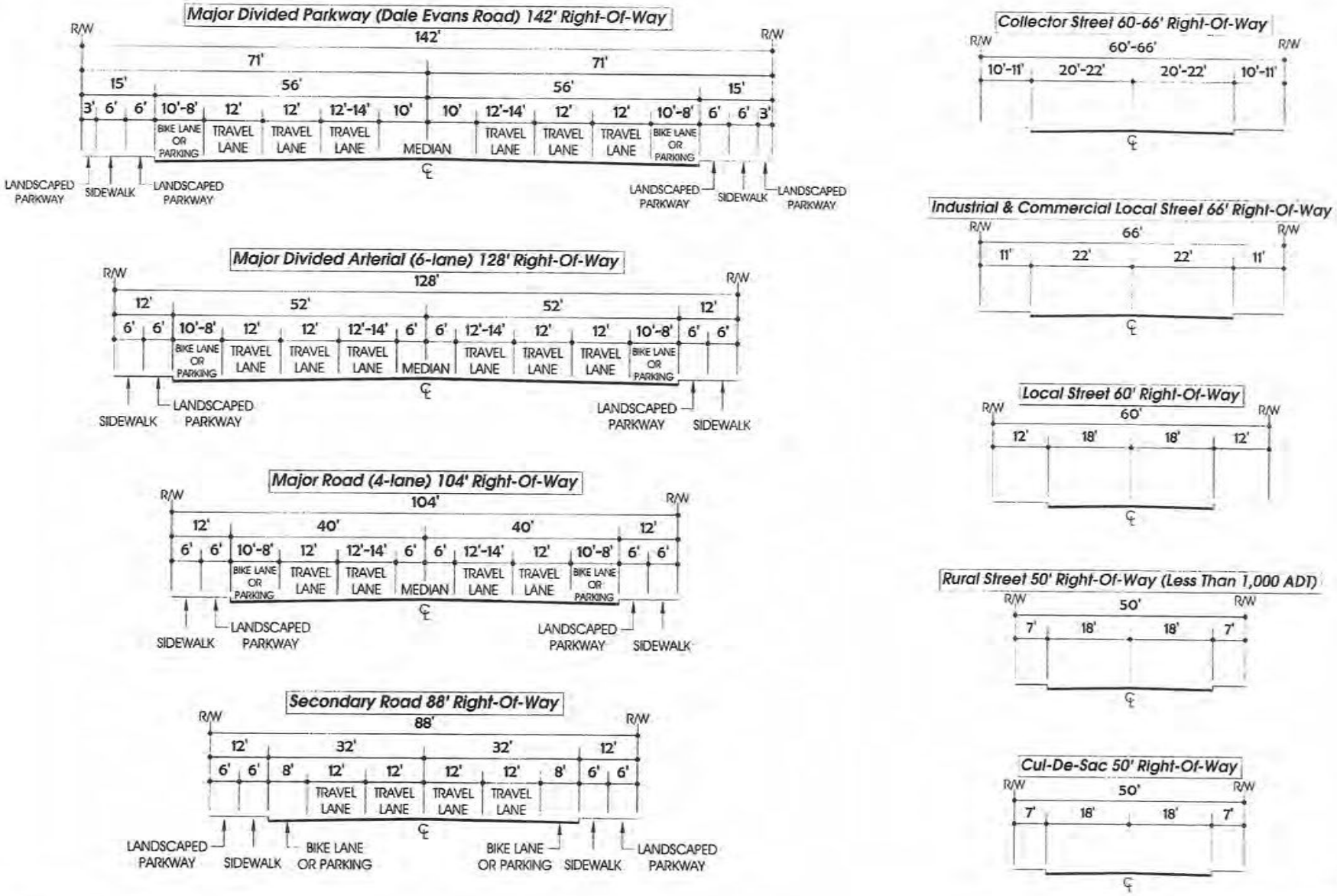


EXHIBIT 3-3: TOWN OF APPLE VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS



3.3 PEDESTRIAN FACILITIES

Exhibit 3-4 illustrates the pedestrian facilities along the Project site. Sidewalks are proposed along the Project frontage on Cordova Road and Dachshund Avenue.

3.4 TRANSIT SERVICE

The study area is currently served by Victor Valley Transit Authority (VVTA), a public transit agency serving various jurisdictions within San Bernardino County. Based on a review of the existing transit routes within the vicinity of the proposed Project, Route 42 currently runs along Dale Evans Parkway, Johnson Road, and Corwin Road.

Transit service is reviewed and updated by VVTA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. As such, it is recommended that the applicant work in conjunction with VVTA to potentially provide bus service to the site.

3.5 TRUCK ROUTES

The Town of Apple Valley and Caltrans' designated truck routes is shown on Exhibit 3-5. Through truck routes are included on Dale Evans Parkway and Johnson Road in the study area. Local Truck Routes are also shown on Stoddard Wells Road, Navajo, Lafayette Street, and Corwin Road. These designated truck routes have been utilized for both the proposed Project and future cumulative development projects for the purposes of this TA.

3.6 EXISTING (2023) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in November 2023. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The 2023 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. As such, no additional adjustments were made to the traffic counts to establish the baseline condition. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

EXHIBIT 3-4: PEDESTRIAN FACILITIES

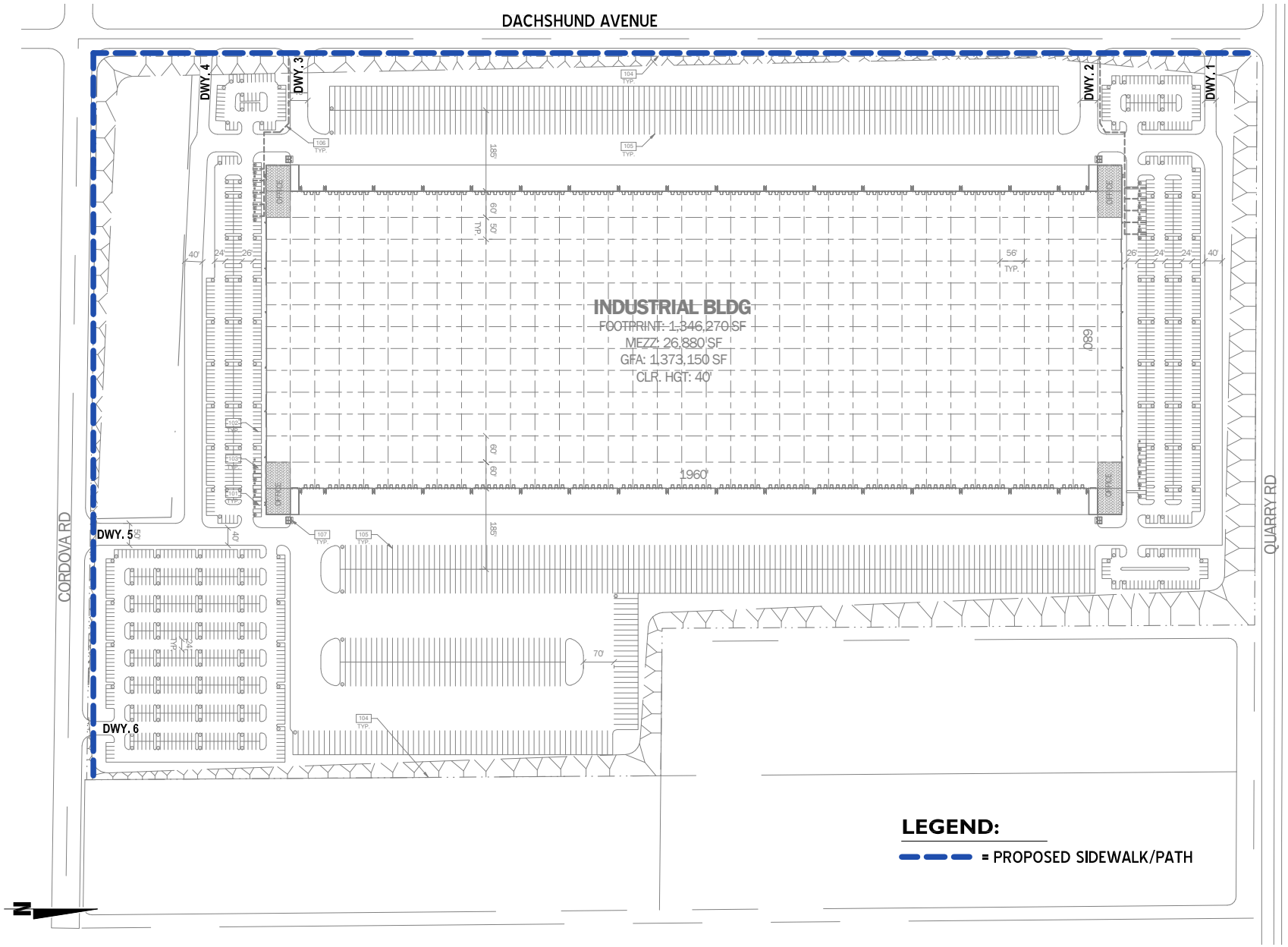
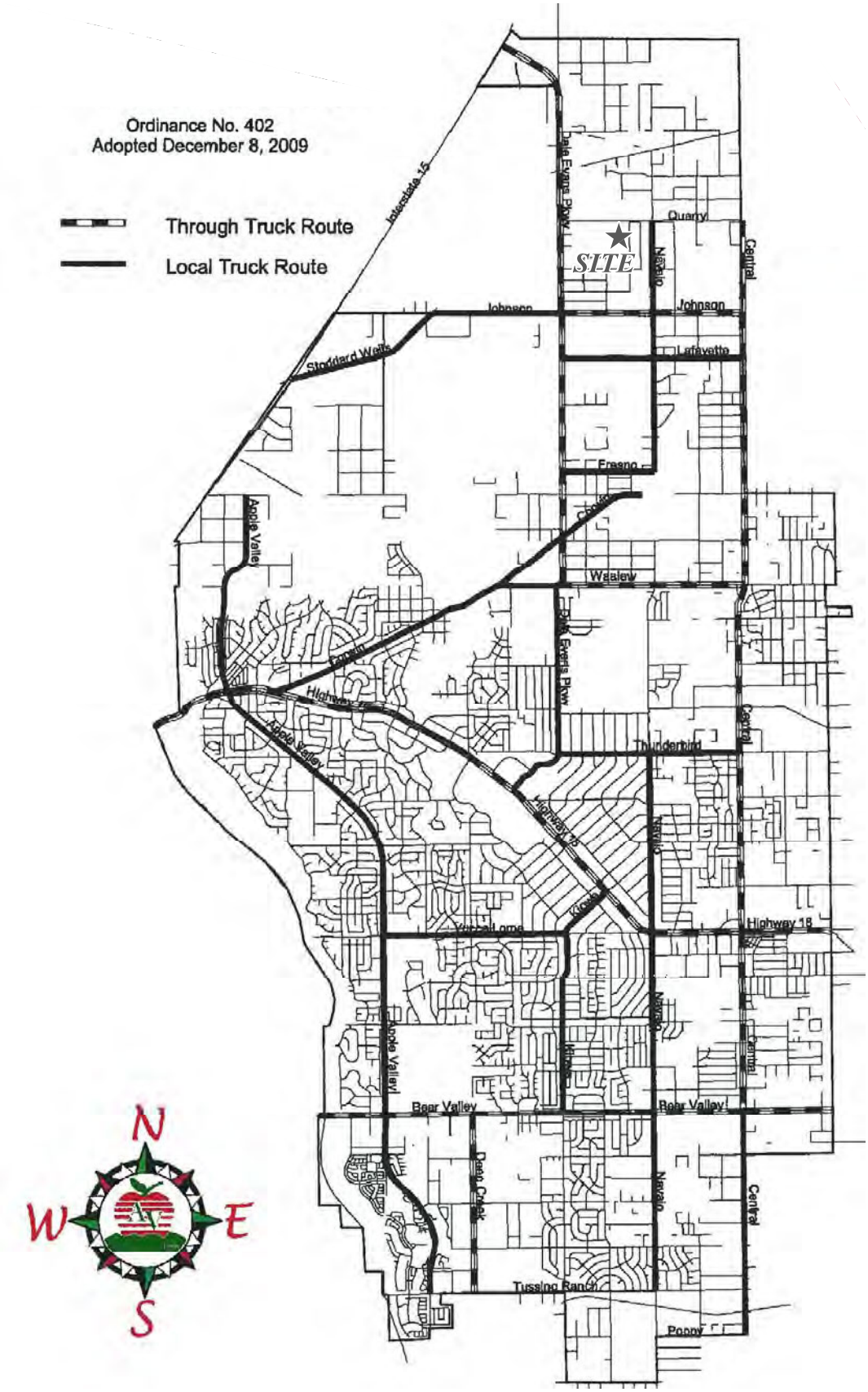


EXHIBIT 3-5: TOWN OF APPLE VALLEY TRUCK ROUTES



To represent the effect large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into passenger car equivalent (PCE). By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, the following PCE factors have been used to estimate each turning movement: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks. These factors are consistent with the values recommended for use in the Town's Guidelines.

Existing weekday intersection peak hour turning movement volumes and segment daily traffic volumes are shown on Exhibit 3-6. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 10.870 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 9.20 percent. As such, the above equation utilizing a factor of 10.870 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 9.20 percent (i.e., 1/0.0920 = 10.87) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday and weekend peak hour intersection volumes, in actual vehicles, are also shown on Exhibit 3-7.

3.7 INTERSECTION OPERATIONS ANALYSIS

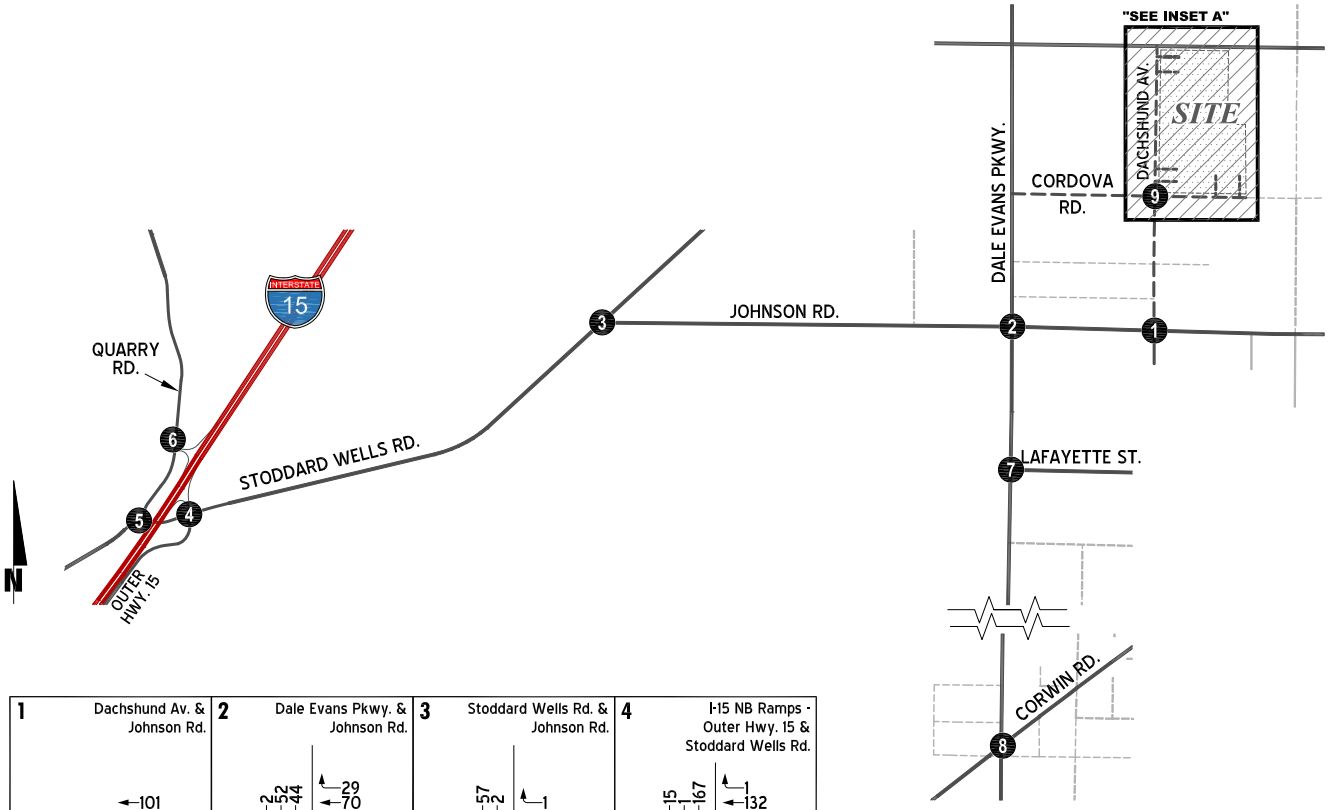
Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-1, which indicates that study area intersections are currently operating at an acceptable LOS during the peak hours.

The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

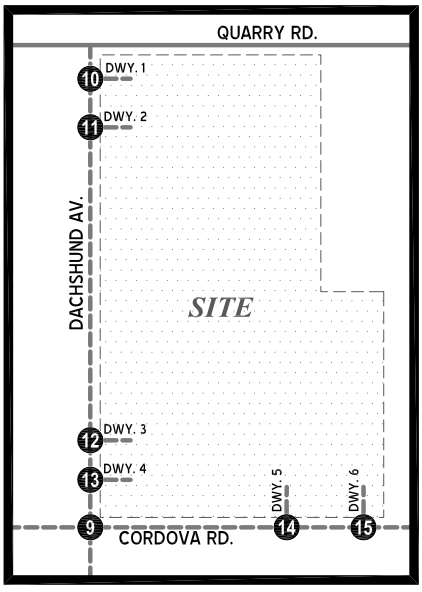
Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal for Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

EXHIBIT 3-6: EXISTING (2023) AM PEAK HOUR INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES



1 Dachshund Av. & Johnson Rd.	2 Dale Evans Pkwy. & Johnson Rd.	3 Stoddard Wells Rd. & Johnson Rd.	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd.
5 Quarry Rd. & Stoddard Wells Rd.	6 Quarry Rd. & I-15 SB Ramps	7 Dale Evans Pkwy. & Lafayette St.	8 Dale Evans Pkwy. & Corwin Rd.
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A

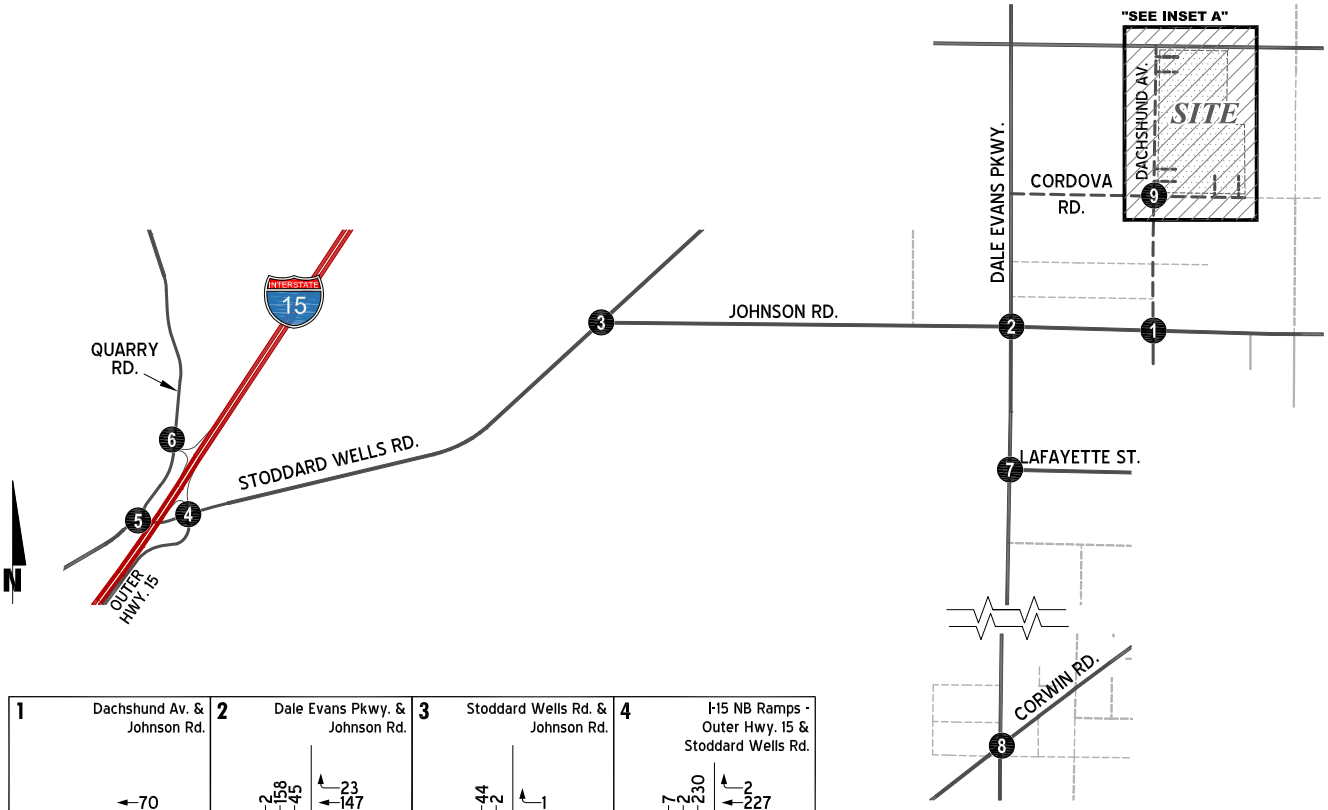


LEGEND:

= INTERSECTION ID

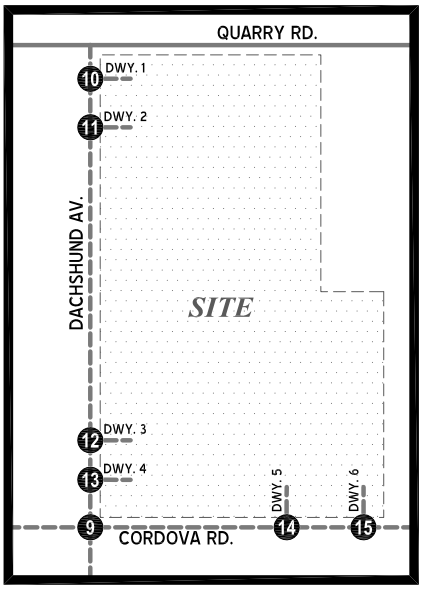
= FUTURE ROADWAY

EXHIBIT 3-7: EXISTING (2023) PM PEAK HOUR INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES



1 Dachshund Av. & Johnson Rd.	2 Dale Evans Pkwy. & Johnson Rd.	3 Stoddard Wells Rd. & Johnson Rd.	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd.
5 Quarry Rd. & Stoddard Wells Rd.	6 Quarry Rd. & I-15 SB Ramps	7 Dale Evans Pkwy. & Lafayette St.	8 Dale Evans Pkwy. & Corwin Rd.
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A



LEGEND:

= INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 3-8: EXISTING (2023) AVERAGE DAILY TRAFFIC (ADT)
PASSENGER CAR EQUIVALENT VOLUMES

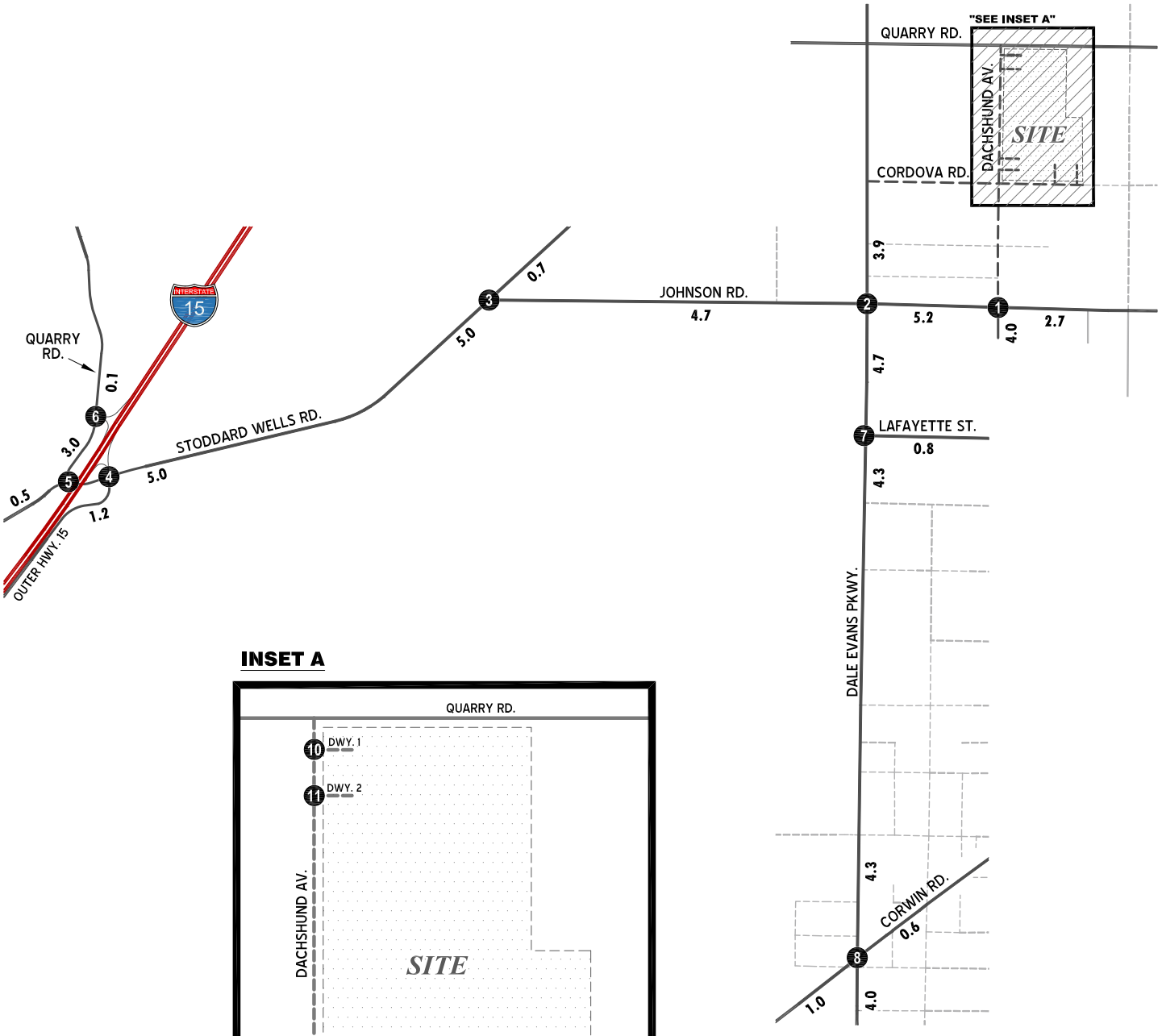


TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2023) CONDITIONS

#	Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												Delay[3] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Dachshund Av. / Johnson Rd.	CSS	0.5	0.5	1	0	0	0	0	1	0	0.5	0.5	0	10.6	17.8	B	C
2	Dale Evans Pkwy. / Johnson Rd.	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	9.2	18.8	A	C
3	Stoddard Wells Rd. / Johnson Rd.	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	10.7	14.0	B	B
4	I-15 NB Ramps / Stoddard Wells Rd.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	13.2	33.8	B	D
5	Quarry Rd. / Stoddard Wells Rd.	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	9.5	10.4	A	B
6	Quarry Rd. / I-15 SB Ramps	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	9.3	10.0	A	B
7	Dale Evans Pkwy. / Lafayette St.	CSS	0	1	1	1	1	0	0	0	0	0	1!	0	9.9	10.4	A	B
8	Dale Evans Pkwy. / Corwin Rd.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	7.8	9.5	A	A
9	Dachshund Av. / Cordova Rd.		Future Intersection															
10	Dachshund Av. / Dwy. 1		Future Intersection															
11	Dachshund Av. / Dwy. 2		Future Intersection															
12	Dachshund Av. / Dwy. 3		Future Intersection															
13	Dachshund Av. / Dwy. 4		Future Intersection															
14	Dwy. 5 / Cordova Rd.		Future Intersection															
15	Dwy. 6 / Cordova Rd.		Future Intersection															

[1] CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane;
>> = Free-Right Turn

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]3-1

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of 1,346,270 square feet (sf) of high cube warehouse/distribution use. The Project is evaluated in a single phase. For the purposes of the traffic analysis, trips associated with the Project are determined assuming 1,144,330 square of high cube warehouse floor area (85% of total), and 201,940 square feet of cold storage (15% 0f total). Vehicular access will be provided via four access points along the future Dachshund Avenue and two access points along the future Cordova Road. Regional access to the Project site is available from the I-15 Freeway via Stoddard Wells Road interchange.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

In order to develop the traffic characteristics of the high-cube warehouse land use for the Proposed Project, trip-generation statistics published in the TUMF High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) are used. The purpose of WSP 2019 study was to gather enough data to develop reliable trip generation rates for centers for use in traffic impact studies in the Inland Empire.

In addition, the South Coast Air Quality Management District (SCAQMD) recommends the use of 0.64 truck trips per 1,000 square feet, which would account for variations in the future users.

ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for 201,940 square feet (15% of the overall building square footage). High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. High-cube cold storage warehouses are facilities typified by temperature-controlled environments for frozen food or other perishable products.

Refinements to the raw trip generation estimates for the high-cube cold storage warehouse have been made to provide a more detailed breakdown of trips by vehicle mix. Data regarding the vehicle mix has been obtained from the High Cube Warehouse Vehicle Trip Generation Analysis (ITE, October 2016). The ITE 2016 vehicle trip generation analysis provides vehicle mix datasets for Cold Storage Warehouse uses, which consists of 32.2% trucks for daily trips, 30.8% trucks for AM peak hour trips and 21.7% trucks for PM peak hour trips. The South Coast Air Quality Management (SCAQMD) recommended truck mix for each axle type is utilized for 2- axle, 3-axle, and 4+-axle trucks for warehouse use with cold storage (2-Axle = 34.7%; 3-Axle = 11.0%; 4+-Axle = 54.3%.).

Passenger car equivalents (PCEs) allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses.

Table 4-1 shows the vehicle trip generation rates for the Proposed Project, as well as the vehicle trip generation summary with daily and peak hour trip generation estimates. Table 4-2 presents the passenger-car-equivalent (PCE) trip generation rates for the Proposed Project with the resulting PCE daily and peak hour trip generation estimates. As shown on Table 4-2, Proposed Project is anticipated to generate a total of 4,518 PCE trip-ends per day with 253 AM peak vehicle hour trips and 334 PM peak hour vehicle trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. Exhibit 4-1 illustrates the distribution patterns for the Project passenger cars and Exhibit 4-2 illustrates the distribution patterns for the Project trucks.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project weekday ADT and weekday peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2025 traffic conditions. The total ambient growth is 4.04% for 2025 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in conjunction with traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the Town of Apple Valley. The cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY
ACTUAL VEHICLES

Proposed Project Trip Generation Rates[1]

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks			0.028	0.008	0.036	0.014	0.036	0.050	0.640
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.085	0.025	0.110	0.034	0.086	0.120	2.12
Passenger Cars (69.2% AM, 78.3% PM, 67.8% Daily)			0.059	0.017	0.076	0.026	0.068	0.094	1.437
2-Axle Trucks (10.69% AM, 7.53% PM, 11.17% Daily)			0.009	0.003	0.012	0.003	0.006	0.009	0.237
3-Axle Trucks (3.39% AM, 2.39% PM, 3.54% Daily)			0.003	0.001	0.004	0.001	0.002	0.003	0.075
4-Axle+ Trucks (16.72% AM, 11.78% PM, 17.49% Daily)			0.014	0.004	0.018	0.004	0.010	0.014	0.371

Proposed Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (Actual)			32	10	42	16	41	57	732
High Cube Warehouse Subtotal			107	33	140	53	135	188	2,436
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	4	16	5	14	19	290
- Truck Trips									
2-axle:			*2*	*1*	*3*	*1*	*1*	*2*	*48*
3-axle:			*1*	*0*	*1*	*0*	*0*	*0*	*15*
4+-axle:			*3*	*1*	*4*	*1*	*2*	*3*	*75*
- Net Truck Trips (Actual Vehicles)			6	2	8	2	3	5	138
High Cube Cold Storage Warehouse Subtotal			18	6	24	7	17	24	428
Passenger Cars Subtotal			87	27	114	42	108	150	1,994
Truck Trips Subtotal			38	12	50	18	44	62	870
PROJECT TOTAL TRIPS (ACTUAL VEHICLES)[7]			125	39	164	60	152	212	2,864

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units

[3] Source: *TUMF High-Cube Warehouse Trip Generation Study*. Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center*.
Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.

[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).

[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks

[7] Total Net Trips (Actual Vehicles) = Passenger Cars + Net Truck Trips (Actual Trucks).

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]15504 TG - Actual

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY
PASSENGER CAR EQUIVALENT (PCE)

Project Trip Generation Rates[1]

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.150	0.045	0.195	0.075	0.190	0.265	3.409
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks (PCE = 3.0)			0.084	0.025	0.109	0.042	0.108	0.150	1.920
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.121	0.036	0.157	0.045	0.111	0.156	3.06
Passenger Cars			0.059	0.017	0.076	0.026	0.068	0.094	1.437
2-Axle Trucks (PCE = 1.5)			0.014	0.005	0.019	0.005	0.009	0.014	0.356
3-Axle Trucks (PCE = 2.0)			0.006	0.002	0.008	0.002	0.004	0.006	0.150
4-Axle+ Trucks (PCE = 3.0)			0.042	0.012	0.054	0.012	0.030	0.042	1.113

Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (PCE = 3.0)			96	29	125	48	124	172	2,197
High Cube Warehouse Subtotal			171	52	223	85	218	303	3,901
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	3	15	5	14	19	290
- Truck Trips									
2-axle (PCE = 1.5):			*3*	*1*	*4*	*1*	*2*	*3*	*72*
3-axle (PCE = 2.0):			*1*	*0*	*1*	*0*	*1*	*1*	*30*
4+-axle (3.0):			*8*	*2*	*10*	*2*	*6*	*8*	*225*
- Net Truck Trips (PCE)			12	3	15	3	9	12	327
High Cube Cold Storage Warehouse Subtotal			24	6	30	8	23	31	617
Passenger Cars Subtotal			87	26	113	42	108	150	1,994
Truck Trips Subtotal			108	32	140	51	133	184	2,524
PROJECT TOTAL EXTERNAL TRIPS (PCE)[7]			195	58	253	93	241	334	4,518

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units

[3] Source: *TUMF High-Cube Warehouse Trip Generation Study* . Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center* .
Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.

[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).

[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks

[7] Total Net Trips (PCE) = Passenger Cars + Net Truck Trips (Passenger Car Equivalent).

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]15504 TG - PCE

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION

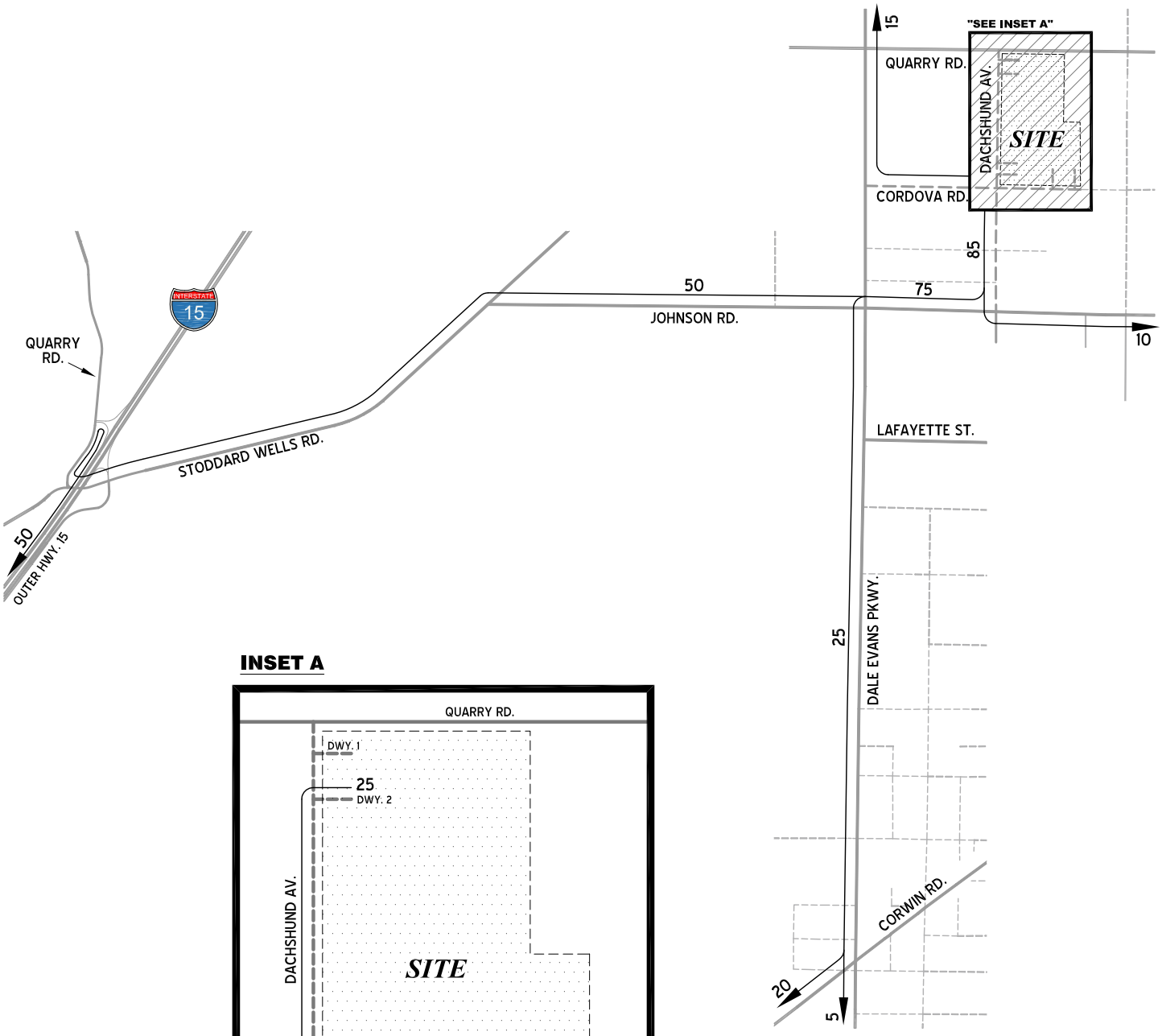
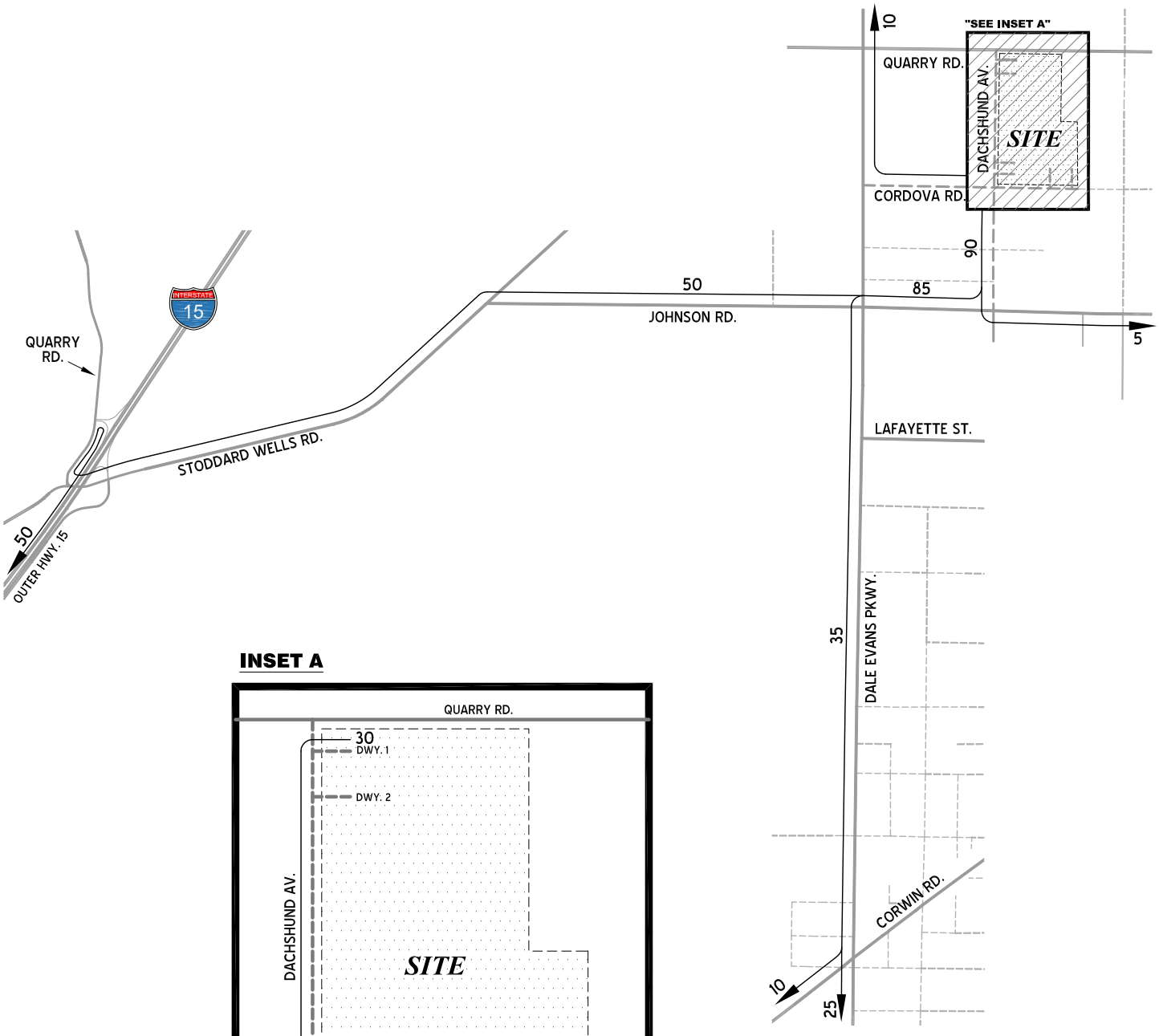
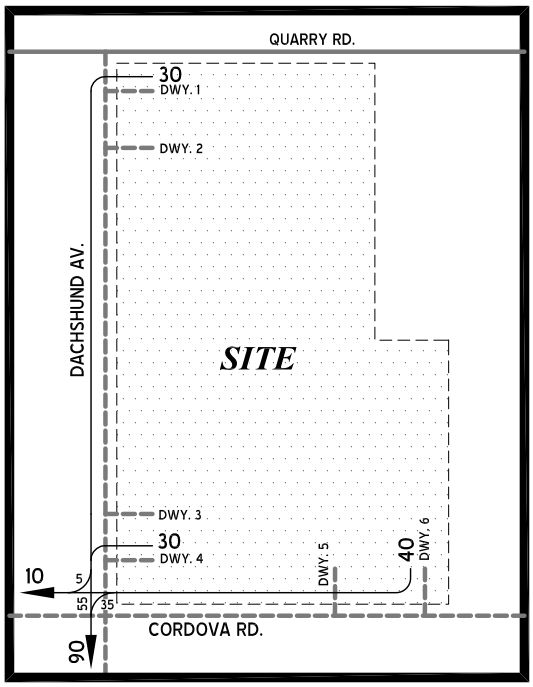


EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



INSET A



LEGEND:

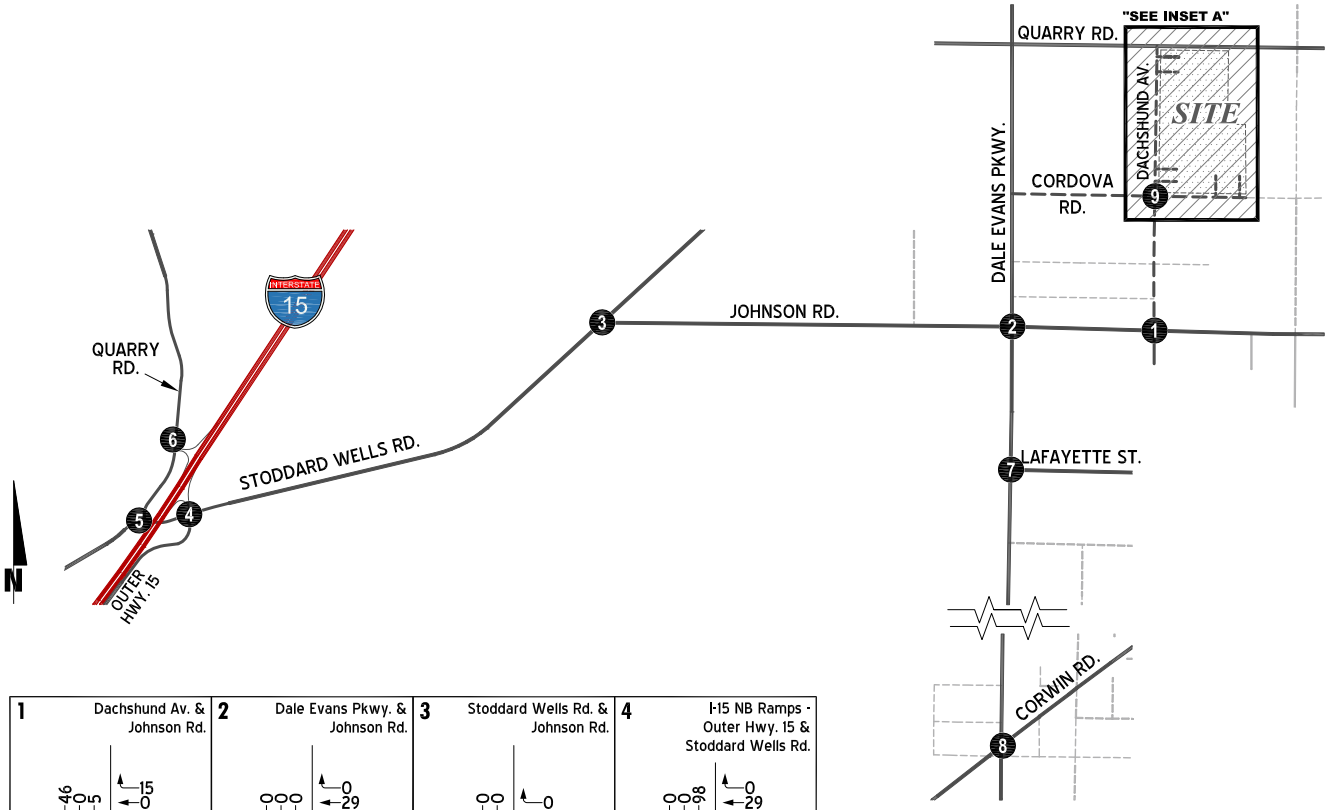
10 = PERCENT TO/FROM PROJECT

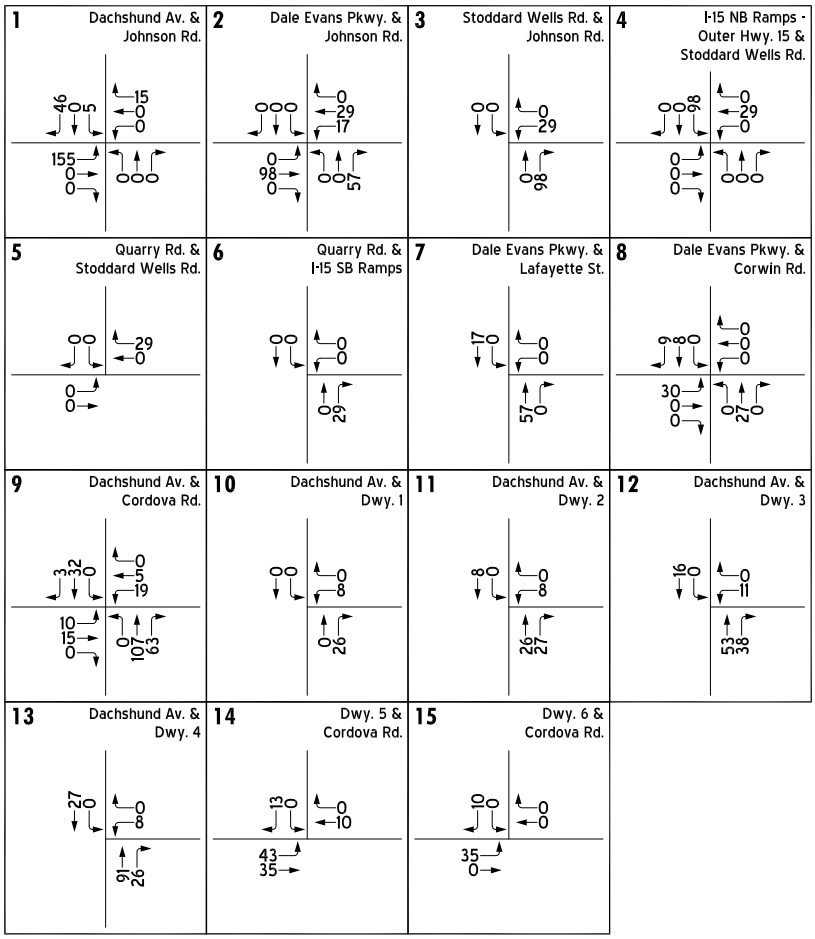
= FUTURE ROADWAY

N

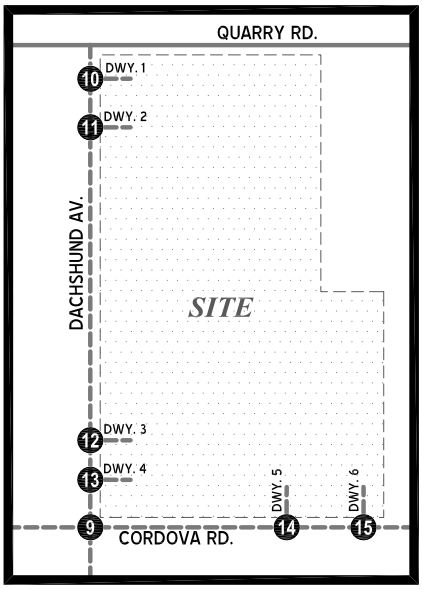
01 - Study Area.dwg

EXHIBIT 4-3: PROJECT ONLY AM PEAK HOUR INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES





INSET A

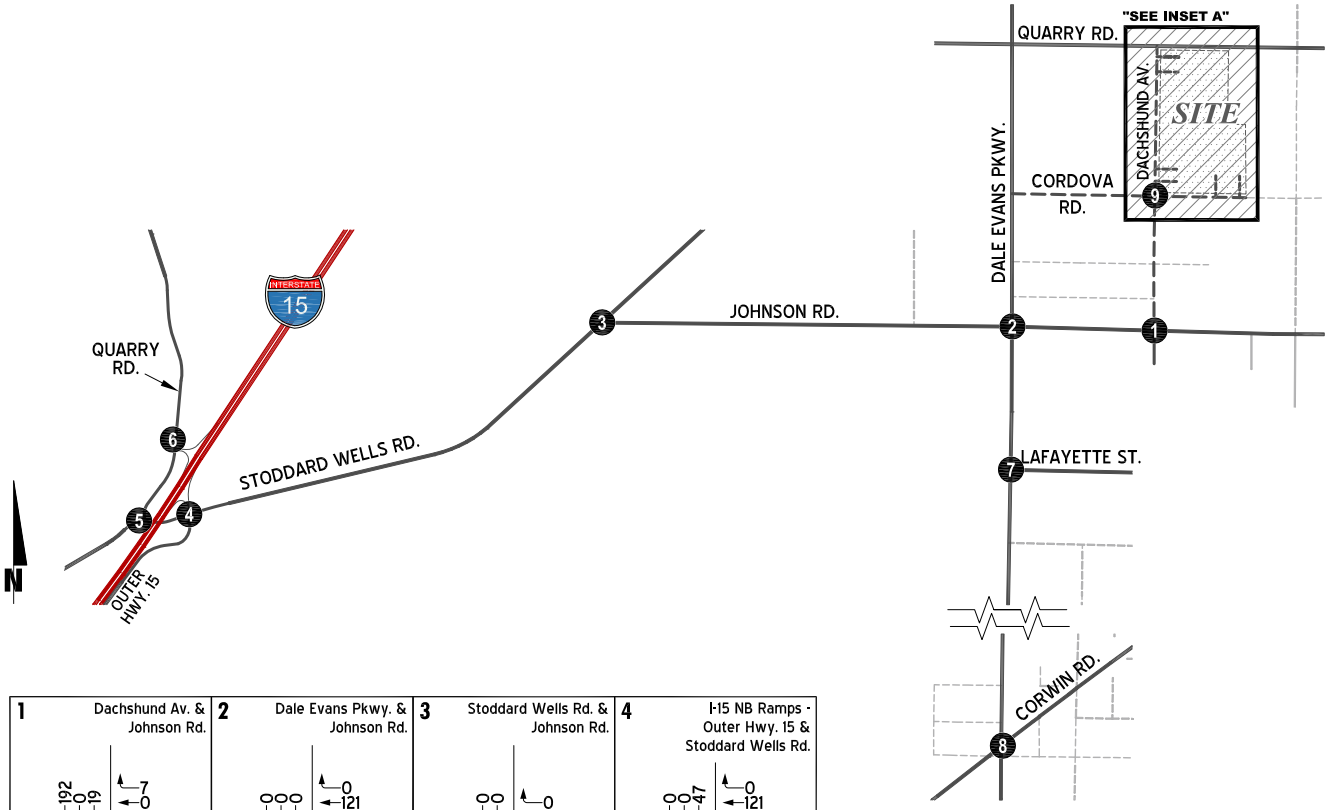


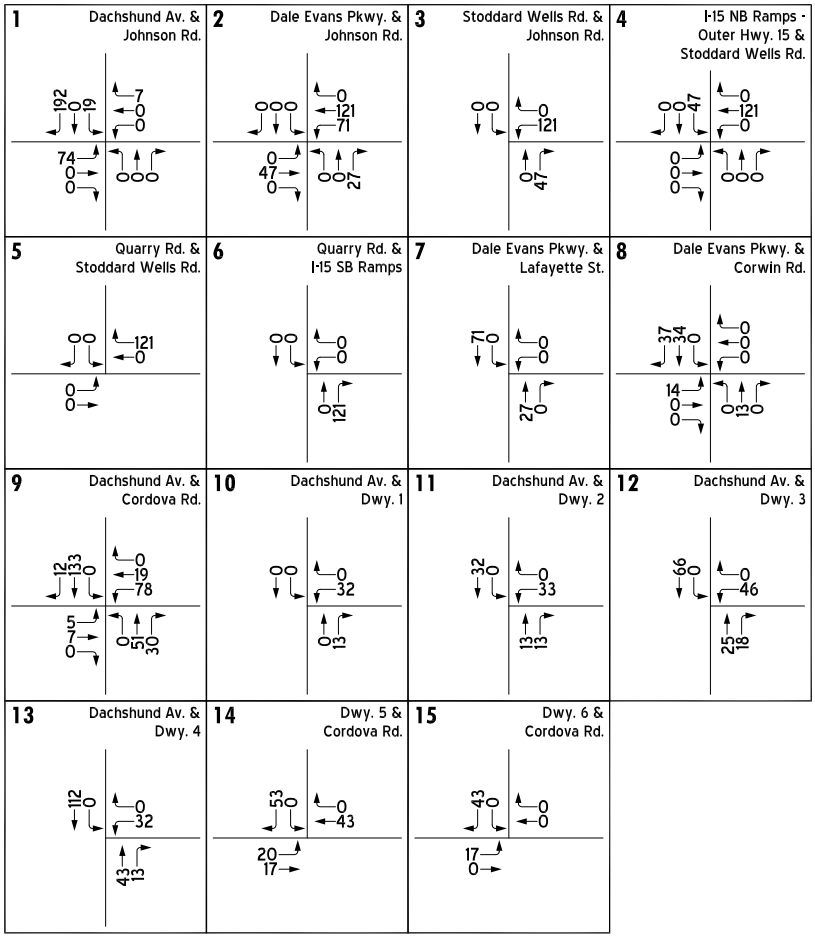
LEGEND:

(#) = INTERSECTION ID

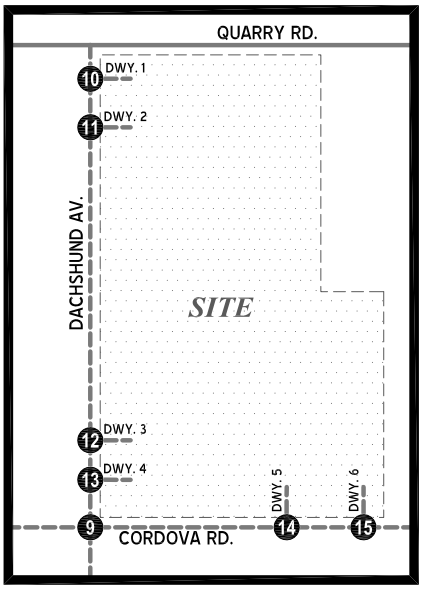
= FUTURE ROADWAY

EXHIBIT 4-4: PROJECT ONLY PM PEAK HOUR INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES





INSET A



LEGEND:

= INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 4-5: PROJECT ONLY AVERAGE DAILY TRAFFIC (ADT)
PASSENGER CAR EQUIVALENT VOLUMES

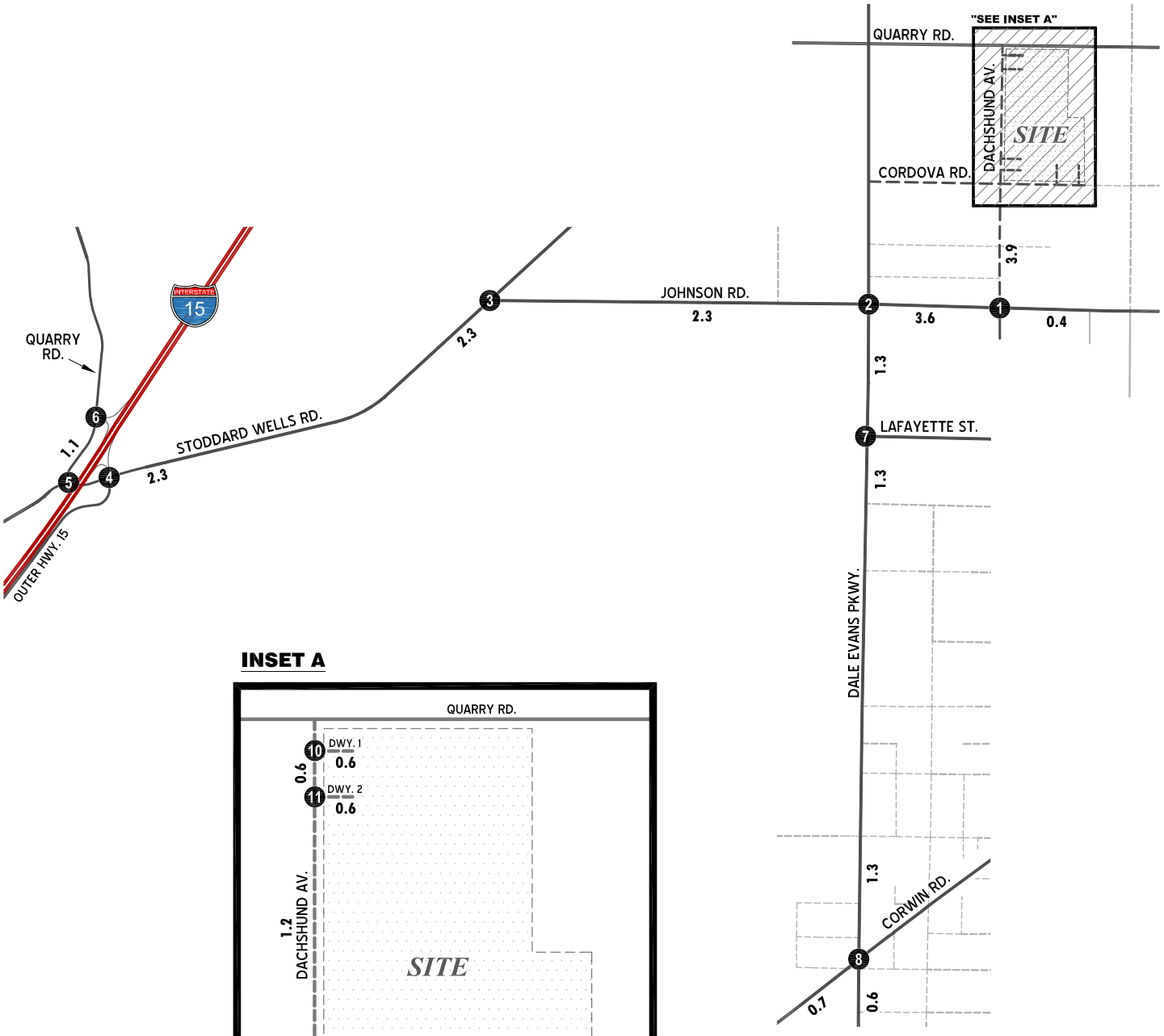


Exhibit 4-4 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-4. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects on Table 4-3 are reflected as part of the background traffic.

4.5.2 HORIZON YEAR (2040) CONDITIONS

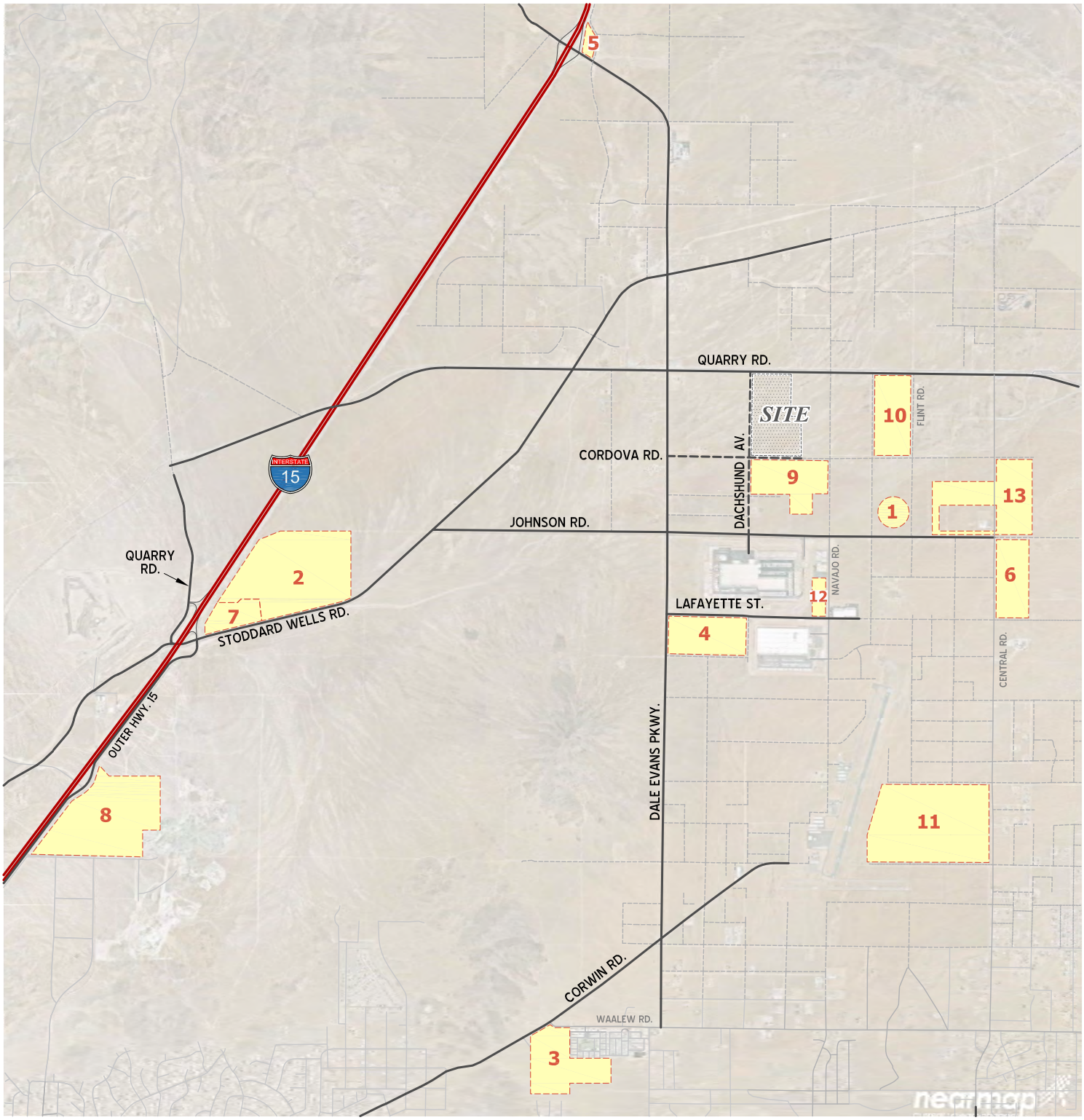
The adopted Southern California Association of Governments (SCAG) Connect SoCal: Demographics and Growth Forecast (adopted September 3, 2020) growth forecasts for the Town of Apple Valley indicates population of 74,300 in 2016 and 101,400 in 2045, or a 36.5% increase over the 29-year period. The change in population is less than a 2.0% growth rate, compounded annually. Similarly, growth in employment over the same 29-year period is projected to increase by 67.8%.

Traffic projections for Horizon Year (2040) without Project conditions were derived based on growth from interim year conditions, known cumulative projects, and from the San Bernardino Transportation Analysis Model (SBTAM). The traffic forecasts reflect the area-wide growth anticipated between Existing (2023) conditions and Horizon Year (2040) traffic conditions.

Horizon Year (2040) turning volumes were compared to Opening Year Cumulative (2025) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2025) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2023) and Opening Year Cumulative (2025) conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted (or "post-processed") to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Project traffic was then added for all With Project traffic conditions.

EXHIBIT 4-6: CUMULATIVE DEVELOPMENT LOCATION MAP



LEGEND:

(#) = CUMULATIVE DEVELOPMENT ID

N

01 - Study Area.dwg

TABLE 4-3: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

TAZ	Project	Land Use	Quantity	Units[1]
1	Dara II Industrial	Warehouse	374.26	TSF
2	Apple Valley 143	Industrial/Warehouse	2,518.50	TSF
3	TTM 20306 (south of Waalew & east of Corwin)	Single Family Residential	160	DU
4	Lafayette Street Logistics (Redwood West)	High-Cube Warehouse	1,026.41	TSF
		High-Cube Cold Storage	181.13	TSF
5	Apple Valley Gateway Center (north of Dale Evans & east of I-15)	Pad A - Hotel	84	RM
		Pad B - Fast-Food Restaurant w/ Drive-Thru	5.769	TSF
		Pad C - Gas Station with C-Store (5 TSF)	16	VFP
		Pad D - Gas Station with C-Store (3.35 TSF)	12	VFP
		Pad E - Fast-Food Restaurant w/ Drive-Thru	4.00	TSF
		Pad F - Fast-Food Restaurant w/ Drive-Thru	4.20	TSF
		Pad G - Restaurant	4.00	TSF
		Pad H - Shops	10.261	TSF
		Pad I - Fast-Food Restaurant w/ Drive-Thru	2.80	TSF
6	1M Warehouse (east of Central Road, between Johnson Road & Lafayette Street)	High Cube Fulfillment Center Warehouse	1,080.125	TSF
7	Apple Valley I-15 Travel Center (Love's Travel Stop - north of Stoddard Wells & east of I-15)	RV Park	80	Spaces
		Gas Station with C-Store (9.66 TSF)	26	VFP
		Fast-Food Restaurant w/ Drive-Thru	3.043	TSF
		Truck Maintenance/Tire Building	13.786	TSF
8	Inland Empire North Logistics Ctr. (north of Falchion Road & east of I-5)	Industrial/Warehouse	2,604.446	TSF
9	Cordova Quarry	High-Cube Cold Storage	1,559.952	TSF
10	Quarry at Pawnee	High-Cube Cold Storage	1,462.342	TSF
11	Apple Valley Logistics Center	General Light Industrial (10%)	348.074	TSF
		High-Cube Cold Storage (10%)	348.074	TSF
		High-Cube Fulfillment (80%)	2,784.588	TSF
12	Green Trucking Solutions	High-Cube Cold Storage	385.004	TSF
13	Apple Valley 3PL Center	Industrial/Warehouse	2,134.000	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; RM = Room; VFP = Vehicle Fueling Positions

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]15504-C

5 OPENING YEAR CUMULATIVE (2025) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2025) Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- If applicable, driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only.

For With Project conditions, Project-adjacent roadways at their ultimate half-section widths in accordance with Town of Apple Valley standards are assumed as follows to provide Project access:

- Construct Dachshund Avenue from Quarry Road to Cordova Road (easterly half-section plus one lane)
- Construct Cordova Road from Dachshund Avenue to the easterly Project boundary (northerly half-section plus one lane)
- Project to implement stop control for egress at Project driveways and construct the necessary ingress and egress lanes at each driveway needed to facilitate site access
- Project Driveways 1, 4, and 6 to be restricted to passenger cars only (no large trucks)

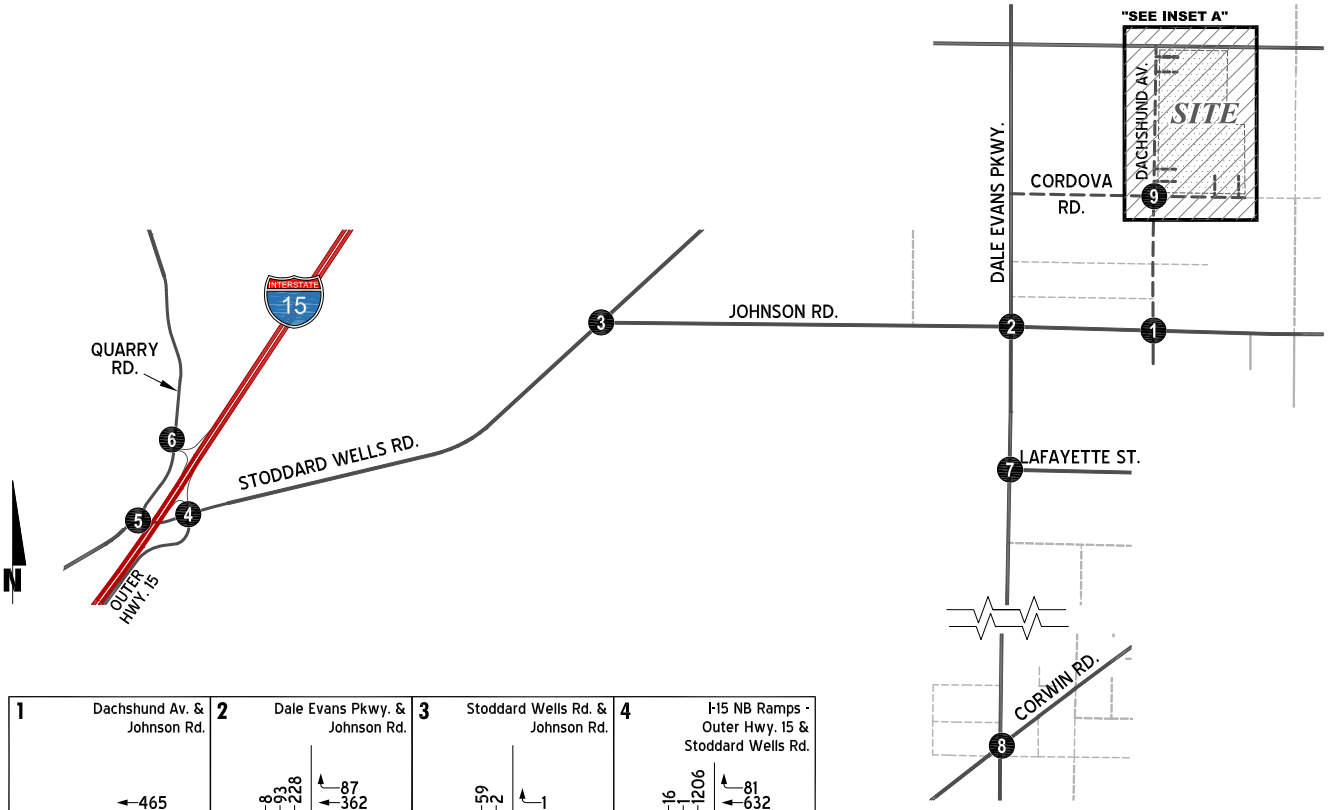
5.2 WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

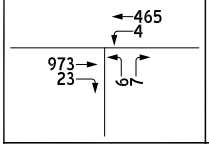
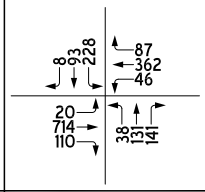
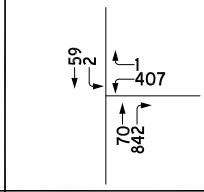
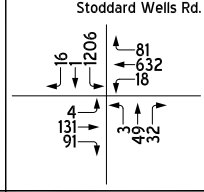
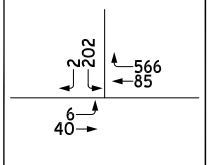
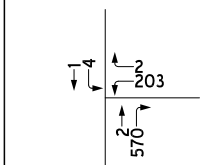
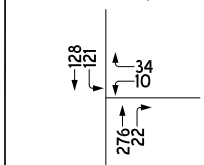
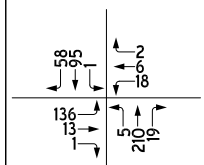
This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% plus traffic from pending and approved but not yet constructed known development projects in the area. The peak hour intersection volumes and daily traffic volumes which can be expected for Opening Year Cumulative (2025) Without Project traffic conditions are shown on Exhibits 5-1 through 5-3.

5.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

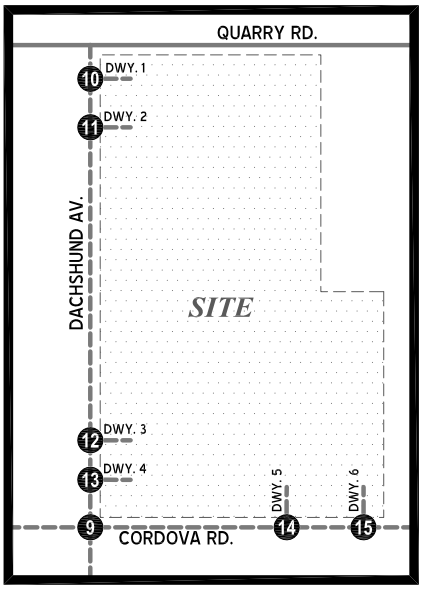
This scenario includes Opening Year Cumulative (2025) Without Project traffic in conjunction with the addition of Project traffic. The peak hour intersection volumes and daily traffic volumes which can be expected for Opening Year Cumulative (2025) With Project traffic conditions are shown on Exhibits 5-4 through 5-6.

EXHIBIT 5-1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES



1 Dachshund Av. & Johnson Rd. 	2 Dale Evans Pkwy. & Johnson Rd. 	3 Stoddard Wells Rd. & Johnson Rd. 	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd. 
5 Quarry Rd. & Stoddard Wells Rd. 	6 Quarry Rd. & I-15 SB Ramps 	7 Dale Evans Pkwy. & Lafayette St. 	8 Dale Evans Pkwy. & Corwin Rd. 
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A

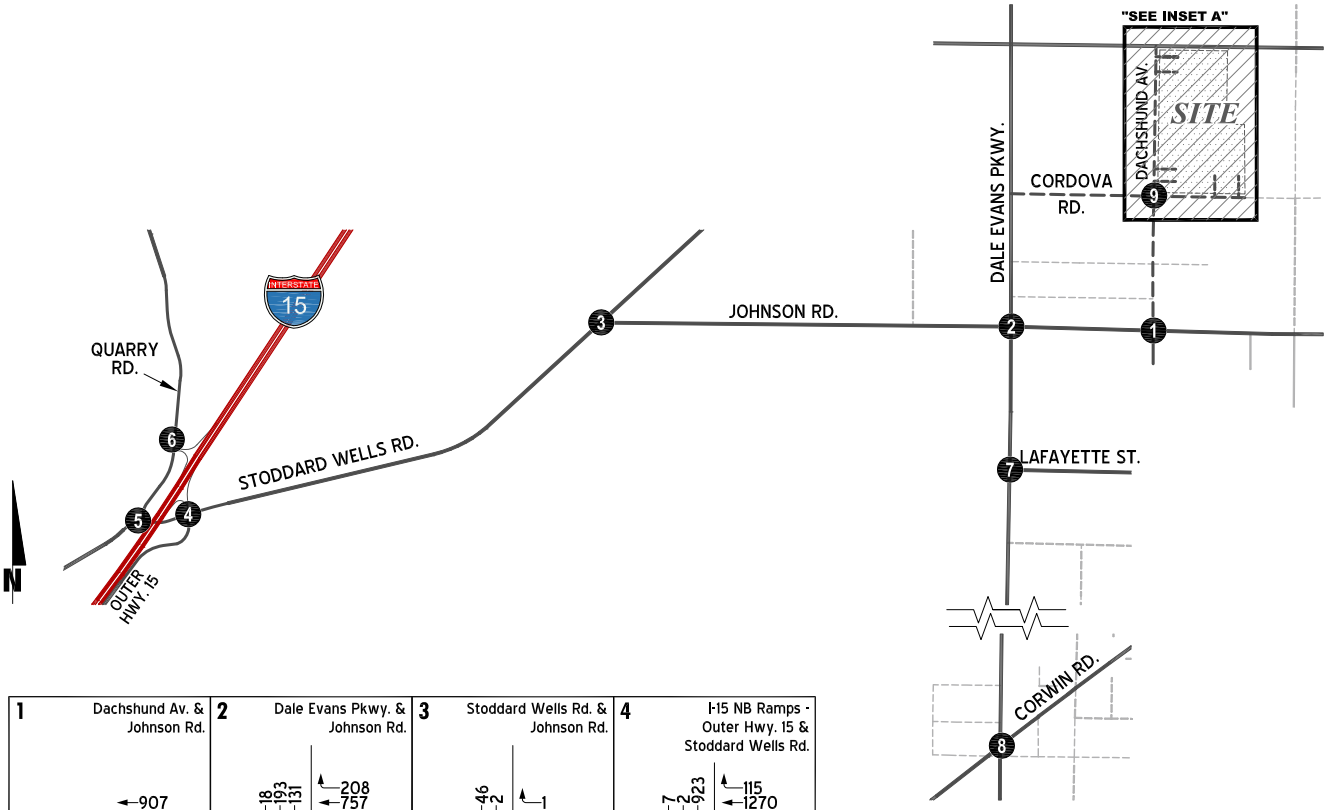


LEGEND:

(#) = INTERSECTION ID

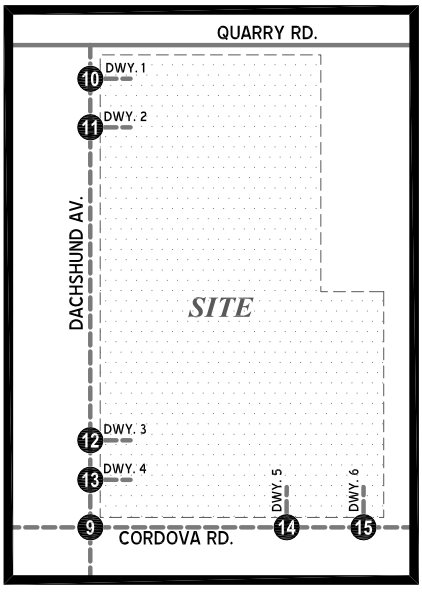
= FUTURE ROADWAY

EXHIBIT 5-2: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT PM PEAK HOUR INTERSECTION VOLUMES



1 Dachshund Av. & Johnson Rd. 907 30 612 165 158 28	2 Dale Evans Pkwy. & Johnson Rd. 18 193 131 208 757 175 12 575 96 160 114 109	3 Stoddard Wells Rd. & Johnson Rd. 46 2 1 934 22 681	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd. 7 2 923 115 1270 34 5 118 77 3 77 33
5 Quarry Rd. & Stoddard Wells Rd. 4 177 1212 68 5 24	6 Quarry Rd. & I-15 SB Ramps 0 2 2 181 1 1216	7 Dale Evans Pkwy. & Lafayette St. 386 79 167 22 216 16	8 Dale Evans Pkwy. & Corwin Rd. 151 320 1 2 19 24 79 11 2 3 177 11
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A



LEGEND:

(#) = INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 5-3: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)

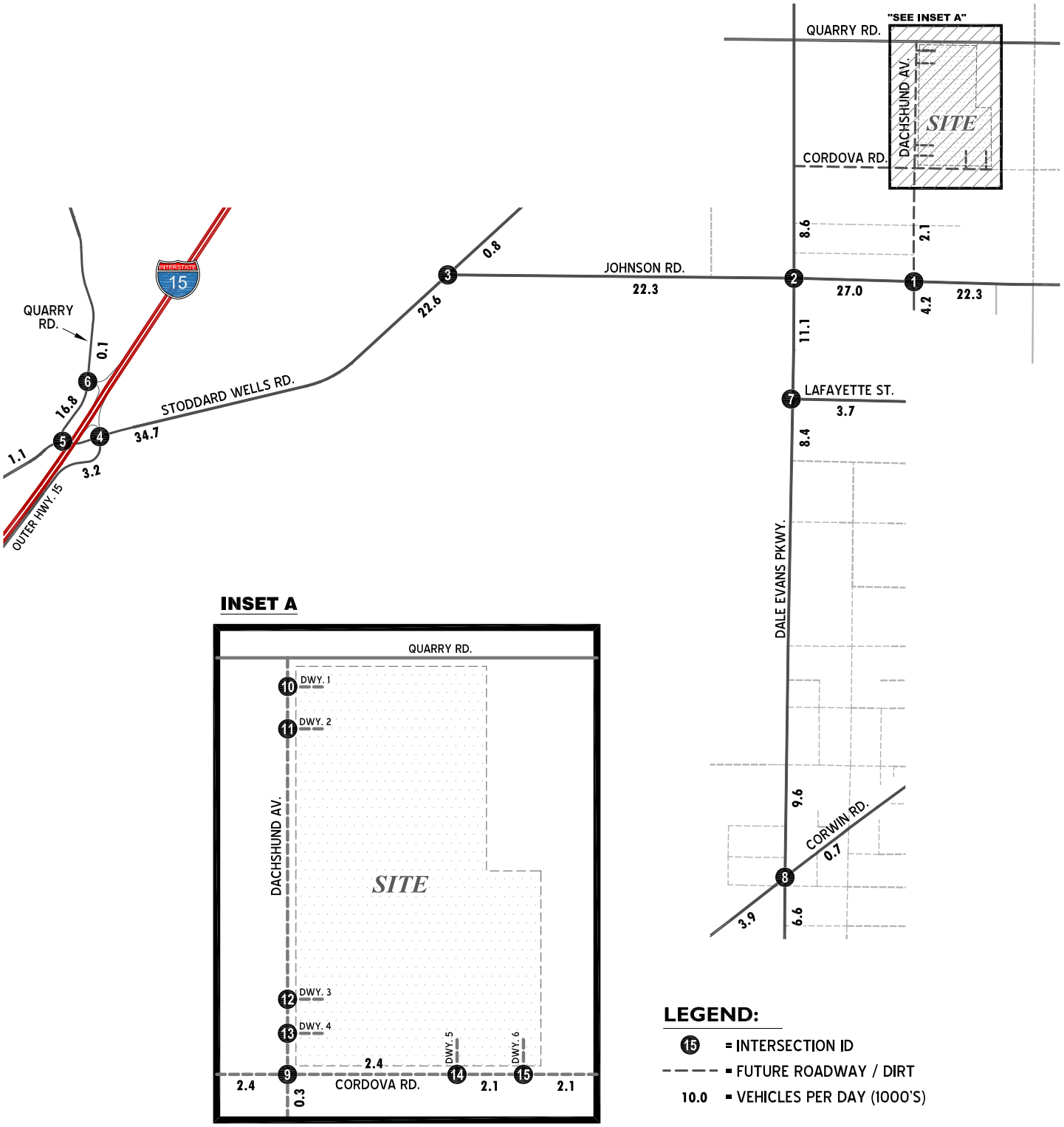
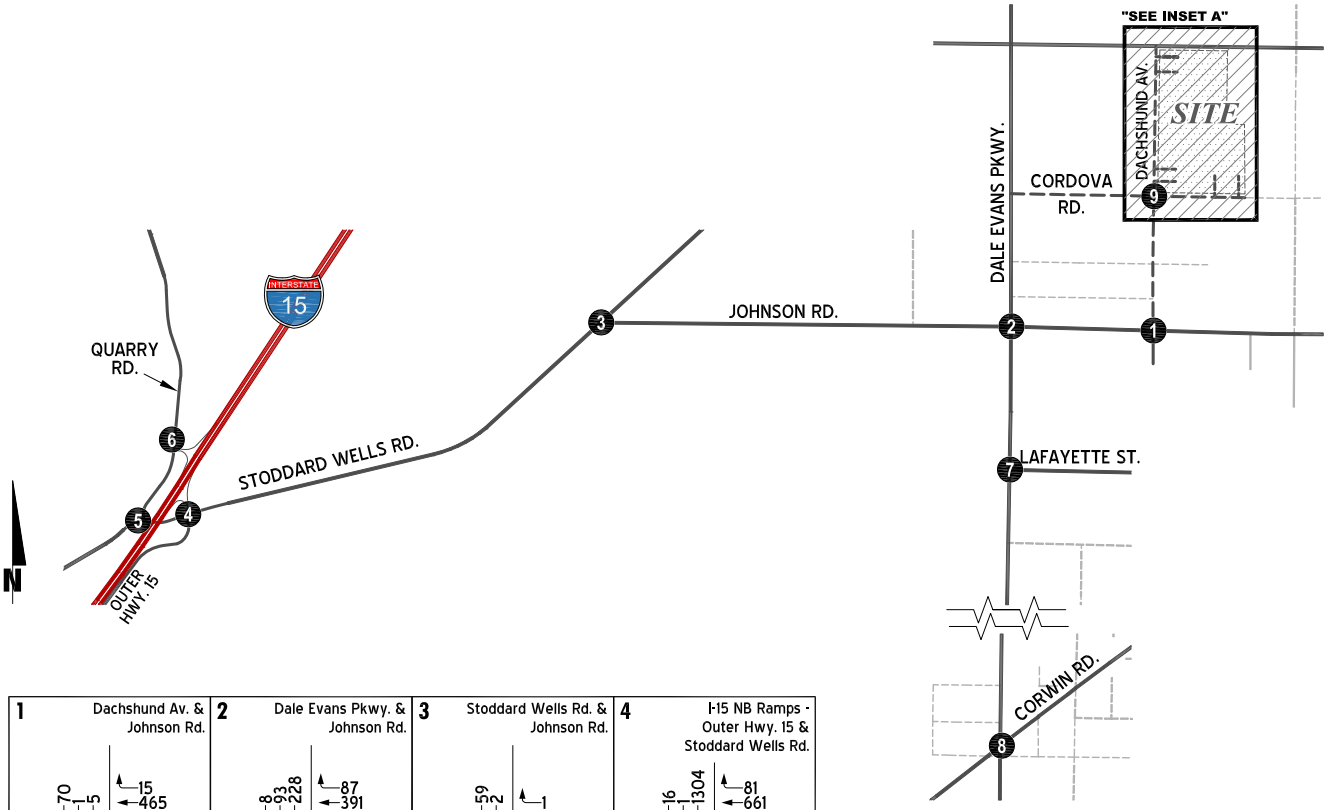
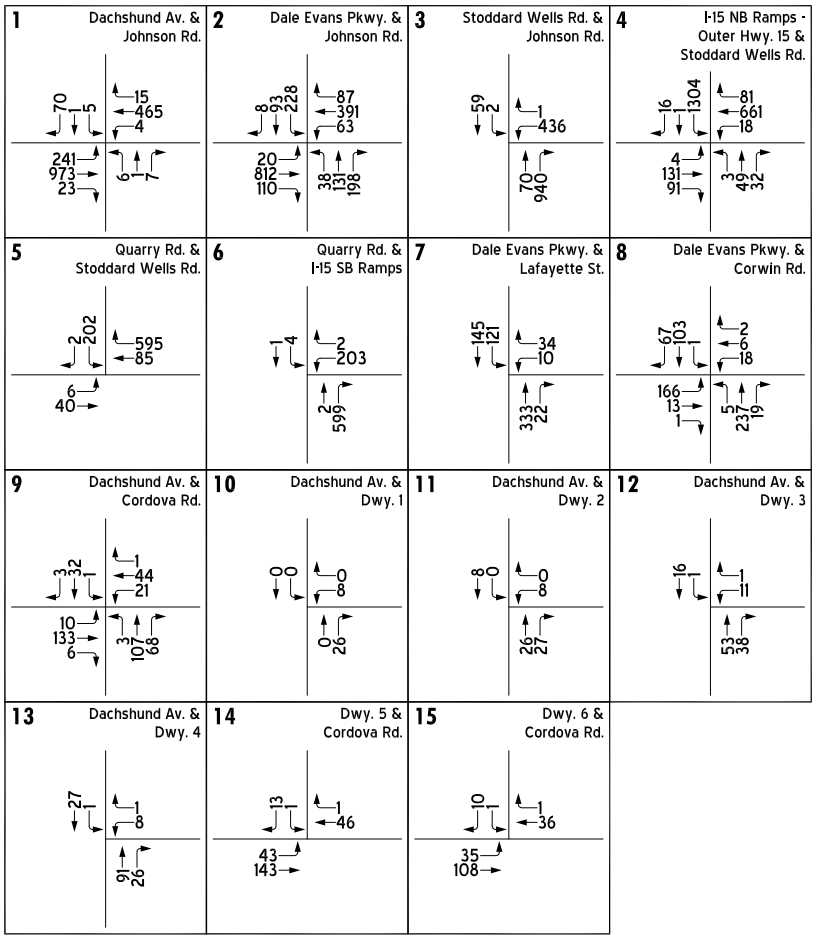
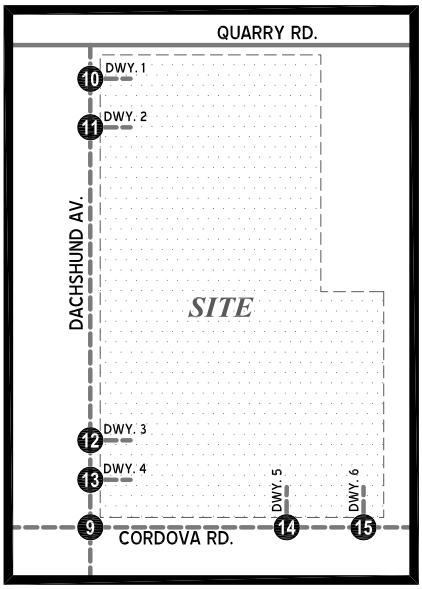


EXHIBIT 5-4: OPENING YEAR CUMULATIVE (2025) WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES





INSET A

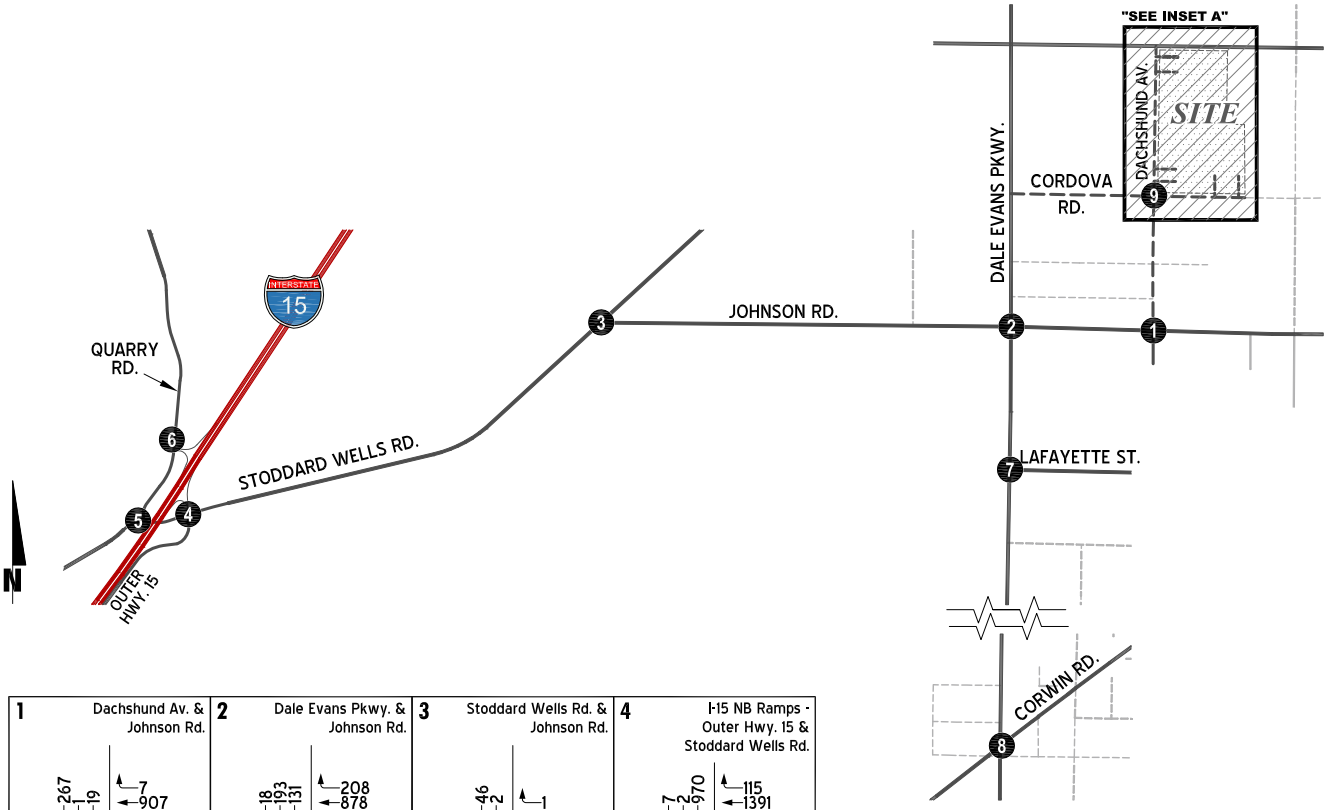


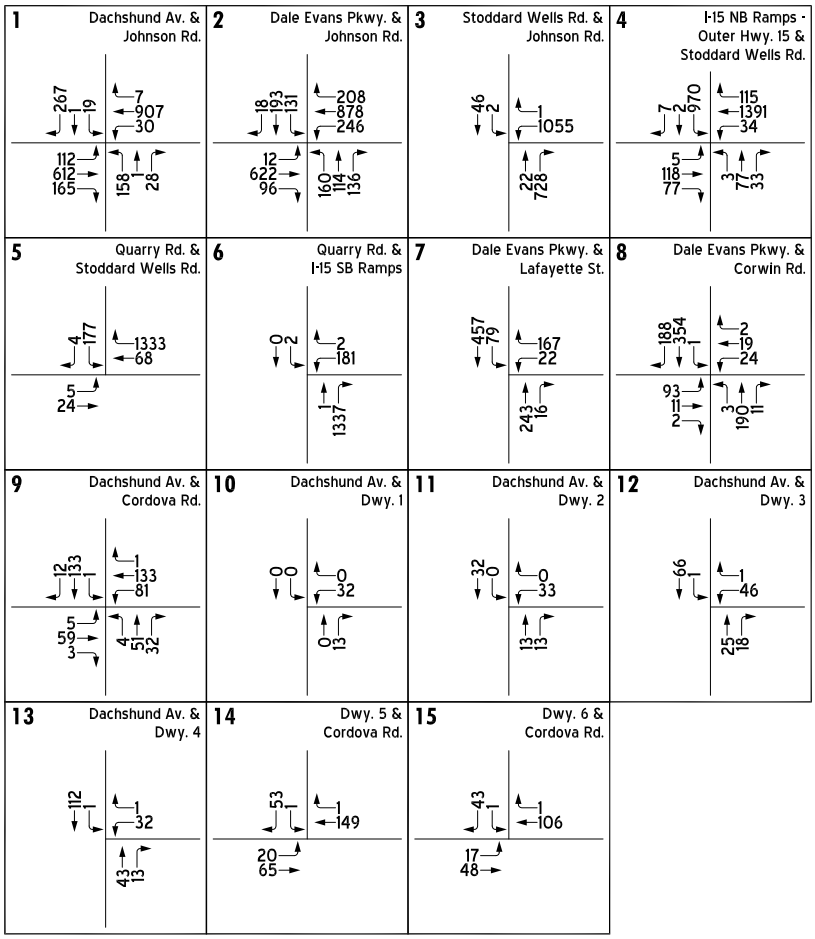
LEGEND:

= INTERSECTION ID

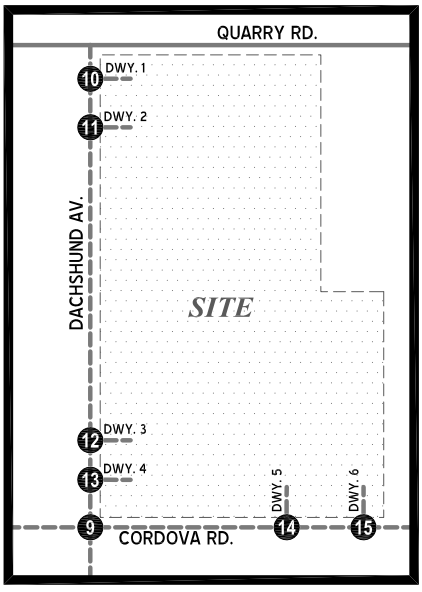
= FUTURE ROADWAY

EXHIBIT 5-5: OPENING YEAR CUMULATIVE (2025) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES





INSET A

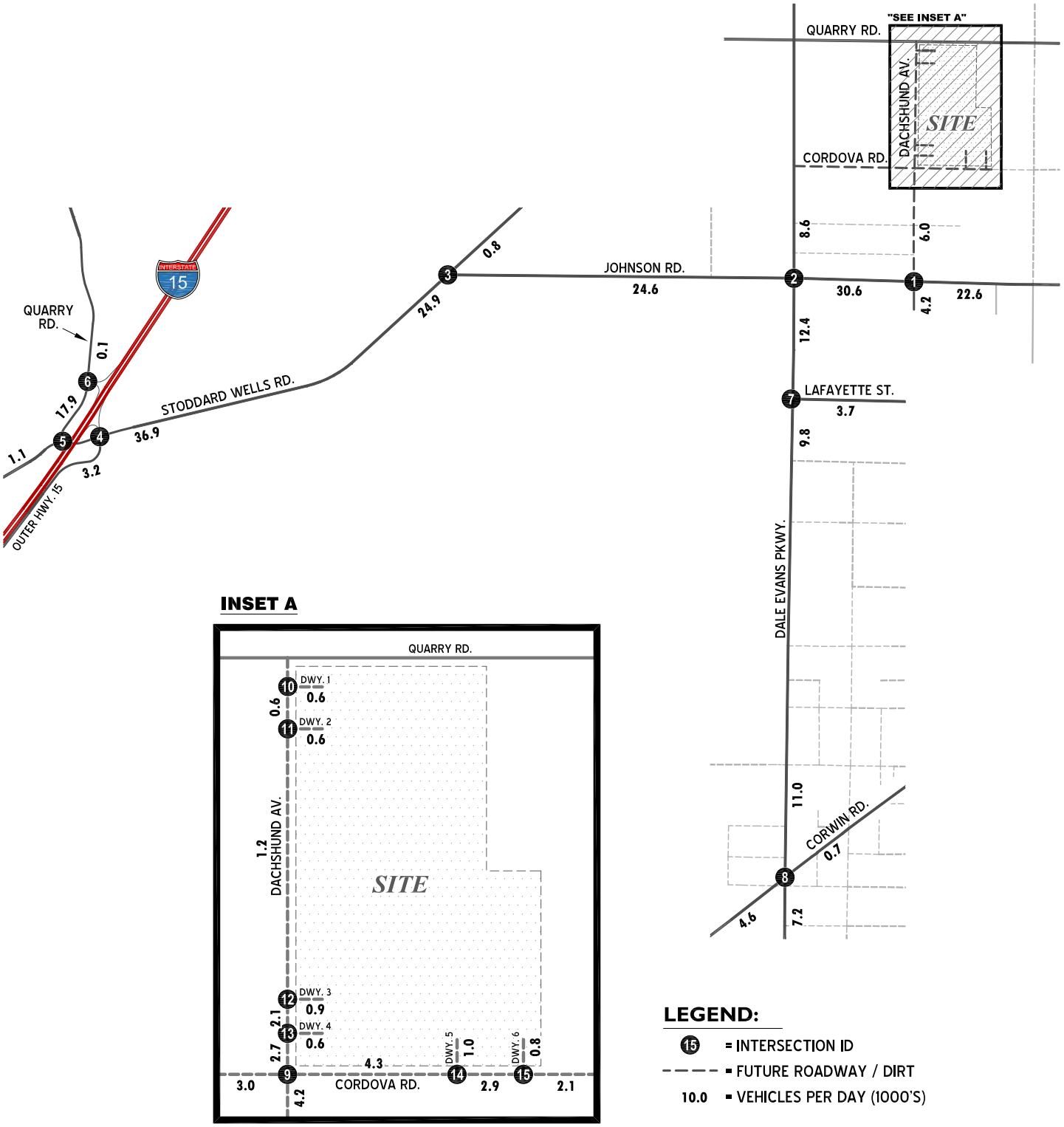


LEGEND:

= INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 5-6: OPENING YEAR CUMULATIVE (2025) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)



5.4 INTERSECTION OPERATIONS ANALYSIS

5.4.1 OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2025) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 5-1, the following intersections are anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2025) Without Project traffic conditions:

- Dachshund Av. / Johnson Rd. (#1) - LOS F AM and PM peak hours
- Dale Evans Pkwy. / Johnson Rd. (#2) – LOS F AM and PM peak hours
- Stoddard Wells Rd. / Johnson Rd. (#3) – LOS F AM and PM peak hours
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd. (#4) – LOS F AM and PM peak hours
- Quarry Rd. / Stoddard Wells Rd. (#5) – LOS F PM peak hour
- Quarry Rd. / I-15 SB Ramps (#6) – LOS F PM peak hour

The intersection operations analysis worksheets for Opening Year Cumulative (2025) Without Project traffic conditions are included in Appendix 5.1 of this TA.

5.4.2 OPENING YEAR CUMULATIVE (2025) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 5-1, there are no additional study area intersections anticipated to operate at a deficient LOS during any of the peak hours for Opening Year Cumulative (2025) With Project traffic conditions with the addition of Project traffic.

The intersection operations analysis worksheets for Opening Year Cumulative (2025) With Project traffic conditions are included in Appendix 5.2 of this TA.

5.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Opening Year Cumulative (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The following intersections are anticipated to meet peak hour volume warrants for Opening Year Cumulative (2025) Without Project traffic conditions (see Appendix 5.3):

- Dachshund Av. / Johnson Rd. (#1)
- Dale Evans Pkwy. / Johnson Rd. (#2)
- Stoddard Wells Rd. / Johnson Rd. (#3)
- I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd. (#4)
- Quarry Rd. / Stoddard Wells Rd. (#5)
- Quarry Rd. / I-15 SB Ramps (#6)
- Dale Evans Pkwy. / Lafayette St. (#7)

However, the intersection of Dale Evans Pkwy. / Lafayette St. experiences acceptable LOS operations and a signal may not be required for Opening Year Cumulative conditions. There are no additional study area intersections anticipated to meet traffic signal warrants under Opening Year Cumulative (2025) With Project traffic conditions (see Appendix 5.4).

TABLE 5-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2025) CONDITIONS

#	Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												2025 w/o Project				2025 w/ Project			
			Northbound			Southbound			Eastbound			Westbound			Delay[3] (secs.)		Level of Service		Delay[3] (secs.)		Level of Service	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	AM	PM	AM	PM
1	Dachshund Av. / Johnson Rd.																					
	- With Cross-Street Stop	CSS	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	>80	>80	F	F	>80	>80	F	F
	- With Traffic Signal	**TS**	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	9.3	29.3	A	C	14.6	52.2	B	D
2	Dale Evans Pkwy. / Johnson Rd.																					
	- Without Improvements	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	1	1	1	1	1	0	**1**	1	0	**1**	1	1>>	43.3	38.4	D	D	51.8	52.6	D	D
3	Stoddard Wells Rd. / Johnson Rd.																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	1	**1>**	**1**	1	0	0	0	0	**1**	1	0	8.9	26.0	A	C	10.1	52.4	B	D
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	1!	0	**1**	1!	0	**1**	1	0	**1**	**2**	0	41.3	35.5	D	D	45.3	53.7	D	D
5	Quarry Rd. / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	19.8	>80	C	F	20.5	>80	C	F
	- With Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	**1**	11.6	17.6	B	C	11.8	19.9	B	C
6	Quarry Rd. / I-15 SB Ramps																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	14.3	>80	B	F	14.6	>80	B	F
	- With Improvements	CSS	0	1	**1**	0.5	0.5	0	0	0	0	0	1!	0	9.8	16.3	A	C	9.9	18.4	A	C
7	Dale Evans Pkwy. / Lafayette St.	CSS	0	1	1	1	1	0	0	0	0	0	1!	0	11.9	14.9	B	B	12.7	16.5	B	C
8	Dale Evans Pkwy. / Corwin Rd.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.5	20.1	A	C	10.1	34.0	B	D
9	Dachshund Av. / Cordova Rd.	**CSS**	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.2	9.3	A	A	12.0	14.9	B	B
10	Dachshund Av. / Dwy. 1	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.6	8.7	A	A
11	Dachshund Av. / Dwy. 2	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.8	8.9	A	A
12	Dachshund Av. / Dwy. 3	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	9.0	9.3	A	A
13	Dachshund Av. / Dwy. 4	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	9.2	9.6	A	A
14	Dwy. 5 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.7	9.4	A	A
15	Dwy. 6 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.7	9.1	A	A

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane;
>> = Free-Right Turn; **1** = Improvement

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]5-1

6 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- If applicable, driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only.
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

6.2 WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from known nearby projects and the SBTAM (see Section 4.7 *Horizon Year (2040) Volume Development* of this TA for a detailed discussion on the post-processing methodology). The peak hour intersection volumes and daily traffic volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibits 6-1 through 6-3.

6.3 WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined Horizon Year without Project volumes, plus the traffic generated by the proposed Project. The peak hour intersection volumes and daily traffic volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibits 6-4 through 6-6.

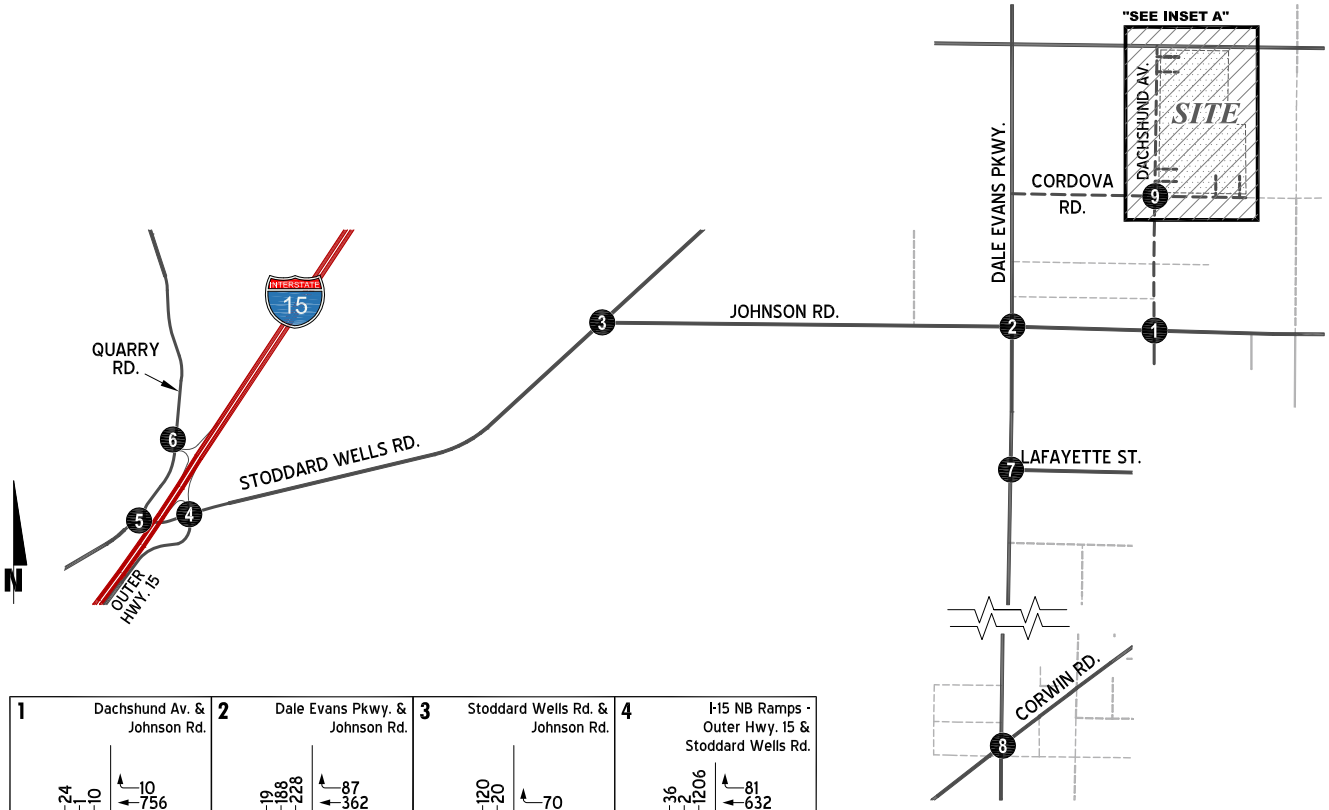
6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions. As shown on Table 6-1, 8 study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions, without improvements. However, with improvements, acceptable LOS is anticipated at study area intersections.

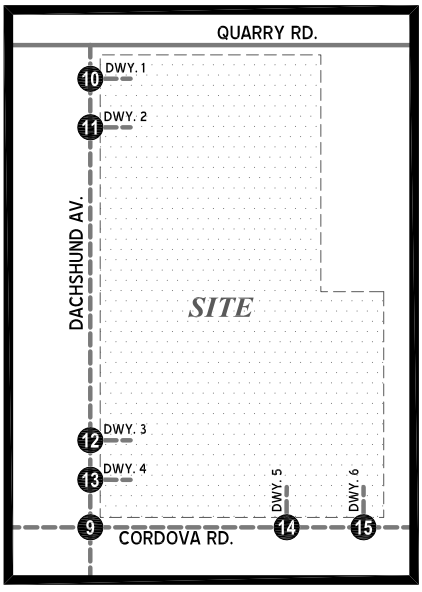
The intersection operations analysis worksheets for Horizon Year (2040) Without Project traffic conditions are included in Appendix 6.1 of this TA.

EXHIBIT 6-1: HORIZON YEAR (2040) WITHOUT PROJECT AM PEAK HOUR INTERSECTION VOLUMES



1 Dachshund Av. & Johnson Rd. 24 1 10 → 10 ← 756 ← 4 86 → 1214 → 23 6 ↑ 1 ↑	**2** Dale Evans Pkwy. & Johnson Rd. 19 ↓ 188 ↓ 228 → 87 ← 362 ← 337 23 → 714 → 258 172 ↑ 423 ↑ 381	**3** Stoddard Wells Rd. & Johnson Rd. 120 ↓ 20 → 70 ← 407 400 ↑ 842	**4** I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd. 36 ↓ 2 ↓ 1206 → 81 ← 632 ← 18 15 → 131 → 91 10 ↑ 69 ↑ 32
5 Quarry Rd. & Stoddard Wells Rd. 8 ↓ 202 → 588 ← 85 33 → 40	**6** Quarry Rd. & I-15 SB Ramps 7 ↓ 8 → 10 ← 203 7 ↑ 614 ↑	**7** Dale Evans Pkwy. & Lafayette St. 402 ↓ 173 → 76 ← 174 553 ↑ 384 ↑	**8** Dale Evans Pkwy. & Corwin Rd. 61 ↓ 296 ↓ 12 → 15 ← 17 ← 18 136 → 25 → 12 11 ↑ 775 ↑ 28 ↑
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	**10** Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	**11** Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	**12** Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	**14** Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	**15** Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A

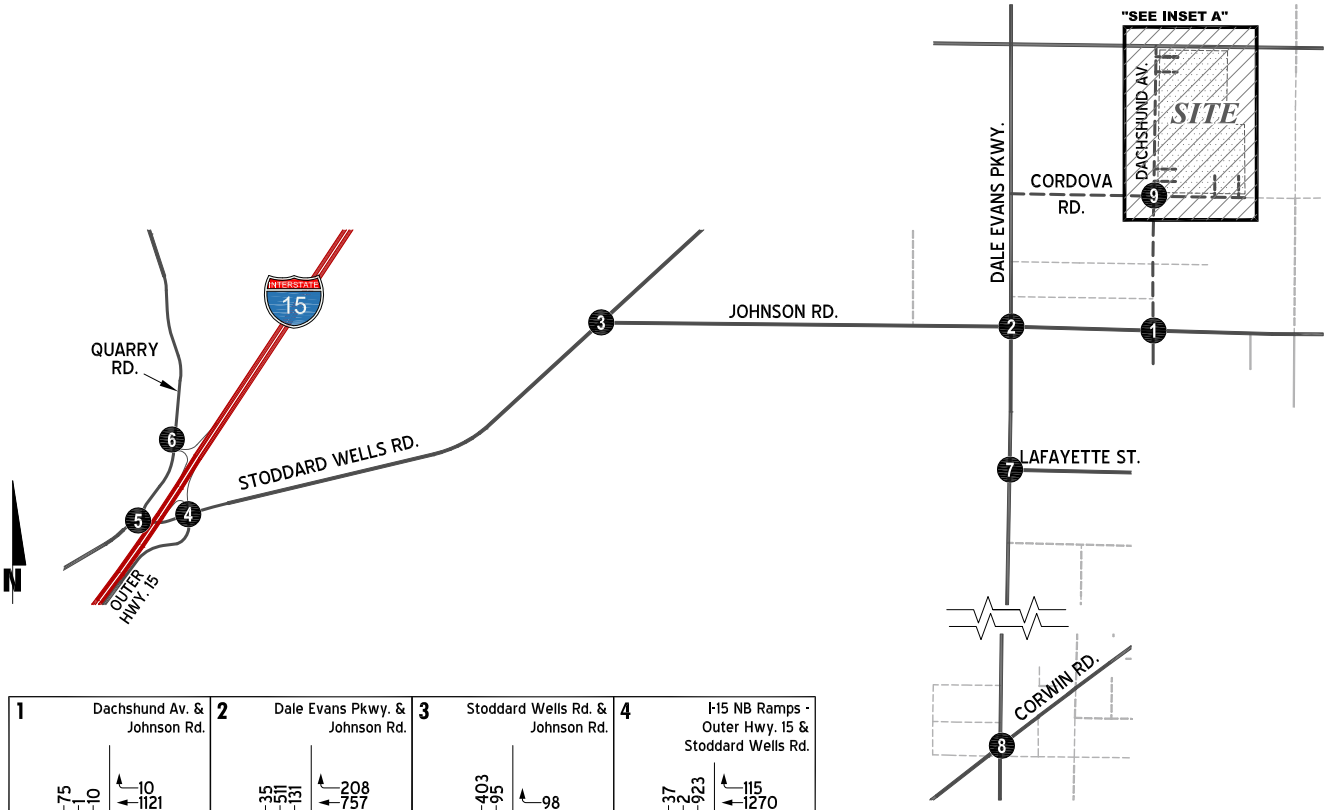


LEGEND:

(#) = INTERSECTION ID

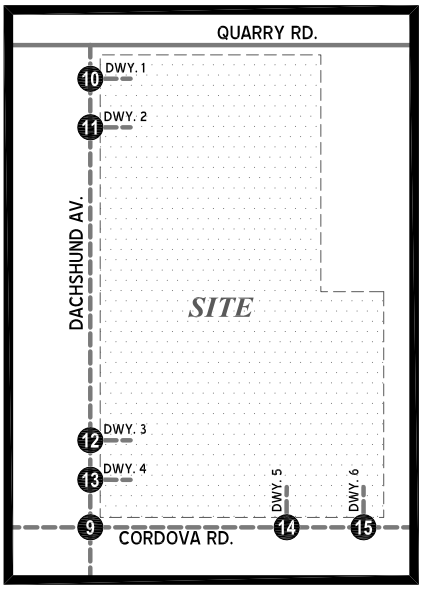
= FUTURE ROADWAY

EXHIBIT 6-2: HORIZON YEAR (2040) WITHOUT PROJECT
PM PEAK HOUR INTERSECTION VOLUMES



1 Dachshund Av. & Johnson Rd. 75 1 10 → 10 1121 30 ← 38 937 165 → 158 ↑ 28	2 Dale Evans Pkwy. & Johnson Rd. 35 511 131 → 208 757 389 ← 18 575 305 → 204 273 434 ↑	3 Stoddard Wells Rd. & Johnson Rd. 403 95 → 98 934 ← 239 681 ↑	4 I-15 NB Ramps - Outer Hwy. 15 & Stoddard Wells Rd. 37 2 923 → 115 1270 34 ← 10 145 77 → 3 ↑ 77 33 ↑
5 Quarry Rd. & Stoddard Wells Rd. 12 177 → 1241 68 ← 25 55 →	6 Quarry Rd. & I-15 SB Ramps 6 6 → 6 183 ← 6 1260 ↑	7 Dale Evans Pkwy. & Lafayette St. 776 161 → 243 216 ← 370 302 ↑	8 Dale Evans Pkwy. & Corwin Rd. 151 709 14 → 13 30 28 ← 83 188 151 → 9 ↑ 543 25 ↑
9 Dachshund Av. & Cordova Rd. **FUTURE INTERSECTION**	10 Dachshund Av. & Dwy. 1 **FUTURE INTERSECTION**	11 Dachshund Av. & Dwy. 2 **FUTURE INTERSECTION**	12 Dachshund Av. & Dwy. 3 **FUTURE INTERSECTION**
13 Dachshund Av. & Dwy. 4 **FUTURE INTERSECTION**	14 Dwy. 5 & Cordova Rd. **FUTURE INTERSECTION**	15 Dwy. 6 & Cordova Rd. **FUTURE INTERSECTION**	

INSET A



LEGEND:

= INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 6-3: HORIZON YEAR (2040) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT)

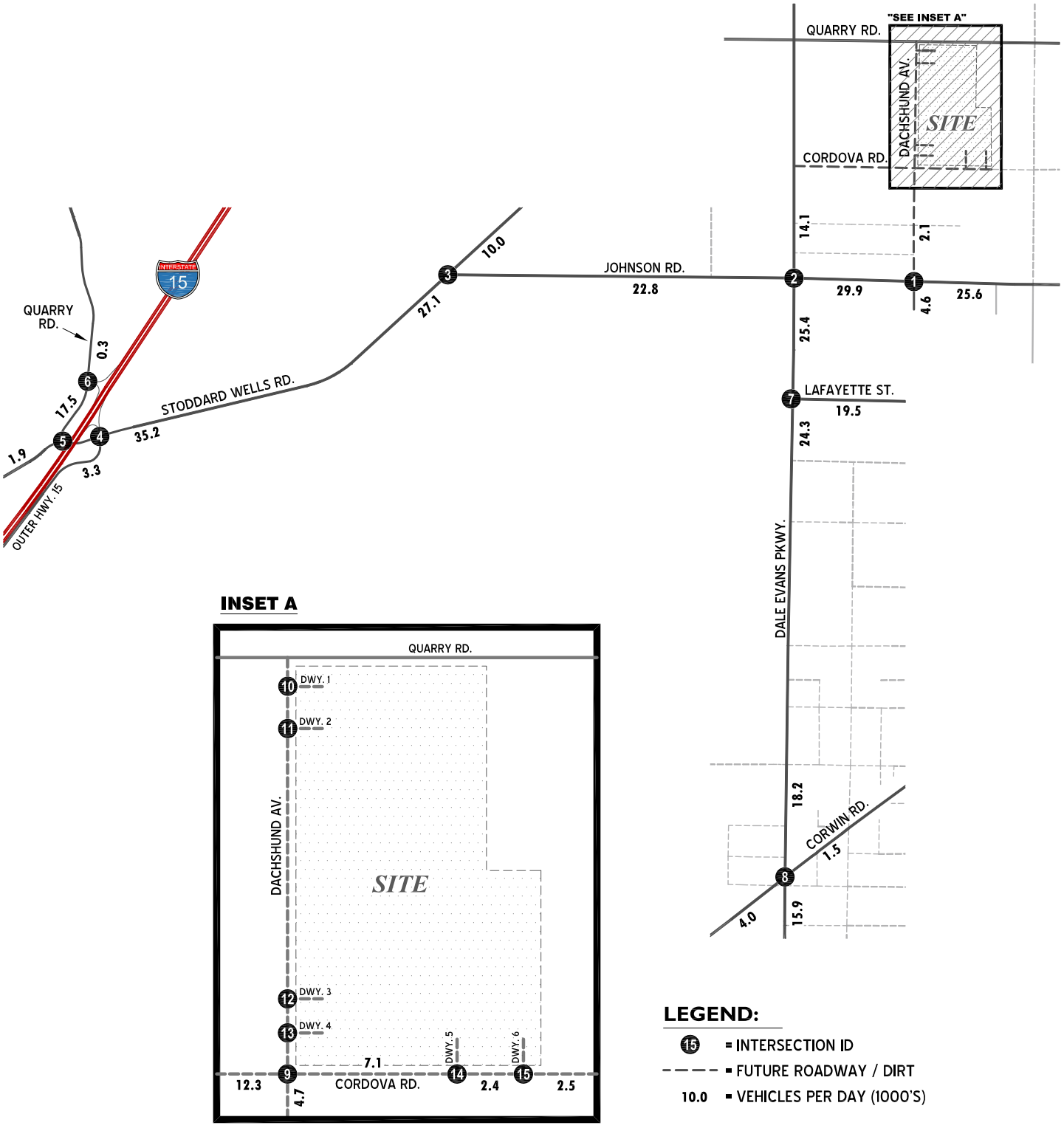
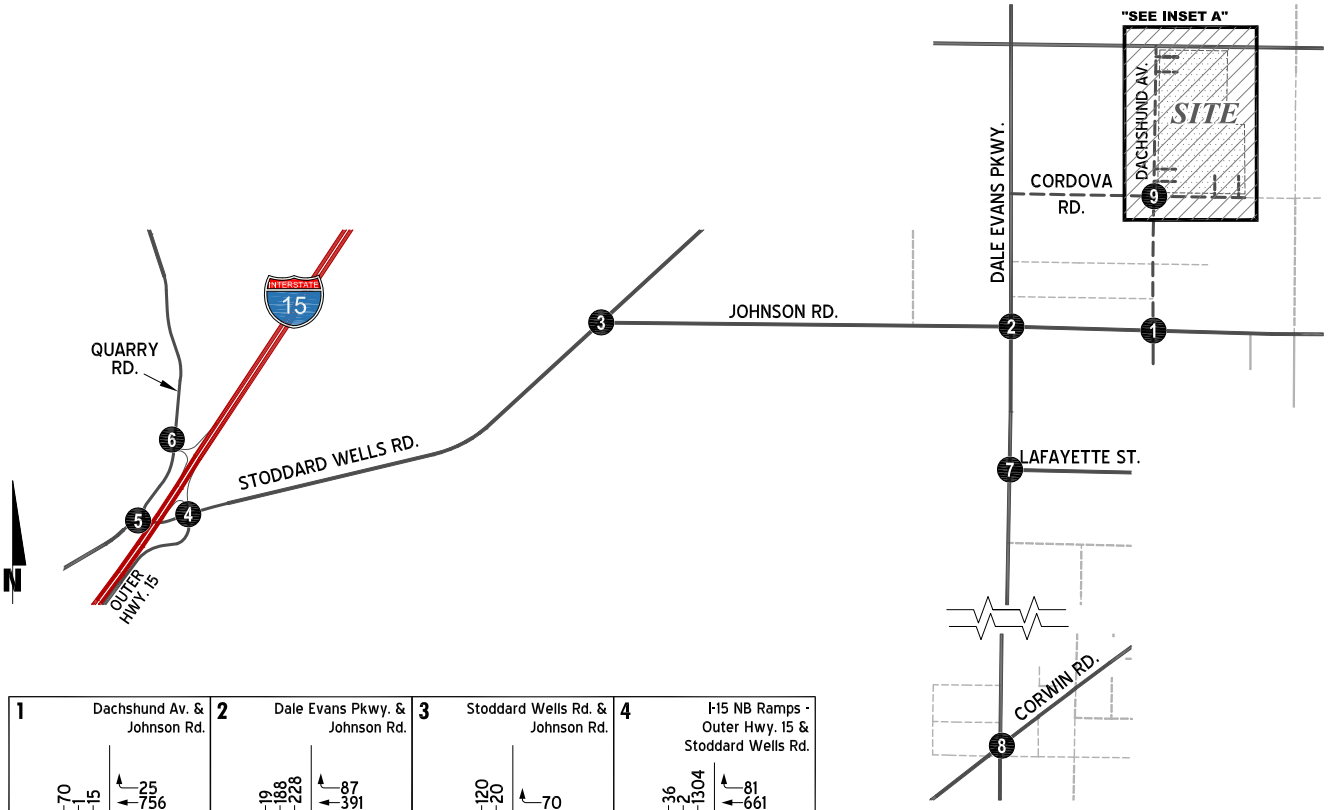
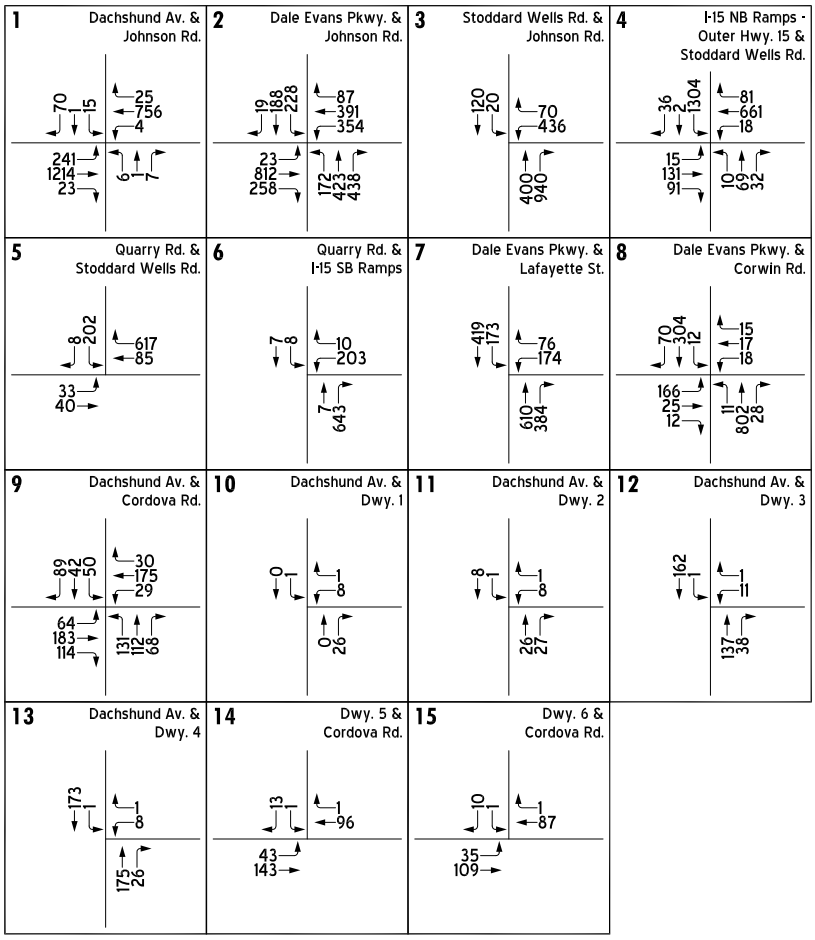
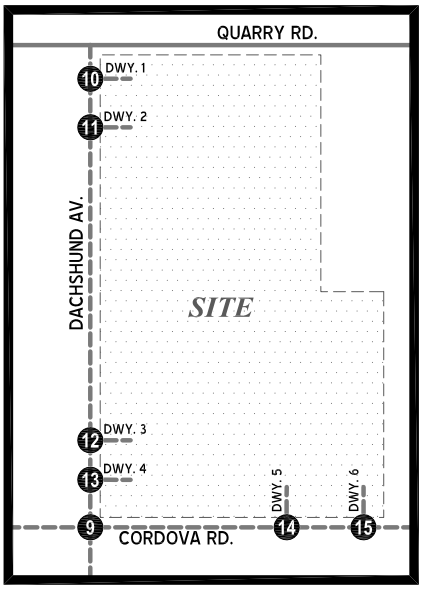


EXHIBIT 6-4: HORIZON YEAR (2040) WITH PROJECT AM PEAK HOUR INTERSECTION VOLUMES





INSET A

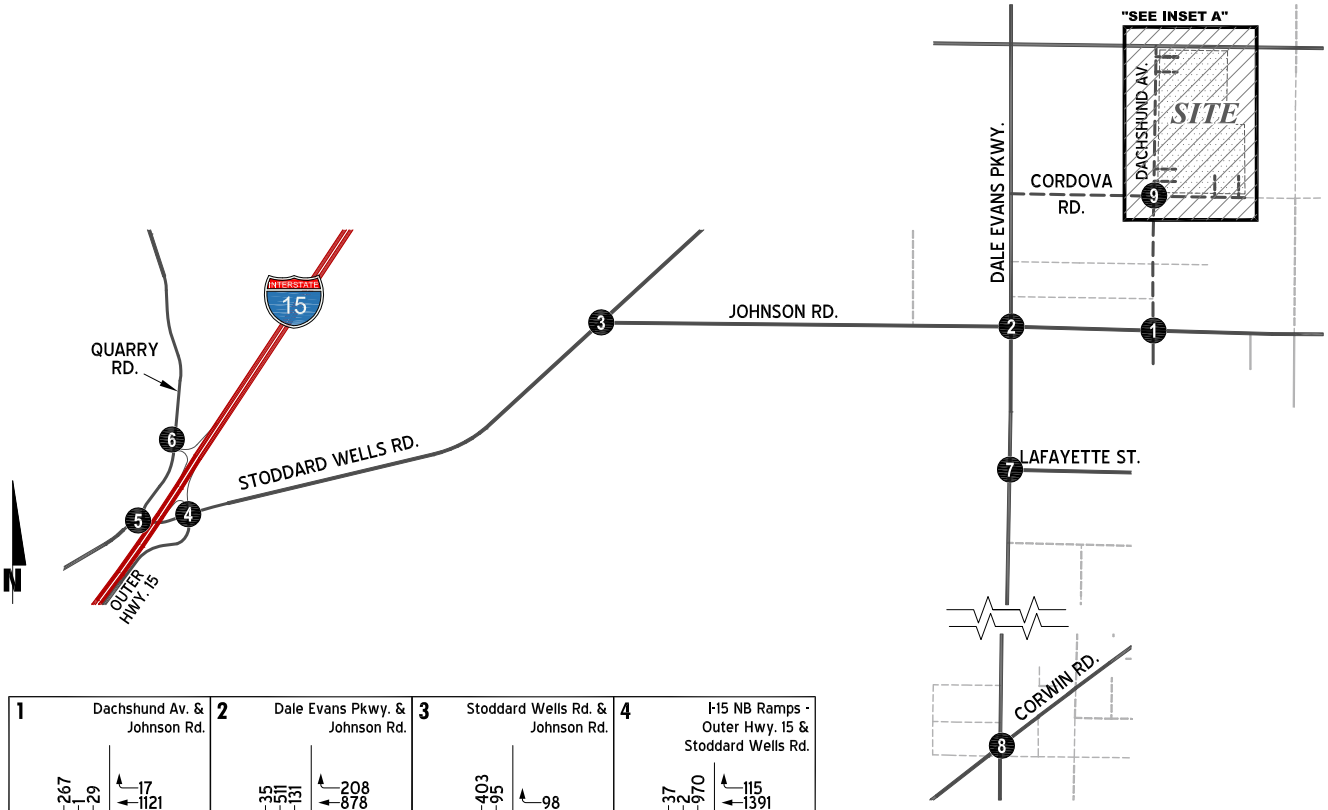


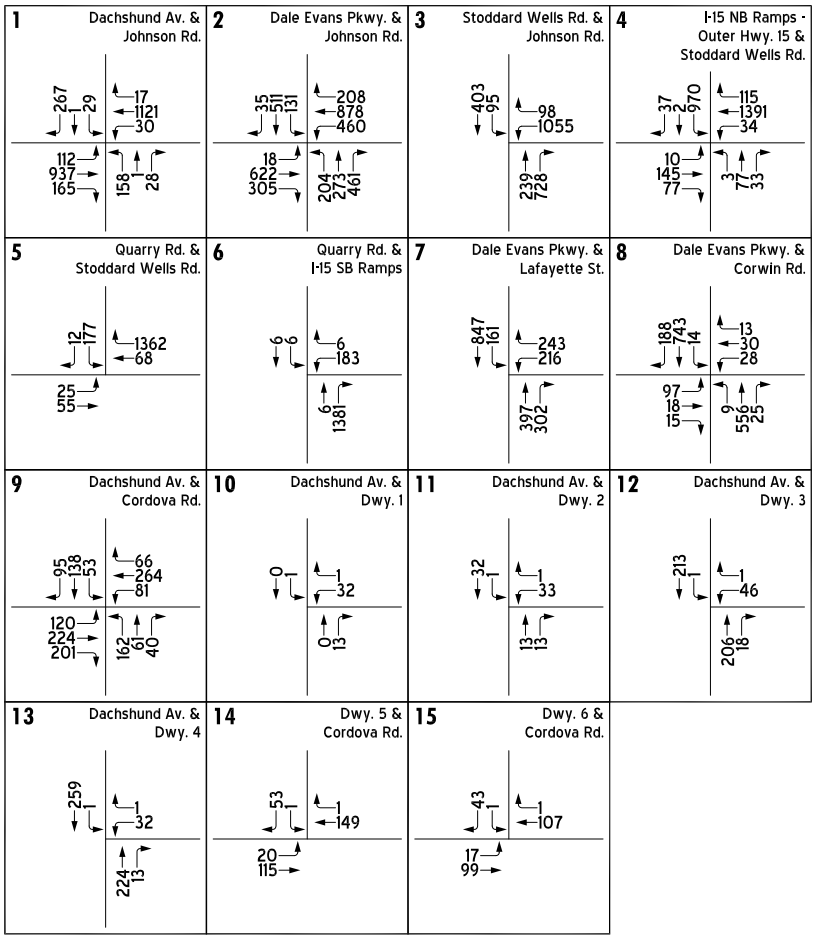
LEGEND:

= INTERSECTION ID

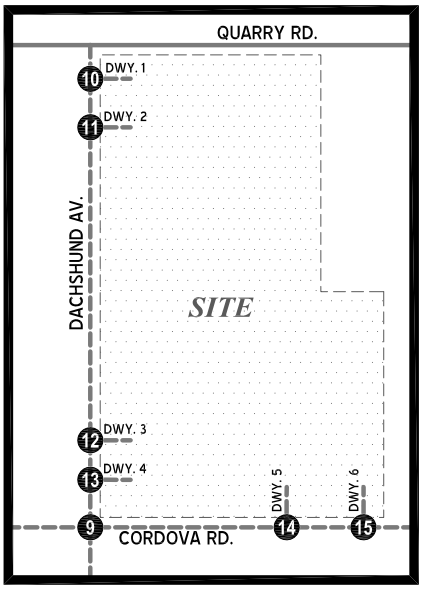
= FUTURE ROADWAY

EXHIBIT 6-5: HORIZON YEAR (2040) WITH PROJECT PM PEAK HOUR INTERSECTION VOLUMES





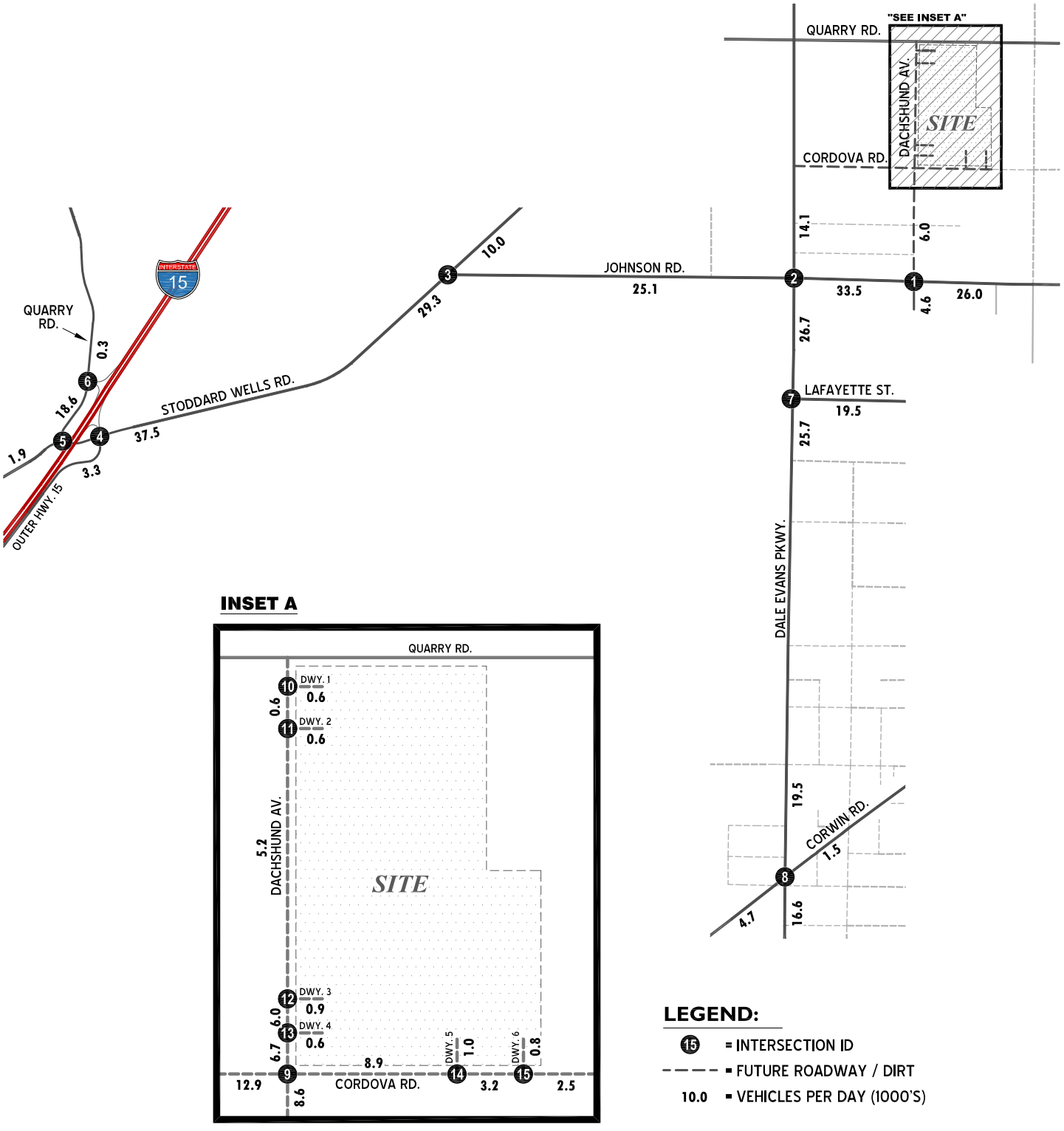
INSET A



LEGEND:

- # = INTERSECTION ID
- = FUTURE ROADWAY

EXHIBIT 6-6: HORIZON YEAR (2040) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT)



6.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

With the addition of Project traffic, as shown on Table 6-1, there are no additional study area intersections anticipated to operate at an unacceptable LOS during the peak hours for Horizon Year (2040) With Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions are included in Appendix 6.2 of this TA.

The recommended General Plan traffic control improvements and intersection lane configurations are shown on Exhibit 1-6.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Horizon Year (2040) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. The following intersections are anticipated to meet a traffic signal warrant under Horizon Year (2040) traffic conditions, with or without the Project, beyond the locations previously identified for opening year cumulative conditions (see Appendix 6.3):

- Dale Evans Pkwy. / Lafayette St. (#7)
- Dale Evans Pkwy. / Corwin Rd. (#8)
- Dachshund Av. / Cordova Rd. (#9)

6.6 QUEUING ANALYSIS

Pursuant to the Town approved scoping agreement, a queuing analysis was performed for Project access intersections. Queuing analysis findings are presented in Table 6-2. Adjacent to the Project site, the following left turn pockets are recommended to be implemented in conjunction with site development:

- Dachshund Avenue & Cordova Road (#9)
    - Northbound Left – 200'
    - Southbound Left – 200'
    - Eastbound Left – 200'
    - Westbound Left – 200'

Horizon Year (2040) With Project traffic conditions, with improvements, queuing analysis worksheets are provided in Appendix 6.4.

TABLE 6-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

#	Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												2040 w/o Project				2040 w/ Project			
			Northbound			Southbound			Eastbound			Westbound			Delay[3] (secs.)		Level of Service		Delay[3] (secs.)		Level of Service	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	AM	PM	AM	PM
1	Dachshund Av. / Johnson Rd.																					
	- With Cross-Street Stop	CSS	1	1	0	**1**	**1**	0	**1**	1	0	**1**	1	0	>80	>80	F	F	>80	>80	F	F
	- With Traffic Signal	**TS**	1	1	0	**1**	**1**	0	**1**	**2**	0	**1**	**1**	0	11.7	31.1	B	C	12.8	38.2	B	D
2	Dale Evans Pkwy. / Johnson Rd.																					
	- Without Improvements	AWS	1	1	1	1	1	0	0	1!	0	0.5	0.5	1>>	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	1	**2**	**1>**	1	**2**	0	**1**	**2**	0	**1**	**2**	1>>	50.0	48.8	D	D	54.1	54.3	D	D
3	Stoddard Wells Rd. / Johnson Rd.																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	0	**2**	**1>**	**1**	**2**	0	0	0	0	**1**	1	0	15.6	22.4	B	C	16.0	24.3	B	C
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	**1**	1	0	**1**	1!	0	**1**	**2**	0	**1**	**2**	0	35.4	37.1	D	D	37.3	38.7	D	D
5	Quarry Rd. / Stoddard Wells Rd.																					
	- Without Improvements	CSS	0	0	0	0	1!	0	0.5	0.5	0	0	1	0	25.0	>80	C	F	26.3	>80	D	F
	- With Improvements	CSS	0	0	0	0	1!	0	0.5	**1.5**	0	0	**2**	**1**	12.0	13.1	B	B	12.0	14.1	B	B
6	Quarry Rd. / I-15 SB Ramps																					
	- Without Improvements	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	15.8	>80	C	F	16.2	>80	C	F
	- With Improvements	CSS	0	1	**1**	0.5	0.5	0	0	0	0	0	1!	0	10.2	17.4	B	C	10.2	19.7	B	C
7	Dale Evans Pkwy. / Lafayette St.																					
	- With Cross-Street Stop	CSS	**1**	1	0	1	1	0	0	**1!**	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Traffic Signal	**TS**	**1**	**2**	0	1	**2**	0	**1**	**2**	0	**1**	**2**	0	51.4	52.9	D	D	52.0	54.0	D	D
8	Dale Evans Pkwy. / Corwin Rd.																					
	- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	>80	>80	F	F	>80	>80	F	F
	- With Improvements	**TS**	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	**1**	**2**	0	17.8	14.5	B	B	19.2	15.2	B	B
9	Dachshund Av. / Cordova Rd.																					
	- With Cross-Street Stop	**CSS**	0	**1!**	0	0	**1!**	0	0	**1!**	0	0	**1!**	0	23.3	>80	C	F	77.1	>80	F	F
	- With Traffic Signal	**TS**	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	**1**	**1**	0	17.2	18.9	B	B	7.4	42.4	A	D
10	Dachshund Av. / Dwy. 1	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.6	8.7	A	A
11	Dachshund Av. / Dwy. 2	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	8.8	8.9	A	A
12	Dachshund Av. / Dwy. 3	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	10.5	12.1	B	B
13	Dachshund Av. / Dwy. 4	**CSS**	0	**1**	0	**0.5**	**0.5**	0	0	0	0	0	**1!**	0	-	-	-	-	10.8	12.6	B	B
14	Dwy. 5 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	9.0	9.4	A	A
15	Dwy. 6 / Cordova Rd.	**CSS**	0	0	0	0	**1!**	0	**0.5**	**0.5**	0	0	**1**	0	-	-	-	-	8.9	9.1	A	A

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All Way Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane; 0.5 = Shared Lane; 1! = Shared Left/Through/Right lane; >> = Free-Right Turn; **1** = Improvement

[3] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]6-1

TABLE 6-2: PROJECT ACCESS QUEUEING ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS

ID	Intersection	Movement	# of Lanes	2040 With Project				Storage Length[2] (ft.)	95th Percentile Queue Length (ft.)[1,3]	
				AM	PM	Peak	Volume		AM	PM
9	Dachshund Av. / Cordova Rd.									
		NBL	1	131	162	PM	162	**200**	170	183
		SBL	1	50	53	PM	53	**200**	60	155
		EBL	1	64	120	PM	120	**200**	62	167
		WBL	1	29	81	PM	81	**200**	71	188
10	Dachshund Av. / Dwy. 1									
		WBL/R	1	9	33	PM	33	**>50**	31	48
11	Dachshund Av. / Dwy. 2									
		WBL/R	1	9	34	PM	34	**>50**	26	61
12	Dachshund Av. / Dwy. 3									
		WBL/R	1	12	47	PM	47	**>50**	34	57
13	Dachshund Av. / Dwy. 4									
		WBL/R	1	9	33	PM	33	**>50**	35	61
14	Dwy. 5 / Cordova Rd.									
		SBL/R	1	14	54	PM	54	**>50**	33	45
		EBL/T	1	186	135	AM	186	**>100**	31	18
15	Dwy. 6 / Cordova Rd.									
		SBL/R	1	11	44	PM	44	**>50**	34	48
		EBL/T	1	144	116	AM	144	**>100**	23	17

[1] Queue length calculated using SimTraffic.

[2] 1 = Existing storage length; **1** = Proposed storage length

[3] NOM = Nominal, less than 5 feet.

[4] Review of SimTraffic simulation results indicate that the turn lane queue is anticipated to clear in a timely manner and that the provided pocket length is adequate to accommodate the 95th percentile queue.

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]6-2

7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the Town of Apple Valley are funded through a combination of project mitigation, development impact fee programs or fair share contributions, such as the Town of Apple Valley Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

7.1 TOWN OF APPLE VALLEY DEVELOPMENT IMPACT FEE PROGRAM

The Town of Apple Valley has created its own local DIF program to impose and collect fees from new residential, commercial, and industrial development for the purpose of funding roadways and intersections necessary to accommodate Town growth as identified in the Town's General Plan Circulation Element.

Under the Town's DIF program, the Town may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the Town's Public Works Department.

7.2 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by the San Bernardino County Transportation Authority (SBCTA) and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in March 2021. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

7.3 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs (e.g., DIF), construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the Town of Apple Valley's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution toward future improvements.

Detailed fair share calculations for each peak hour, have been provided in Table 7-1 for the applicable deficient intersections shown previously in Table 1-2. Improvements included in a defined program and constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate.

TABLE 7-1: FAIR SHARE CALCULATIONS

#	Intersection	Existing (2023) Traffic	HY (2040) w/ Project Traffic	Project Only Traffic	Total New Traffic[1]	Project Fair Share (%)[2]
1	Dachshund Av. / Johnson Rd.					
	• AM Peak Hour	510	2,324	145	1,814	8.0%
	• PM Peak Hour	771	3,023	189	2,252	**8.4%**
2	Dale Evans Pkwy. / Johnson Rd.					
	• AM Peak Hour	268	3,429	144	3,161	4.6%
	• PM Peak Hour	411	3,659	189	3,248	**5.8%**
3	Stoddard Wells Rd. / Johnson Rd.					
	• AM Peak Hour	288	1,424	66	1,136	5.8%
	• PM Peak Hour	426	1,692	89	1,266	**7.0%**
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.					
	• AM Peak Hour	277	1,184	115	907	**12.7%**
	• PM Peak Hour	406	1,632	150	1,226	12.2%
5	Quarry Rd. / Stoddard Wells Rd.					
	• AM Peak Hour	317	1,069	115	752	15.3%
	• PM Peak Hour	477	1,322	150	845	**17.8%**
6	Quarry Rd. / I-15 SB Ramps					
	• AM Peak Hour	182	427	27	245	11.0%
	• PM Peak Hour	258	841	108	583	**18.5%**
8	Dale Evans Pkwy. / Corwin Rd.					
	• AM Peak Hour	130	1,756	18	1,626	1.1%
	• PM Peak Hour	197	1,819	24	1,622	**1.5%**
9	Dachshund Av. / Cordova Rd.					
	• AM Peak Hour	68	1,558	18	1,490	1.2%
	• PM Peak Hour	121	1,432	24	1,311	**1.8%**

[1] Total New Traffic = (Horizon Year 2040 with Project - Existing Traffic)

[2] Project Fair Share % = (Project Only Traffic / Total New Traffic)

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Report.xlsx]7-1

This Page Intentionally Left Blank

8 REFERENCES

1. **County of San Bernardino.** *County of San Bernardino Transportation Impact Study Guidelines.* County of San Bernardino : s.n., July 2019.
2. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
3. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
4. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014, Updated March 30, 2021 (Revision 6).
5. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
6. **Southern California Association of Governments.** *Demographics and Gorwth Forecast Technical Report.* SCAG : s.n., Adopted on September 3, 2020.

This page intentionally left blank

APPENDIX 1.1: APPROVED TRAFFIC STUDY SCOPING AGREEMENT

This Page Intentionally Left Blank

October 25, 2023

Mr. Richard Pederson
Town of Apple Valley
14955 Dale Evans Pkwy.
Apple Valley, CA 92307

CORDOVA ROAD LOGISTICS FACILITY LEVEL OF SERVICE (LOS) AND VEHICLE MILES TRAVELED (VMT) SCOPING AGREEMENT

Dear Mr. Richard Pederson:

Urban Crossroads, Inc. is pleased to submit this scoping letter to the Town of Apple Valley regarding the Level of Service (LOS) and Vehicle Miles Traveled (VMT)to be prepared for the proposed Cordova Road Logistics Facility development ("Project"), which is located south of Quarry Road and east of Dachshund Rd. in the Town of Apple Valley. It is our understanding that the Project is to consist of 1,346,270 square feet (sf) of high cube warehouse/distribution.

The remainder of this letter describes the proposed analysis methodology, Project trip generation, trip distribution, and Project traffic assignment/project trips on the surrounding roadway network. The following scoping assumptions have been prepared in accordance with the County of San Bernardino's Transportation Impact Study Guideline (July 9, 2019) as the Town of Apple Valley utilizes the County guidelines.

A preliminary site plan the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed project in relation to the existing roadway network. It is anticipated that the Project would be occupied by year 2025. Project will have four full access points along the future Dachshund Road and two full access points along the future Cordova Road.

TRIP GENERATION

For purposes of this analysis, the Project is assumed to consist of 1,144,330 square of high cube warehouse floor area (85% of total), and 201,940 square feet of cold storage (15% 0f total). In order to develop the traffic characteristics of the high-cube warehouse land use for the Proposed Project, trip-generation statistics published in the TUMF High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) are used. The purpose of WSP 2019 study was to gather enough data to develop reliable trip generation rates for centers for use in traffic impact studies in the Inland Empire.

In addition, the South Coast Air Quality Management District (SCAQMD) recommends the use of 0.64 truck trips per 1,000 square feet, which would account for variations in the future users.

For the remaining high-cube cold storage portion of the Proposed Project, the trip generation rates published by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 11th Edition (2021) have been utilized.

Refinements to the raw trip generation estimates for the high-cube cold storage warehouse have been made to provide a more detailed breakdown of trips by vehicle mix. Data regarding the vehicle mix has been obtained from the High Cube Warehouse Vehicle Trip Generation Analysis (ITE, October 2016). The ITE 2016 vehicle trip generation analysis provides vehicle mix datasets for Cold Storage Warehouse uses, which consists of 32.2% trucks for daily trips, 30.8% trucks for AM peak hour trips and 21.7% trucks for PM peak hour trips. The South Coast Air Quality Management (SCAQMD) recommended truck mix for each axle type is utilized for 2- axle, 3-axle, and 4+-axle trucks for warehouse use with cold storage.

Passenger car equivalents (PCEs) allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses.

Table 1 shows the vehicle trip generation rates for the Proposed Project, as well as the vehicle trip generation summary with daily and peak hour trip generation estimates. Table 2 presents the passenger-car-equivalent (PCE) trip generation rates for the Proposed Project with the resulting PCE daily and peak hour trip generation estimates. As shown on Table 2, Proposed Project is anticipated to generate a total of 4,518 PCE trip-ends per day with 253 AM peak vehicle hour trips and 334 PM peak hour vehicle trips.

TRIP DISTRIBUTION AND TRIP ASSIGNMENT

The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. Exhibits 3 and 4 presents the Project distribution patterns for passenger cars and trucks, respectively.

Based on the identified Project traffic generation and trip distribution patterns, Project peak hour intersection turning movement volumes are shown on Exhibits 5 and 6. Per conversation with City staff, access to Quarry Road is not anticipated.

ANALYSIS SCENARIOS

Consistent with Town of Apple Valley and County LOS guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2023) Conditions
- Background Without and With Project (2025)
- Cumulative Without and With Project (2040)

Exhibit 7 shows the Town of Apple Valley General Plan Street System and Exhibit 8 illustrates the Town of Apple Valley General Plan roadway cross-sections. As shown on Exhibit 7, Cordova Road, Dachshund Road, and Quarry Road are classified as Secondary Roadway within the study area. It should be noted however that the classification of the roadways adjacent to the site may change.

The Town of Apple Valley Truck Routes are presented on Exhibit 9.

STUDY AREA

Consistent with the Town of Apple Valley and County LOS guidelines, study area intersections have been identified for the Project based on the contribution of 50 or more peak hour trips. Based on this criterion, anticipated trip generation and trip distribution, the following intersections will be evaluated:

#	Intersection	#	Intersection
1	Dachshund Av. / Johnson Rd.	9	Dachshund Av. / Cordova Rd.
2	Dale Evans Pkwy. / Johnson Rd.	10	Dachshund Av. / Dwy. 1
3	Stoddard Wells Rd. / Johnson Rd.	11	Dachshund Av. / Dwy. 2
4	I-15 NB Ramps - Outer Hwy. 15 / Stoddard Wells Rd.	12	Dachshund Av. / Dwy. 3
5	Quarry Rd. / Stoddard Wells Rd.	13	Dachshund Av. / Dwy. 4
6	Quarry Rd. / I-15 SB Ramps	14	Dwy. 5 / Cordova Rd.
7	Dale Evans Pkwy. / Lafayette St.	15	Dwy. 6 / Cordova Rd.
8	Dale Evans Pkwy. / Corwin Rd.		

Exhibit 2 identifies the proposed study area intersection analysis locations.

LEVEL OF SERVICE (LOS) CRITERIA

Per the Town of Apple Valley General Plan, roadway segments and intersections should generally operate at level of Service C or better, wherever feasible, and that all intersections maintain a Level of Service D or better during both morning and evening peak hours.

PREFERRED ANALYSIS METHODOLOGY

For the purposes of this analysis, signalized intersection operations analysis will be based on the methodology described in the Highway Capacity Manual (6th Edition). Intersection LOS operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM 6th Edition.

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane.

EXISTING 2023 VOLUMES

For the existing study area intersections, new traffic counts will be collected in November 2023 during the following timeframes: 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM.

CUMULATIVE DEVELOPMENT TRAFFIC

It is requested that Town staff review the list of cumulative development projects (shown on Exhibit 10 and listed on Table 3) for inclusion in the traffic study. Consistent with other studies performed in the area, an ambient growth rate of 2% per year will be utilized as a minimum if necessary. The rate will be compounded over a 2-year period (i.e., 1.02^{2years} = 1.0404 or 4.04%) for Interim Year (2025) conditions.

Where available, mitigation measures from the traffic studies prepared for nearby cumulative developments will be reviewed for consistency with the findings of this Project traffic analysis.

SPECIAL ISSUES

The following issues will also be addressed as part of the TIA:

Traffic Signal Warrant Analysis: Signal warrant analysis will be prepared for all unsignalized study area intersections that allow for full access (no traffic signal warrants to be performed for restricted access locations due to infeasibility of installing a signal at these types of locations).

Queueing: Queuing analysis will be performed at Project access points to determine pocket storage lengths needed to accommodate 95th percentile queues.

Improvements: Based on the traffic analysis results, the TA will indicate new improvement requirements and fair share contribution for the proposed Project.

Vehicle Miles Traveled (VMT): VMT analysis will be conducted in accordance with Town guidelines.

VEHICLE MILES TRAVELED (VMT) SCREENING

The VMT screening assessment will be prepared under separate cover. The California Environmental Quality Act (CEQA) procedures for determination of transportation impacts have recently changed to an evaluation of Vehicle Miles Traveled (VMT) rather than vehicle delay or level of service, due to Senate Bill 743 (SB 743).

County of San Bernardino VMT screening guidelines will be applied to the project, unless otherwise directed by Town staff. To estimate Baseline Plus Project Conditions, adjustments to socio-economic data (i.e., number of employees) are to be made for the Project's traffic analysis zone (TAZ) or a separate TAZ in the San Bernardino Transportation Analysis Model (SBTAM) base year model (i.e., 2016).

CONCLUSION

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution and assignment, analysis scenarios and the recommended intersection analysis locations for the Cordova Road Logistics Facility Level of Service (LOS) and Vehicle Miles Traveled (VMT).

Please review this scoping agreement let us know if it is acceptable, or if the Town requests any changes to this proposed scope of work. If you have any questions, please contact John Kain at (949) 375-2435 or Marlie Whiteman (714) 585-0574.

Respectfully submitted,

URBAN CROSSROADS, INC.

John Kain
Principal

Marlie Whiteman, P.E.
Senior Associate

Attachments

EXHIBIT 1: SITE PLAN

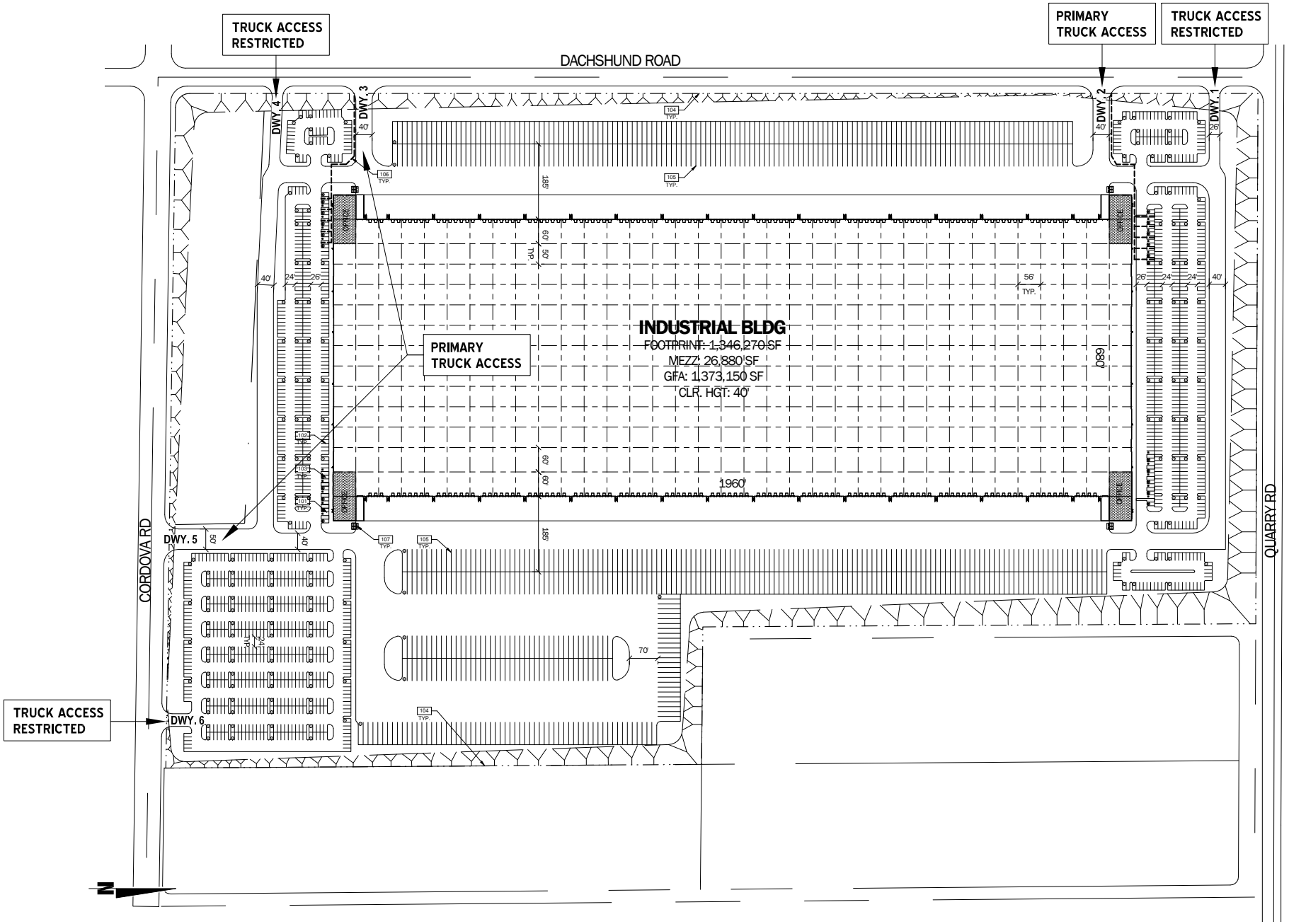
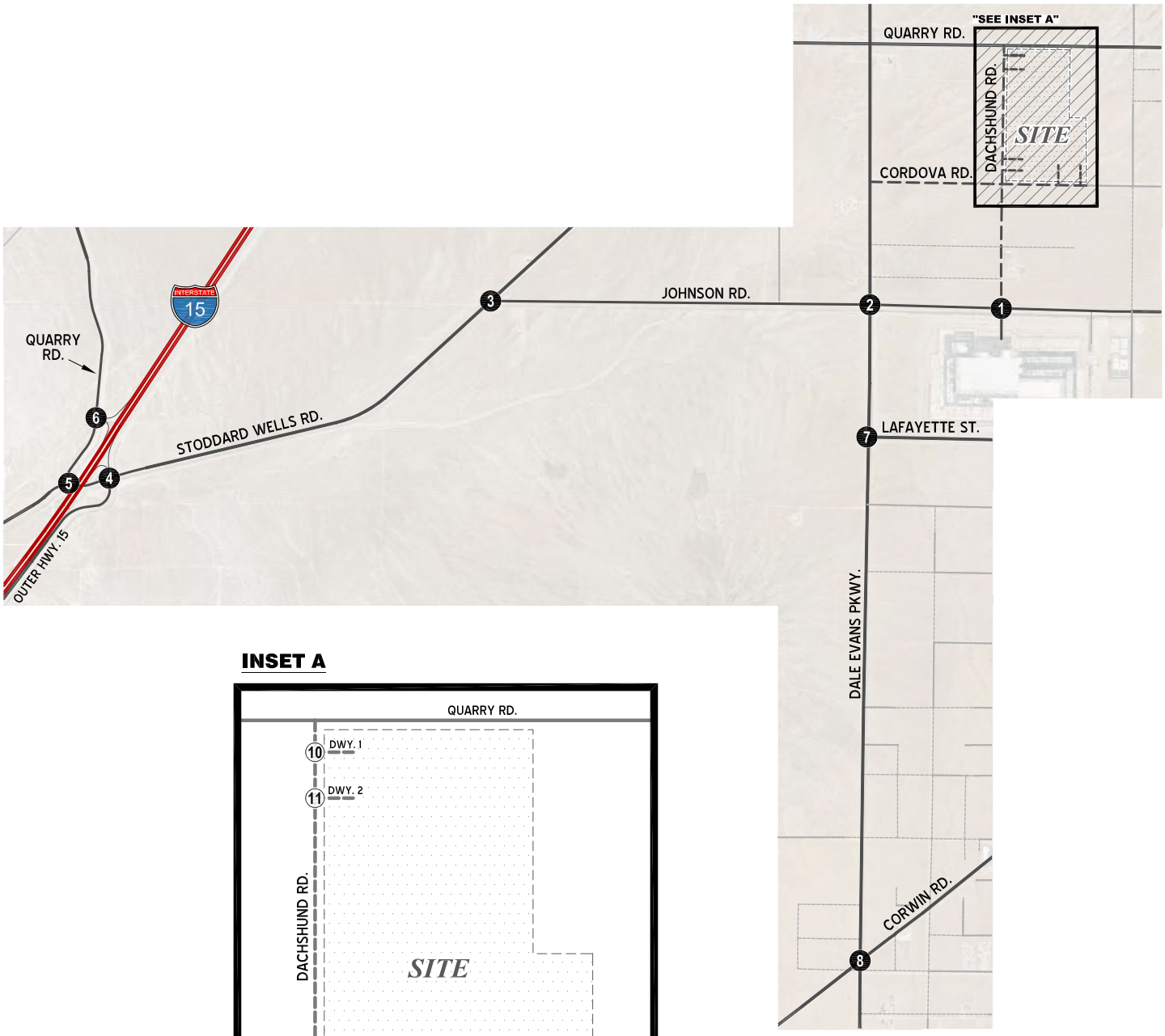
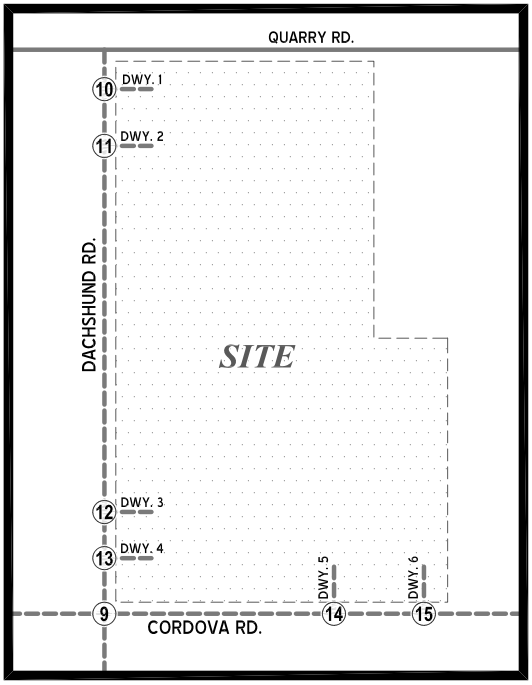


EXHIBIT 2: TRAFFIC ANALYSIS STUDY AREA



INSET A



LEGEND:

- 9 = EXISTING ANALYSIS LOCATION
- (7) = FUTURE ANALYSIS LOCATION
- = FUTURE ROADWAY

N

TABLE 1: PROJECT TRIP GENERATION SUMMARY
ACTUAL VEHICLES

Proposed Project Trip Generation Rates[1]

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks			0.028	0.008	0.036	0.014	0.036	0.050	0.640
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.085	0.025	0.110	0.034	0.086	0.120	2.12
Passenger Cars (69.2% AM, 78.3% PM, 67.8% Daily)			0.059	0.017	0.076	0.026	0.068	0.094	1.437
2-Axle Trucks (10.69% AM, 7.53% PM, 11.17% Daily)			0.009	0.003	0.012	0.003	0.006	0.009	0.237
3-Axle Trucks (3.39% AM, 2.39% PM, 3.54% Daily)			0.003	0.001	0.004	0.001	0.002	0.003	0.075
4-Axle+ Trucks (16.72% AM, 11.78% PM, 17.49% Daily)			0.014	0.004	0.018	0.004	0.010	0.014	0.371

Proposed Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (Actual)			32	10	42	16	41	57	732
High Cube Warehouse Subtotal			107	33	140	53	135	188	2,436
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	4	16	5	14	19	290
- Truck Trips									
2-axle:			*2*	*1*	*3*	*1*	*1*	*2*	*48*
3-axle:			*1*	*0*	*1*	*0*	*0*	*0*	*15*
4+-axle:			*3*	*1*	*4*	*1*	*2*	*3*	*75*
- Net Truck Trips (Actual Vehicles)			6	2	8	2	3	5	138
High Cube Cold Storage Warehouse Subtotal			18	6	24	7	17	24	428
Passenger Cars Subtotal			87	27	114	42	108	150	1,994
Truck Trips Subtotal			38	12	50	18	44	62	870
PROJECT TOTAL TRIPS (ACTUAL VEHICLES)[7]			125	39	164	60	152	212	2,864

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units

[3] Source: *TUMF High-Cube Warehouse Trip Generation Study* . Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center* .
Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.

[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).

[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks

[7] Total Net Trips (Actual Vehicles) = Passenger Cars + Net Truck Trips (Actual Trucks).

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Scope.xlsx]15504 TG - Actual

TABLE 2: PROJECT TRIP GENERATION SUMMARY
PASSENGER CAR EQUIVALENT (PCE)

Project Trip Generation Rates[1]

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse[3]	-	1,144.330 TSF	0.150	0.045	0.195	0.075	0.190	0.265	3.409
Passenger Cars			0.066	0.020	0.086	0.033	0.082	0.115	1.489
2 to 4-Axle+ Trucks (PCE = 3.0)			0.084	0.025	0.109	0.042	0.108	0.150	1.920
High-Cube Cold Storage Warehouse[4,5,6]	157	201.940 TSF	0.121	0.036	0.157	0.045	0.111	0.156	3.06
Passenger Cars			0.059	0.017	0.076	0.026	0.068	0.094	1.437
2-Axle Trucks (PCE = 1.5)			0.014	0.005	0.019	0.005	0.009	0.014	0.356
3-Axle Trucks (PCE = 2.0)			0.006	0.002	0.008	0.002	0.004	0.006	0.150
4-Axle+ Trucks (PCE = 3.0)			0.042	0.012	0.054	0.012	0.030	0.042	1.113

Project Trip Generation Results

Land Use	ITE LU Code	Quantity[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Warehouse	-	1,144.330 TSF							
- Passenger Cars			75	23	98	37	94	131	1,704
- Truck Trips (PCE = 3.0)			96	29	125	48	124	172	2,197
High Cube Warehouse Subtotal			171	52	223	85	218	303	3,901
High-Cube Cold Storage Warehouse	157	201.940 TSF							
- Passenger Cars			12	3	15	5	14	19	290
- Truck Trips									
2-axle (PCE = 1.5):			*3*	*1*	*4*	*1*	*2*	*3*	*72*
3-axle (PCE = 2.0):			*1*	*0*	*1*	*0*	*1*	*1*	*30*
4+-axle (3.0):			*8*	*2*	*10*	*2*	*6*	*8*	*225*
- Net Truck Trips (PCE)			12	3	15	3	9	12	327
High Cube Cold Storage Warehouse Subtotal			24	6	30	8	23	31	617
Passenger Cars Subtotal			87	26	113	42	108	150	1,994
Truck Trips Subtotal			108	32	140	51	133	184	2,524
PROJECT TOTAL EXTERNAL TRIPS (PCE)[7]			195	58	253	93	241	334	4,518

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units

[3] Source: *TUMF High-Cube Warehouse Trip Generation Study* . Prepared by WSP, January 2019.
Passenger and Truck AM/PM peak hour (in/out) splits are estimated from based on ITE peak-to-daily relationship
Truck Daily Rate Source: *Notice of Preparation of a Draft Environmental Impact Report for the Proposed Potrero Logistics Center* .
Prepared by South Coast Air Quality Management District (SCAQMD), June 2020.

[4] Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Handbook, Third Edition (September 2017).

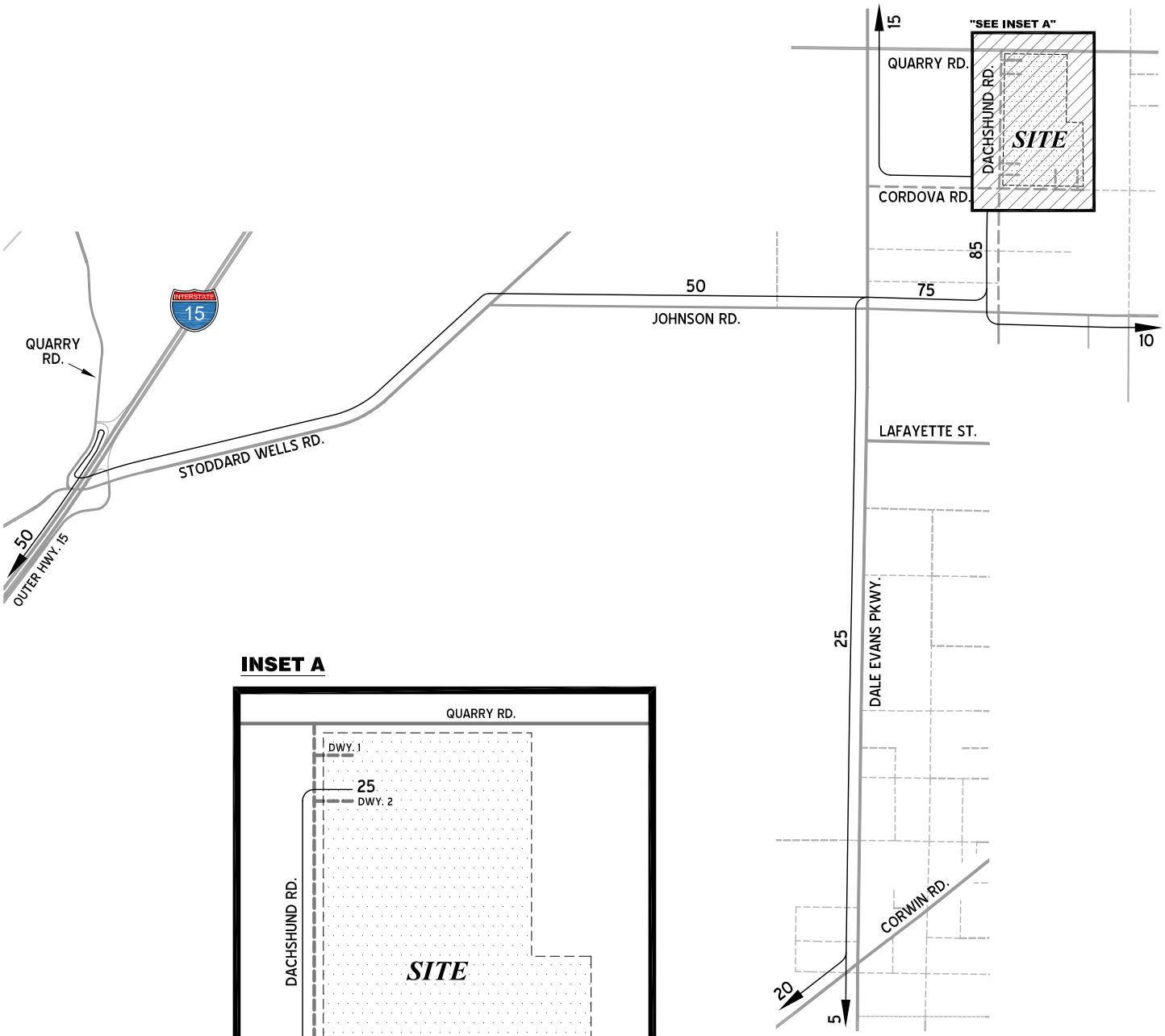
[5] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[6] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks

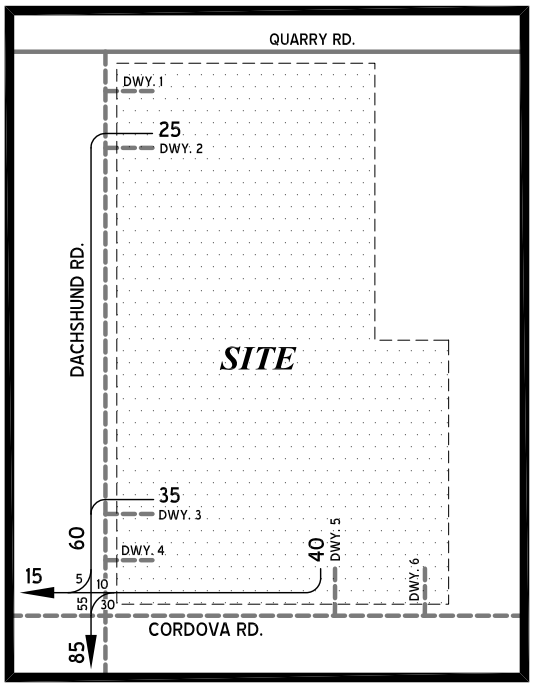
[7] Total Net Trips (PCE) = Passenger Cars + Net Truck Trips (Passenger Car Equivalent).

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Scope.xlsx]15504 TG - PCE

EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION



INSET A



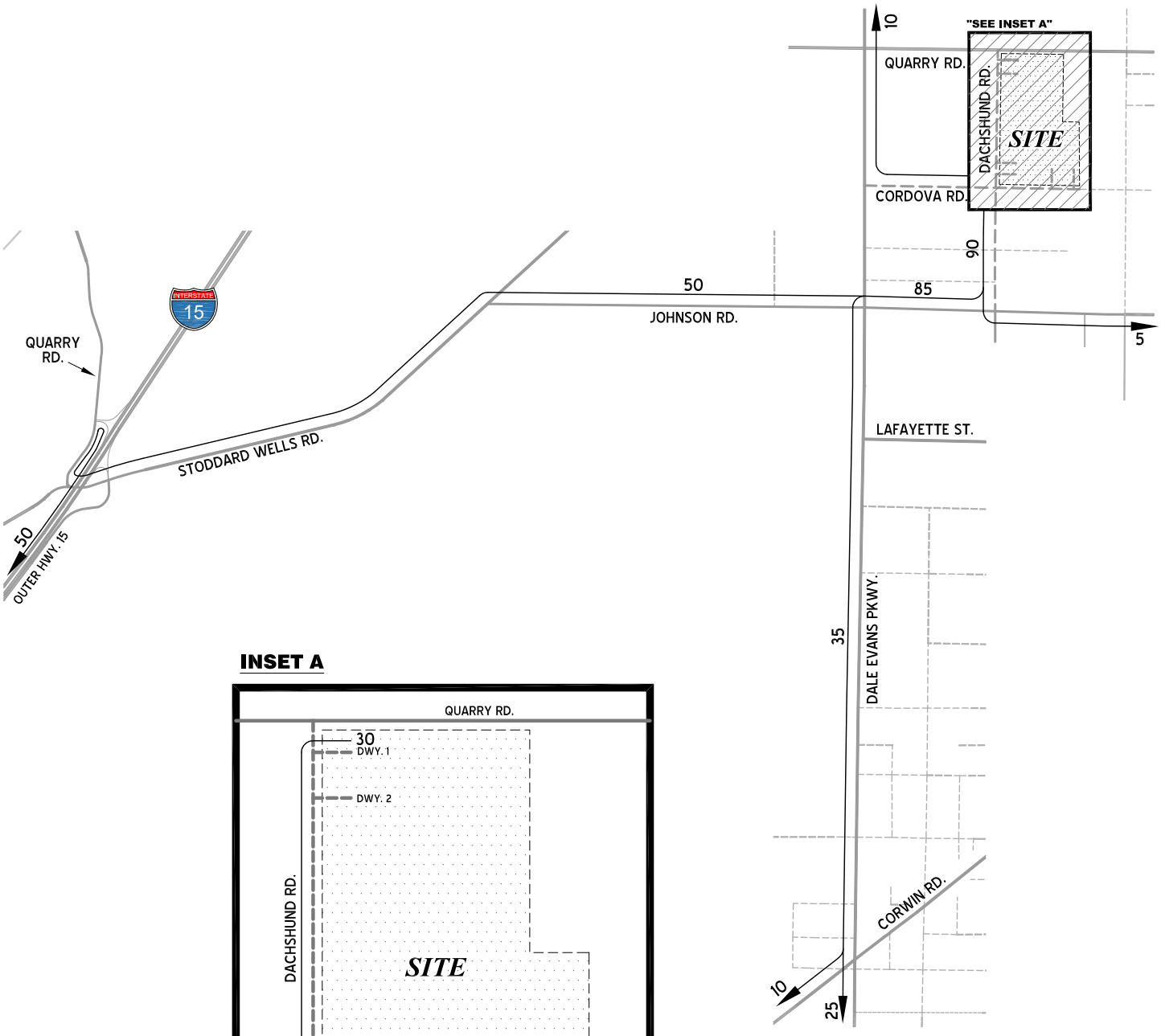
LEGEND:

10 = PERCENT TO/FROM PROJECT

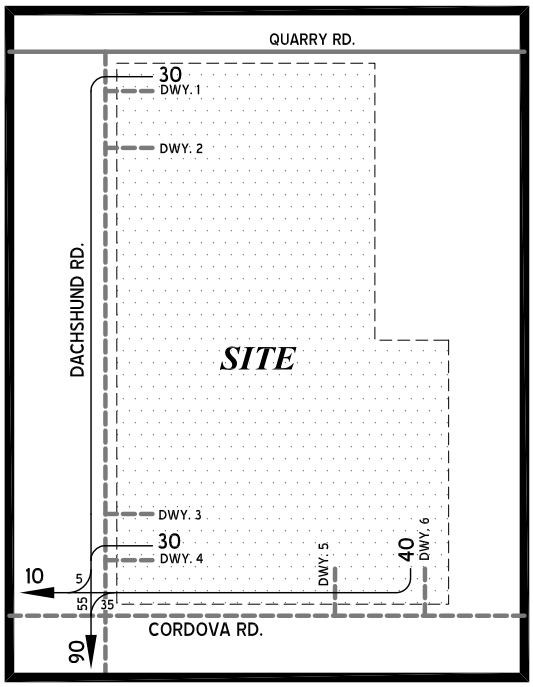
= FUTURE ROADWAY

N

EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



INSET A



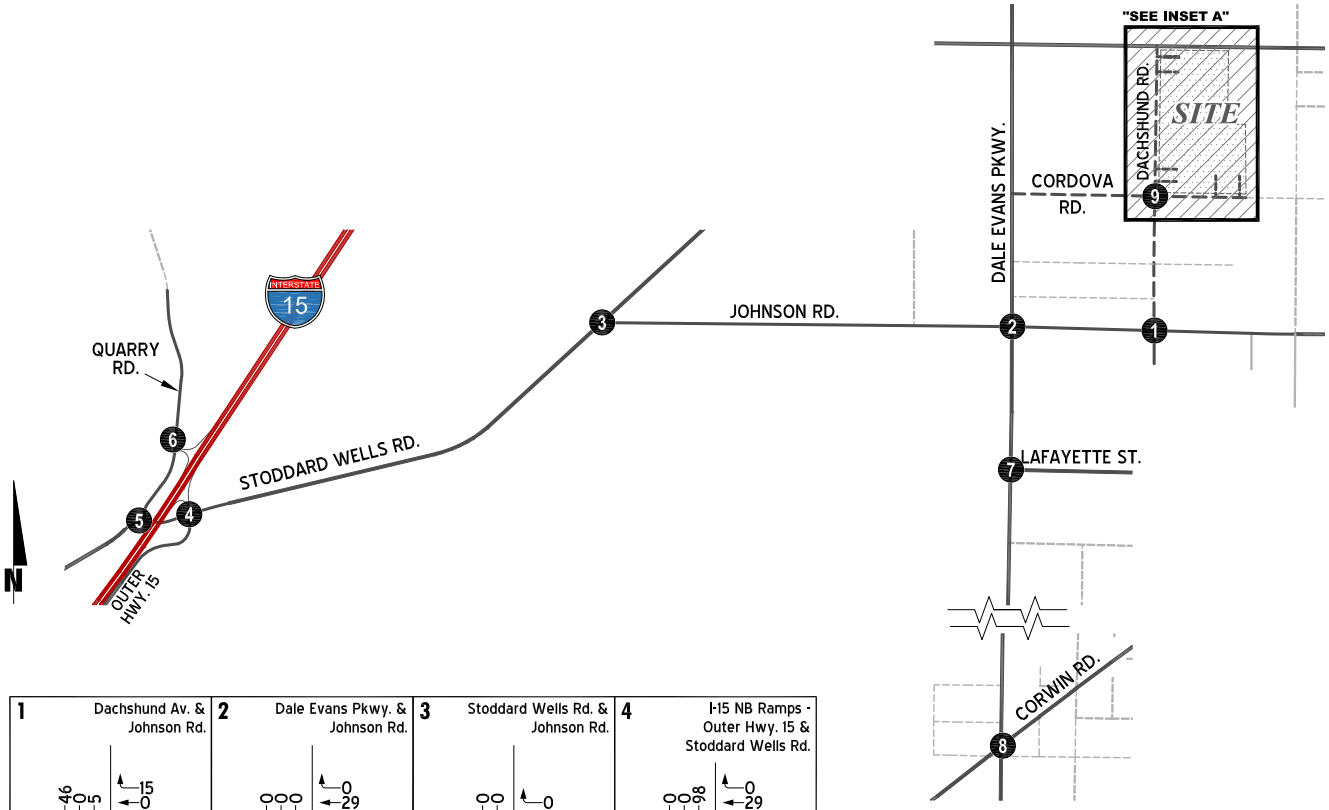
LEGEND:

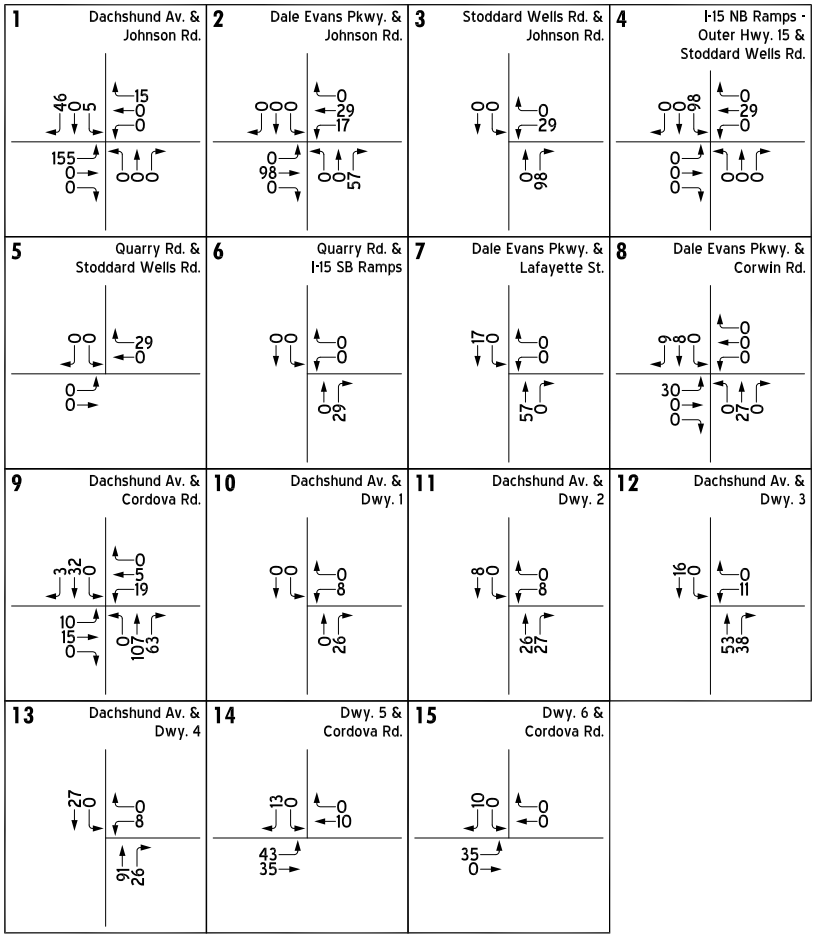
10 = PERCENT TO/FROM PROJECT

= FUTURE ROADWAY

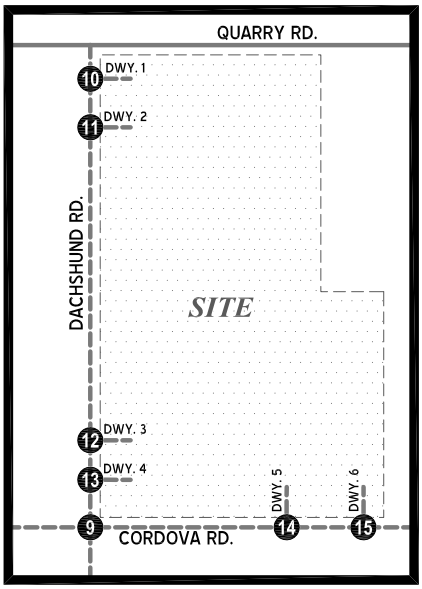
N

EXHIBIT 5: PROJECT ONLY AM PEAK HOUR
INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES





INSET A

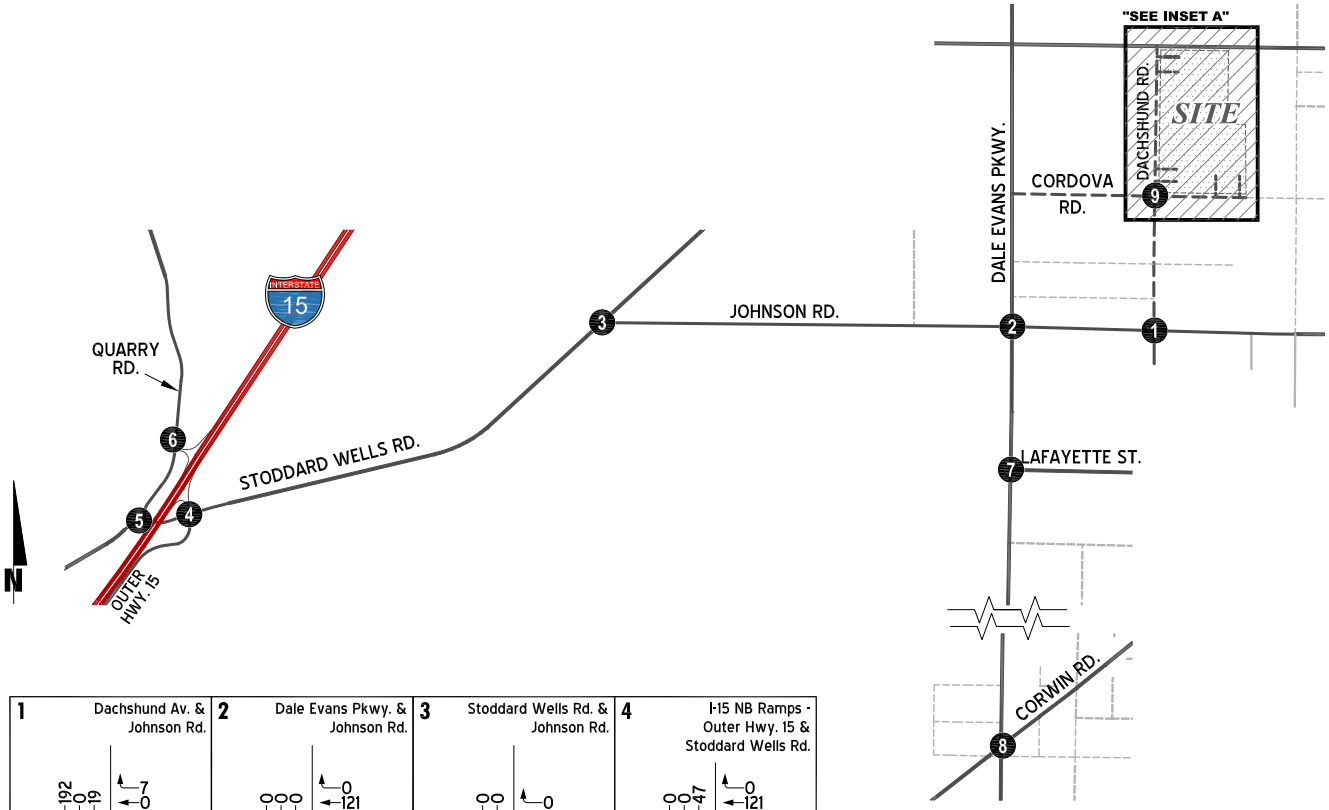


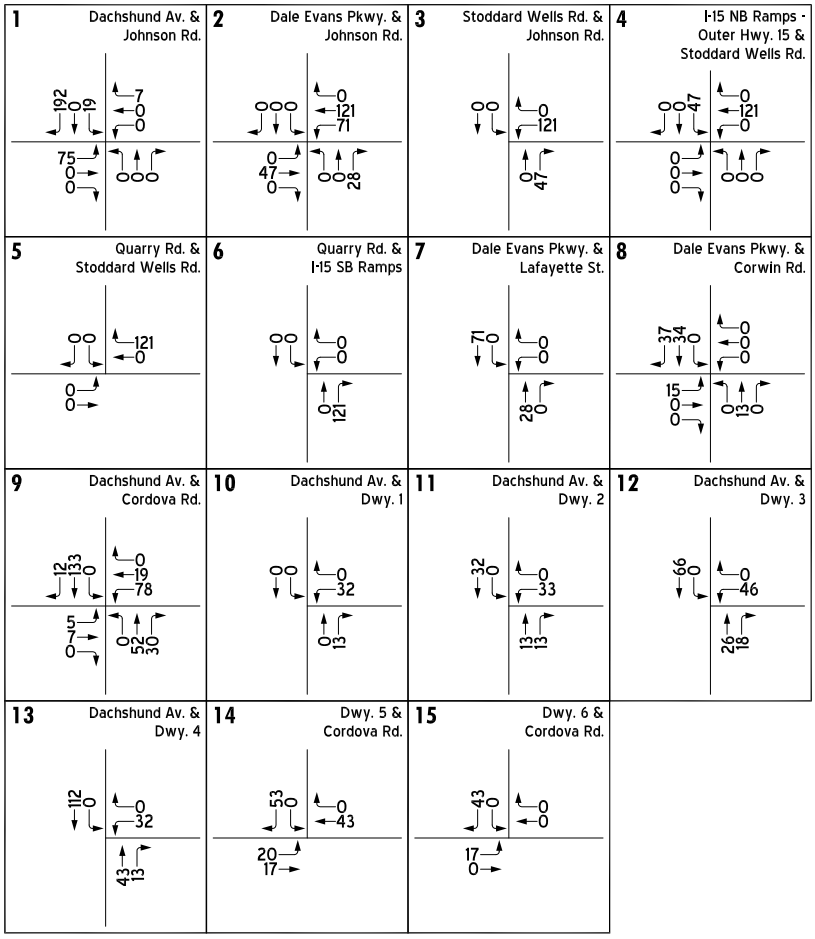
LEGEND:

(#) = INTERSECTION ID

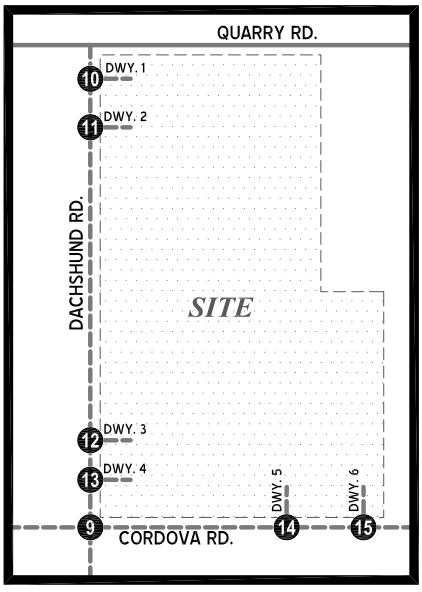
= FUTURE ROADWAY

EXHIBIT 6: PROJECT ONLY PM PEAK HOUR INTERSECTION PASSENGER CAR EQUIVALENT VOLUMES





INSET A



LEGEND:

(#) = INTERSECTION ID

= FUTURE ROADWAY

EXHIBIT 7: TOWN OF APPLE VALLEY GENERAL PLAN STREET SYSTEM

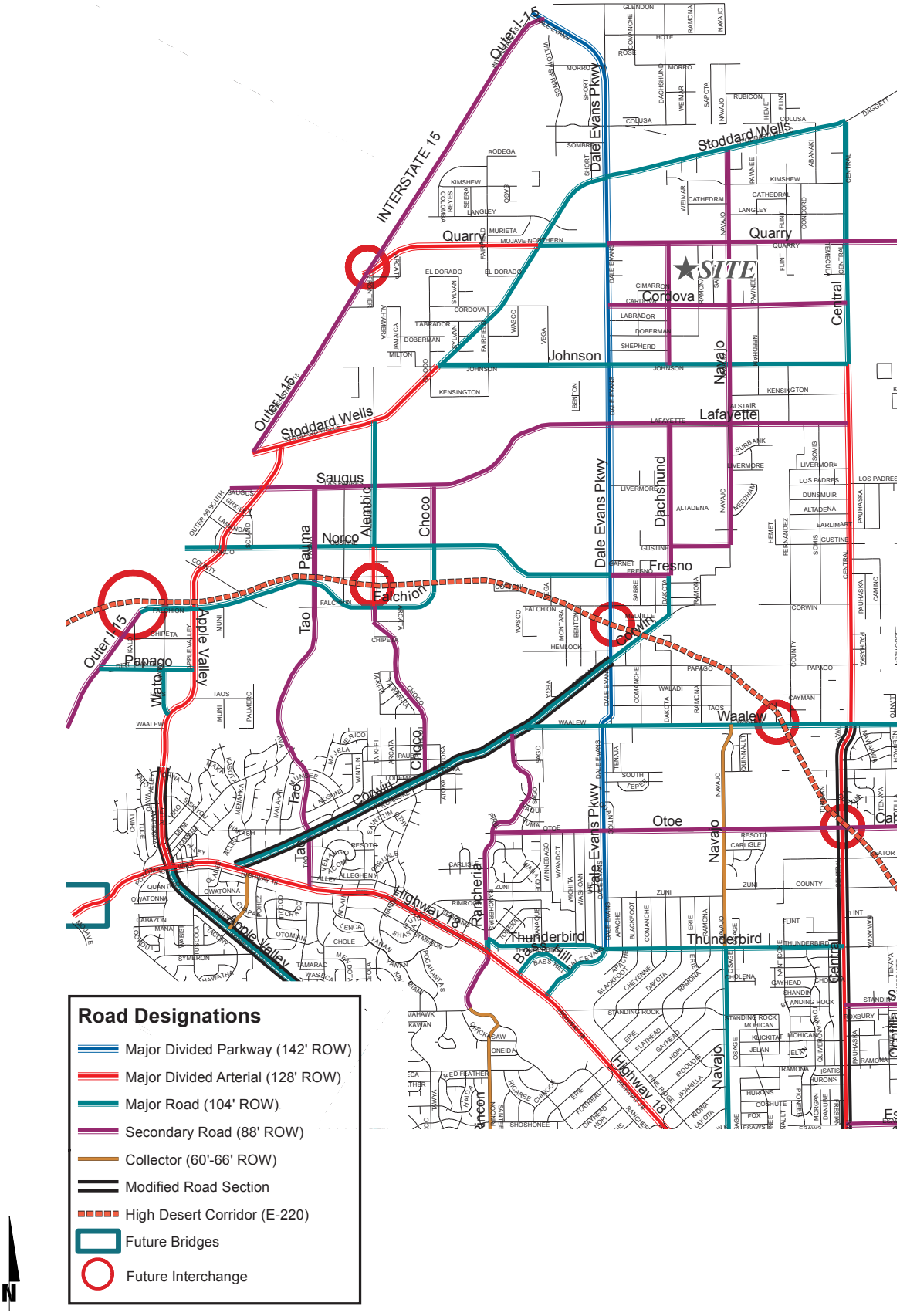
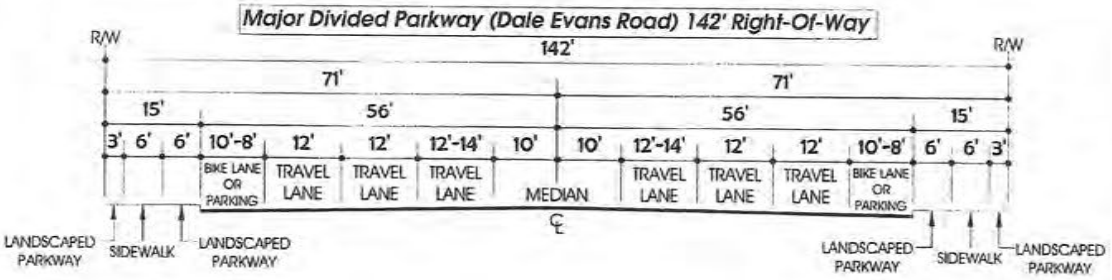
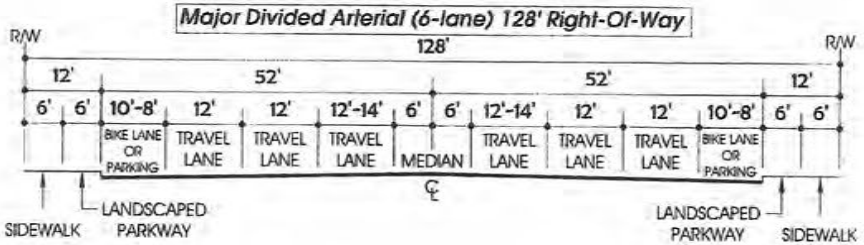
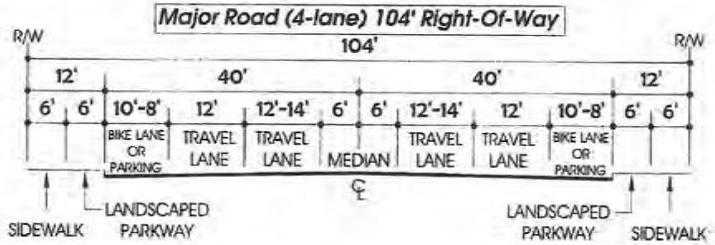
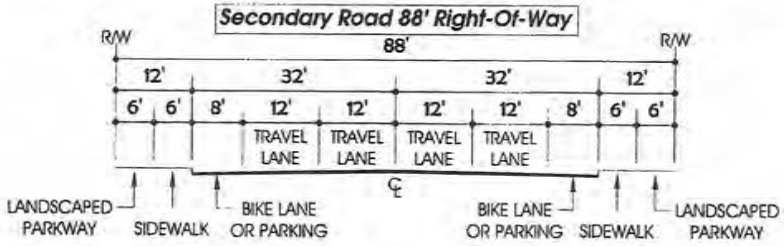


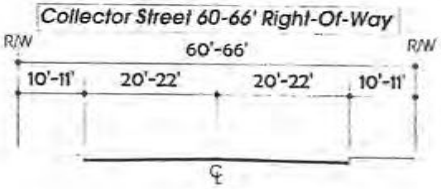
EXHIBIT 8: TOWN OF APPLE VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

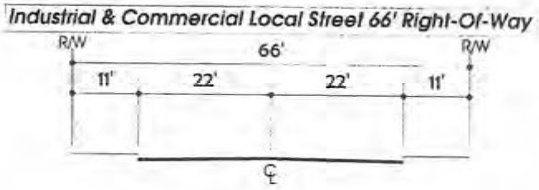


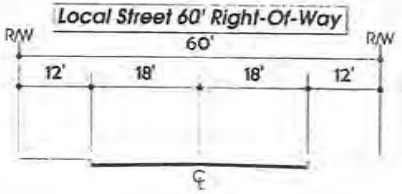


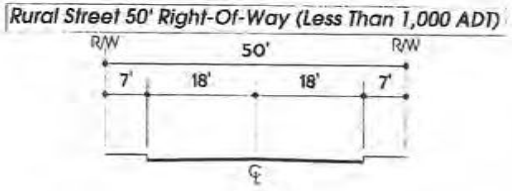












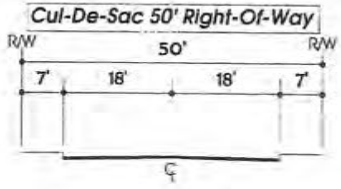


EXHIBIT 9: TOWN OF APPLE VALLEY TRUCK ROUTES

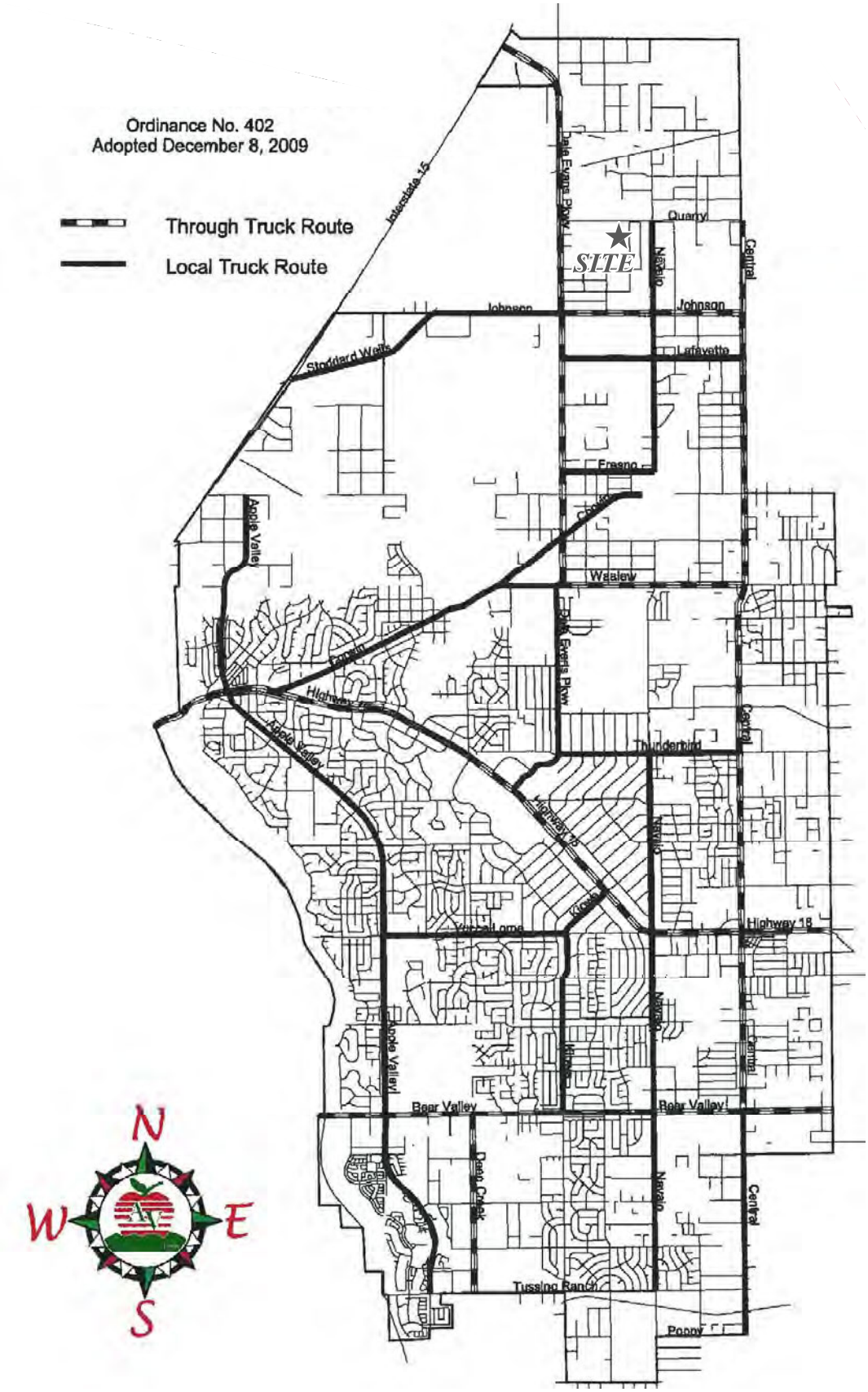


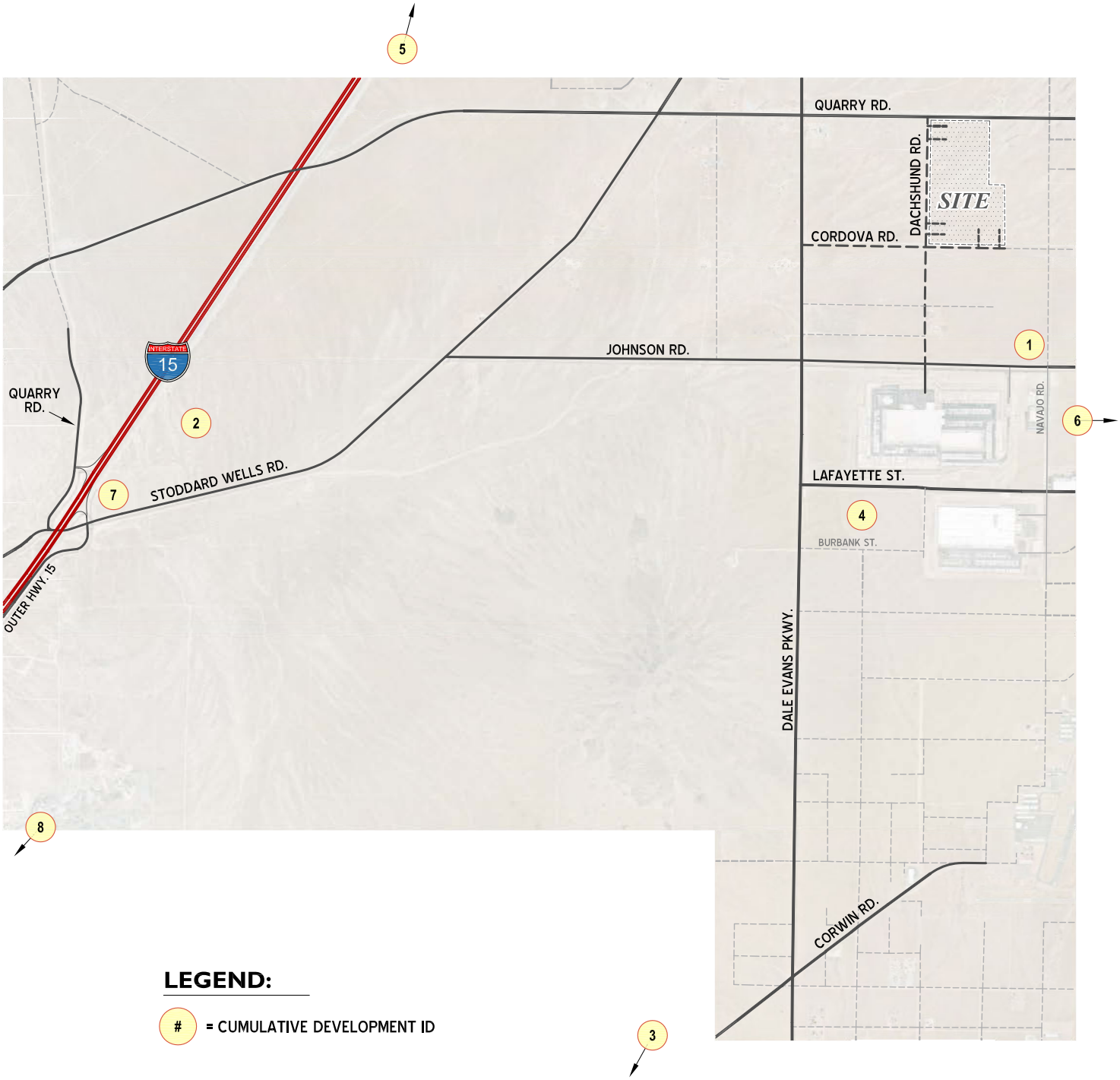
TABLE 3: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

TAZ	Project	Land Use	Quantity	Units[1]
1	Dara II Industrial	Warehouse	374.26	TSF
2	Apple Valley 143	Industrial/Warehouse	2,628.00	TSF
3	TTM 20306 (south of Waalew & east of Corwin)	Single Family Residential	160	DU
4	Lafayette Street Logistics (Redwood West)	High-Cube Warehouse	1,026.41	TSF
		High-Cube Cold Storage	181.13	TSF
5	Apple Valley Gateway Center (north of Dale Evans & east of I-15)	Pad A - Hotel	84	RM
		Pad B - Fast-Food Restaurant w/ Drive-Thru	5.769	TSF
		Pad C - Gas Station with C-Store (5 TSF)	16	VFP
		Pad D - Gas Station with C-Store (3.35 TSF)	12	VFP
		Pad E - Fast-Food Restaurant w/ Drive-Thru	4.00	TSF
		Pad F - Fast-Food Restaurant w/ Drive-Thru	4.20	TSF
		Pad G - Restaurant	4.00	TSF
		Pad H - Shops	10.261	TSF
		Pad I - Fast-Food Restaurant w/ Drive-Thru	2.80	TSF
6	1M Warehouse (east of Central Road, between Johnson Road & Lafayette Street)	High Cube Fulfillment Center Warehouse	1,080.125	TSF
7	Apple Valley I-15 Travel Center (north of Stoddard Wells & east of I-15)	RV Park	80	Spaces
		Gas Station with C-Store (9.66 TSF)	16	VFP
		Fast-Food Restaurant w/ Drive-Thru	3.043	TSF
		Truck Maintenance/Tire Building	13.786	TSF
8	Inland Empire North Logistics Ctr. (north of Falchion Road & east of I-5)	Industrial/Warehouse	2,604.446	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; RM = Room; VFP = Vehicle Fueling Positions

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Excel\[15504 - Scope.xlsx]15504-C

EXHIBIT 10: CUMULATIVE DEVELOPMENT LOCATION MAP



APPENDIX 3.1: TRAFFIC COUNTS – NOVEMBER 2023

This Page Intentionally Left Blank

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

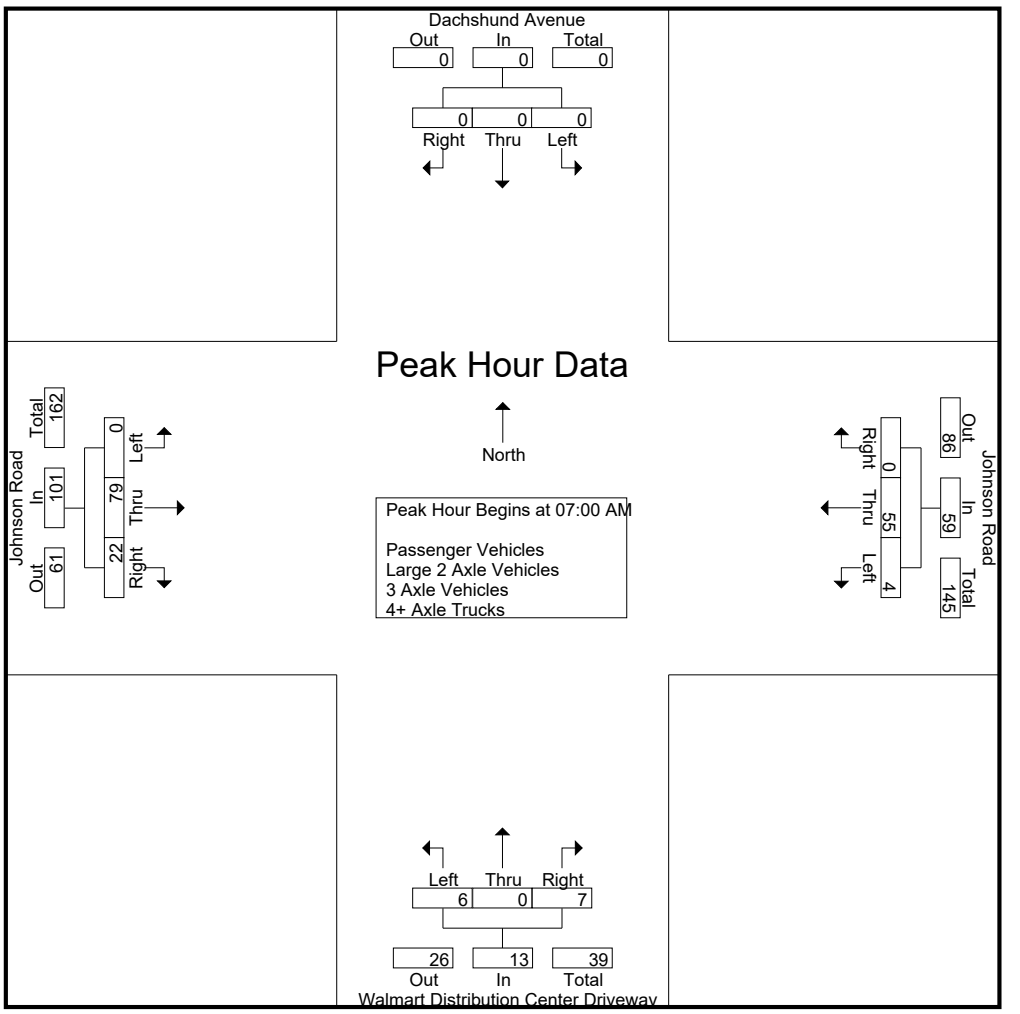
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	2	13	0	15	2	0	1	3	0	10	3	13	31
07:15 AM	0	0	0	0	1	12	0	13	1	0	1	2	0	17	9	26	41
07:30 AM	0	0	0	0	0	14	0	14	2	0	4	6	0	22	5	27	47
07:45 AM	0	0	0	0	1	16	0	17	1	0	1	2	0	30	5	35	54
Total	0	0	0	0	4	55	0	59	6	0	7	13	0	79	22	101	173
08:00 AM	0	0	0	0	0	14	0	14	0	0	1	1	0	10	5	15	30
08:15 AM	0	0	0	0	0	6	0	6	2	0	0	2	0	20	3	23	31
08:30 AM	0	0	0	0	3	13	0	16	0	0	3	3	0	21	2	23	42
08:45 AM	0	0	0	0	6	12	0	18	1	0	0	1	0	21	5	26	45
Total	0	0	0	0	9	45	0	54	3	0	4	7	0	72	15	87	148
Grand Total	0	0	0	0	13	100	0	113	9	0	11	20	0	151	37	188	321
Apprch %	0	0	0		11.5	88.5	0		45	0	55		0	80.3	19.7		
Total %	0	0	0	0	4	31.2	0	35.2	2.8	0	3.4	6.2	0	47	11.5	58.6	
Passenger Vehicles	0	0	0	0	13	44	0	57	8	0	10	18	0	91	37	128	203
% Passenger Vehicles	0	0	0	0	100	44	0	50.4	88.9	0	90.9	90	0	60.3	100	68.1	63.2
Large 2 Axle Vehicles	0	0	0	0	0	5	0	5	1	0	1	2	0	4	0	4	11
% Large 2 Axle Vehicles	0	0	0	0	0	5	0	4.4	11.1	0	9.1	10	0	2.6	0	2.1	3.4
3 Axle Vehicles	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	15
% 3 Axle Vehicles	0	0	0	0	0	7	0	6.2	0	0	0	0	0	5.3	0	4.3	4.7
4+ Axle Trucks	0	0	0	0	0	44	0	44	0	0	0	0	0	48	0	48	92
% 4+ Axle Trucks	0	0	0	0	0	44	0	38.9	0	0	0	0	0	31.8	0	25.5	28.7

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**2**	13	0	15	**2**	0	1	3	0	10	3	13	31
07:15 AM	0	0	0	0	1	12	0	13	1	0	1	2	0	17	**9**	26	41
07:30 AM	0	0	0	0	0	14	0	14	2	0	**4**	**6**	0	22	5	27	47
07:45 AM	0	0	0	0	1	**16**	0	**17**	1	0	1	2	0	**30**	5	**35**	**54**
Total Volume	0	0	0	0	4	55	0	59	6	0	7	13	0	79	22	101	173
% App. Total	0	0	0		6.8	93.2	0		46.2	0	53.8		0	78.2	21.8		
PHF	.000	.000	.000	.000	.500	.859	.000	.868	.750	.000	.438	.542	.000	.658	.611	.721	.801

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:15 AM			
+0 mins.	0	0	0	0	**2**	13	0	15	**2**	0	1	3	0	17	**9**	26
+15 mins.	0	0	0	0	1	12	0	13	1	0	1	2	0	22	5	27
+30 mins.	0	0	0	0	0	14	0	14	2	0	**4**	**6**	0	**30**	5	**35**
+45 mins.	0	0	0	0	1	**16**	0	**17**	1	0	1	2	0	10	5	15
Total Volume	0	0	0	0	4	55	0	59	6	0	7	13	0	79	24	103
% App. Total	0	0	0		6.8	93.2	0		46.2	0	53.8		0	76.7	23.3	
PHF	.000	.000	.000	.000	.500	.859	.000	.868	.750	.000	.438	.542	.000	.658	.667	.736

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

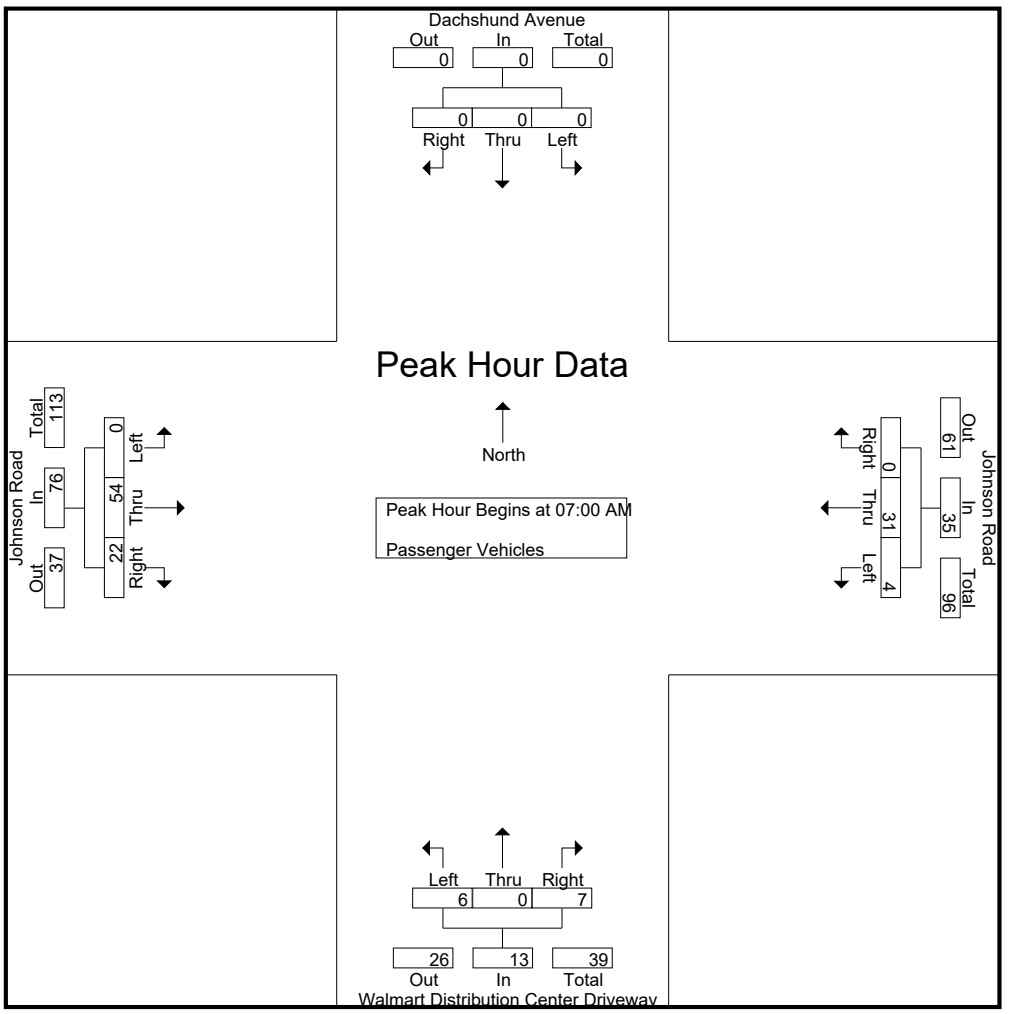
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	2	6	0	8	2	0	1	3	0	8	3	11	22
07:15 AM	0	0	0	0	1	5	0	6	1	0	1	2	0	7	9	16	24
07:30 AM	0	0	0	0	0	9	0	9	2	0	4	6	0	16	5	21	36
07:45 AM	0	0	0	0	1	11	0	12	1	0	1	2	0	23	5	28	42
Total	0	0	0	0	4	31	0	35	6	0	7	13	0	54	22	76	124
08:00 AM	0	0	0	0	0	8	0	8	0	0	1	1	0	4	5	9	18
08:15 AM	0	0	0	0	0	2	0	2	2	0	0	2	0	9	3	12	16
08:30 AM	0	0	0	0	3	2	0	5	0	0	2	2	0	12	2	14	21
08:45 AM	0	0	0	0	6	1	0	7	0	0	0	0	0	12	5	17	24
Total	0	0	0	0	9	13	0	22	2	0	3	5	0	37	15	52	79
Grand Total	0	0	0	0	13	44	0	57	8	0	10	18	0	91	37	128	203
Apprch %	0	0	0		22.8	77.2	0		44.4	0	55.6		0	71.1	28.9		
Total %	0	0	0	0	6.4	21.7	0	28.1	3.9	0	4.9	8.9	0	44.8	18.2	63.1	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**2**	6	0	8	**2**	0	1	3	0	8	3	11	22
07:15 AM	0	0	0	0	1	5	0	6	1	0	1	2	0	7	**9**	16	24
07:30 AM	0	0	0	0	0	9	0	9	2	0	**4**	**6**	0	16	5	21	36
07:45 AM	0	0	0	0	1	**11**	0	**12**	1	0	1	2	0	**23**	5	**28**	**42**
Total Volume	0	0	0	0	4	31	0	35	6	0	7	13	0	54	22	76	124
% App. Total	0	0	0		11.4	88.6	0		46.2	0	53.8		0	71.1	28.9		
PHF	.000	.000	.000	.000	.500	.705	.000	.729	.750	.000	.438	.542	.000	.587	.611	.679	.738

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	**2**	6	0	8	**2**	0	1	3	0	8	3	11
+15 mins.	0	0	0	0	1	5	0	6	1	0	1	2	0	7	**9**	16
+30 mins.	0	0	0	0	0	9	0	9	2	0	**4**	**6**	0	16	5	21
+45 mins.	0	0	0	0	1	**11**	0	**12**	1	0	1	2	0	**23**	5	**28**
Total Volume	0	0	0	0	4	31	0	35	6	0	7	13	0	54	22	76
% App. Total	0	0	0		11.4	88.6	0		46.2	0	53.8		0	71.1	28.9	
PHF	.000	.000	.000	.000	.500	.705	.000	.729	.750	.000	.438	.542	.000	.587	.611	.679

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

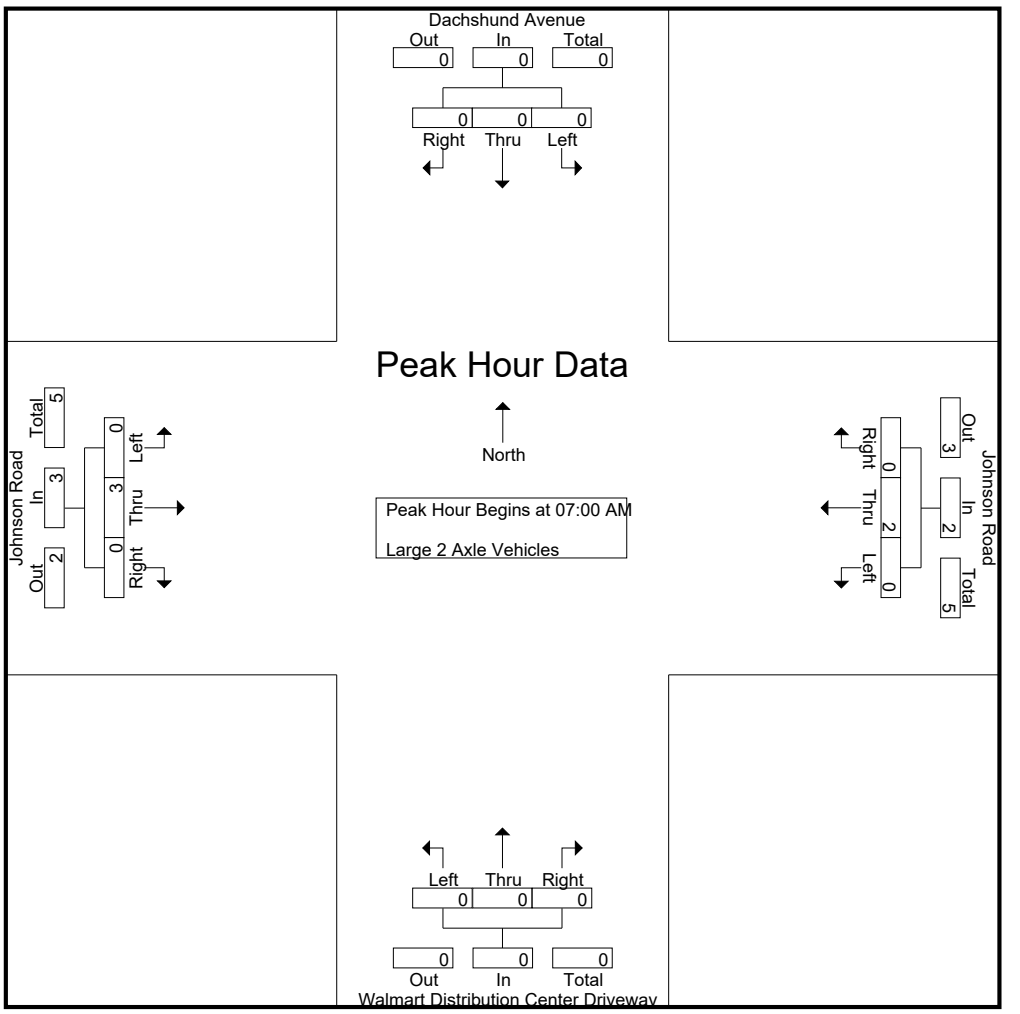
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
08:45 AM	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	0	0	0	0	3	0	3	1	0	1	2	0	1	0	1	6
Grand Total	0	0	0	0	0	5	0	5	1	0	1	2	0	4	0	4	11
Apprch %	0	0	0		0	100	0		50	0	50		0	100	0		
Total %	0	0	0	0	0	45.5	0	45.5	9.1	0	9.1	18.2	0	36.4	0	36.4	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**2**	0	**2**	**3**
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.375	.000	.375	.417

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**2**	0	**2**
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.375	.000	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

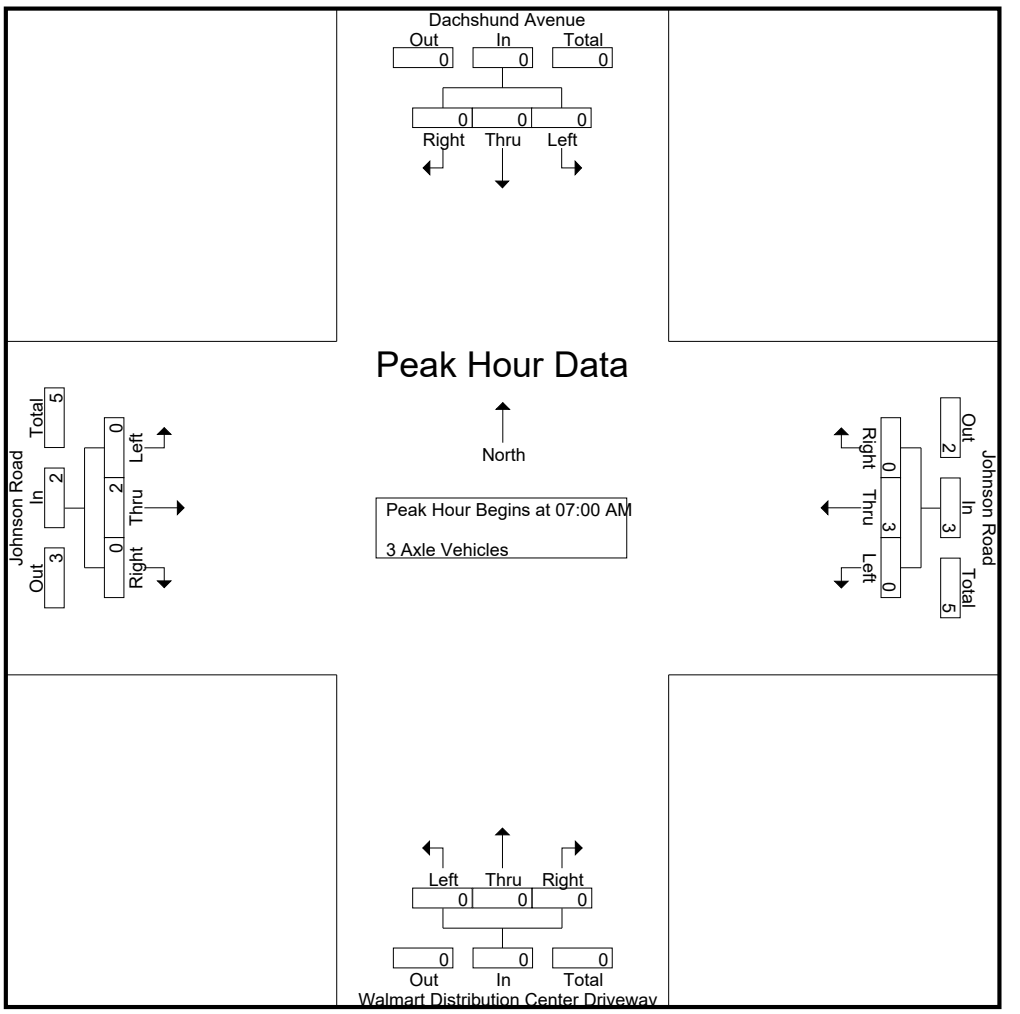
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
08:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	4	0	4	0	0	0	0	0	6	0	6	10
Grand Total	0	0	0	0	0	7	0	7	0	0	0	0	0	8	0	8	15
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	46.7	0	46.7	0	0	0	0	0	53.3	0	53.3	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	**2**
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

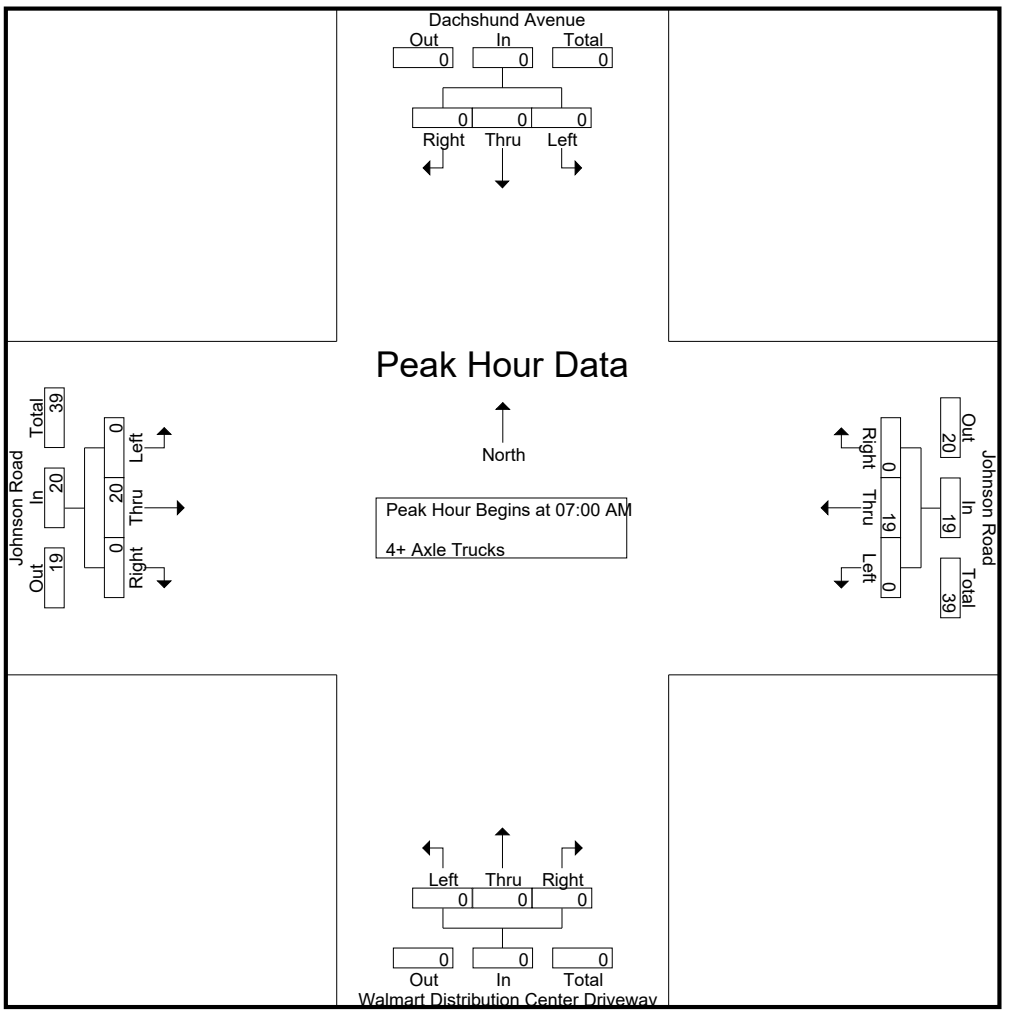
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	7
07:15 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7	12
07:30 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
07:45 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7	12
Total	0	0	0	0	0	19	0	19	0	0	0	0	0	20	0	20	39
08:00 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
08:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	9	0	9	12
08:30 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	6	0	6	15
08:45 AM	0	0	0	0	0	9	0	9	0	0	0	0	0	9	0	9	18
Total	0	0	0	0	0	25	0	25	0	0	0	0	0	28	0	28	53
Grand Total	0	0	0	0	0	44	0	44	0	0	0	0	0	48	0	48	92
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	47.8	0	47.8	0	0	0	0	0	52.2	0	52.2	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1	7
07:15 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	**7**	0	**7**	**12**
07:30 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	8
07:45 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7	12
Total Volume	0	0	0	0	0	19	0	19	0	0	0	0	0	20	0	20	39
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.792	.000	.792	.000	.000	.000	.000	.000	.714	.000	.714	.813

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	**7**	0	**7**
+30 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5
+45 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7
Total Volume	0	0	0	0	0	19	0	19	0	0	0	0	0	20	0	20
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.792	.000	.792	.000	.000	.000	.000	.000	.714	.000	.714

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

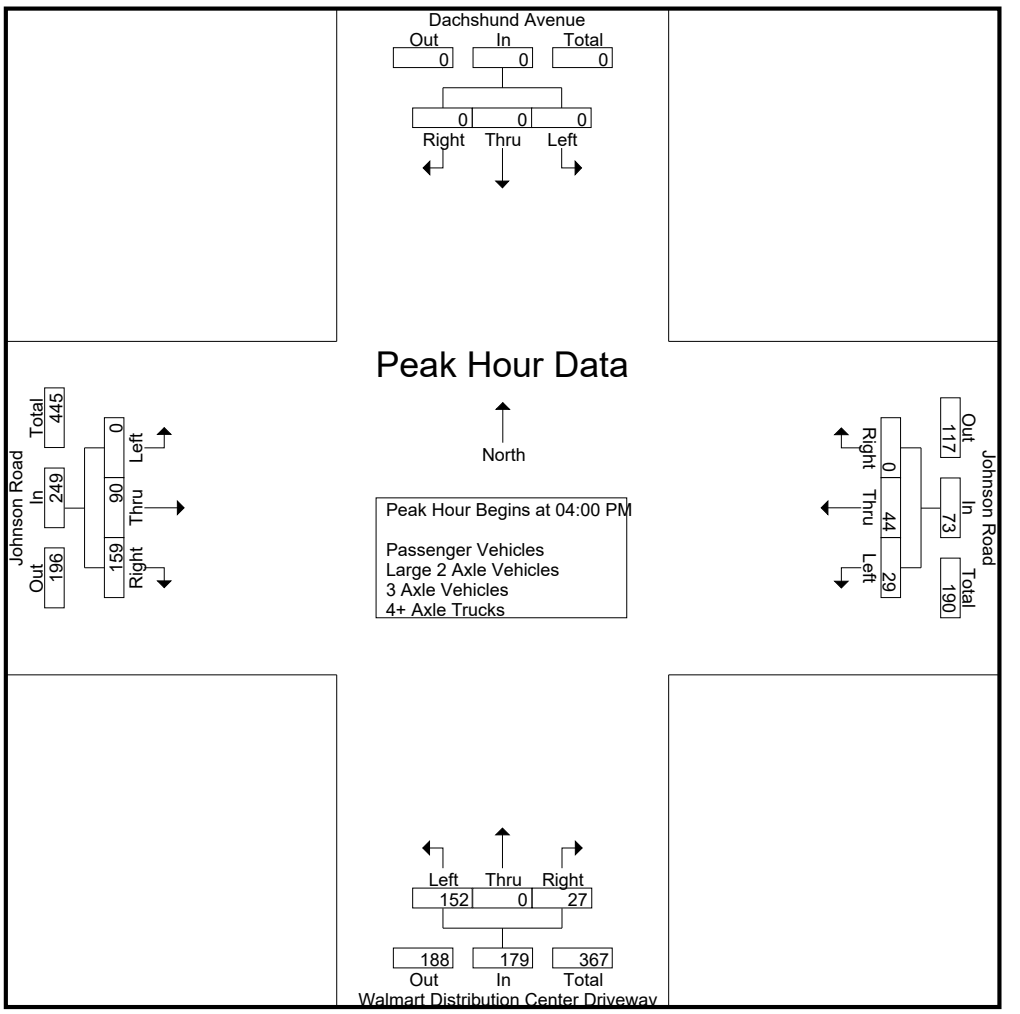
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	4	6	0	10	108	0	15	123	0	22	34	56	189
04:15 PM	0	0	0	0	17	13	0	30	24	0	3	27	0	20	106	126	183
04:30 PM	0	0	0	0	8	16	0	24	12	0	7	19	0	21	15	36	79
04:45 PM	0	0	0	0	0	9	0	9	8	0	2	10	0	27	4	31	50
Total	0	0	0	0	29	44	0	73	152	0	27	179	0	90	159	249	501
05:00 PM	0	0	0	0	2	26	0	28	5	0	3	8	0	33	2	35	71
05:15 PM	0	0	0	0	1	17	0	18	5	0	1	6	0	23	2	25	49
05:30 PM	0	0	0	0	1	21	0	22	11	0	2	13	0	21	1	22	57
05:45 PM	0	0	0	0	0	29	0	29	3	0	0	3	0	14	0	14	46
Total	0	0	0	0	4	93	0	97	24	0	6	30	0	91	5	96	223
Grand Total	0	0	0	0	33	137	0	170	176	0	33	209	0	181	164	345	724
Apprch %	0	0	0		19.4	80.6	0		84.2	0	15.8		0	52.5	47.5		
Total %	0	0	0	0	4.6	18.9	0	23.5	24.3	0	4.6	28.9	0	25	22.7	47.7	
Passenger Vehicles	0	0	0	0	33	113	0	146	176	0	33	209	0	139	164	303	658
% Passenger Vehicles	0	0	0	0	100	82.5	0	85.9	100	0	100	100	0	76.8	100	87.8	90.9
Large 2 Axle Vehicles	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	7
% Large 2 Axle Vehicles	0	0	0	0	0	2.2	0	1.8	0	0	0	0	0	2.2	0	1.2	1
3 Axle Vehicles	0	0	0	0	0	3	0	3	0	0	0	0	0	6	0	6	9
% 3 Axle Vehicles	0	0	0	0	0	2.2	0	1.8	0	0	0	0	0	3.3	0	1.7	1.2
4+ Axle Trucks	0	0	0	0	0	18	0	18	0	0	0	0	0	32	0	32	50
% 4+ Axle Trucks	0	0	0	0	0	13.1	0	10.6	0	0	0	0	0	17.7	0	9.3	6.9

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	4	6	0	10	**108**	0	**15**	**123**	0	22	34	56	**189**
04:15 PM	0	0	0	0	**17**	13	0	**30**	24	0	3	27	0	20	**106**	**126**	183
04:30 PM	0	0	0	0	8	**16**	0	24	12	0	7	19	0	21	15	36	79
04:45 PM	0	0	0	0	0	9	0	9	8	0	2	10	0	**27**	4	31	50
Total Volume	0	0	0	0	29	44	0	73	152	0	27	179	0	90	159	249	501
% App. Total	0	0	0		39.7	60.3	0		84.9	0	15.1		0	36.1	63.9		
PHF	.000	.000	.000	.000	.426	.688	.000	.608	.352	.000	.450	.364	.000	.833	.375	.494	.663

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	**2**	26	0	28	**108**	0	**15**	**123**	0	22	34	56
+15 mins.	0	0	0	0	1	17	0	18	24	0	3	27	0	20	**106**	**126**
+30 mins.	0	0	0	0	1	21	0	22	12	0	7	19	0	21	15	36
+45 mins.	0	0	0	0	0	**29**	0	**29**	8	0	2	10	0	**27**	4	31
Total Volume	0	0	0	0	4	93	0	97	152	0	27	179	0	90	159	249
% App. Total	0	0	0		4.1	95.9	0		84.9	0	15.1		0	36.1	63.9	
PHF	.000	.000	.000	.000	.500	.802	.000	.836	.352	.000	.450	.364	.000	.833	.375	.494

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

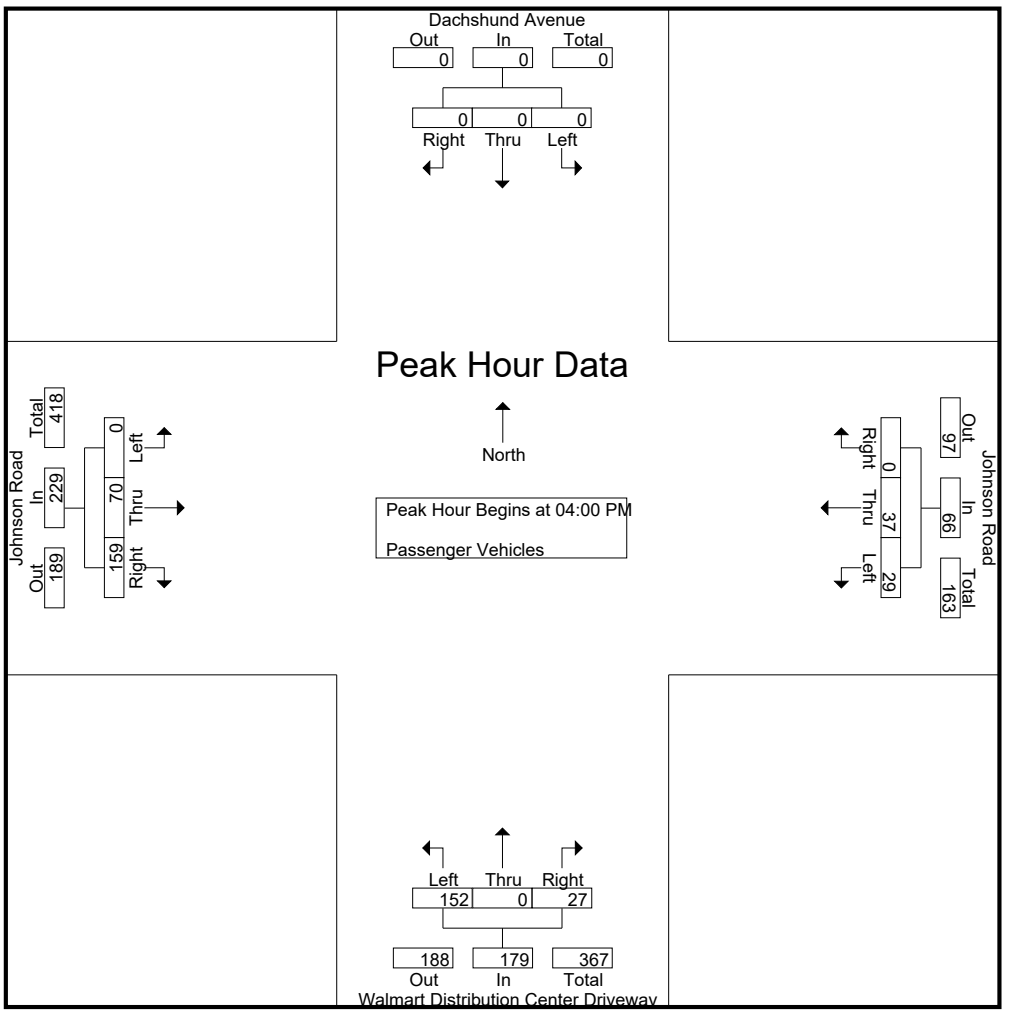
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	4	5	0	9	108	0	15	123	0	17	34	51	183
04:15 PM	0	0	0	0	17	11	0	28	24	0	3	27	0	15	106	121	176
04:30 PM	0	0	0	0	8	13	0	21	12	0	7	19	0	16	15	31	71
04:45 PM	0	0	0	0	0	8	0	8	8	0	2	10	0	22	4	26	44
Total	0	0	0	0	29	37	0	66	152	0	27	179	0	70	159	229	474
05:00 PM	0	0	0	0	2	23	0	25	5	0	3	8	0	25	2	27	60
05:15 PM	0	0	0	0	1	14	0	15	5	0	1	6	0	17	2	19	40
05:30 PM	0	0	0	0	1	14	0	15	11	0	2	13	0	16	1	17	45
05:45 PM	0	0	0	0	0	25	0	25	3	0	0	3	0	11	0	11	39
Total	0	0	0	0	4	76	0	80	24	0	6	30	0	69	5	74	184
Grand Total	0	0	0	0	33	113	0	146	176	0	33	209	0	139	164	303	658
Apprch %	0	0	0		22.6	77.4	0		84.2	0	15.8		0	45.9	54.1		
Total %	0	0	0	0	5	17.2	0	22.2	26.7	0	5	31.8	0	21.1	24.9	46	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	4	5	0	9	**108**	0	**15**	**123**	0	17	34	51	**183**
04:15 PM	0	0	0	0	**17**	11	0	**28**	24	0	3	27	0	15	**106**	**121**	176
04:30 PM	0	0	0	0	8	**13**	0	21	12	0	7	19	0	16	15	31	71
04:45 PM	0	0	0	0	0	8	0	8	8	0	2	10	0	**22**	4	26	44
Total Volume	0	0	0	0	29	37	0	66	152	0	27	179	0	70	159	229	474
% App. Total	0	0	0		43.9	56.1	0		84.9	0	15.1		0	30.6	69.4		
PHF	.000	.000	.000	.000	.426	.712	.000	.589	.352	.000	.450	.364	.000	.795	.375	.473	.648

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	4	5	0	9	**108**	0	**15**	**123**	0	17	34	51
+15 mins.	0	0	0	0	**17**	11	0	**28**	24	0	3	27	0	15	**106**	**121**
+30 mins.	0	0	0	0	8	**13**	0	21	12	0	7	19	0	16	15	31
+45 mins.	0	0	0	0	0	8	0	8	8	0	2	10	0	**22**	4	26
Total Volume	0	0	0	0	29	37	0	66	152	0	27	179	0	70	159	229
% App. Total	0	0	0		43.9	56.1	0		84.9	0	15.1		0	30.6	69.4	
PHF	.000	.000	.000	.000	.426	.712	.000	.589	.352	.000	.450	.364	.000	.795	.375	.473

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

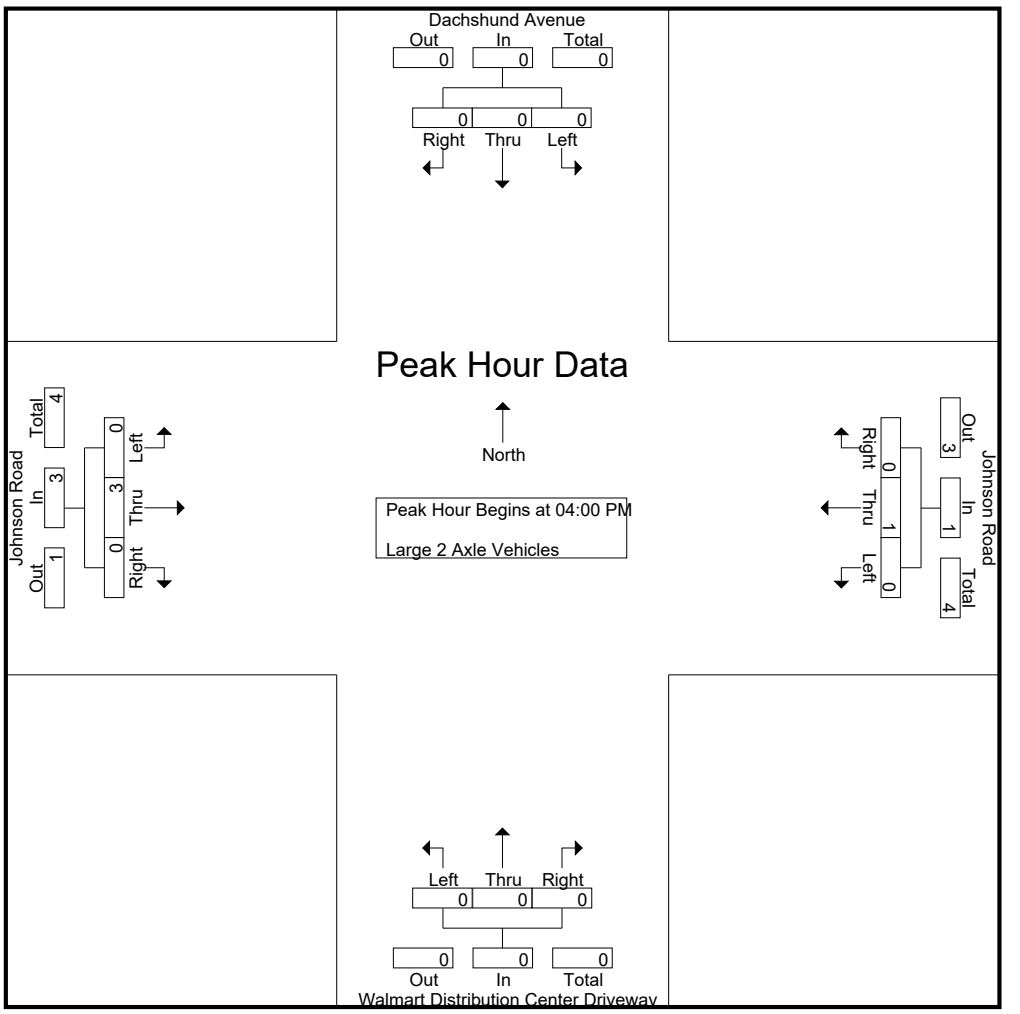
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
Grand Total	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	7
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	42.9	0	42.9	0	0	0	0	0	57.1	0	57.1	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.750	.000	.750	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.750	.000	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

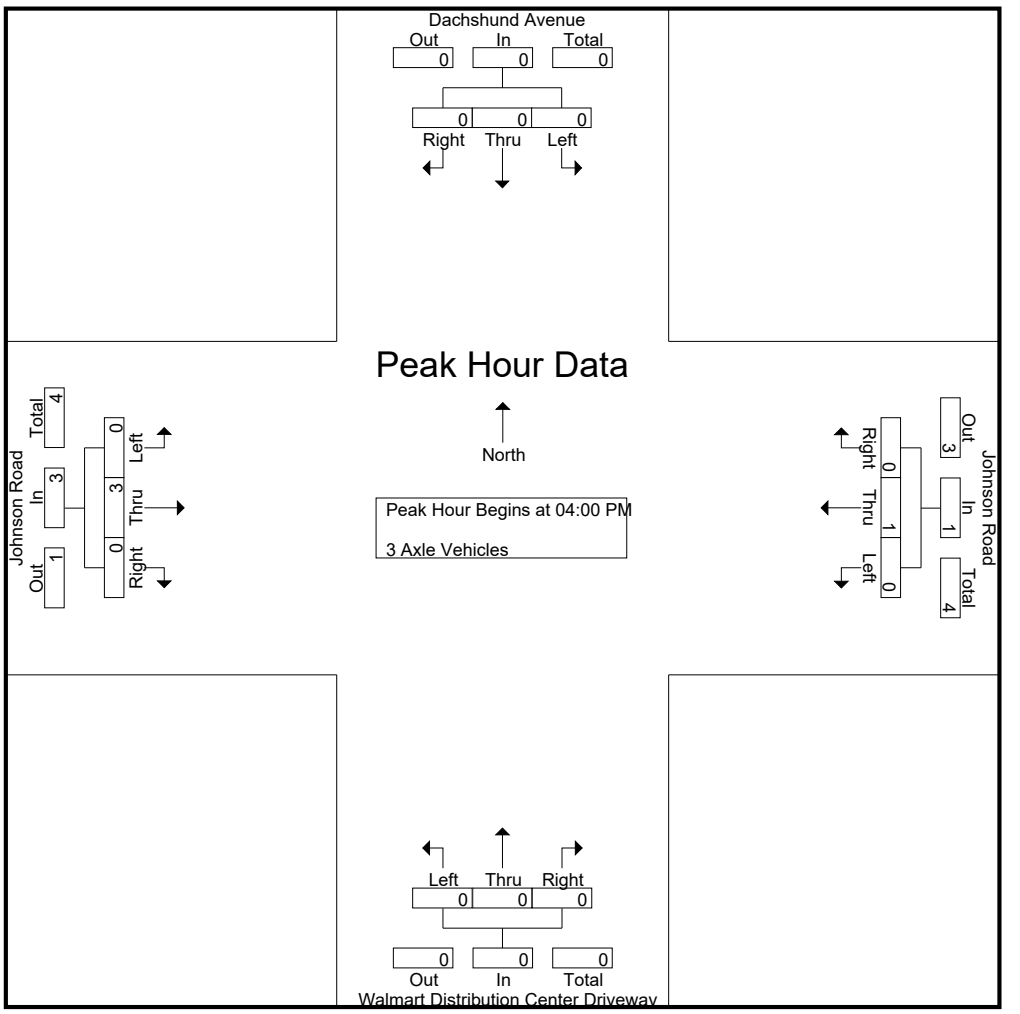
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
Grand Total	0	0	0	0	0	3	0	3	0	0	0	0	0	6	0	6	9
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	33.3	0	33.3	0	0	0	0	0	66.7	0	66.7	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.375	.000	.375	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.375	.000	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

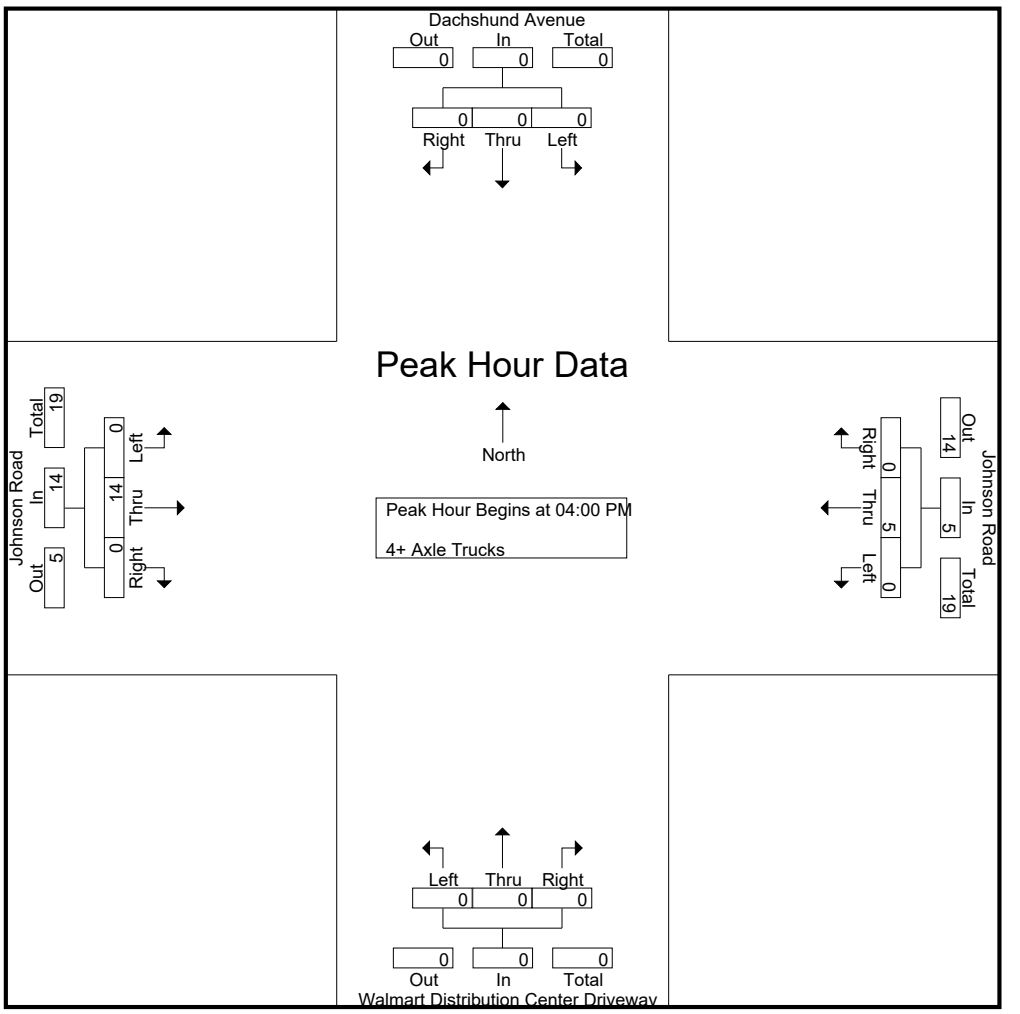
	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	4	0	4	6
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
Total	0	0	0	0	0	5	0	5	0	0	0	0	0	14	0	14	19
05:00 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	7
05:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	6	0	6	8
05:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	5	10
05:45 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	6
Total	0	0	0	0	0	13	0	13	0	0	0	0	0	18	0	18	31
Grand Total	0	0	0	0	0	18	0	18	0	0	0	0	0	32	0	32	50
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0		
Total %	0	0	0	0	0	36	0	36	0	0	0	0	0	64	0	64	

	Dachshund Avenue Southbound				Johnson Road Westbound				Walmart Distribution Center Driveway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	**4**	0	**4**	5
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:30 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	4	0	4	**6**
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
Total Volume	0	0	0	0	0	5	0	5	0	0	0	0	0	14	0	14	19
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.000	.875	.000	.875	.792

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dachshund Avenue
E/W: Johnson Road
Weather: Clear

File Name : 01_APV_Dach_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**4**	0	**4**
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3
+30 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	4	0	4
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	5	0	5	0	0	0	0	0	14	0	14
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.000	.875	.000	.875

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

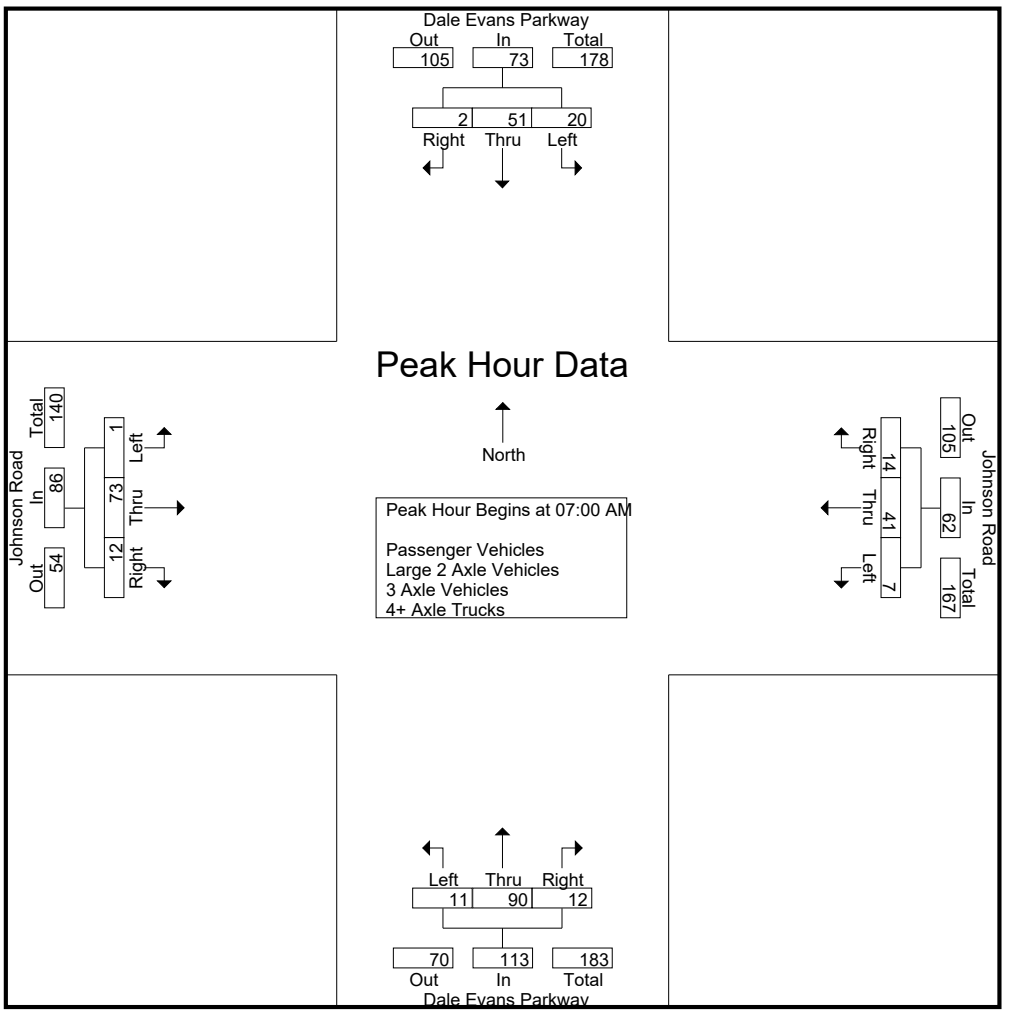
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	11	1	17	1	11	4	16	3	22	2	27	0	13	2	15	75
07:15 AM	3	13	1	17	1	7	4	12	2	23	3	28	1	19	3	23	80
07:30 AM	9	16	0	25	4	10	3	17	2	24	4	30	0	13	5	18	90
07:45 AM	3	11	0	14	1	13	3	17	4	21	3	28	0	28	2	30	89
Total	20	51	2	73	7	41	14	62	11	90	12	113	1	73	12	86	334
08:00 AM	3	13	0	16	1	7	4	12	3	17	4	24	0	12	3	15	67
08:15 AM	6	11	0	17	0	8	3	11	2	18	2	22	1	11	3	15	65
08:30 AM	6	16	0	22	1	9	6	16	1	11	3	15	1	17	7	25	78
08:45 AM	5	12	0	17	1	10	1	12	0	20	4	24	0	17	2	19	72
Total	20	52	0	72	3	34	14	51	6	66	13	85	2	57	15	74	282
Grand Total	40	103	2	145	10	75	28	113	17	156	25	198	3	130	27	160	616
Apprch %	27.6	71	1.4		8.8	66.4	24.8		8.6	78.8	12.6		1.9	81.2	16.9		
Total %	6.5	16.7	0.3	23.5	1.6	12.2	4.5	18.3	2.8	25.3	4.1	32.1	0.5	21.1	4.4	26	
Passenger Vehicles	12	98	2	112	8	39	9	56	16	150	21	187	3	93	22	118	473
% Passenger Vehicles	30	95.1	100	77.2	80	52	32.1	49.6	94.1	96.2	84	94.4	100	71.5	81.5	73.8	76.8
Large 2 Axle Vehicles	2	5	0	7	1	3	2	6	0	4	2	6	0	1	2	3	22
% Large 2 Axle Vehicles	5	4.9	0	4.8	10	4	7.1	5.3	0	2.6	8	3	0	0.8	7.4	1.9	3.6
3 Axle Vehicles	3	0	0	3	0	6	1	7	0	0	0	0	0	6	0	6	16
% 3 Axle Vehicles	7.5	0	0	2.1	0	8	3.6	6.2	0	0	0	0	0	4.6	0	3.8	2.6
4+ Axle Trucks	23	0	0	23	1	27	16	44	1	2	2	5	0	30	3	33	105
% 4+ Axle Trucks	57.5	0	0	15.9	10	36	57.1	38.9	5.9	1.3	8	2.5	0	23.1	11.1	20.6	17

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	5	11	**1**	17	1	11	**4**	16	3	22	2	27	0	13	2	15	75
07:15 AM	3	13	1	17	1	7	4	12	2	23	3	28	**1**	19	3	23	80
07:30 AM	**9**	**16**	0	**25**	**4**	10	3	**17**	2	**24**	**4**	**30**	0	13	**5**	18	**90**
07:45 AM	3	11	0	14	1	**13**	3	17	**4**	21	3	28	0	**28**	2	**30**	89
Total Volume	20	51	2	73	7	41	14	62	11	90	12	113	1	73	12	86	334
% App. Total	27.4	69.9	2.7		11.3	66.1	22.6		9.7	79.6	10.6		1.2	84.9	14		
PHF	.556	.797	.500	.730	.438	.788	.875	.912	.688	.938	.750	.942	.250	.652	.600	.717	.928

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	5	11	**1**	17	1	11	**4**	16	3	22	2	27	0	13	2	15
+15 mins.	3	13	1	17	1	7	4	12	2	23	3	28	**1**	19	3	23
+30 mins.	**9**	**16**	0	**25**	**4**	10	3	**17**	2	**24**	**4**	**30**	0	13	**5**	18
+45 mins.	3	11	0	14	1	**13**	3	17	**4**	21	3	28	0	**28**	2	**30**
Total Volume	20	51	2	73	7	41	14	62	11	90	12	113	1	73	12	86
% App. Total	27.4	69.9	2.7		11.3	66.1	22.6		9.7	79.6	10.6		1.2	84.9	14	
PHF	.556	.797	.500	.730	.438	.788	.875	.912	.688	.938	.750	.942	.250	.652	.600	.717

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

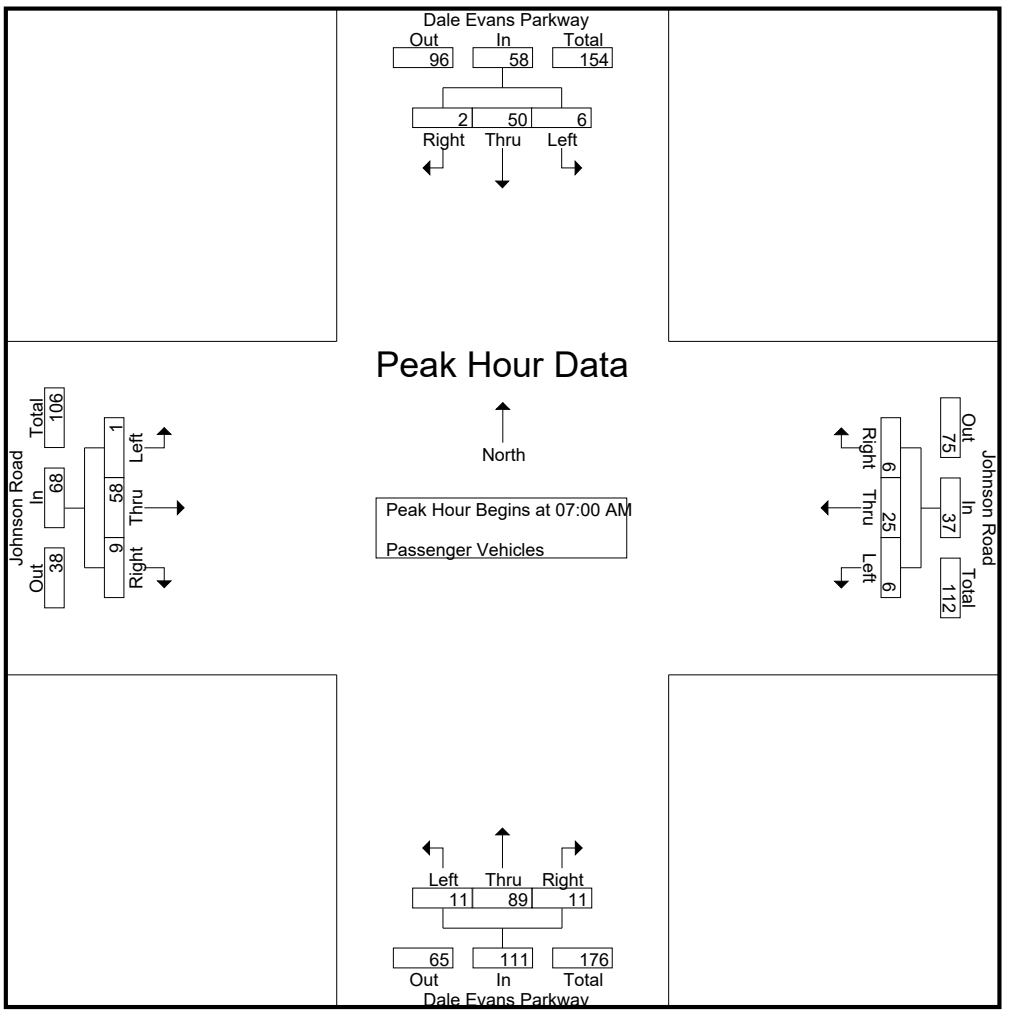
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	11	1	12	1	5	3	9	3	22	1	26	0	11	2	13	60
07:15 AM	1	13	1	15	1	2	2	5	2	23	3	28	1	12	3	16	64
07:30 AM	5	16	0	21	3	8	1	12	2	23	4	29	0	11	2	13	75
07:45 AM	0	10	0	10	1	10	0	11	4	21	3	28	0	24	2	26	75
Total	6	50	2	58	6	25	6	37	11	89	11	111	1	58	9	68	274
08:00 AM	1	11	0	12	1	5	1	7	3	17	3	23	0	7	2	9	51
08:15 AM	1	10	0	11	0	5	1	6	1	17	2	20	1	6	3	10	47
08:30 AM	1	15	0	16	1	3	1	5	1	10	2	13	1	11	6	18	52
08:45 AM	3	12	0	15	0	1	0	1	0	17	3	20	0	11	2	13	49
Total	6	48	0	54	2	14	3	19	5	61	10	76	2	35	13	50	199
Grand Total	12	98	2	112	8	39	9	56	16	150	21	187	3	93	22	118	473
Apprch %	10.7	87.5	1.8		14.3	69.6	16.1		8.6	80.2	11.2		2.5	78.8	18.6		
Total %	2.5	20.7	0.4	23.7	1.7	8.2	1.9	11.8	3.4	31.7	4.4	39.5	0.6	19.7	4.7	24.9	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	11	**1**	12	1	5	**3**	9	3	22	1	26	0	11	2	13	60
07:15 AM	1	13	1	15	1	2	2	5	2	**23**	3	28	**1**	12	**3**	16	64
07:30 AM	**5**	**16**	0	**21**	**3**	8	1	**12**	2	23	**4**	**29**	0	11	2	13	**75**
07:45 AM	0	10	0	10	1	**10**	0	11	**4**	21	3	28	0	**24**	2	**26**	75
Total Volume	6	50	2	58	6	25	6	37	11	89	11	111	1	58	9	68	274
% App. Total	10.3	86.2	3.4		16.2	67.6	16.2		9.9	80.2	9.9		1.5	85.3	13.2		
PHF	.300	.781	.500	.690	.500	.625	.500	.771	.688	.967	.688	.957	.250	.604	.750	.654	.913

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	11	**1**	12	1	5	**3**	9	3	22	1	26	0	11	2	13
+15 mins.	1	13	1	15	1	2	2	5	2	**23**	3	28	**1**	12	**3**	16
+30 mins.	**5**	**16**	0	**21**	**3**	8	1	**12**	2	23	**4**	**29**	0	11	2	13
+45 mins.	0	10	0	10	1	**10**	0	11	**4**	21	3	28	0	**24**	2	**26**
Total Volume	6	50	2	58	6	25	6	37	11	89	11	111	1	58	9	68
% App. Total	10.3	86.2	3.4		16.2	67.6	16.2		9.9	80.2	9.9		1.5	85.3	13.2	
PHF	.300	.781	.500	.690	.500	.625	.500	.771	.688	.967	.688	.957	.250	.604	.750	.654

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

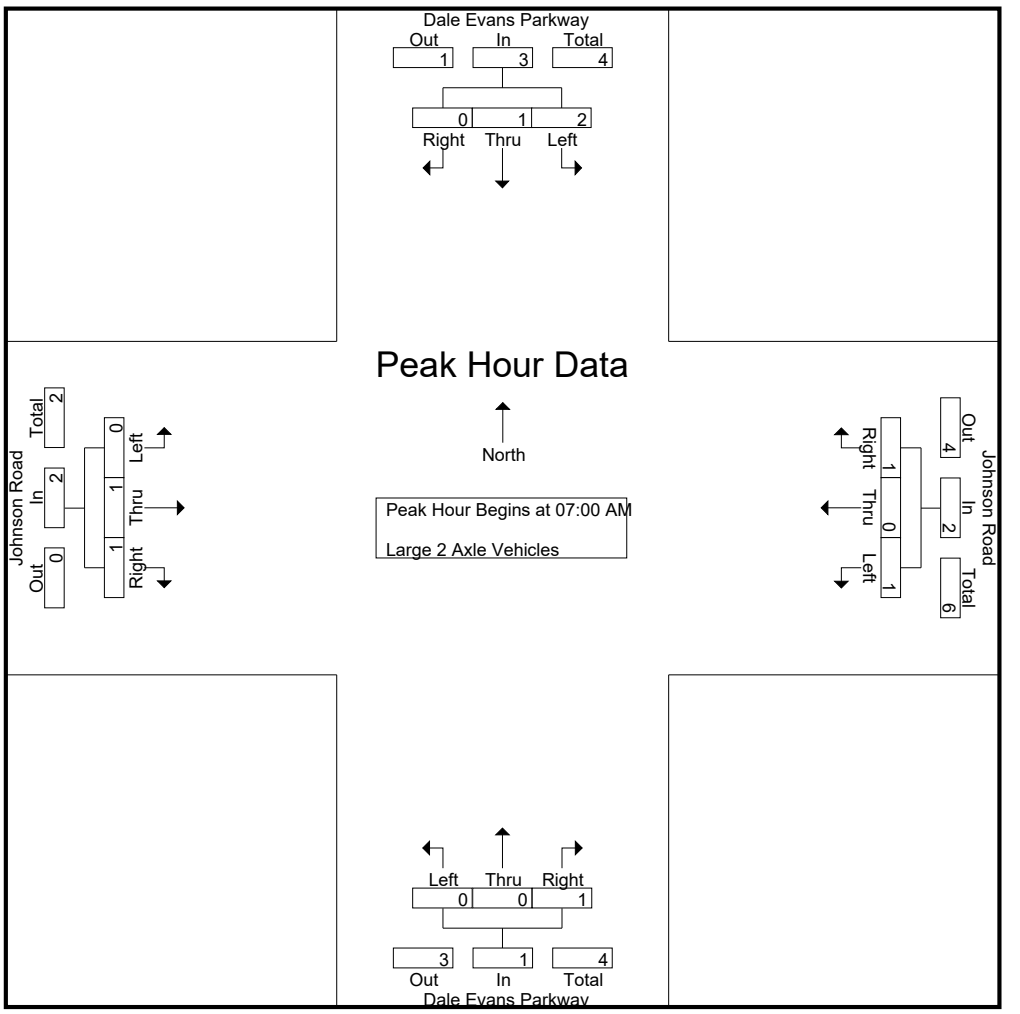
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
07:30 AM	1	0	0	1	1	0	0	1	0	0	0	0	0	0	1	1	3
07:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	0	3	1	0	1	2	0	0	1	1	0	1	1	2	8
08:00 AM	0	2	0	2	0	0	0	0	0	0	1	1	0	0	0	0	3
08:15 AM	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
08:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	3
08:45 AM	0	0	0	0	0	2	0	2	0	3	0	3	0	0	0	0	5
Total	0	4	0	4	0	3	1	4	0	4	1	5	0	0	1	1	14
Grand Total	2	5	0	7	1	3	2	6	0	4	2	6	0	1	2	3	22
Apprch %	28.6	71.4	0		16.7	50	33.3		0	66.7	33.3		0	33.3	66.7		
Total %	9.1	22.7	0	31.8	4.5	13.6	9.1	27.3	0	18.2	9.1	27.3	0	4.5	9.1	13.6	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	0	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	**1**	0	**1**	2
07:30 AM	1	0	0	1	**1**	0	0	1	0	0	0	0	0	0	**1**	1	**3**
07:45 AM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	2	1	0	3	1	0	1	2	0	0	1	1	0	1	1	2	8
% App. Total	66.7	33.3	0		50	0	50		0	0	100		0	50	50		
PHF	.500	.250	.000	.750	.250	.000	.250	.500	.000	.000	.250	.250	.000	.250	.250	.500	.667

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	**1**	0	**1**
+30 mins.	1	0	0	1	**1**	0	0	1	0	0	0	0	0	0	**1**	1
+45 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	1	0	3	1	0	1	2	0	0	1	1	0	1	1	2
% App. Total	66.7	33.3	0		50	0	50		0	0	100		0	50	50	
PHF	.500	.250	.000	.750	.250	.000	.250	.500	.000	.000	.250	.250	.000	.250	.250	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

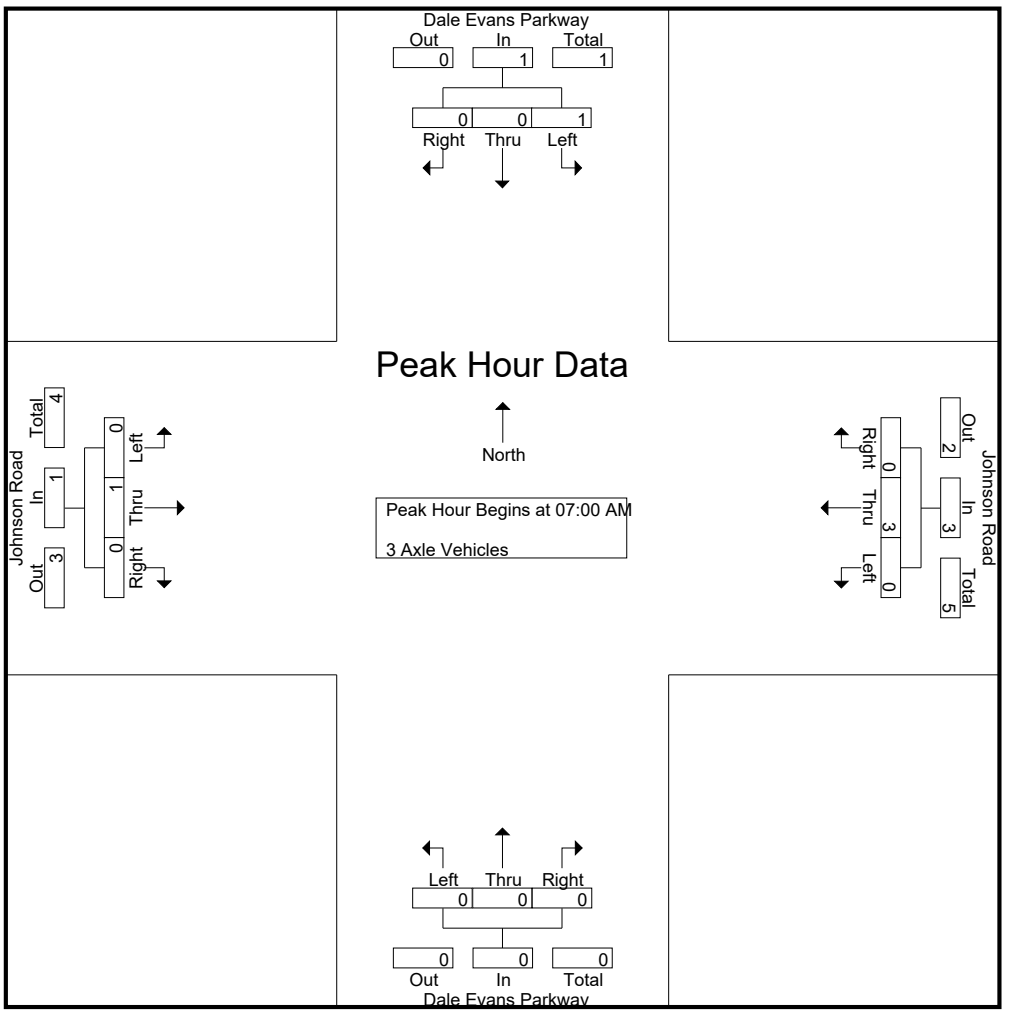
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:15 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	3	0	3	0	0	0	0	0	1	0	1	5
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
08:15 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
08:30 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	2	0	2	4
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	2	0	0	2	0	3	1	4	0	0	0	0	0	5	0	5	11
Grand Total	3	0	0	3	0	6	1	7	0	0	0	0	0	6	0	6	16
Apprch %	100	0	0		0	85.7	14.3		0	0	0		0	100	0		
Total %	18.8	0	0	18.8	0	37.5	6.2	43.8	0	0	0	0	0	37.5	0	37.5	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	**2**
07:15 AM	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	3	0	3	0	0	0	0	0	1	0	1	5
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.750	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**
+15 mins.	**1**	0	0	**1**	0	1	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	3	0	3	0	0	0	0	0	1	0	1
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0	
PHF	.250	.000	.000	.250	.000	.750	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

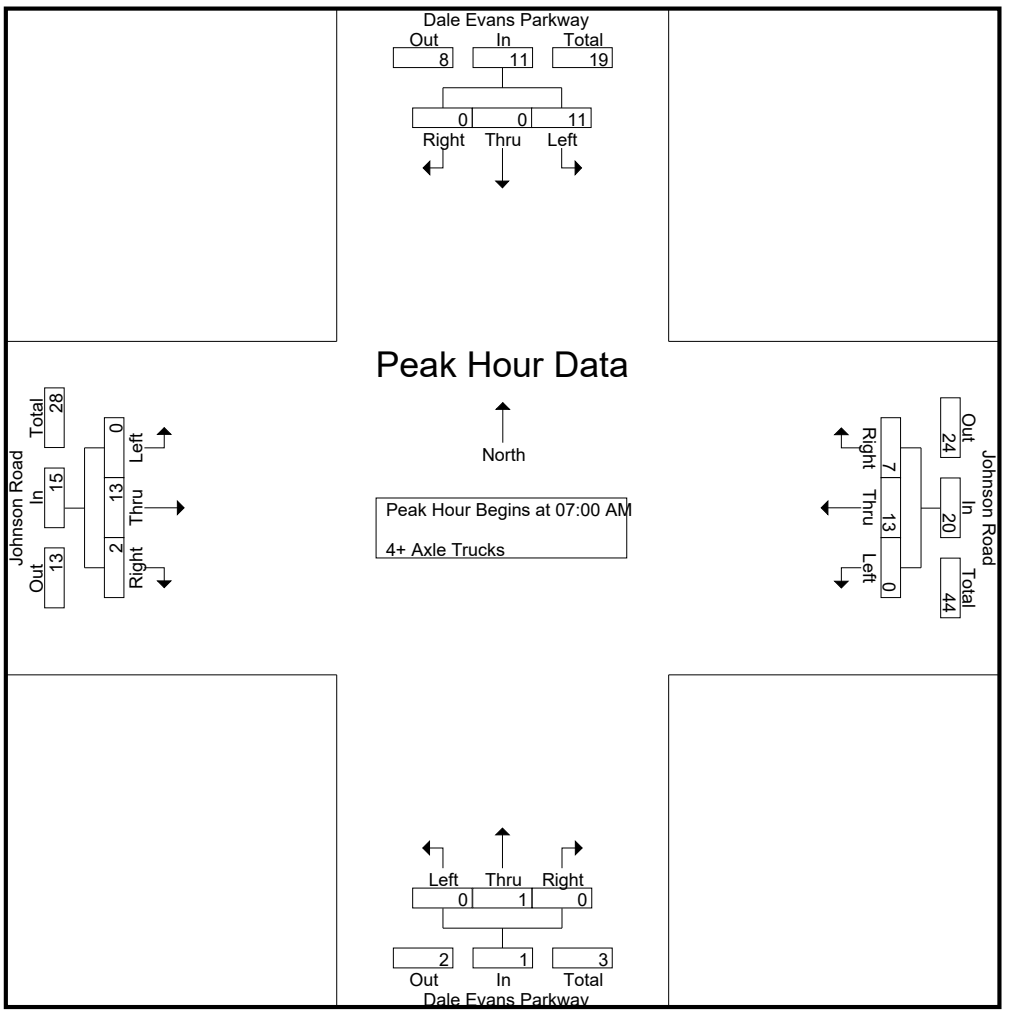
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	0	0	4	0	5	1	6	0	0	0	0	0	1	0	1	11
07:15 AM	1	0	0	1	0	4	1	5	0	0	0	0	0	6	0	6	12
07:30 AM	3	0	0	3	0	1	2	3	0	1	0	1	0	2	2	4	11
07:45 AM	3	0	0	3	0	3	3	6	0	0	0	0	0	4	0	4	13
Total	11	0	0	11	0	13	7	20	0	1	0	1	0	13	2	15	47
08:00 AM	2	0	0	2	0	1	3	4	0	0	0	0	0	3	1	4	10
08:15 AM	4	0	0	4	0	2	1	3	1	0	0	1	0	4	0	4	12
08:30 AM	4	0	0	4	0	5	4	9	0	1	1	2	0	4	0	4	19
08:45 AM	2	0	0	2	1	6	1	8	0	0	1	1	0	6	0	6	17
Total	12	0	0	12	1	14	9	24	1	1	2	4	0	17	1	18	58
Grand Total	23	0	0	23	1	27	16	44	1	2	2	5	0	30	3	33	105
Apprch %	100	0	0		2.3	61.4	36.4		20	40	40		0	90.9	9.1		
Total %	21.9	0	0	21.9	1	25.7	15.2	41.9	1	1.9	1.9	4.8	0	28.6	2.9	31.4	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**4**	0	0	**4**	0	**5**	1	**6**	0	0	0	0	0	1	0	1	11
07:15 AM	1	0	0	1	0	4	1	5	0	0	0	0	0	**6**	0	**6**	12
07:30 AM	3	0	0	3	0	1	2	3	0	**1**	0	**1**	0	2	**2**	4	11
07:45 AM	3	0	0	3	0	3	**3**	6	0	0	0	0	0	4	0	4	**13**
Total Volume	11	0	0	11	0	13	7	20	0	1	0	1	0	13	2	15	47
% App. Total	100	0	0		0	65	35		0	100	0		0	86.7	13.3		
PHF	.688	.000	.000	.688	.000	.650	.583	.833	.000	.250	.000	.250	.000	.542	.250	.625	.904

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	**4**	0	0	**4**	0	**5**	1	**6**	0	0	0	0	0	1	0	1
+15 mins.	1	0	0	1	0	4	1	5	0	0	0	0	0	**6**	0	**6**
+30 mins.	3	0	0	3	0	1	2	3	0	**1**	0	**1**	0	2	**2**	4
+45 mins.	3	0	0	3	0	3	**3**	6	0	0	0	0	0	4	0	4
Total Volume	11	0	0	11	0	13	7	20	0	1	0	1	0	13	2	15
% App. Total	100	0	0		0	65	35		0	100	0		0	86.7	13.3	
PHF	.688	.000	.000	.688	.000	.650	.583	.833	.000	.250	.000	.250	.000	.542	.250	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

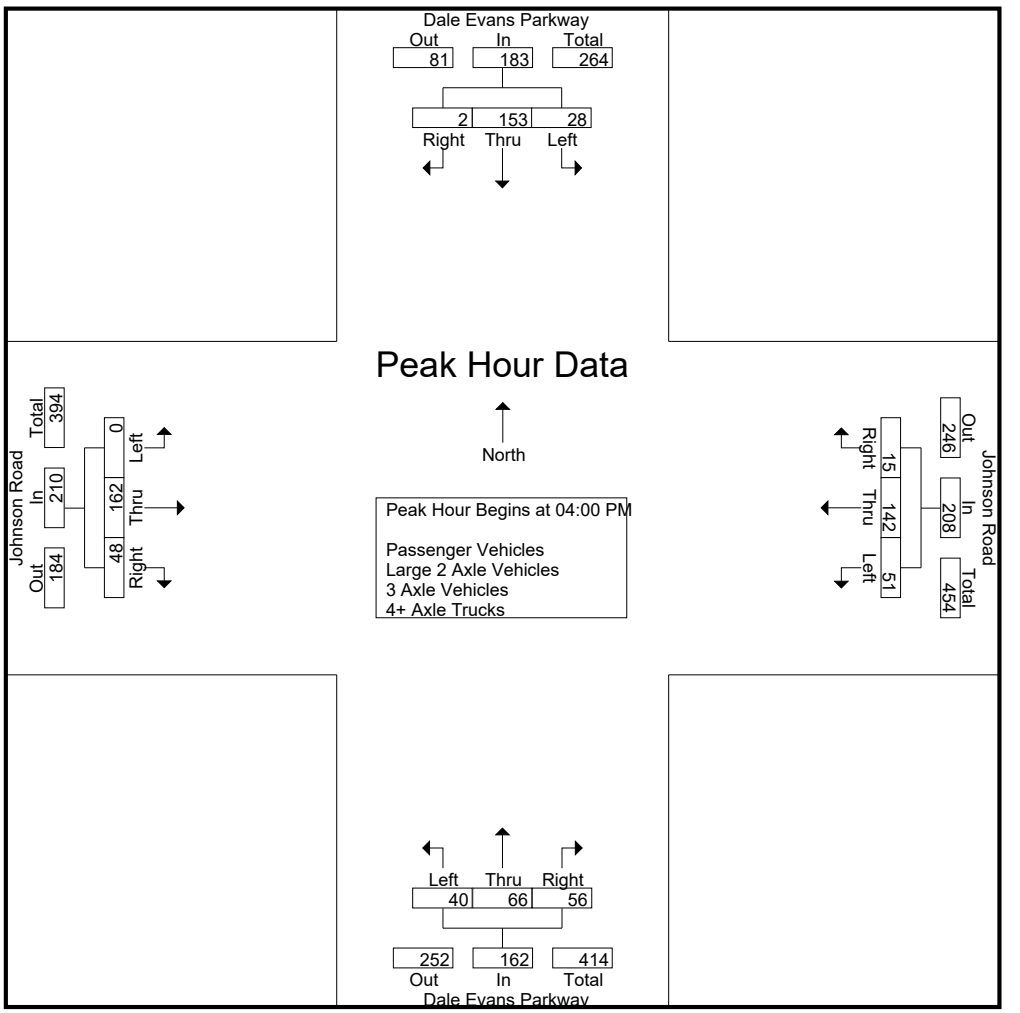
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	10	28	1	39	31	80	7	118	19	20	13	52	0	34	17	51	260
04:15 PM	7	30	0	37	11	28	2	41	15	18	31	64	0	87	12	99	241
04:30 PM	7	39	1	47	5	20	4	29	3	11	11	25	0	17	12	29	130
04:45 PM	4	56	0	60	4	14	2	20	3	17	1	21	0	24	7	31	132
Total	28	153	2	183	51	142	15	208	40	66	56	162	0	162	48	210	763
05:00 PM	9	46	0	55	4	23	4	31	1	17	4	22	0	23	5	28	136
05:15 PM	6	38	0	44	2	16	5	23	3	15	4	22	0	19	10	29	118
05:30 PM	3	38	1	42	5	21	5	31	2	8	1	11	0	14	5	19	103
05:45 PM	3	22	0	25	2	27	1	30	2	12	0	14	0	11	3	14	83
Total	21	144	1	166	13	87	15	115	8	52	9	69	0	67	23	90	440
Grand Total	49	297	3	349	64	229	30	323	48	118	65	231	0	229	71	300	1203
Apprch %	14	85.1	0.9		19.8	70.9	9.3		20.8	51.1	28.1		0	76.3	23.7		
Total %	4.1	24.7	0.2	29	5.3	19	2.5	26.8	4	9.8	5.4	19.2	0	19	5.9	24.9	
Passenger Vehicles	33	289	3	325	62	222	19	303	45	116	63	224	0	206	66	272	1124
% Passenger Vehicles	67.3	97.3	100	93.1	96.9	96.9	63.3	93.8	93.8	98.3	96.9	97	0	90	93	90.7	93.4
Large 2 Axle Vehicles	1	1	0	2	1	0	1	2	0	2	2	4	0	0	1	1	9
% Large 2 Axle Vehicles	2	0.3	0	0.6	1.6	0	3.3	0.6	0	1.7	3.1	1.7	0	0	1.4	0.3	0.7
3 Axle Vehicles	0	0	0	0	1	1	0	2	2	0	0	2	0	7	3	10	14
% 3 Axle Vehicles	0	0	0	0	1.6	0.4	0	0.6	4.2	0	0	0.9	0	3.1	4.2	3.3	1.2
4+ Axle Trucks	15	7	0	22	0	6	10	16	1	0	0	1	0	16	1	17	56
% 4+ Axle Trucks	30.6	2.4	0	6.3	0	2.6	33.3	5	2.1	0	0	0.4	0	7	1.4	5.7	4.7

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**10**	28	**1**	39	**31**	**80**	**7**	**118**	**19**	**20**	13	52	0	34	**17**	51	**260**
04:15 PM	7	30	0	37	11	28	2	41	15	18	**31**	**64**	0	**87**	12	**99**	241
04:30 PM	7	39	1	47	5	20	4	29	3	11	11	25	0	17	12	29	130
04:45 PM	4	**56**	0	**60**	4	14	2	20	3	17	1	21	0	24	7	31	132
Total Volume	28	153	2	183	51	142	15	208	40	66	56	162	0	162	48	210	763
% App. Total	15.3	83.6	1.1		24.5	68.3	7.2		24.7	40.7	34.6		0	77.1	22.9		
PHF	.700	.683	.500	.763	.411	.444	.536	.441	.526	.825	.452	.633	.000	.466	.706	.530	.734

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	7	39	**1**	47	**31**	**80**	**7**	**118**	**19**	**20**	13	52	0	34	**17**	51
+15 mins.	4	**56**	0	**60**	11	28	2	41	15	18	**31**	**64**	0	**87**	12	**99**
+30 mins.	**9**	46	0	55	5	20	4	29	3	11	11	25	0	17	12	29
+45 mins.	6	38	0	44	4	14	2	20	3	17	1	21	0	24	7	31
Total Volume	26	179	1	206	51	142	15	208	40	66	56	162	0	162	48	210
% App. Total	12.6	86.9	0.5		24.5	68.3	7.2		24.7	40.7	34.6		0	77.1	22.9	
PHF	.722	.799	.250	.858	.411	.444	.536	.441	.526	.825	.452	.633	.000	.466	.706	.530

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

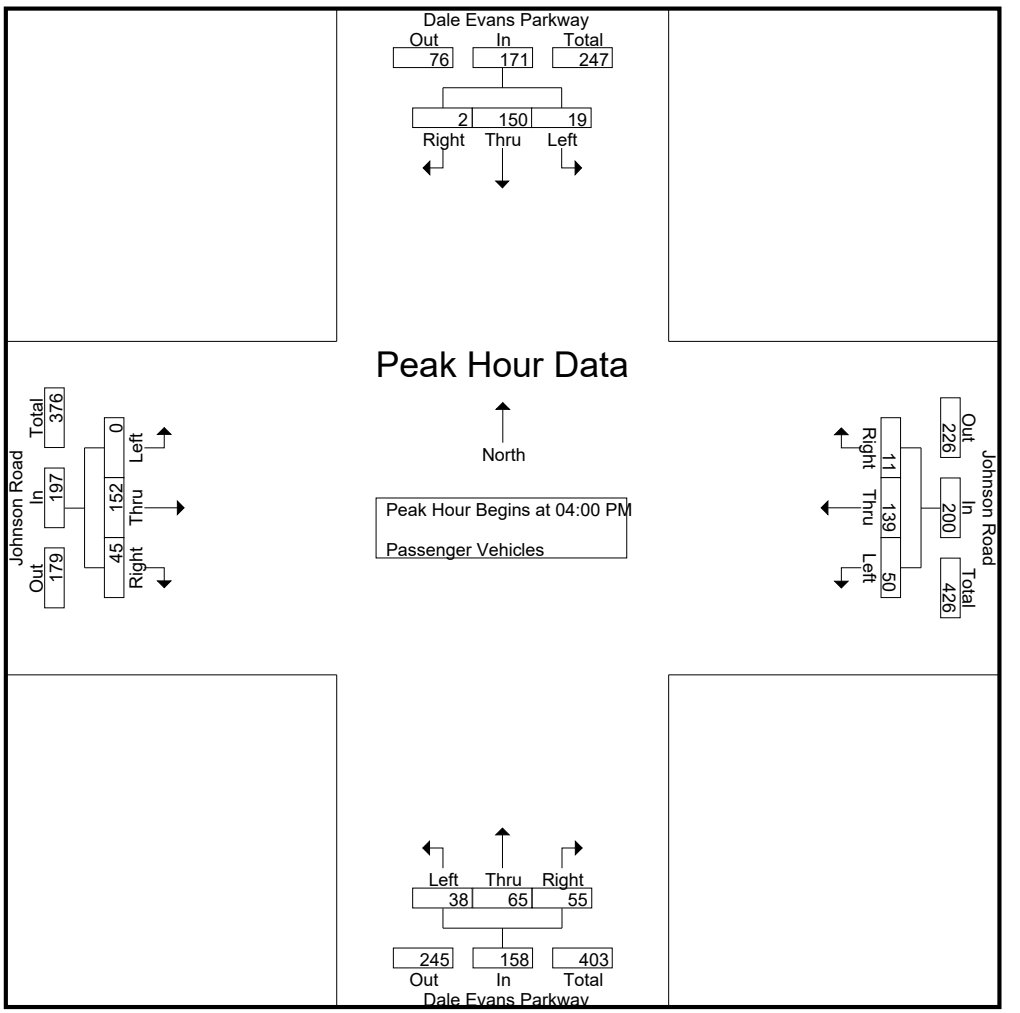
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	6	28	1	35	31	79	6	116	19	20	12	51	0	32	14	46	248
04:15 PM	6	30	0	36	11	27	1	39	13	18	31	62	0	85	12	97	234
04:30 PM	4	37	1	42	4	19	3	26	3	11	11	25	0	15	12	27	120
04:45 PM	3	55	0	58	4	14	1	19	3	16	1	20	0	20	7	27	124
Total	19	150	2	171	50	139	11	200	38	65	55	158	0	152	45	197	726
05:00 PM	6	45	0	51	3	23	1	27	1	17	3	21	0	20	5	25	124
05:15 PM	4	38	0	42	2	15	4	21	3	15	4	22	0	14	10	24	109
05:30 PM	1	35	1	37	5	18	2	25	2	7	1	10	0	12	4	16	88
05:45 PM	3	21	0	24	2	27	1	30	1	12	0	13	0	8	2	10	77
Total	14	139	1	154	12	83	8	103	7	51	8	66	0	54	21	75	398
Grand Total	33	289	3	325	62	222	19	303	45	116	63	224	0	206	66	272	1124
Apprch %	10.2	88.9	0.9		20.5	73.3	6.3		20.1	51.8	28.1		0	75.7	24.3		
Total %	2.9	25.7	0.3	28.9	5.5	19.8	1.7	27	4	10.3	5.6	19.9	0	18.3	5.9	24.2	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**6**	28	**1**	35	**31**	**79**	**6**	**116**	**19**	**20**	12	51	0	32	**14**	46	**248**
04:15 PM	6	30	0	36	11	27	1	39	13	18	**31**	**62**	0	**85**	12	**97**	234
04:30 PM	4	37	1	42	4	19	3	26	3	11	11	25	0	15	12	27	120
04:45 PM	3	**55**	0	**58**	4	14	1	19	3	16	1	20	0	20	7	27	124
Total Volume	19	150	2	171	50	139	11	200	38	65	55	158	0	152	45	197	726
% App. Total	11.1	87.7	1.2		25	69.5	5.5		24.1	41.1	34.8		0	77.2	22.8		
PHF	.792	.682	.500	.737	.403	.440	.458	.431	.500	.813	.444	.637	.000	.447	.804	.508	.732

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**6**	28	**1**	35	**31**	**79**	**6**	**116**	**19**	**20**	12	51	0	32	**14**	46
+15 mins.	6	30	0	36	11	27	1	39	13	18	**31**	**62**	0	**85**	12	**97**
+30 mins.	4	37	1	42	4	19	3	26	3	11	11	25	0	15	12	27
+45 mins.	3	**55**	0	**58**	4	14	1	19	3	16	1	20	0	20	7	27
Total Volume	19	150	2	171	50	139	11	200	38	65	55	158	0	152	45	197
% App. Total	11.1	87.7	1.2		25	69.5	5.5		24.1	41.1	34.8		0	77.2	22.8	
PHF	.792	.682	.500	.737	.403	.440	.458	.431	.500	.813	.444	.637	.000	.447	.804	.508

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

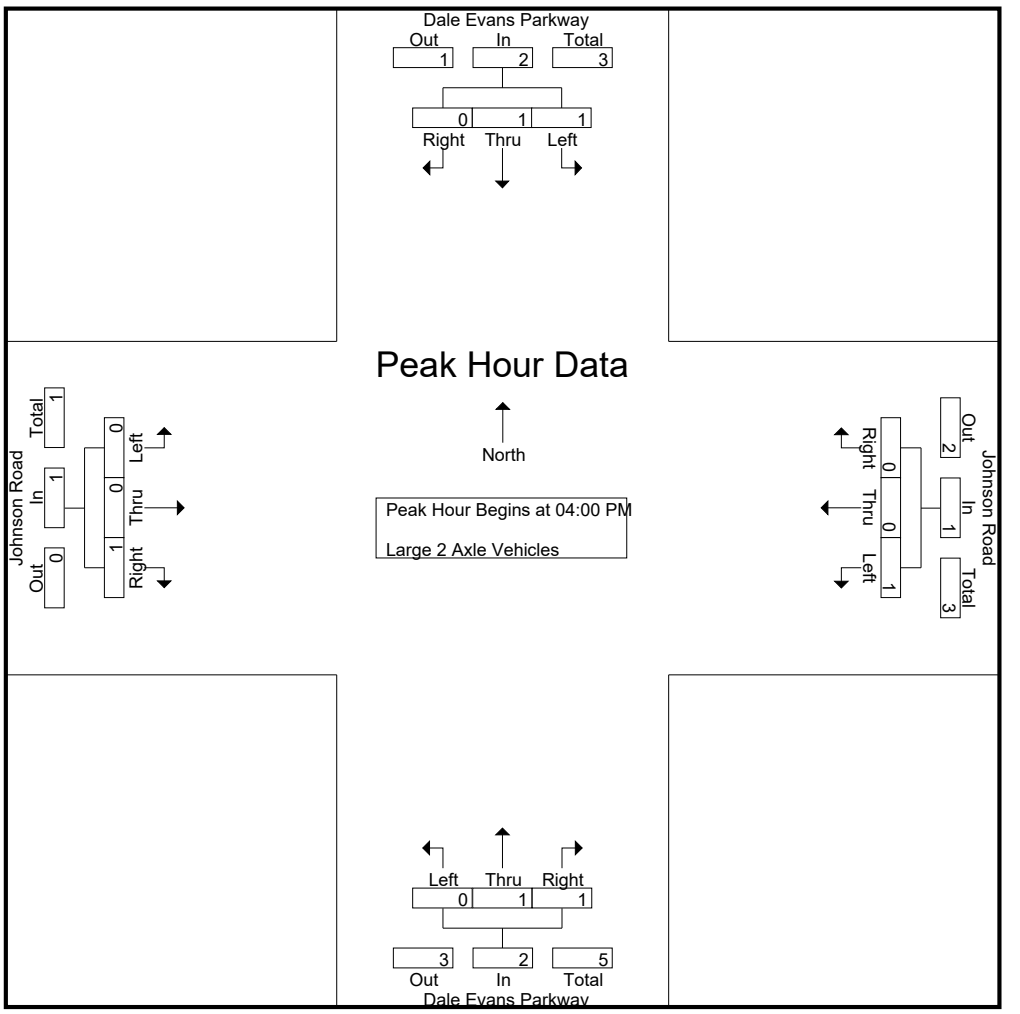
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	1	1	0	2	1	0	0	1	0	1	1	2	0	0	1	1	6
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	1	0	1	1	2	0	0	0	0	3
Grand Total	1	1	0	2	1	0	1	2	0	2	2	4	0	0	1	1	9
Apprch %	50	50	0		50	0	50		0	50	50		0	0	100		
Total %	11.1	11.1	0	22.2	11.1	0	11.1	22.2	0	22.2	22.2	44.4	0	0	11.1	11.1	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	**1**	**1**	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	**1**	**1**	0	**2**	**1**	0	0	**1**	0	0	0	0	0	0	0	0	**3**
04:45 PM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	1
Total Volume	1	1	0	2	1	0	0	1	0	1	1	2	0	0	1	1	6
% App. Total	50	50	0		100	0	0		0	50	50		0	0	100		
PHF	.250	.250	.000	.250	.250	.000	.000	.250	.000	.250	.250	.500	.000	.000	.250	.250	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	**1**	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	**1**	**1**	0	**2**	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0
Total Volume	1	1	0	2	1	0	0	1	0	1	1	2	0	0	1	1
% App. Total	50	50	0		100	0	0		0	50	50		0	0	100	
PHF	.250	.250	.000	.250	.250	.000	.000	.250	.000	.250	.250	.500	.000	.000	.250	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

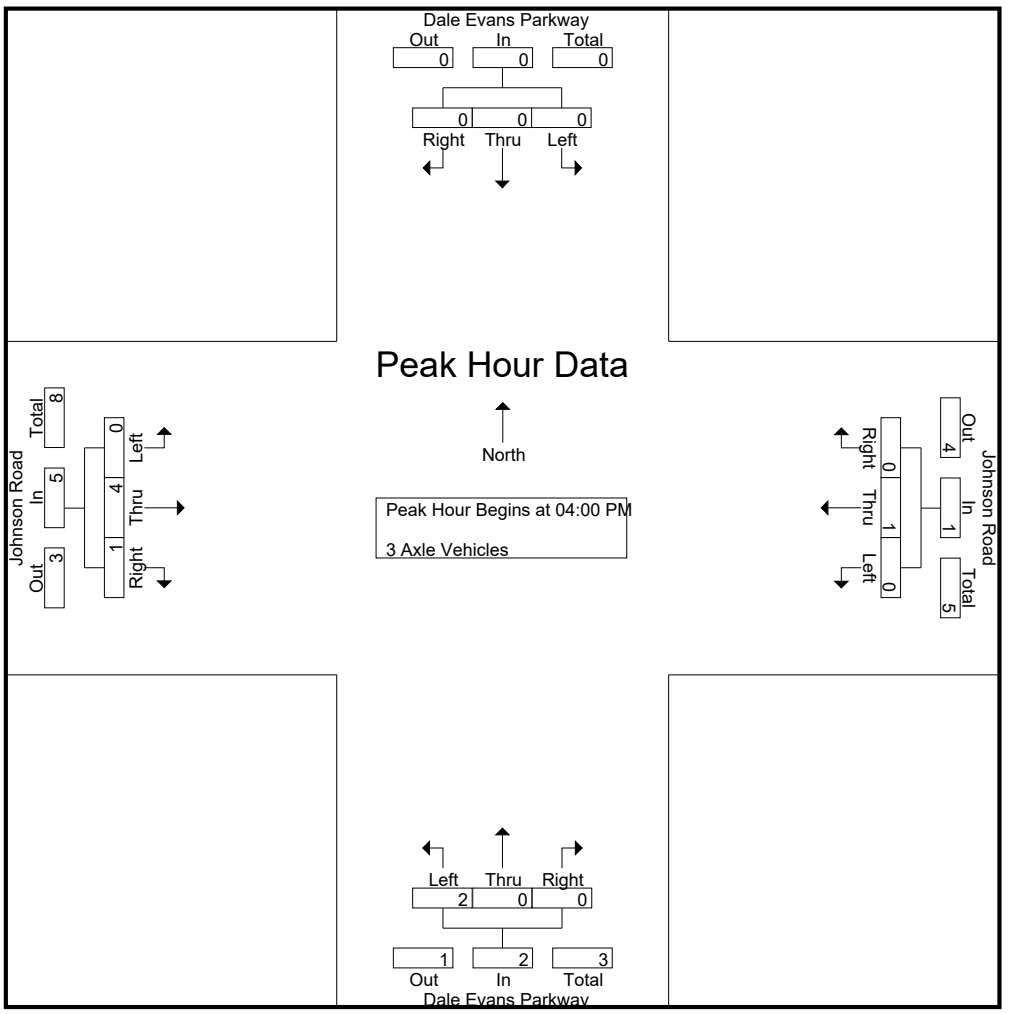
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 PM	0	0	0	0	0	1	0	1	2	0	0	2	0	2	0	2	5
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	0	1	0	1	2	0	0	2	0	4	1	5	8
05:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	2	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	3	2	5	6
Grand Total	0	0	0	0	1	1	0	2	2	0	0	2	0	7	3	10	14
Apprch %	0	0	0		50	50	0		100	0	0		0	70	30		
Total %	0	0	0	0	7.1	7.1	0	14.3	14.3	0	0	14.3	0	50	21.4	71.4	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	1
04:15 PM	0	0	0	0	0	**1**	0	**1**	**2**	0	0	**2**	0	**2**	0	**2**	**5**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	1	0	1	2	0	0	2	0	4	1	5	8
% App. Total	0	0	0		0	100	0		100	0	0		0	80	20		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250	.000	.500	.250	.625	.400

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1
+15 mins.	0	0	0	0	0	**1**	0	**1**	**2**	0	0	**2**	0	**2**	0	**2**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Total Volume	0	0	0	0	0	1	0	1	2	0	0	2	0	4	1	5
% App. Total	0	0	0		0	100	0		100	0	0		0	80	20	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250	.000	.500	.250	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

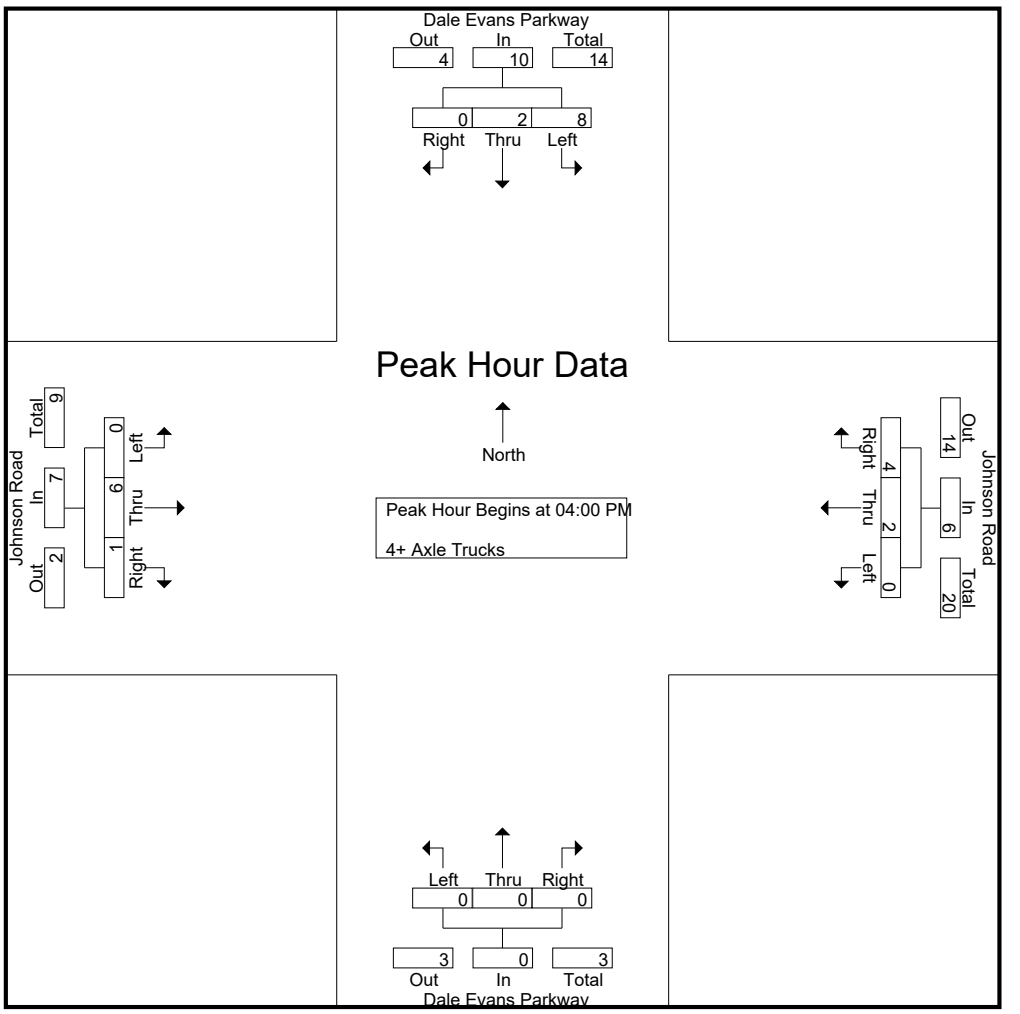
	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	0	0	4	0	1	1	2	0	0	0	0	0	2	1	3	9
04:15 PM	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
04:30 PM	2	1	0	3	0	1	1	2	0	0	0	0	0	2	0	2	7
04:45 PM	1	1	0	2	0	0	1	1	0	0	0	0	0	2	0	2	5
Total	8	2	0	10	0	2	4	6	0	0	0	0	0	6	1	7	23
05:00 PM	3	1	0	4	0	0	3	3	0	0	0	0	0	1	0	1	8
05:15 PM	2	0	0	2	0	1	1	2	0	0	0	0	0	5	0	5	9
05:30 PM	2	3	0	5	0	3	2	5	0	0	0	0	0	2	0	2	12
05:45 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	0	2	4
Total	7	5	0	12	0	4	6	10	1	0	0	1	0	10	0	10	33
Grand Total	15	7	0	22	0	6	10	16	1	0	0	1	0	16	1	17	56
Apprch %	68.2	31.8	0		0	37.5	62.5		100	0	0		0	94.1	5.9		
Total %	26.8	12.5	0	39.3	0	10.7	17.9	28.6	1.8	0	0	1.8	0	28.6	1.8	30.4	

	Dale Evans Parkway Southbound				Johnson Road Westbound				Dale Evans Parkway Northbound				Johnson Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**4**	0	0	**4**	0	**1**	**1**	**2**	0	0	0	0	0	**2**	**1**	**3**	**9**
04:15 PM	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
04:30 PM	2	**1**	0	3	0	1	1	2	0	0	0	0	0	2	0	2	7
04:45 PM	1	1	0	2	0	0	1	1	0	0	0	0	0	2	0	2	5
Total Volume	8	2	0	10	0	2	4	6	0	0	0	0	0	6	1	7	23
% App. Total	80	20	0		0	33.3	66.7		0	0	0		0	85.7	14.3		
PHF	.500	.500	.000	.625	.000	.500	1.00	.750	.000	.000	.000	.000	.000	.750	.250	.583	.639

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Johnson Road
Weather: Clear

File Name : 02_APV_DEP_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**4**	0	0	**4**	0	**1**	**1**	**2**	0	0	0	0	0	**2**	**1**	**3**
+15 mins.	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
+30 mins.	2	**1**	0	3	0	1	1	2	0	0	0	0	0	2	0	2
+45 mins.	1	1	0	2	0	0	1	1	0	0	0	0	0	2	0	2
Total Volume	8	2	0	10	0	2	4	6	0	0	0	0	0	6	1	7
% App. Total	80	20	0		0	33.3	66.7		0	0	0		0	85.7	14.3	
PHF	.500	.500	.000	.625	.000	.500	1.000	.750	.000	.000	.000	.000	.000	.750	.250	.583

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

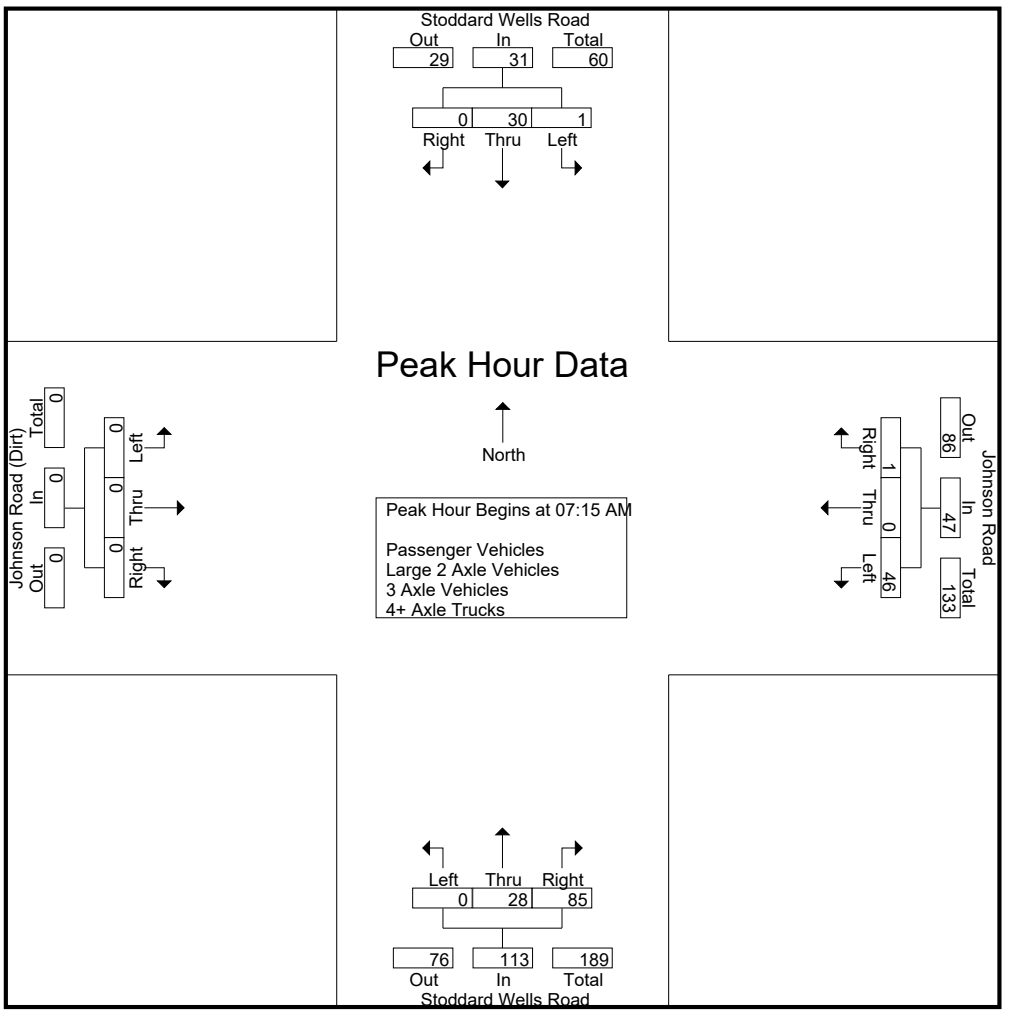
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	4	0	4	14	0	0	14	0	6	14	20	0	0	0	0	38
07:15 AM	0	9	0	9	10	0	0	10	0	5	24	29	0	0	0	0	48
07:30 AM	1	5	0	6	7	0	0	7	0	7	19	26	0	0	0	0	39
07:45 AM	0	7	0	7	17	0	1	18	0	7	26	33	0	0	0	0	58
Total	1	25	0	26	48	0	1	49	0	25	83	108	0	0	0	0	183
08:00 AM	0	9	0	9	12	0	0	12	0	9	16	25	0	0	0	0	46
08:15 AM	0	8	0	8	8	0	0	8	0	4	12	16	0	0	0	0	32
08:30 AM	1	10	0	11	8	0	0	8	0	9	26	35	0	0	0	0	54
08:45 AM	0	6	0	6	10	0	0	10	0	3	18	21	0	0	0	0	37
Total	1	33	0	34	38	0	0	38	0	25	72	97	0	0	0	0	169
Grand Total	2	58	0	60	86	0	1	87	0	50	155	205	0	0	0	0	352
Apprch %	3.3	96.7	0		98.9	0	1.1		0	24.4	75.6		0	0	0		
Total %	0.6	16.5	0	17	24.4	0	0.3	24.7	0	14.2	44	58.2	0	0	0	0	
Passenger Vehicles	0	27	0	27	50	0	1	51	0	14	115	129	0	0	0	0	207
% Passenger Vehicles	0	46.6	0	45	58.1	0	100	58.6	0	28	74.2	62.9	0	0	0	0	58.8
Large 2 Axle Vehicles	2	0	0	2	3	0	0	3	0	0	1	1	0	0	0	0	6
% Large 2 Axle Vehicles	100	0	0	3.3	3.5	0	0	3.4	0	0	0.6	0.5	0	0	0	0	1.7
3 Axle Vehicles	0	6	0	6	6	0	0	6	0	2	6	8	0	0	0	0	20
% 3 Axle Vehicles	0	10.3	0	10	7	0	0	6.9	0	4	3.9	3.9	0	0	0	0	5.7
4+ Axle Trucks	0	25	0	25	27	0	0	27	0	34	33	67	0	0	0	0	119
% 4+ Axle Trucks	0	43.1	0	41.7	31.4	0	0	31	0	68	21.3	32.7	0	0	0	0	33.8

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**9**	0	**9**	10	0	0	10	0	5	24	29	0	0	0	0	48
07:30 AM	**1**	5	0	6	7	0	0	7	0	7	19	26	0	0	0	0	39
07:45 AM	0	7	0	7	**17**	0	**1**	**18**	0	7	**26**	**33**	0	0	0	0	**58**
08:00 AM	0	9	0	9	12	0	0	12	0	**9**	16	25	0	0	0	0	46
Total Volume	1	30	0	31	46	0	1	47	0	28	85	113	0	0	0	0	191
% App. Total	3.2	96.8	0		97.9	0	2.1		0	24.8	75.2		0	0	0		
PHF	.250	.833	.000	.861	.676	.000	.250	.653	.000	.778	.817	.856	.000	.000	.000	.000	.823

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:00 AM				07:15 AM				07:00 AM			
+0 mins.	0	7	0	7	14	0	0	14	0	5	24	29	0	0	0	0
+15 mins.	0	9	0	9	10	0	0	10	0	7	19	26	0	0	0	0
+30 mins.	0	8	0	8	7	0	0	7	0	7	**26**	**33**	0	0	0	0
+45 mins.	**1**	**10**	0	**11**	**17**	0	**1**	**18**	0	**9**	16	25	0	0	0	0
Total Volume	1	34	0	35	48	0	1	49	0	28	85	113	0	0	0	0
% App. Total	2.9	97.1	0		98	0	2		0	24.8	75.2		0	0	0	
PHF	.250	.850	.000	.795	.706	.000	.250	.681	.000	.778	.817	.856	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

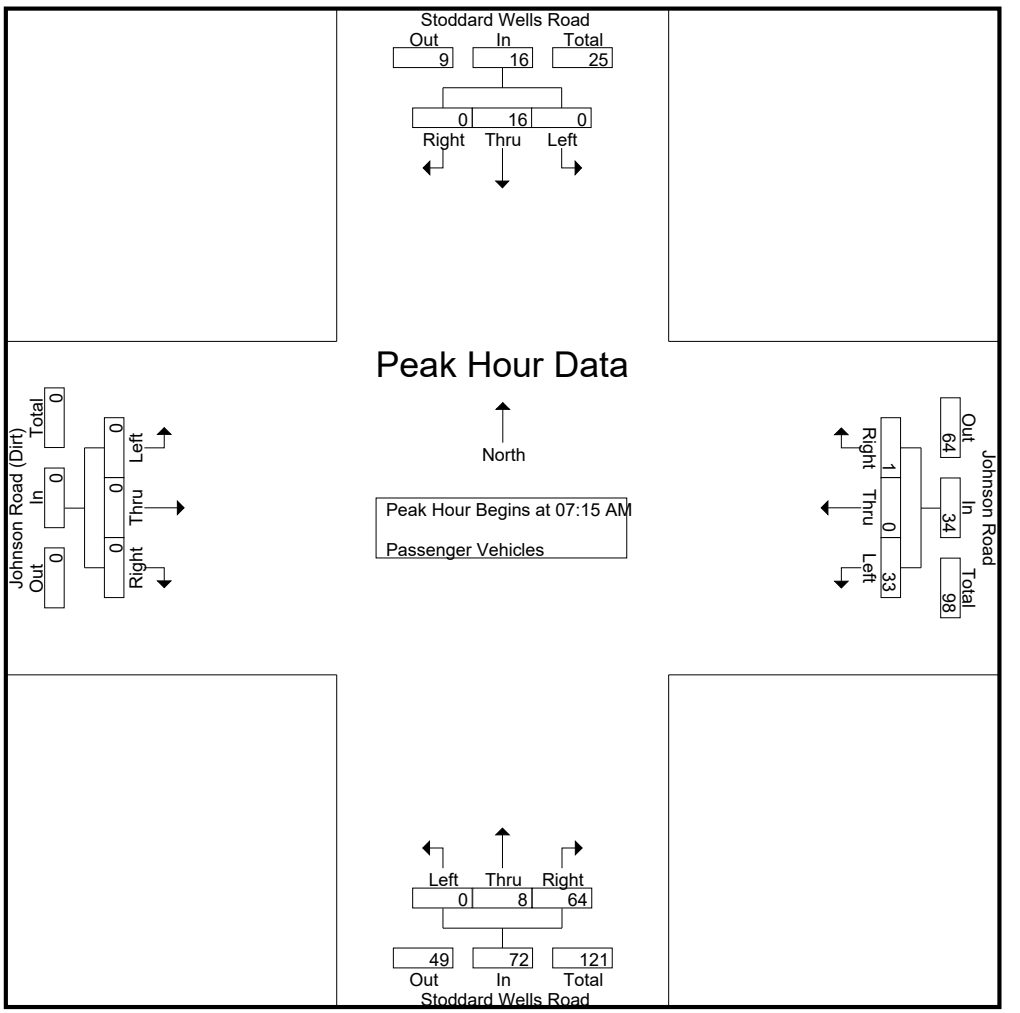
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	9	0	0	9	0	2	12	14	0	0	0	0	26
07:15 AM	0	6	0	6	4	0	0	4	0	1	16	17	0	0	0	0	27
07:30 AM	0	2	0	2	6	0	0	6	0	3	16	19	0	0	0	0	27
07:45 AM	0	3	0	3	14	0	1	15	0	2	23	25	0	0	0	0	43
Total	0	14	0	14	33	0	1	34	0	8	67	75	0	0	0	0	123
08:00 AM	0	5	0	5	9	0	0	9	0	2	9	11	0	0	0	0	25
08:15 AM	0	0	0	0	5	0	0	5	0	0	8	8	0	0	0	0	13
08:30 AM	0	5	0	5	2	0	0	2	0	4	20	24	0	0	0	0	31
08:45 AM	0	3	0	3	1	0	0	1	0	0	11	11	0	0	0	0	15
Total	0	13	0	13	17	0	0	17	0	6	48	54	0	0	0	0	84
Grand Total	0	27	0	27	50	0	1	51	0	14	115	129	0	0	0	0	207
Apprch %	0	100	0		98	0	2		0	10.9	89.1		0	0	0		
Total %	0	13	0	13	24.2	0	0.5	24.6	0	6.8	55.6	62.3	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**6**	0	**6**	4	0	0	4	0	1	16	17	0	0	0	0	27
07:30 AM	0	2	0	2	6	0	0	6	0	**3**	16	19	0	0	0	0	27
07:45 AM	0	3	0	3	**14**	0	**1**	**15**	0	2	**23**	**25**	0	0	0	0	**43**
08:00 AM	0	5	0	5	9	0	0	9	0	2	9	11	0	0	0	0	25
Total Volume	0	16	0	16	33	0	1	34	0	8	64	72	0	0	0	0	122
% App. Total	0	100	0		97.1	0	2.9		0	11.1	88.9		0	0	0		
PHF	.000	.667	.000	.667	.589	.000	.250	.567	.000	.667	.696	.720	.000	.000	.000	.000	.709

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**6**	0	**6**	4	0	0	4	0	1	16	17	0	0	0	0
+15 mins.	0	2	0	2	6	0	0	6	0	**3**	16	19	0	0	0	0
+30 mins.	0	3	0	3	**14**	0	**1**	**15**	0	2	**23**	**25**	0	0	0	0
+45 mins.	0	5	0	5	9	0	0	9	0	2	9	11	0	0	0	0
Total Volume	0	16	0	16	33	0	1	34	0	8	64	72	0	0	0	0
% App. Total	0	100	0		97.1	0	2.9		0	11.1	88.9		0	0	0	
PHF	.000	.667	.000	.667	.589	.000	.250	.567	.000	.667	.696	.720	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

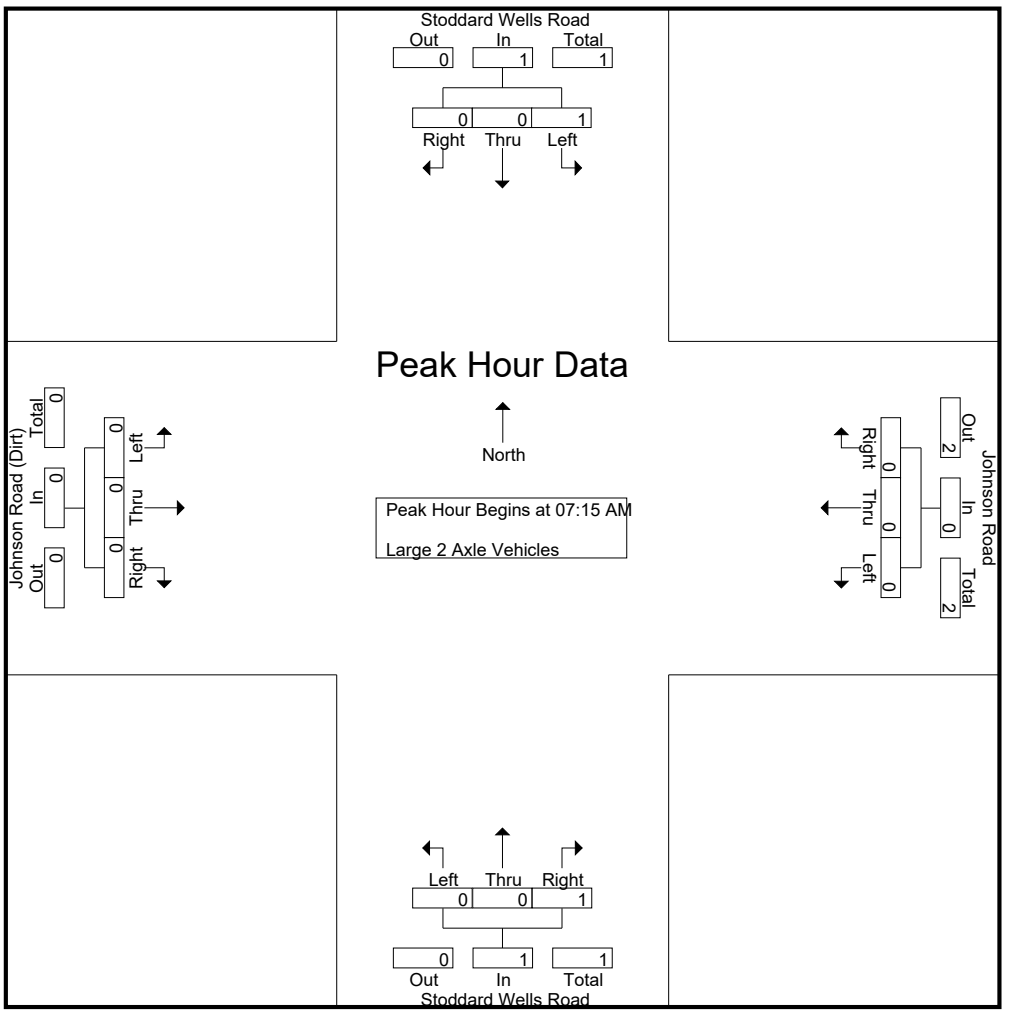
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
Total	1	0	0	1	3	0	0	3	0	0	0	0	0	0	0	0	4
Grand Total	2	0	0	2	3	0	0	3	0	0	1	1	0	0	0	0	6
Apprch %	100	0	0		100	0	0		0	0	100		0	0	0		
Total %	33.3	0	0	33.3	50	0	0	50	0	0	16.7	16.7	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
07:30 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
% App. Total	100	0	0		0	0	0		0	0	100		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+15 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	100	0	0		0	0	0		0	0	100		0	0	0	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

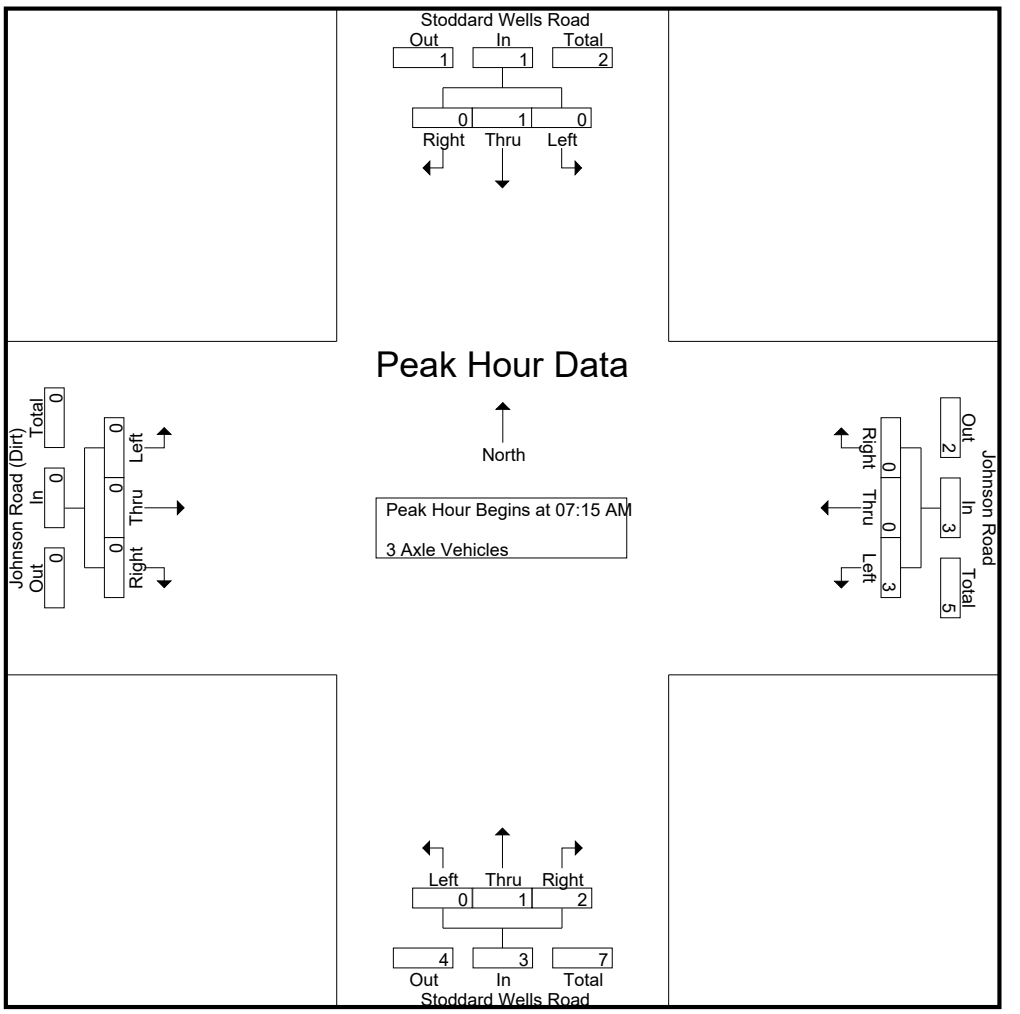
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
07:15 AM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	1	0	1	3	0	0	3	0	1	1	2	0	0	0	0	6
08:00 AM	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	3
08:15 AM	0	2	0	2	1	0	0	1	0	1	1	2	0	0	0	0	5
08:30 AM	0	1	0	1	0	0	0	0	0	0	2	2	0	0	0	0	3
08:45 AM	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
Total	0	5	0	5	3	0	0	3	0	1	5	6	0	0	0	0	14
Grand Total	0	6	0	6	6	0	0	6	0	2	6	8	0	0	0	0	20
Apprch %	0	100	0		100	0	0		0	25	75		0	0	0		
Total %	0	30	0	30	30	0	0	30	0	10	30	40	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**1**	0	**1**	**1**	0	0	**1**	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	1	0	0	1	0	0	**2**	**2**	0	0	0	0	**3**
Total Volume	0	1	0	1	3	0	0	3	0	1	2	3	0	0	0	0	7
% App. Total	0	100	0		100	0	0		0	33.3	66.7		0	0	0		
PHF	.000	.250	.000	.250	.750	.000	.000	.750	.000	.250	.250	.375	.000	.000	.000	.000	.583

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**1**	0	**1**	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	0	**2**	**2**	0	0	0	0
Total Volume	0	1	0	1	3	0	0	3	0	1	2	3	0	0	0	0
% App. Total	0	100	0		100	0	0		0	33.3	66.7		0	0	0	
PHF	.000	.250	.000	.250	.750	.000	.000	.750	.000	.250	.250	.375	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

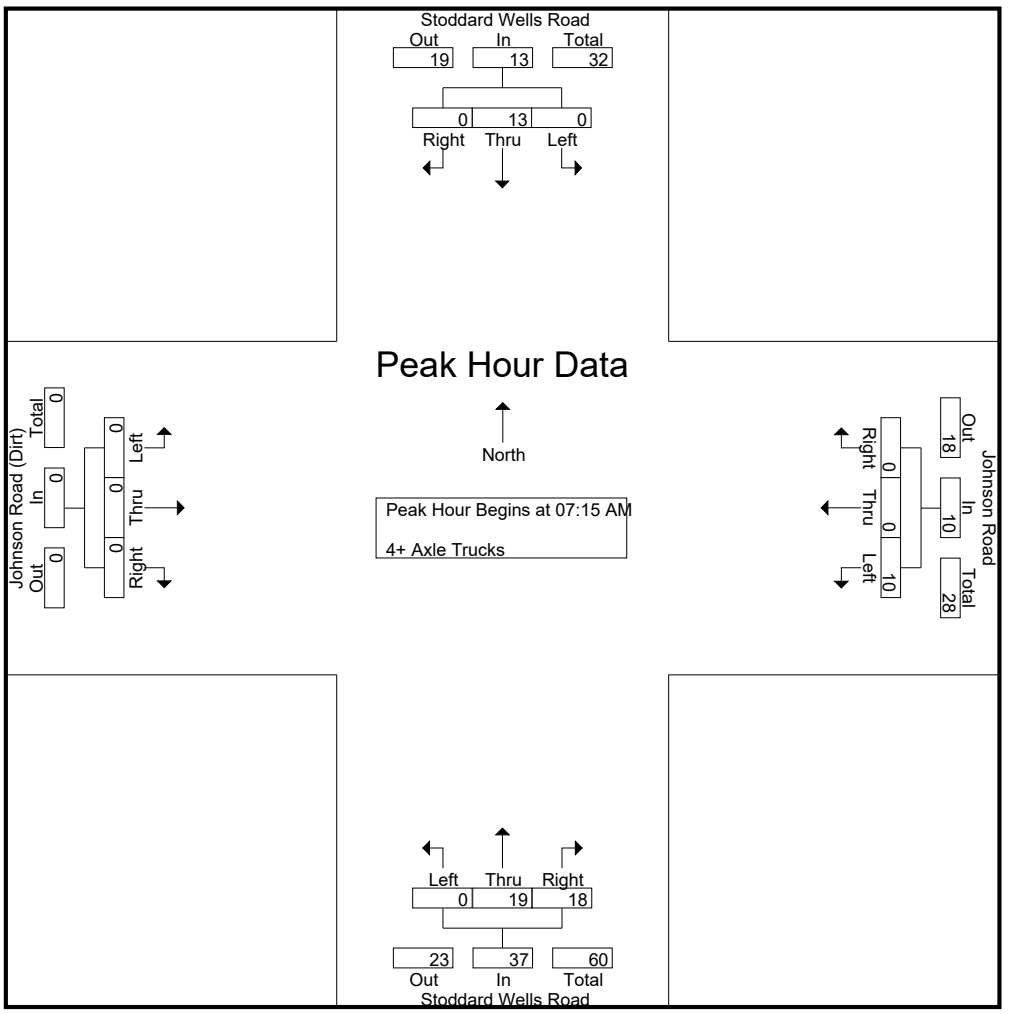
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	4	0	0	4	0	4	1	5	0	0	0	0	10
07:15 AM	0	2	0	2	5	0	0	5	0	4	7	11	0	0	0	0	18
07:30 AM	0	3	0	3	0	0	0	0	0	4	3	7	0	0	0	0	10
07:45 AM	0	4	0	4	3	0	0	3	0	4	3	7	0	0	0	0	14
Total	0	10	0	10	12	0	0	12	0	16	14	30	0	0	0	0	52
08:00 AM	0	4	0	4	2	0	0	2	0	7	5	12	0	0	0	0	18
08:15 AM	0	6	0	6	2	0	0	2	0	3	3	6	0	0	0	0	14
08:30 AM	0	4	0	4	6	0	0	6	0	5	4	9	0	0	0	0	19
08:45 AM	0	1	0	1	5	0	0	5	0	3	7	10	0	0	0	0	16
Total	0	15	0	15	15	0	0	15	0	18	19	37	0	0	0	0	67
Grand Total	0	25	0	25	27	0	0	27	0	34	33	67	0	0	0	0	119
Apprch %	0	100	0		100	0	0		0	50.7	49.3		0	0	0		
Total %	0	21	0	21	22.7	0	0	22.7	0	28.6	27.7	56.3	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	2	0	2	**5**	0	0	**5**	0	4	**7**	11	0	0	0	0	**18**
07:30 AM	0	3	0	3	0	0	0	0	0	4	3	7	0	0	0	0	10
07:45 AM	0	**4**	0	**4**	3	0	0	3	0	4	3	7	0	0	0	0	14
08:00 AM	0	4	0	4	2	0	0	2	0	**7**	5	**12**	0	0	0	0	18
Total Volume	0	13	0	13	10	0	0	10	0	19	18	37	0	0	0	0	60
% App. Total	0	100	0		100	0	0		0	51.4	48.6		0	0	0		
PHF	.000	.813	.000	.813	.500	.000	.000	.500	.000	.679	.643	.771	.000	.000	.000	.000	.833

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	2	0	2	**5**	0	0	**5**	0	4	**7**	11	0	0	0	0
+15 mins.	0	3	0	3	0	0	0	0	0	4	3	7	0	0	0	0
+30 mins.	0	**4**	0	**4**	3	0	0	3	0	4	3	7	0	0	0	0
+45 mins.	0	4	0	4	2	0	0	2	0	**7**	5	**12**	0	0	0	0
Total Volume	0	13	0	13	10	0	0	10	0	19	18	37	0	0	0	0
% App. Total	0	100	0		100	0	0		0	51.4	48.6		0	0	0	
PHF	.000	.813	.000	.813	.500	.000	.000	.500	.000	.679	.643	.771	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

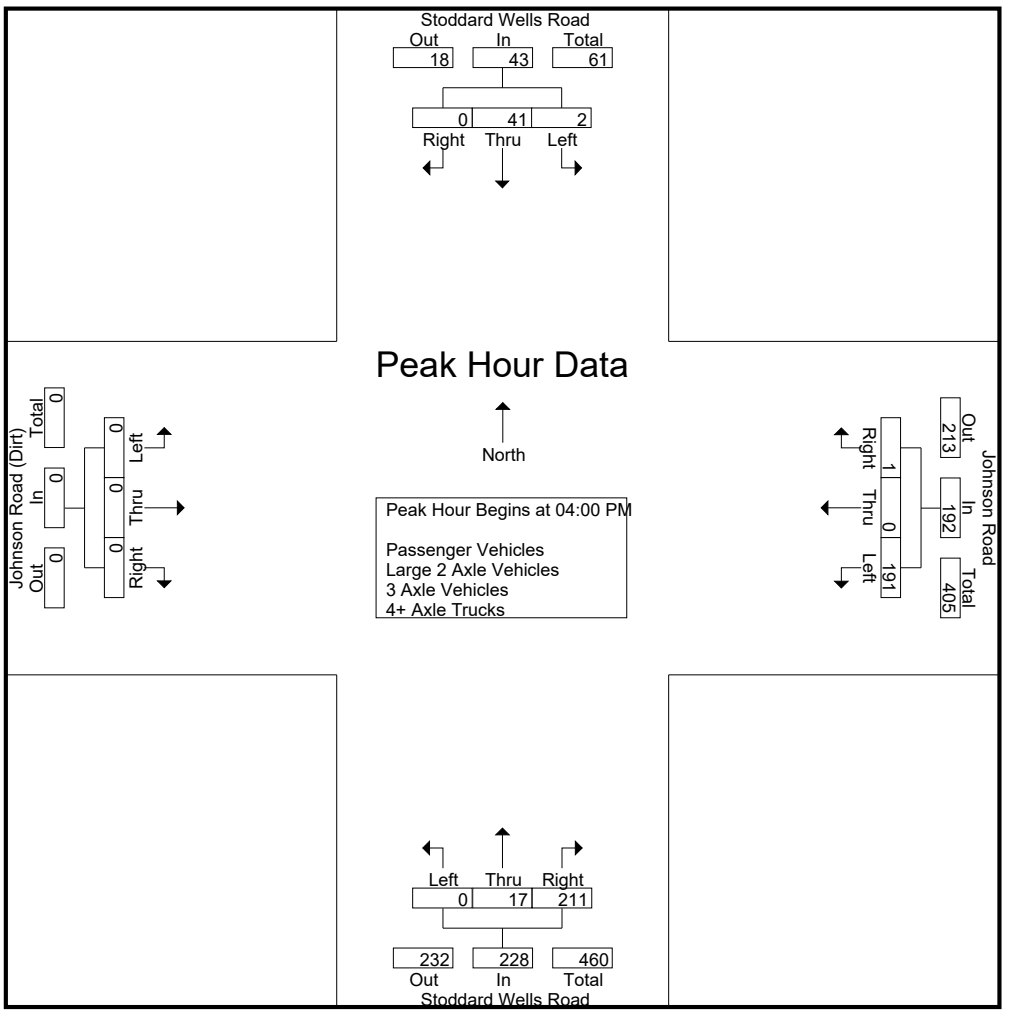
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	12	0	13	109	0	0	109	0	7	55	62	0	0	0	0	184
04:15 PM	0	9	0	9	43	0	0	43	0	5	97	102	0	0	0	0	154
04:30 PM	1	12	0	13	21	0	0	21	0	3	24	27	0	0	0	0	61
04:45 PM	0	8	0	8	18	0	1	19	0	2	35	37	0	0	0	0	64
Total	2	41	0	43	191	0	1	192	0	17	211	228	0	0	0	0	463
05:00 PM	0	5	0	5	27	0	0	27	0	1	21	22	0	0	0	0	54
05:15 PM	0	3	0	3	13	0	2	15	0	2	31	33	0	0	0	0	51
05:30 PM	1	3	0	4	23	0	0	23	0	1	16	17	0	0	0	0	44
05:45 PM	0	1	0	1	31	0	0	31	0	5	14	19	0	0	0	0	51
Total	1	12	0	13	94	0	2	96	0	9	82	91	0	0	0	0	200
Grand Total	3	53	0	56	285	0	3	288	0	26	293	319	0	0	0	0	663
Apprch %	5.4	94.6	0		99	0	1		0	8.2	91.8		0	0	0		
Total %	0.5	8	0	8.4	43	0	0.5	43.4	0	3.9	44.2	48.1	0	0	0	0	
Passenger Vehicles	3	51	0	54	270	0	3	273	0	23	264	287	0	0	0	0	614
% Passenger Vehicles	100	96.2	0	96.4	94.7	0	100	94.8	0	88.5	90.1	90	0	0	0	0	92.6
Large 2 Axle Vehicles	0	1	0	1	1	0	0	1	0	0	1	1	0	0	0	0	3
% Large 2 Axle Vehicles	0	1.9	0	1.8	0.4	0	0	0.3	0	0	0.3	0.3	0	0	0	0	0.5
3 Axle Vehicles	0	0	0	0	4	0	0	4	0	0	10	10	0	0	0	0	14
% 3 Axle Vehicles	0	0	0	0	1.4	0	0	1.4	0	0	3.4	3.1	0	0	0	0	2.1
4+ Axle Trucks	0	1	0	1	10	0	0	10	0	3	18	21	0	0	0	0	32
% 4+ Axle Trucks	0	1.9	0	1.8	3.5	0	0	3.5	0	11.5	6.1	6.6	0	0	0	0	4.8

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	**12**	0	**13**	**109**	0	0	**109**	0	**7**	55	62	0	0	0	0	**184**
04:15 PM	0	9	0	9	43	0	0	43	0	5	**97**	**102**	0	0	0	0	154
04:30 PM	1	12	0	13	21	0	0	21	0	3	24	27	0	0	0	0	61
04:45 PM	0	8	0	8	18	0	**1**	19	0	2	35	37	0	0	0	0	64
Total Volume	2	41	0	43	191	0	1	192	0	17	211	228	0	0	0	0	463
% App. Total	4.7	95.3	0		99.5	0	0.5		0	7.5	92.5		0	0	0		
PHF	.500	.854	.000	.827	.438	.000	.250	.440	.000	.607	.544	.559	.000	.000	.000	.000	.629

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	**12**	0	**13**	**109**	0	0	**109**	0	**7**	55	62	0	0	0	0
+15 mins.	0	9	0	9	43	0	0	43	0	5	**97**	**102**	0	0	0	0
+30 mins.	1	12	0	13	21	0	0	21	0	3	24	27	0	0	0	0
+45 mins.	0	8	0	8	18	0	**1**	19	0	2	35	37	0	0	0	0
Total Volume	2	41	0	43	191	0	1	192	0	17	211	228	0	0	0	0
% App. Total	4.7	95.3	0		99.5	0	0.5		0	7.5	92.5		0	0	0	
PHF	.500	.854	.000	.827	.438	.000	.250	.440	.000	.607	.544	.559	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

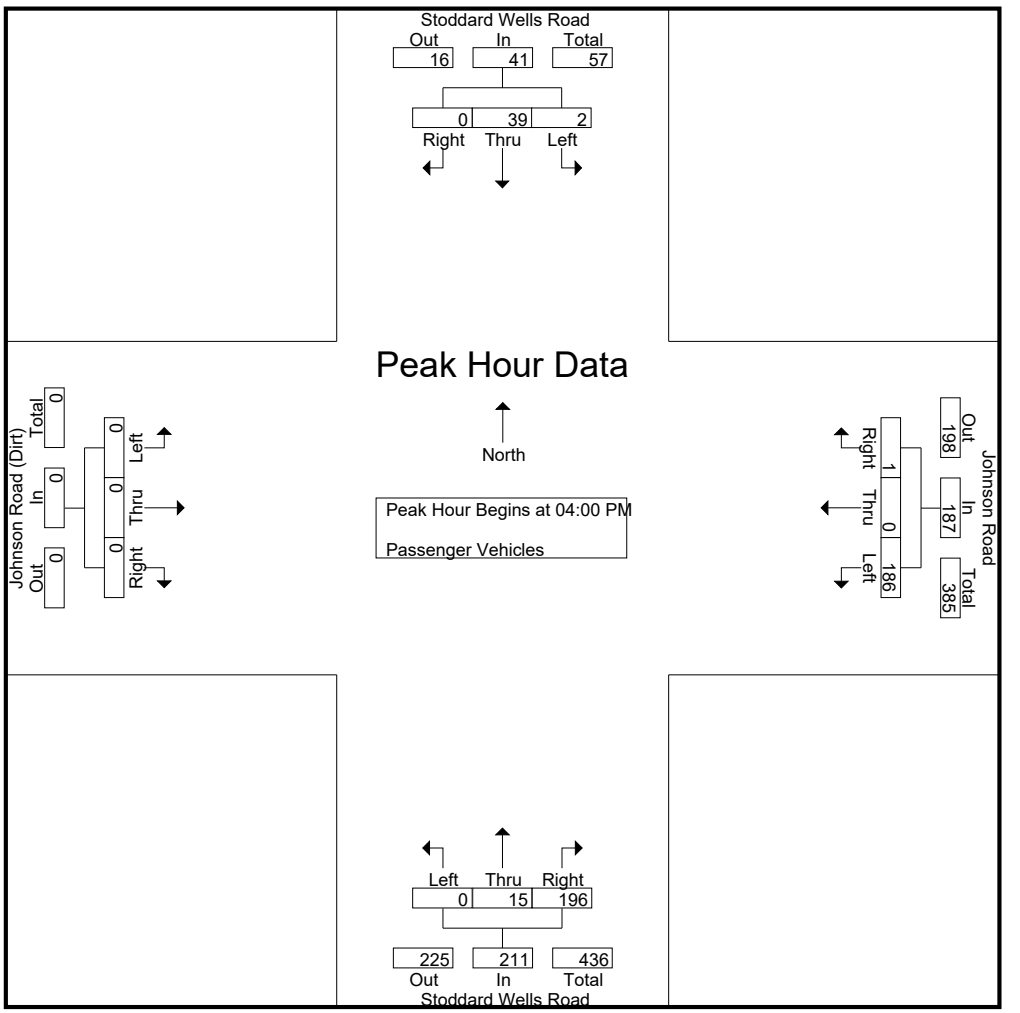
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	12	0	13	109	0	0	109	0	6	50	56	0	0	0	0	178
04:15 PM	0	7	0	7	39	0	0	39	0	5	95	100	0	0	0	0	146
04:30 PM	1	12	0	13	21	0	0	21	0	3	21	24	0	0	0	0	58
04:45 PM	0	8	0	8	17	0	1	18	0	1	30	31	0	0	0	0	57
Total	2	39	0	41	186	0	1	187	0	15	196	211	0	0	0	0	439
05:00 PM	0	5	0	5	27	0	0	27	0	1	20	21	0	0	0	0	53
05:15 PM	0	3	0	3	12	0	2	14	0	2	26	28	0	0	0	0	45
05:30 PM	1	3	0	4	19	0	0	19	0	1	13	14	0	0	0	0	37
05:45 PM	0	1	0	1	26	0	0	26	0	4	9	13	0	0	0	0	40
Total	1	12	0	13	84	0	2	86	0	8	68	76	0	0	0	0	175
Grand Total	3	51	0	54	270	0	3	273	0	23	264	287	0	0	0	0	614
Apprch %	5.6	94.4	0		98.9	0	1.1		0	8	92		0	0	0		
Total %	0.5	8.3	0	8.8	44	0	0.5	44.5	0	3.7	43	46.7	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	**12**	0	**13**	**109**	0	0	**109**	0	**6**	50	56	0	0	0	0	**178**
04:15 PM	0	7	0	7	39	0	0	39	0	5	**95**	**100**	0	0	0	0	146
04:30 PM	1	12	0	13	21	0	0	21	0	3	21	24	0	0	0	0	58
04:45 PM	0	8	0	8	17	0	**1**	18	0	1	30	31	0	0	0	0	57
Total Volume	2	39	0	41	186	0	1	187	0	15	196	211	0	0	0	0	439
% App. Total	4.9	95.1	0		99.5	0	0.5		0	7.1	92.9		0	0	0		
PHF	.500	.813	.000	.788	.427	.000	.250	.429	.000	.625	.516	.528	.000	.000	.000	.000	.617

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	**12**	0	**13**	**109**	0	0	**109**	0	**6**	50	56	0	0	0	0
+15 mins.	0	7	0	7	39	0	0	39	0	5	**95**	**100**	0	0	0	0
+30 mins.	1	12	0	13	21	0	0	21	0	3	21	24	0	0	0	0
+45 mins.	0	8	0	8	17	0	**1**	18	0	1	30	31	0	0	0	0
Total Volume	2	39	0	41	186	0	1	187	0	15	196	211	0	0	0	0
% App. Total	4.9	95.1	0		99.5	0	0.5		0	7.1	92.9		0	0	0	
PHF	.500	.813	.000	.788	.427	.000	.250	.429	.000	.625	.516	.528	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

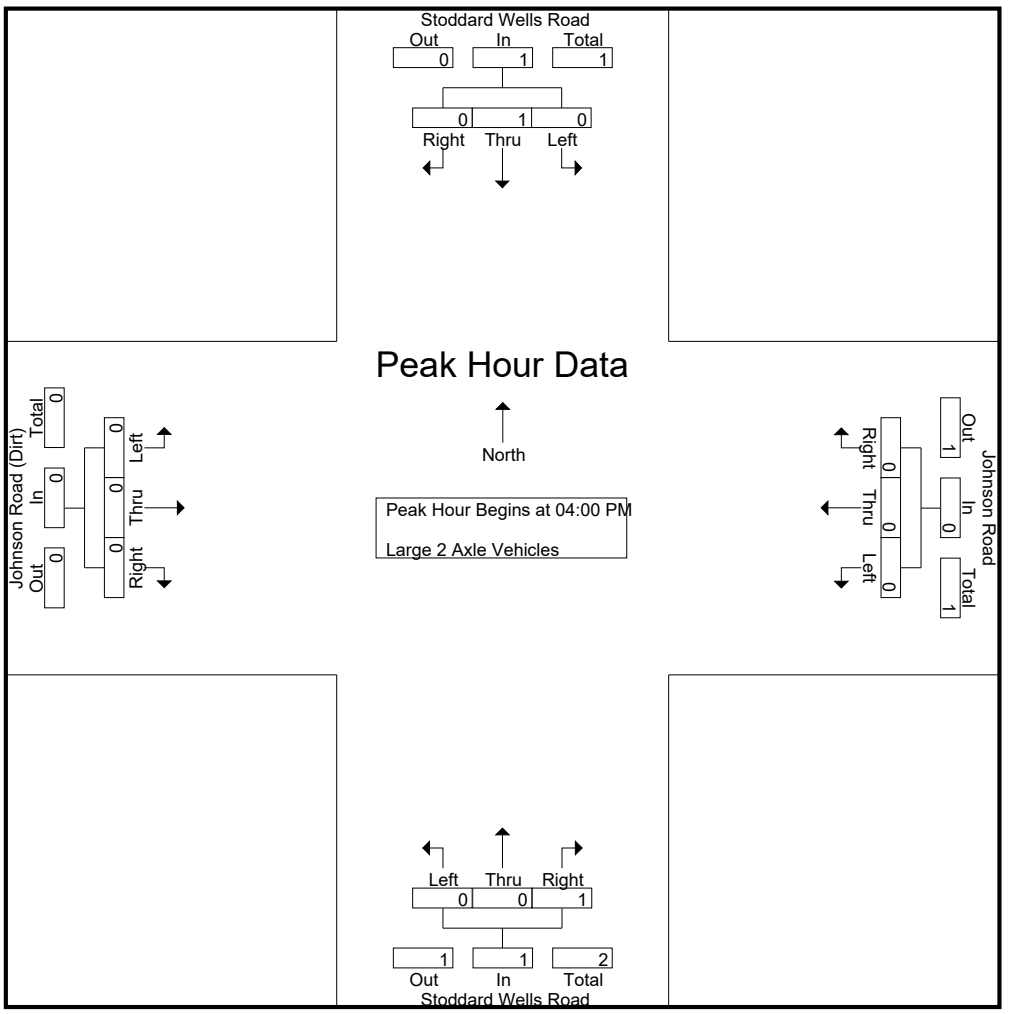
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	1	0	0	1	0	0	1	1	0	0	0	0	3
Apprch %	0	100	0		100	0	0		0	0	100		0	0	0		
Total %	0	33.3	0	33.3	33.3	0	0	33.3	0	0	33.3	33.3	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**
04:15 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	100		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

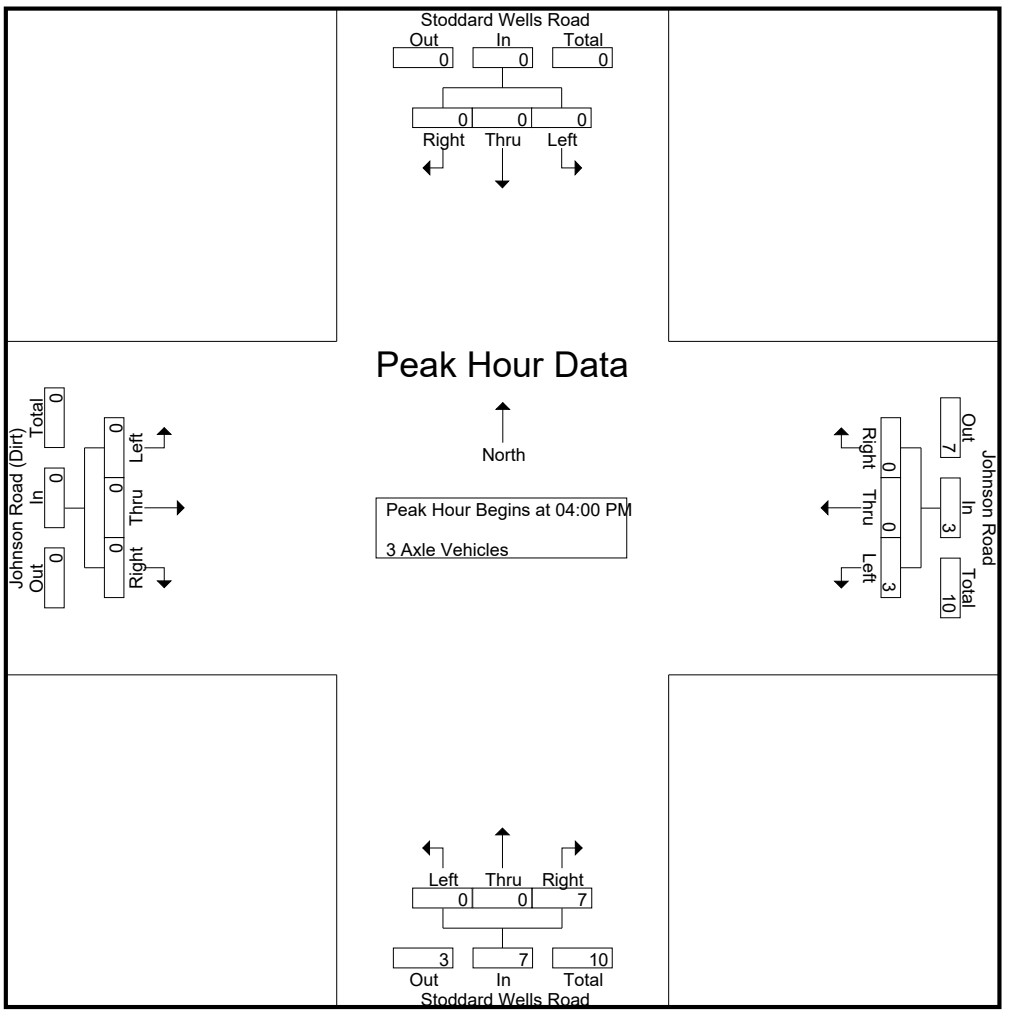
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:15 PM	0	0	0	0	3	0	0	3	0	0	2	2	0	0	0	0	5
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	4
Total	0	0	0	0	3	0	0	3	0	0	7	7	0	0	0	0	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:45 PM	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	3
Total	0	0	0	0	1	0	0	1	0	0	3	3	0	0	0	0	4
Grand Total	0	0	0	0	4	0	0	4	0	0	10	10	0	0	0	0	14
Apprch %	0	0	0		100	0	0		0	0	100		0	0	0		
Total %	0	0	0	0	28.6	0	0	28.6	0	0	71.4	71.4	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:15 PM	0	0	0	0	**3**	0	0	**3**	0	0	2	2	0	0	0	0	**5**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	**4**	**4**	0	0	0	0	4
Total Volume	0	0	0	0	3	0	0	3	0	0	7	7	0	0	0	0	10
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.438	.438	.000	.000	.000	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
+15 mins.	0	0	0	0	**3**	0	0	**3**	0	0	2	2	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	**4**	**4**	0	0	0	0
Total Volume	0	0	0	0	3	0	0	3	0	0	7	7	0	0	0	0
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.438	.438	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

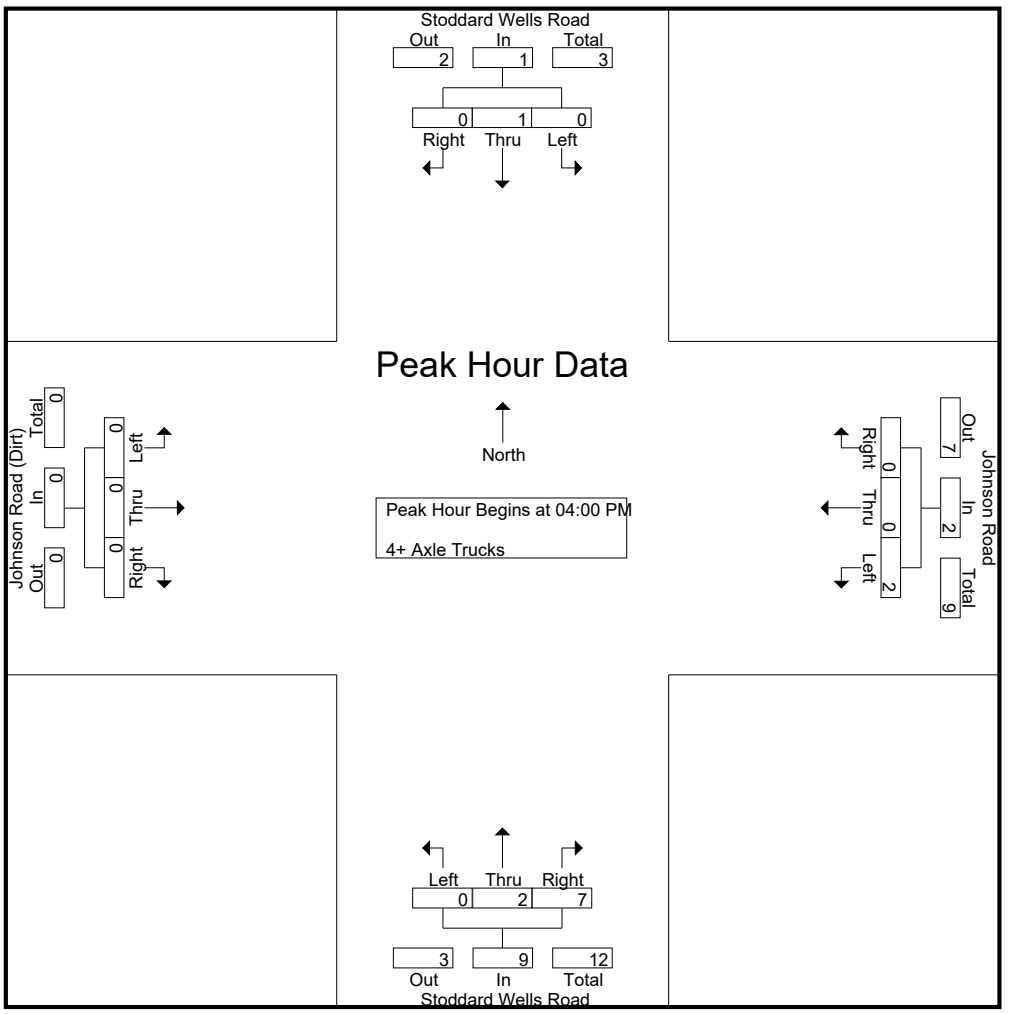
	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	4
04:15 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
04:45 PM	0	0	0	0	1	0	0	1	0	1	1	2	0	0	0	0	3
Total	0	1	0	1	2	0	0	2	0	2	7	9	0	0	0	0	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	5
05:30 PM	0	0	0	0	4	0	0	4	0	0	2	2	0	0	0	0	6
05:45 PM	0	0	0	0	4	0	0	4	0	1	3	4	0	0	0	0	8
Total	0	0	0	0	8	0	0	8	0	1	11	12	0	0	0	0	20
Grand Total	0	1	0	1	10	0	0	10	0	3	18	21	0	0	0	0	32
Apprch %	0	100	0		100	0	0		0	14.3	85.7		0	0	0		
Total %	0	3.1	0	3.1	31.2	0	0	31.2	0	9.4	56.2	65.6	0	0	0	0	

	Stoddard Wells Road Southbound				Johnson Road Westbound				Stoddard Wells Road Northbound				Johnson Road (Dirt) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	**1**	**3**	**4**	0	0	0	0	**4**
04:15 PM	0	**1**	0	**1**	**1**	0	0	**1**	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
04:45 PM	0	0	0	0	1	0	0	1	0	1	1	2	0	0	0	0	3
Total Volume	0	1	0	1	2	0	0	2	0	2	7	9	0	0	0	0	12
% App. Total	0	100	0		100	0	0		0	22.2	77.8		0	0	0		
PHF	.000	.250	.000	.250	.500	.000	.000	.500	.000	.500	.583	.563	.000	.000	.000	.000	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Stoddard Wells Road
E/W: Johnson Road
Weather: Clear

File Name : 03_APV_SW_John PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	**3**	**4**	0	0	0	0
+15 mins.	0	**1**	0	**1**	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	1	1	2	0	0	0	0
Total Volume	0	1	0	1	2	0	0	2	0	2	7	9	0	0	0	0
% App. Total	0	100	0		100	0	0		0	22.2	77.8		0	0	0	
PHF	.000	.250	.000	.250	.500	.000	.000	.500	.000	.500	.583	.563	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

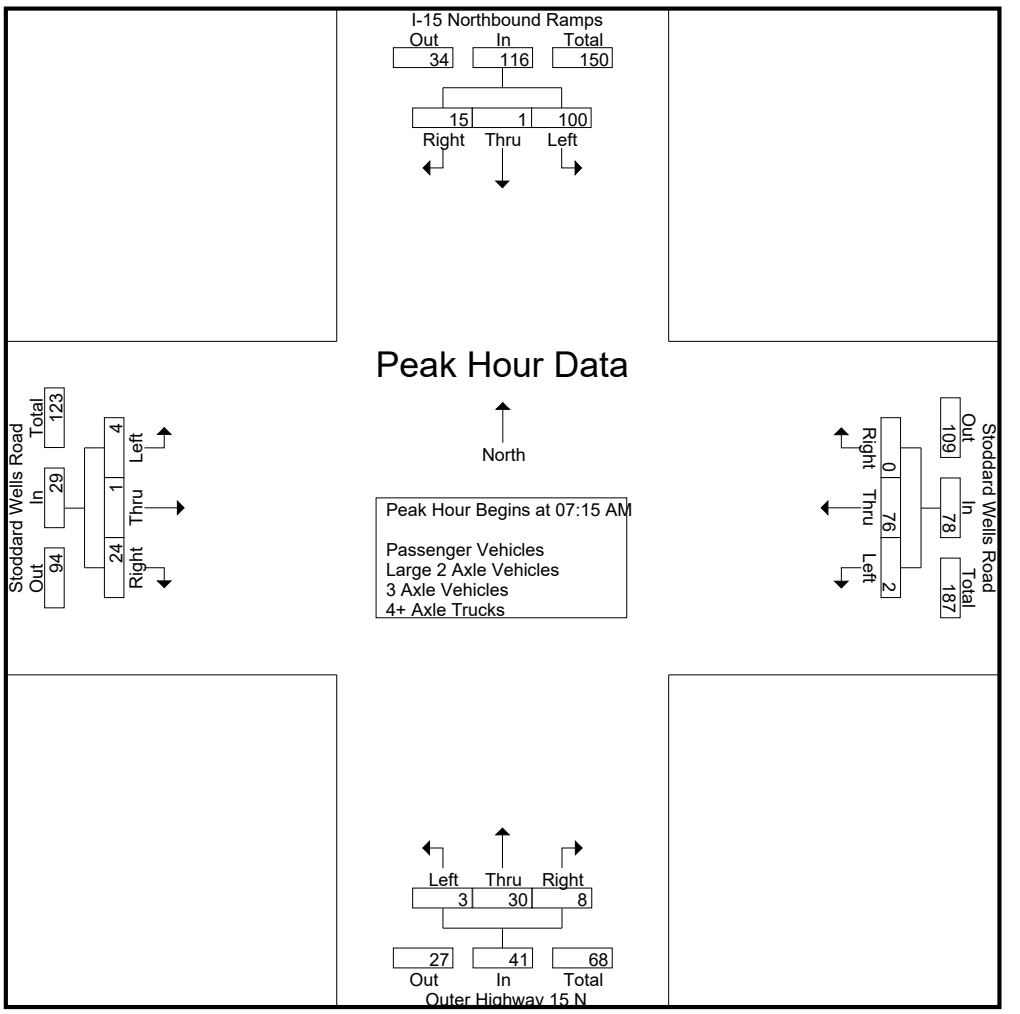
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	22	0	5	27	0	18	0	18	1	4	0	5	0	1	3	4	54
07:15 AM	23	0	1	24	1	17	0	18	0	10	1	11	1	0	5	6	59
07:30 AM	27	0	2	29	0	16	0	16	1	8	1	10	1	0	6	7	62
07:45 AM	28	1	8	37	0	23	0	23	2	9	5	16	1	0	8	9	85
Total	100	1	16	117	1	74	0	75	4	31	7	42	3	1	22	26	260
08:00 AM	22	0	4	26	1	20	0	21	0	3	1	4	1	1	5	7	58
08:15 AM	15	0	1	16	0	13	0	13	2	7	2	11	0	3	6	9	49
08:30 AM	21	1	0	22	0	19	0	19	1	5	3	9	1	2	5	8	58
08:45 AM	22	0	1	23	0	11	0	11	0	9	2	11	1	0	11	12	57
Total	80	1	6	87	1	63	0	64	3	24	8	35	3	6	27	36	222
Grand Total	180	2	22	204	2	137	0	139	7	55	15	77	6	7	49	62	482
Apprch %	88.2	1	10.8		1.4	98.6	0		9.1	71.4	19.5		9.7	11.3	79		
Total %	37.3	0.4	4.6	42.3	0.4	28.4	0	28.8	1.5	11.4	3.1	16	1.2	1.5	10.2	12.9	
Passenger Vehicles	110	2	20	132	2	77	0	79	6	52	14	72	6	5	46	57	340
% Passenger Vehicles	61.1	100	90.9	64.7	100	56.2	0	56.8	85.7	94.5	93.3	93.5	100	71.4	93.9	91.9	70.5
Large 2 Axle Vehicles	1	0	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
% Large 2 Axle Vehicles	0.6	0	4.5	1	0	0.7	0	0.7	0	0	0	0	0	0	0	0	0.6
3 Axle Vehicles	8	0	1	9	0	11	0	11	0	0	1	1	0	2	0	2	23
% 3 Axle Vehicles	4.4	0	4.5	4.4	0	8	0	7.9	0	0	6.7	1.3	0	28.6	0	3.2	4.8
4+ Axle Trucks	61	0	0	61	0	48	0	48	1	3	0	4	0	0	3	3	116
% 4+ Axle Trucks	33.9	0	0	29.9	0	35	0	34.5	14.3	5.5	0	5.2	0	0	6.1	4.8	24.1

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	23	0	1	24	**1**	17	0	18	0	**10**	1	11	**1**	0	5	6	59
07:30 AM	27	0	2	29	0	16	0	16	1	8	1	10	1	0	6	7	62
07:45 AM	**28**	**1**	**8**	**37**	0	**23**	0	**23**	**2**	9	**5**	**16**	1	0	**8**	**9**	**85**
08:00 AM	22	0	4	26	1	20	0	21	0	3	1	4	1	**1**	5	7	58
Total Volume	100	1	15	116	2	76	0	78	3	30	8	41	4	1	24	29	264
% App. Total	86.2	0.9	12.9		2.6	97.4	0		7.3	73.2	19.5		13.8	3.4	82.8		
PHF	.893	.250	.469	.784	.500	.826	.000	.848	.375	.750	.400	.641	1.00	.250	.750	.806	.776

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:00 AM				08:00 AM			
+0 mins.	22	0	5	27	**1**	17	0	18	1	4	0	5	**1**	1	5	7
+15 mins.	23	0	1	24	0	16	0	16	0	**10**	1	11	0	**3**	6	9
+30 mins.	27	0	2	29	0	**23**	0	**23**	1	8	1	10	1	2	5	8
+45 mins.	**28**	**1**	**8**	**37**	1	20	0	21	**2**	9	**5**	**16**	1	0	**11**	**12**
Total Volume	100	1	16	117	2	76	0	78	4	31	7	42	3	6	27	36
% App. Total	85.5	0.9	13.7		2.6	97.4	0		9.5	73.8	16.7		8.3	16.7	75	
PHF	.893	.250	.500	.791	.500	.826	.000	.848	.500	.775	.350	.656	.750	.500	.614	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

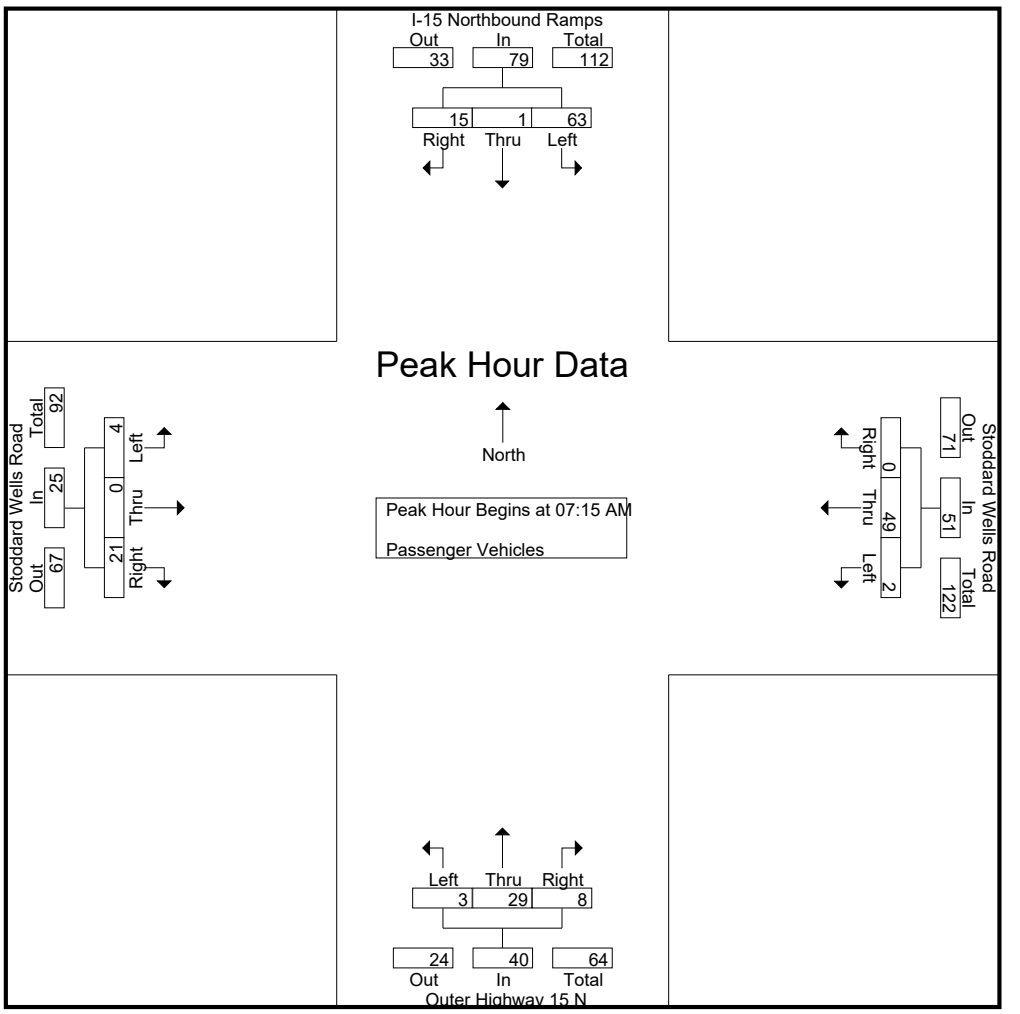
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	17	0	3	20	0	12	0	12	1	4	0	5	0	1	3	4	41
07:15 AM	13	0	1	14	1	10	0	11	0	10	1	11	1	0	5	6	42
07:30 AM	20	0	2	22	0	10	0	10	1	8	1	10	1	0	6	7	49
07:45 AM	19	1	8	28	0	16	0	16	2	9	5	16	1	0	7	8	68
Total	69	1	14	84	1	48	0	49	4	31	7	42	3	1	21	25	200
08:00 AM	11	0	4	15	1	13	0	14	0	2	1	3	1	0	3	4	36
08:15 AM	6	0	1	7	0	6	0	6	1	5	2	8	0	2	6	8	29
08:30 AM	14	1	0	15	0	7	0	7	1	5	2	8	1	2	5	8	38
08:45 AM	10	0	1	11	0	3	0	3	0	9	2	11	1	0	11	12	37
Total	41	1	6	48	1	29	0	30	2	21	7	30	3	4	25	32	140
Grand Total	110	2	20	132	2	77	0	79	6	52	14	72	6	5	46	57	340
Apprch %	83.3	1.5	15.2		2.5	97.5	0		8.3	72.2	19.4		10.5	8.8	80.7		
Total %	32.4	0.6	5.9	38.8	0.6	22.6	0	23.2	1.8	15.3	4.1	21.2	1.8	1.5	13.5	16.8	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	13	0	1	14	**1**	10	0	11	0	**10**	1	11	**1**	0	5	6	42
07:30 AM	**20**	0	2	22	0	10	0	10	1	8	1	10	1	0	6	7	49
07:45 AM	19	**1**	**8**	**28**	0	**16**	0	**16**	**2**	9	**5**	**16**	1	0	**7**	**8**	**68**
08:00 AM	11	0	4	15	1	13	0	14	0	2	1	3	1	0	3	4	36
Total Volume	63	1	15	79	2	49	0	51	3	29	8	40	4	0	21	25	195
% App. Total	79.7	1.3	19		3.9	96.1	0		7.5	72.5	20		16	0	84		
PHF	.788	.250	.469	.705	.500	.766	.000	.797	.375	.725	.400	.625	1.00	.000	.750	.781	.717

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	13	0	1	14	**1**	10	0	11	0	**10**	1	11	**1**	0	5	6
+15 mins.	**20**	0	2	22	0	10	0	10	1	8	1	10	1	0	6	7
+30 mins.	19	**1**	**8**	**28**	0	**16**	0	**16**	**2**	9	**5**	**16**	1	0	**7**	**8**
+45 mins.	11	0	4	15	1	13	0	14	0	2	1	3	1	0	3	4
Total Volume	63	1	15	79	2	49	0	51	3	29	8	40	4	0	21	25
% App. Total	79.7	1.3	19		3.9	96.1	0		7.5	72.5	20		16	0	84	
PHF	.788	.250	.469	.705	.500	.766	.000	.797	.375	.725	.400	.625	1.000	.000	.750	.781

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

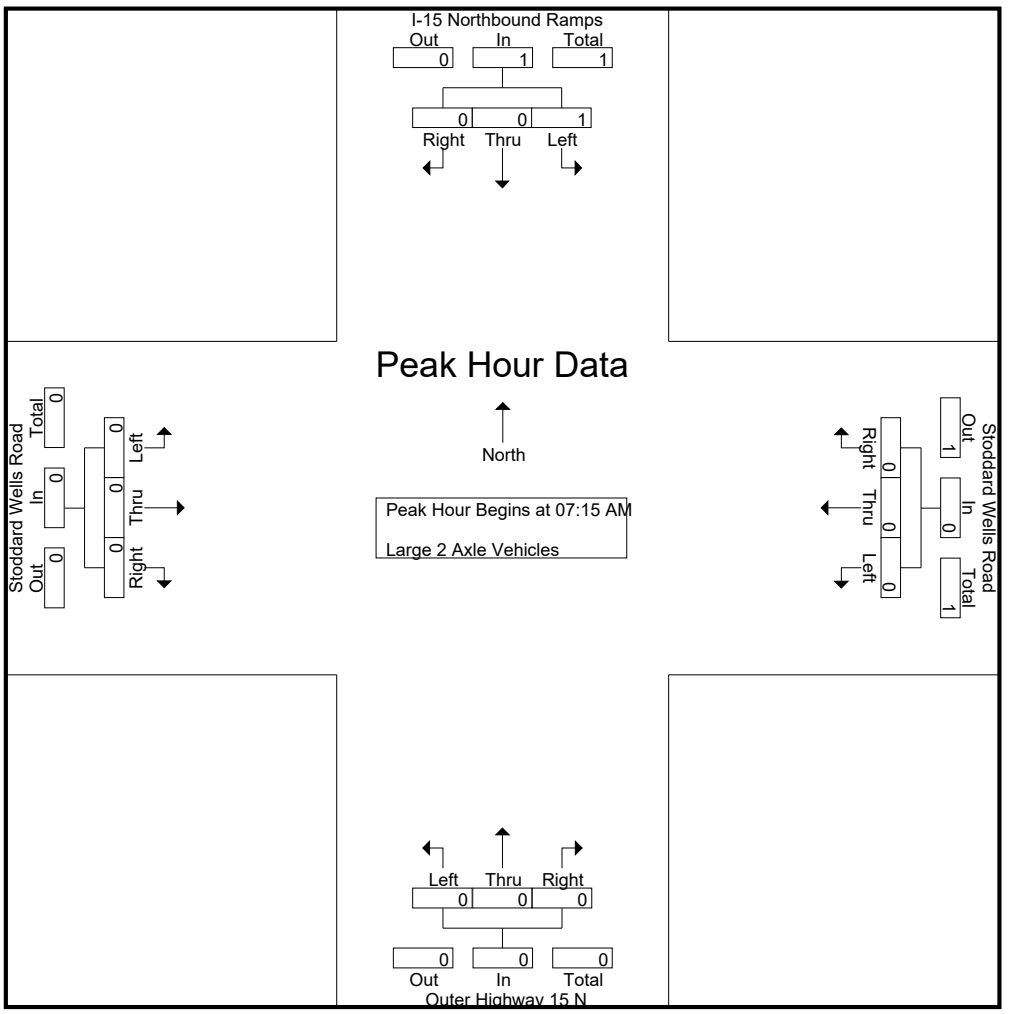
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	1	0	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
Apprch %	50	0	50		0	100	0		0	0	0		0	0	0		
Total %	33.3	0	33.3	66.7	0	33.3	0	33.3	0	0	0	0	0	0	0	0	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	100	0	0		0	0	0		0	0	0		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	100	0	0		0	0	0		0	0	0		0	0	0	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

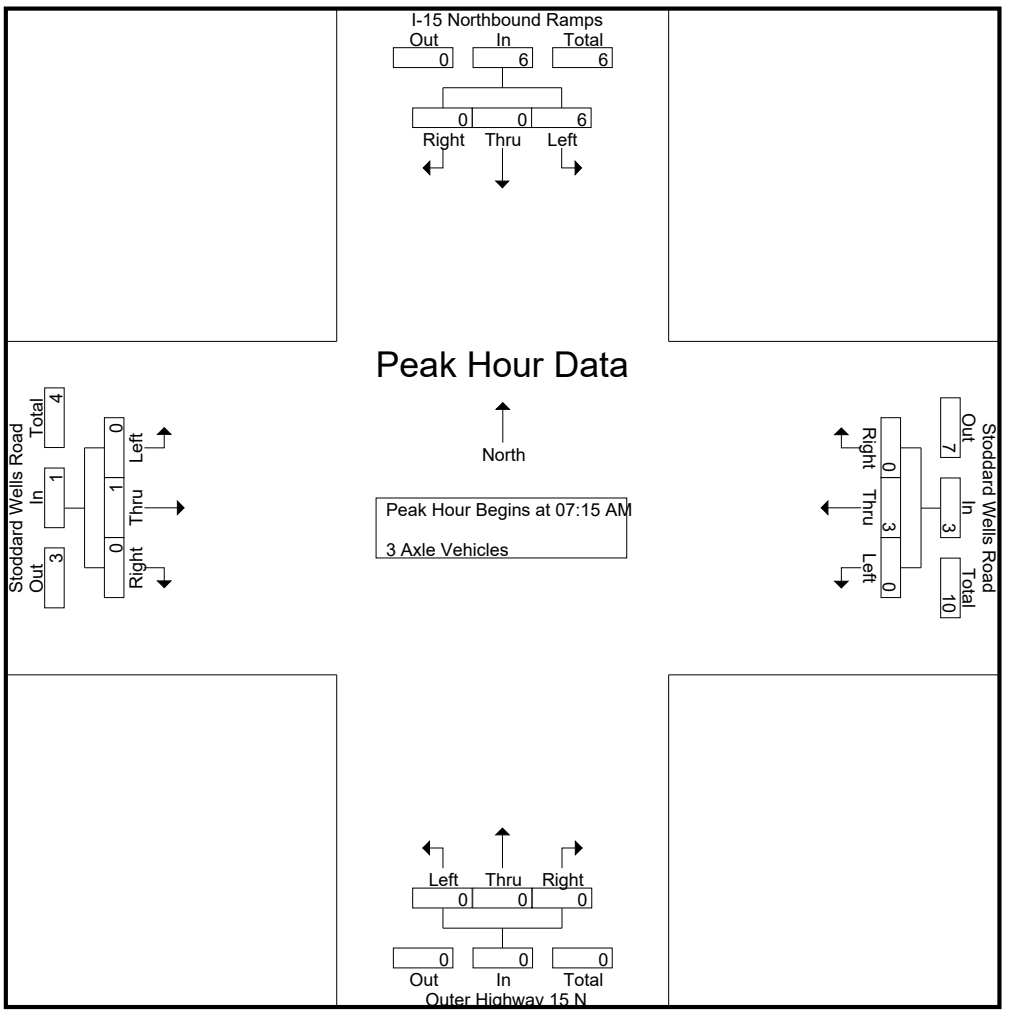
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	1	3	0	3	0	3	0	0	0	0	0	0	0	0	6
08:00 AM	4	0	0	4	0	1	0	1	0	0	0	0	0	1	0	1	6
08:15 AM	1	0	0	1	0	3	0	3	0	0	0	0	0	1	0	1	5
08:30 AM	1	0	0	1	0	1	0	1	0	0	1	1	0	0	0	0	3
08:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
Total	6	0	0	6	0	8	0	8	0	0	1	1	0	2	0	2	17
Grand Total	8	0	1	9	0	11	0	11	0	0	1	1	0	2	0	2	23
Apprch %	88.9	0	11.1		0	100	0		0	0	100		0	100	0		
Total %	34.8	0	4.3	39.1	0	47.8	0	47.8	0	0	4.3	4.3	0	8.7	0	8.7	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
07:30 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	**4**	0	0	**4**	0	1	0	1	0	0	0	0	0	**1**	0	**1**	**6**
Total Volume	6	0	0	6	0	3	0	3	0	0	0	0	0	1	0	1	10
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.375	.000	.000	.375	.000	.750	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250	.417

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
+30 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	**4**	0	0	**4**	0	1	0	1	0	0	0	0	0	**1**	0	**1**
Total Volume	6	0	0	6	0	3	0	3	0	0	0	0	0	1	0	1
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0	
PHF	.375	.000	.000	.375	.000	.750	.000	.750	.000	.000	.000	.000	.000	.250	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

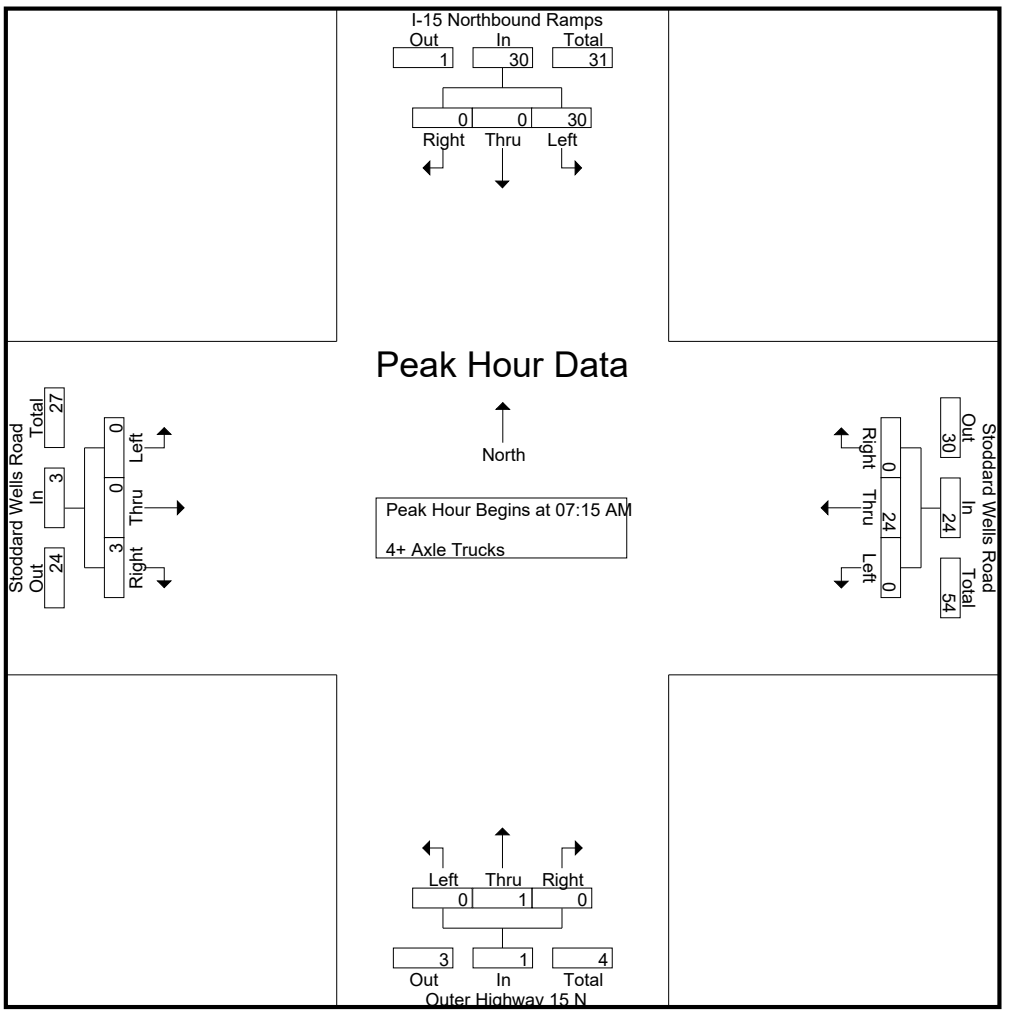
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	0	0	5	0	5	0	5	0	0	0	0	0	0	0	0	10
07:15 AM	9	0	0	9	0	6	0	6	0	0	0	0	0	0	0	0	15
07:30 AM	6	0	0	6	0	5	0	5	0	0	0	0	0	0	0	0	11
07:45 AM	8	0	0	8	0	7	0	7	0	0	0	0	0	0	1	1	16
Total	28	0	0	28	0	23	0	23	0	0	0	0	0	0	1	1	52
08:00 AM	7	0	0	7	0	6	0	6	0	1	0	1	0	0	2	2	16
08:15 AM	8	0	0	8	0	4	0	4	1	2	0	3	0	0	0	0	15
08:30 AM	6	0	0	6	0	11	0	11	0	0	0	0	0	0	0	0	17
08:45 AM	12	0	0	12	0	4	0	4	0	0	0	0	0	0	0	0	16
Total	33	0	0	33	0	25	0	25	1	3	0	4	0	0	2	2	64
Grand Total	61	0	0	61	0	48	0	48	1	3	0	4	0	0	3	3	116
Apprch %	100	0	0		0	100	0		25	75	0		0	0	100		
Total %	52.6	0	0	52.6	0	41.4	0	41.4	0.9	2.6	0	3.4	0	0	2.6	2.6	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**9**	0	0	**9**	0	6	0	6	0	0	0	0	0	0	0	0	15
07:30 AM	6	0	0	6	0	5	0	5	0	0	0	0	0	0	0	0	11
07:45 AM	8	0	0	8	0	**7**	0	**7**	0	0	0	0	0	0	1	1	**16**
08:00 AM	7	0	0	7	0	6	0	6	0	**1**	0	**1**	0	0	**2**	**2**	16
Total Volume	30	0	0	30	0	24	0	24	0	1	0	1	0	0	3	3	58
% App. Total	100	0	0		0	100	0		0	100	0		0	0	100		
PHF	.833	.000	.000	.833	.000	.857	.000	.857	.000	.250	.000	.250	.000	.000	.375	.375	.906

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	**9**	0	0	**9**	0	6	0	6	0	0	0	0	0	0	0	0
+15 mins.	6	0	0	6	0	5	0	5	0	0	0	0	0	0	0	0
+30 mins.	8	0	0	8	0	**7**	0	**7**	0	0	0	0	0	0	1	1
+45 mins.	7	0	0	7	0	6	0	6	0	**1**	0	**1**	0	0	**2**	**2**
Total Volume	30	0	0	30	0	24	0	24	0	1	0	1	0	0	3	3
% App. Total	100	0	0		0	100	0		0	100	0		0	0	100	
PHF	.833	.000	.000	.833	.000	.857	.000	.857	.000	.250	.000	.250	.000	.000	.375	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

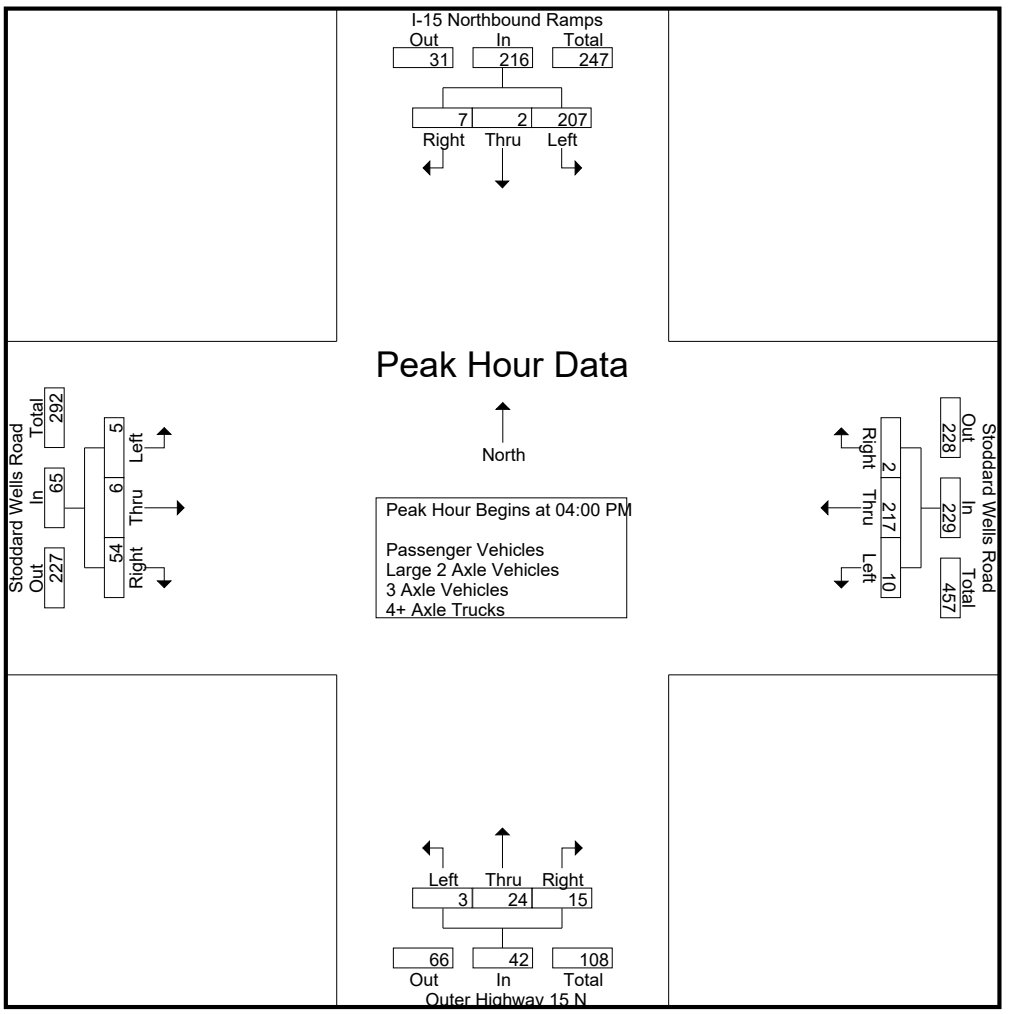
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	65	0	3	68	6	101	2	109	0	8	4	12	4	2	12	18	207
04:15 PM	85	1	2	88	2	56	0	58	1	7	6	14	1	1	16	18	178
04:30 PM	25	1	2	28	1	33	0	34	0	6	2	8	0	2	13	15	85
04:45 PM	32	0	0	32	1	27	0	28	2	3	3	8	0	1	13	14	82
Total	207	2	7	216	10	217	2	229	3	24	15	42	5	6	54	65	552
05:00 PM	25	0	1	26	1	33	0	34	0	9	0	9	1	2	15	18	87
05:15 PM	26	0	0	26	0	14	0	14	0	6	1	7	1	3	9	13	60
05:30 PM	15	0	3	18	2	23	1	26	0	4	1	5	1	0	10	11	60
05:45 PM	14	1	1	16	1	24	0	25	0	1	3	4	0	1	8	9	54
Total	80	1	5	86	4	94	1	99	0	20	5	25	3	6	42	51	261
Grand Total	287	3	12	302	14	311	3	328	3	44	20	67	8	12	96	116	813
Apprch %	95	1	4		4.3	94.8	0.9		4.5	65.7	29.9		6.9	10.3	82.8		
Total %	35.3	0.4	1.5	37.1	1.7	38.3	0.4	40.3	0.4	5.4	2.5	8.2	1	1.5	11.8	14.3	
Passenger Vehicles	258	3	12	273	14	296	3	313	3	44	19	66	8	10	96	114	766
% Passenger Vehicles	89.9	100	100	90.4	100	95.2	100	95.4	100	100	95	98.5	100	83.3	100	98.3	94.2
Large 2 Axle Vehicles	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
% Large 2 Axle Vehicles	0.3	0	0	0.3	0	0.3	0	0.3	0	0	0	0	0	8.3	0	0.9	0.4
3 Axle Vehicles	9	0	0	9	0	5	0	5	0	0	0	0	0	1	0	1	15
% 3 Axle Vehicles	3.1	0	0	3	0	1.6	0	1.5	0	0	0	0	0	8.3	0	0.9	1.8
4+ Axle Trucks	19	0	0	19	0	9	0	9	0	0	1	1	0	0	0	0	29
% 4+ Axle Trucks	6.6	0	0	6.3	0	2.9	0	2.7	0	0	5	1.5	0	0	0	0	3.6

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	65	0	**3**	68	**6**	**101**	**2**	**109**	0	**8**	4	12	**4**	**2**	12	**18**	**207**
04:15 PM	**85**	**1**	2	**88**	2	56	0	58	1	7	**6**	**14**	1	1	**16**	18	178
04:30 PM	25	1	2	28	1	33	0	34	0	6	2	8	0	2	13	15	85
04:45 PM	32	0	0	32	1	27	0	28	**2**	3	3	8	0	1	13	14	82
Total Volume	207	2	7	216	10	217	2	229	3	24	15	42	5	6	54	65	552
% App. Total	95.8	0.9	3.2		4.4	94.8	0.9		7.1	57.1	35.7		7.7	9.2	83.1		
PHF	.609	.500	.583	.614	.417	.537	.250	.525	.375	.750	.625	.750	.313	.750	.844	.903	.667

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	65	0	**3**	68	**6**	**101**	**2**	**109**	0	**8**	4	12	**4**	**2**	12	**18**
+15 mins.	**85**	**1**	2	**88**	2	56	0	58	1	7	**6**	**14**	1	1	**16**	18
+30 mins.	25	1	2	28	1	33	0	34	0	6	2	8	0	2	13	15
+45 mins.	32	0	0	32	1	27	0	28	**2**	3	3	8	0	1	13	14
Total Volume	207	2	7	216	10	217	2	229	3	24	15	42	5	6	54	65
% App. Total	95.8	0.9	3.2		4.4	94.8	0.9		7.1	57.1	35.7		7.7	9.2	83.1	
PHF	.609	.500	.583	.614	.417	.537	.250	.525	.375	.750	.625	.750	.313	.750	.844	.903

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

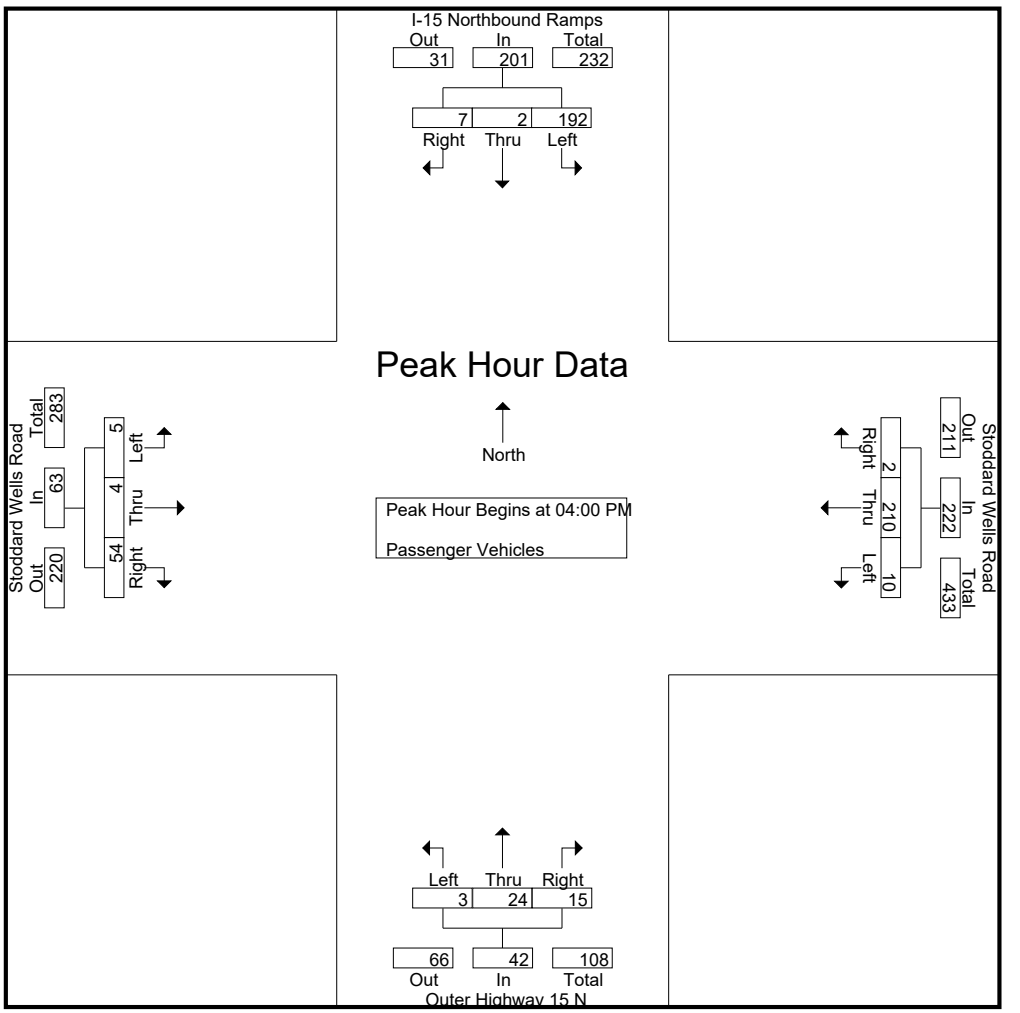
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	60	0	3	63	6	101	2	109	0	8	4	12	4	1	12	17	201
04:15 PM	84	1	2	87	2	51	0	53	1	7	6	14	1	0	16	17	171
04:30 PM	22	1	2	25	1	32	0	33	0	6	2	8	0	2	13	15	81
04:45 PM	26	0	0	26	1	26	0	27	2	3	3	8	0	1	13	14	75
Total	192	2	7	201	10	210	2	222	3	24	15	42	5	4	54	63	528
05:00 PM	22	0	1	23	1	33	0	34	0	9	0	9	1	2	15	18	84
05:15 PM	22	0	0	22	0	13	0	13	0	6	1	7	1	3	9	13	55
05:30 PM	13	0	3	16	2	19	1	22	0	4	0	4	1	0	10	11	53
05:45 PM	9	1	1	11	1	21	0	22	0	1	3	4	0	1	8	9	46
Total	66	1	5	72	4	86	1	91	0	20	4	24	3	6	42	51	238
Grand Total	258	3	12	273	14	296	3	313	3	44	19	66	8	10	96	114	766
Apprch %	94.5	1.1	4.4		4.5	94.6	1		4.5	66.7	28.8		7	8.8	84.2		
Total %	33.7	0.4	1.6	35.6	1.8	38.6	0.4	40.9	0.4	5.7	2.5	8.6	1	1.3	12.5	14.9	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	60	0	**3**	63	**6**	**101**	**2**	**109**	0	**8**	4	12	**4**	1	12	**17**	**201**
04:15 PM	**84**	**1**	2	**87**	2	51	0	53	1	7	**6**	**14**	1	0	**16**	17	171
04:30 PM	22	1	2	25	1	32	0	33	0	6	2	8	0	**2**	13	15	81
04:45 PM	26	0	0	26	1	26	0	27	**2**	3	3	8	0	1	13	14	75
Total Volume	192	2	7	201	10	210	2	222	3	24	15	42	5	4	54	63	528
% App. Total	95.5	1	3.5		4.5	94.6	0.9		7.1	57.1	35.7		7.9	6.3	85.7		
PHF	.571	.500	.583	.578	.417	.520	.250	.509	.375	.750	.625	.750	.313	.500	.844	.926	.657

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	60	0	**3**	63	**6**	**101**	**2**	**109**	0	**8**	4	12	**4**	1	12	**17**
+15 mins.	**84**	**1**	2	**87**	2	51	0	53	1	7	**6**	**14**	1	0	**16**	17
+30 mins.	22	1	2	25	1	32	0	33	0	6	2	8	0	**2**	13	15
+45 mins.	26	0	0	26	1	26	0	27	**2**	3	3	8	0	1	13	14
Total Volume	192	2	7	201	10	210	2	222	3	24	15	42	5	4	54	63
% App. Total	95.5	1	3.5		4.5	94.6	0.9		7.1	57.1	35.7		7.9	6.3	85.7	
PHF	.571	.500	.583	.578	.417	.520	.250	.509	.375	.750	.625	.750	.313	.500	.844	.926

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

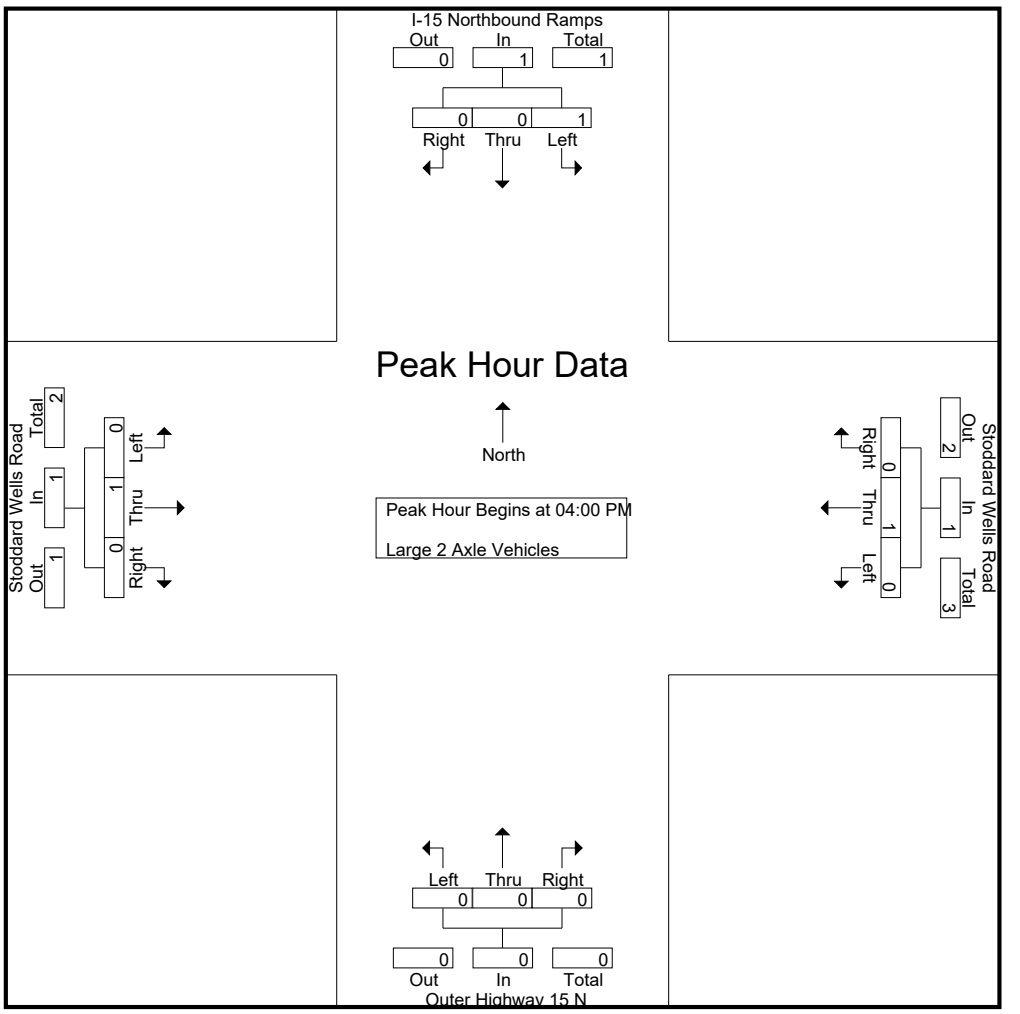
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Apprch %	100	0	0		0	100	0		0	0	0		0	100	0		
Total %	33.3	0	0	33.3	0	33.3	0	33.3	0	0	0	0	0	33.3	0	33.3	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0	
PHF	.250	.000	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

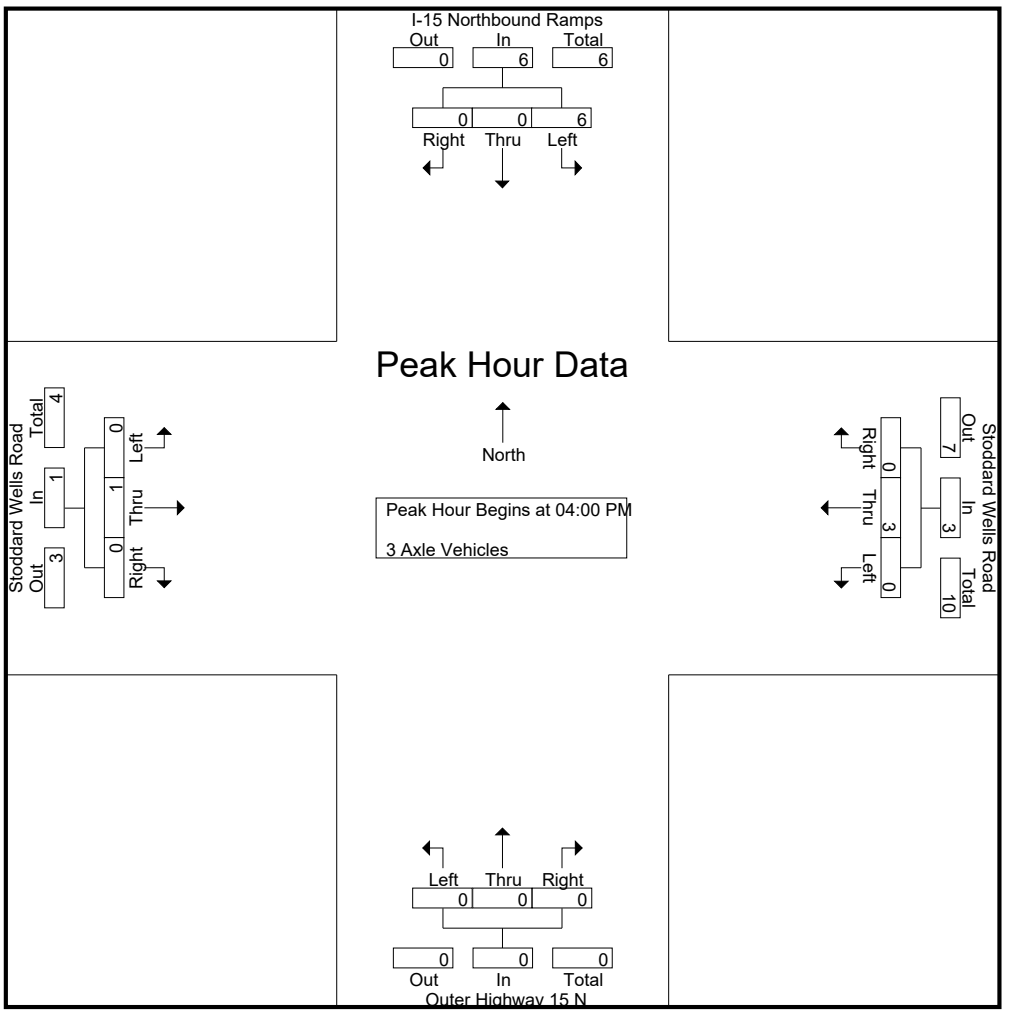
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	1	0	0	1	0	3	0	3	0	0	0	0	0	0	0	0	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	6	0	0	6	0	3	0	3	0	0	0	0	0	1	0	1	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	2	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
Total	3	0	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
Grand Total	9	0	0	9	0	5	0	5	0	0	0	0	0	1	0	1	15
Apprch %	100	0	0		0	100	0		0	0	0		0	100	0		
Total %	60	0	0	60	0	33.3	0	33.3	0	0	0	0	0	6.7	0	6.7	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
04:15 PM	1	0	0	1	0	**3**	0	**3**	0	0	0	0	0	0	0	0	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	**5**	0	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Total Volume	6	0	0	6	0	3	0	3	0	0	0	0	0	1	0	1	10
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.300	.000	.000	.300	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	1	0	0	1	0	**3**	0	**3**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	**5**	0	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	6	0	0	6	0	3	0	3	0	0	0	0	0	1	0	1
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0	
PHF	.300	.000	.000	.300	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

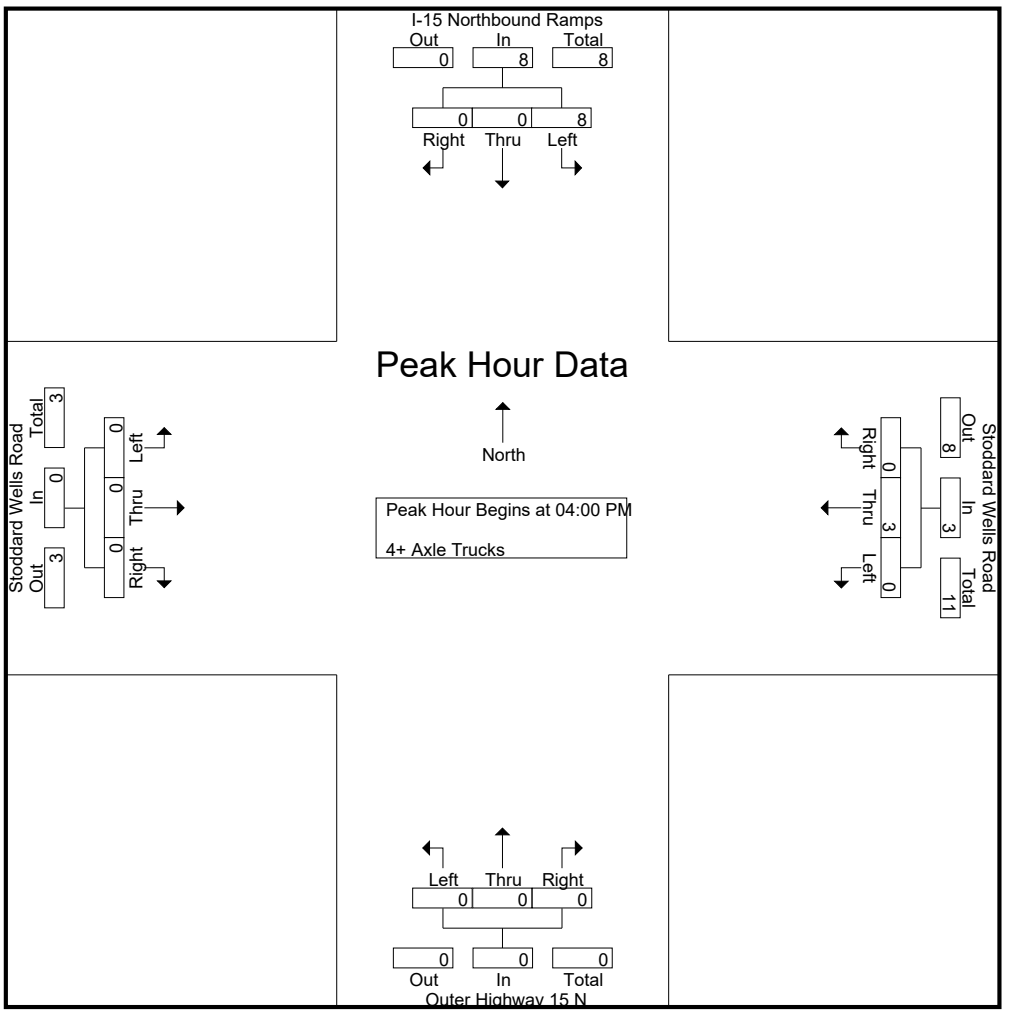
	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	3	0	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
04:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total	8	0	0	8	0	3	0	3	0	0	0	0	0	0	0	0	11
05:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
05:15 PM	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
05:30 PM	1	0	0	1	0	4	0	4	0	0	1	1	0	0	0	0	6
05:45 PM	3	0	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
Total	11	0	0	11	0	6	0	6	0	0	1	1	0	0	0	0	18
Grand Total	19	0	0	19	0	9	0	9	0	0	1	1	0	0	0	0	29
Apprch %	100	0	0		0	100	0		0	0	100		0	0	0		
Total %	65.5	0	0	65.5	0	31	0	31	0	0	3.4	3.4	0	0	0	0	

	I-15 Northbound Ramps Southbound				Stoddard Wells Road Westbound				Outer Highway 15 N Northbound				Stoddard Wells Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	**4**
04:15 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
04:30 PM	3	0	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
04:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	8	0	0	8	0	3	0	3	0	0	0	0	0	0	0	0	11
% App. Total	100	0	0		0	100	0		0	0	0		0	0	0		
PHF	.500	.000	.000	.500	.000	.750	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.688

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: I-15 NB Ramps/ Outer Hwy 15 N
E/W: Stoddard Wells Road
Weather: Clear

File Name : 04_APV_15N_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**4**	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	3	0	0	3	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
Total Volume	8	0	0	8	0	3	0	3	0	0	0	0	0	0	0	0
% App. Total	100	0	0		0	100	0		0	0	0		0	0	0	
PHF	.500	.000	.000	.500	.000	.750	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

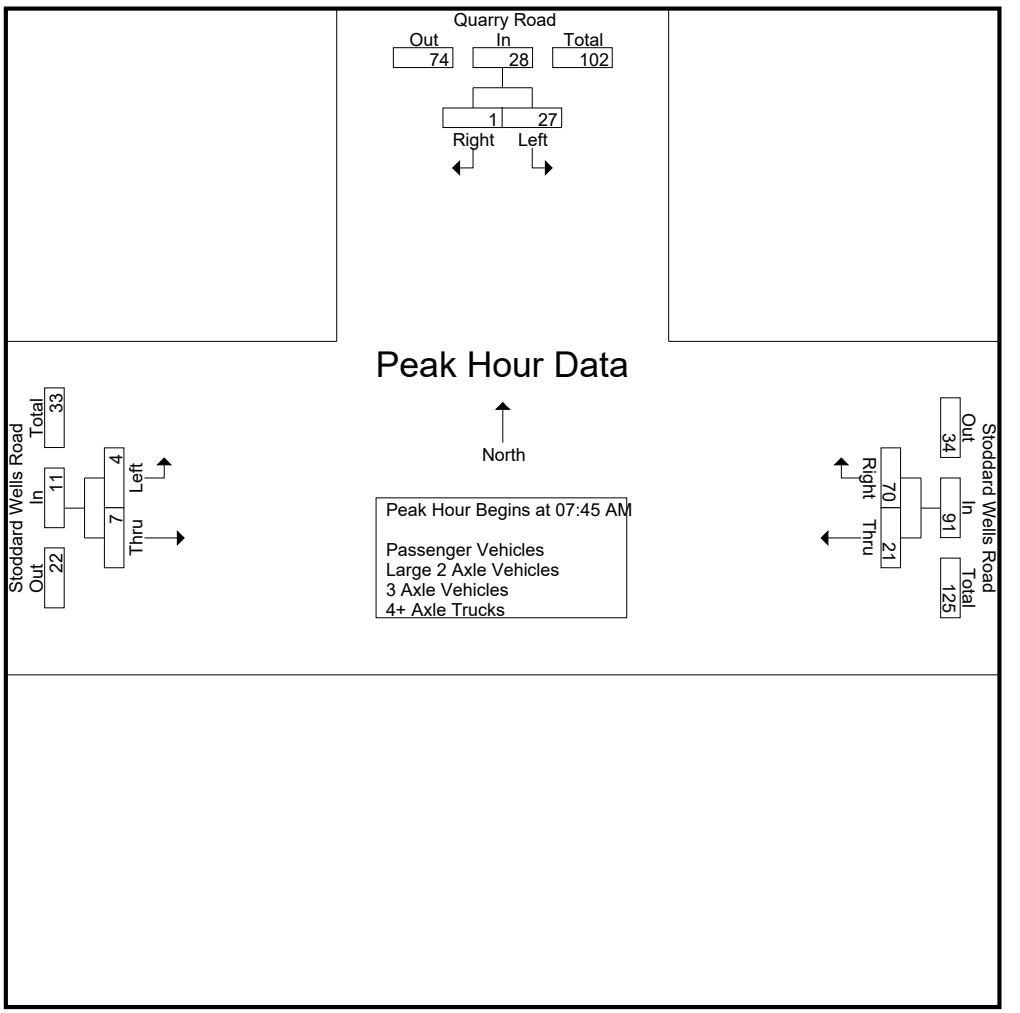
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	1	2	7	15	22	0	2	2	26
07:15 AM	6	1	7	1	18	19	0	0	0	26
07:30 AM	5	0	5	5	14	19	0	1	1	25
07:45 AM	8	0	8	9	24	33	0	1	1	42
Total	20	2	22	22	71	93	0	4	4	119
08:00 AM	5	0	5	7	17	24	0	2	2	31
08:15 AM	6	1	7	3	12	15	0	3	3	25
08:30 AM	8	0	8	2	17	19	4	1	5	32
08:45 AM	10	0	10	3	11	14	0	2	2	26
Total	29	1	30	15	57	72	4	8	12	114
Grand Total	49	3	52	37	128	165	4	12	16	233
Apprch %	94.2	5.8		22.4	77.6		25	75		
Total %	21	1.3	22.3	15.9	54.9	70.8	1.7	5.2	6.9	
Passenger Vehicles	46	2	48	33	70	103	3	8	11	162
% Passenger Vehicles	93.9	66.7	92.3	89.2	54.7	62.4	75	66.7	68.8	69.5
Large 2 Axle Vehicles	0	0	0	2	0	2	0	1	1	3
% Large 2 Axle Vehicles	0	0	0	5.4	0	1.2	0	8.3	6.2	1.3
3 Axle Vehicles	1	1	2	2	10	12	1	3	4	18
% 3 Axle Vehicles	2	33.3	3.8	5.4	7.8	7.3	25	25	25	7.7
4+ Axle Trucks	2	0	2	0	48	48	0	0	0	50
% 4+ Axle Trucks	4.1	0	3.8	0	37.5	29.1	0	0	0	21.5

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**8**	0	**8**	**9**	**24**	**33**	0	1	1	**42**
08:00 AM	5	0	5	7	17	24	0	2	2	31
08:15 AM	6	**1**	7	3	12	15	0	**3**	3	25
08:30 AM	8	0	8	2	17	19	**4**	1	**5**	32
Total Volume	27	1	28	21	70	91	4	7	11	130
% App. Total	96.4	3.6		23.1	76.9		36.4	63.6		
PHF	.844	.250	.875	.583	.729	.689	.250	.583	.550	.774

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:15 AM			08:00 AM		
+0 mins.	5	0	5	1	18	19	0	2	2
+15 mins.	6	**1**	7	5	14	19	0	**3**	3
+30 mins.	8	0	8	**9**	**24**	**33**	**4**	1	**5**
+45 mins.	**10**	0	**10**	7	17	24	0	2	2
Total Volume	29	1	30	22	73	95	4	8	12
% App. Total	96.7	3.3		23.2	76.8		33.3	66.7	
PHF	.725	.250	.750	.611	.760	.720	.250	.667	.600

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

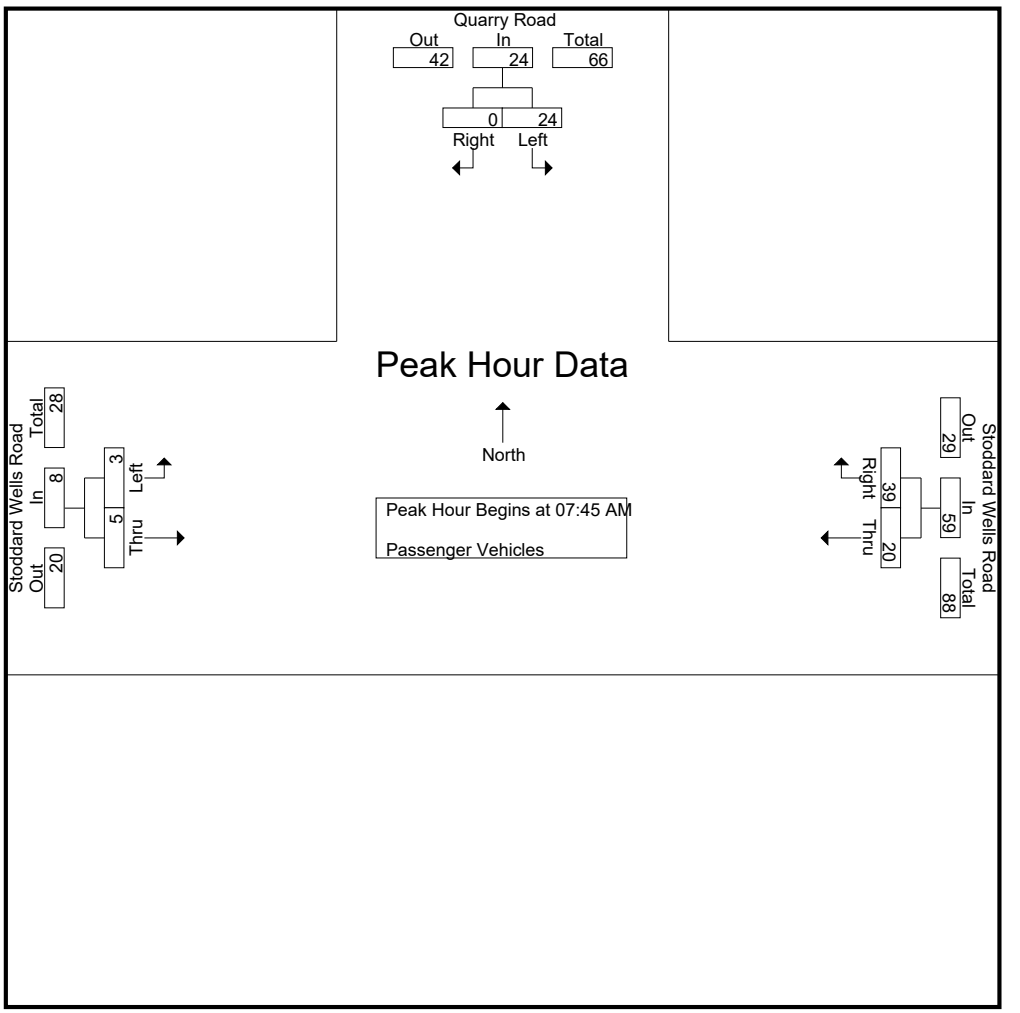
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	1	2	6	10	16	0	2	2	20
07:15 AM	6	1	7	1	10	11	0	0	0	18
07:30 AM	5	0	5	4	9	13	0	1	1	19
07:45 AM	7	0	7	9	17	26	0	1	1	34
Total	19	2	21	20	46	66	0	4	4	91
08:00 AM	3	0	3	7	10	17	0	1	1	21
08:15 AM	6	0	6	2	5	7	0	2	2	15
08:30 AM	8	0	8	2	7	9	3	1	4	21
08:45 AM	10	0	10	2	2	4	0	0	0	14
Total	27	0	27	13	24	37	3	4	7	71
Grand Total	46	2	48	33	70	103	3	8	11	162
Apprch %	95.8	4.2		32	68		27.3	72.7		
Total %	28.4	1.2	29.6	20.4	43.2	63.6	1.9	4.9	6.8	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	7	0	7	**9**	**17**	**26**	0	1	1	**34**
08:00 AM	3	0	3	7	10	17	0	1	1	21
08:15 AM	6	0	6	2	5	7	0	**2**	2	15
08:30 AM	**8**	0	**8**	2	7	9	**3**	1	**4**	21
Total Volume	24	0	24	20	39	59	3	5	8	91
% App. Total	100	0		33.9	66.1		37.5	62.5		
PHF	.750	.000	.750	.556	.574	.567	.250	.625	.500	.669

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	7	0	7	**9**	**17**	**26**	0	1	1
+15 mins.	3	0	3	7	10	17	0	1	1
+30 mins.	6	0	6	2	5	7	0	**2**	2
+45 mins.	**8**	0	**8**	2	7	9	**3**	1	**4**
Total Volume	24	0	24	20	39	59	3	5	8
% App. Total	100	0		33.9	66.1		37.5	62.5	
PHF	.750	.000	.750	.556	.574	.567	.250	.625	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

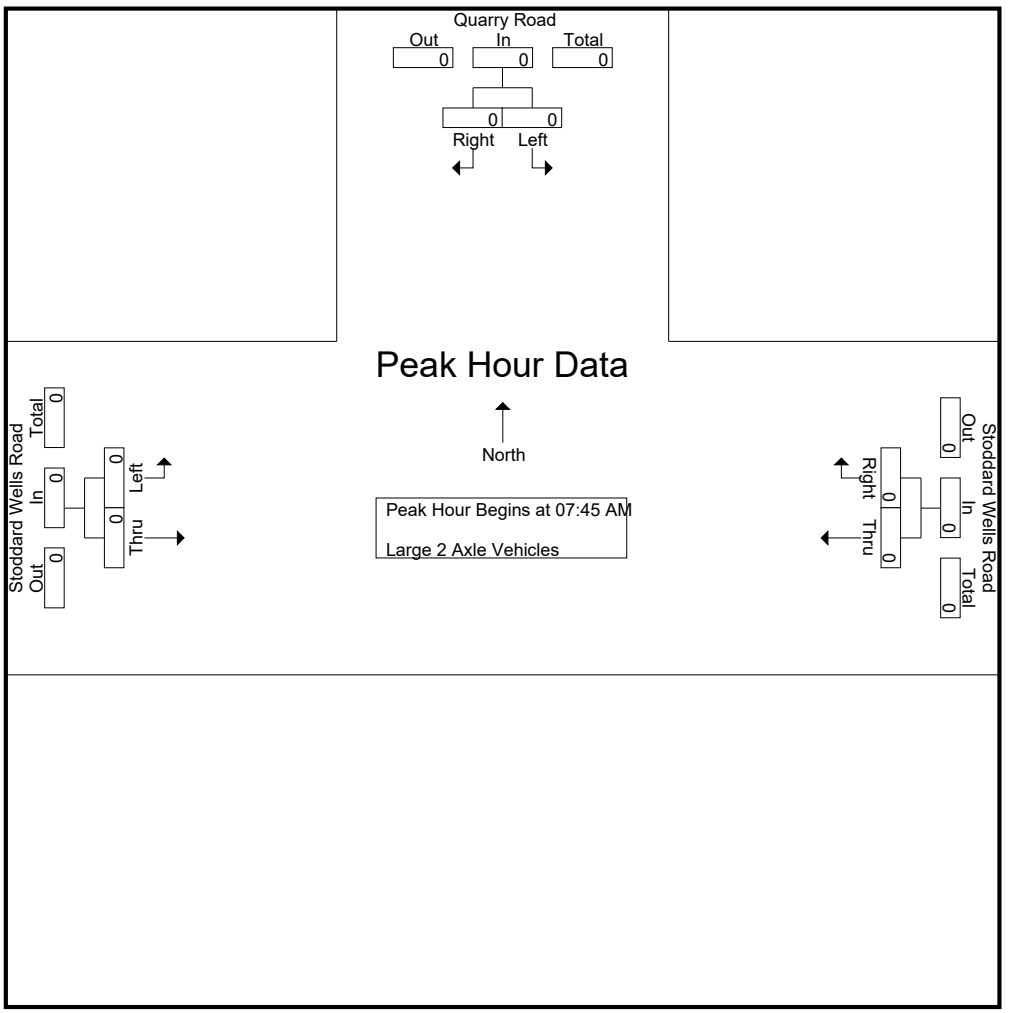
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	1	0	1	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	1	0	1	0	1	1	2
Total	0	0	0	1	0	1	0	1	1	2
Grand Total	0	0	0	2	0	2	0	1	1	3
Apprch %	0	0		100	0		0	100		
Total %	0	0	0	66.7	0	66.7	0	33.3	33.3	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023

Groups Printed- 3 Axle Vehicles

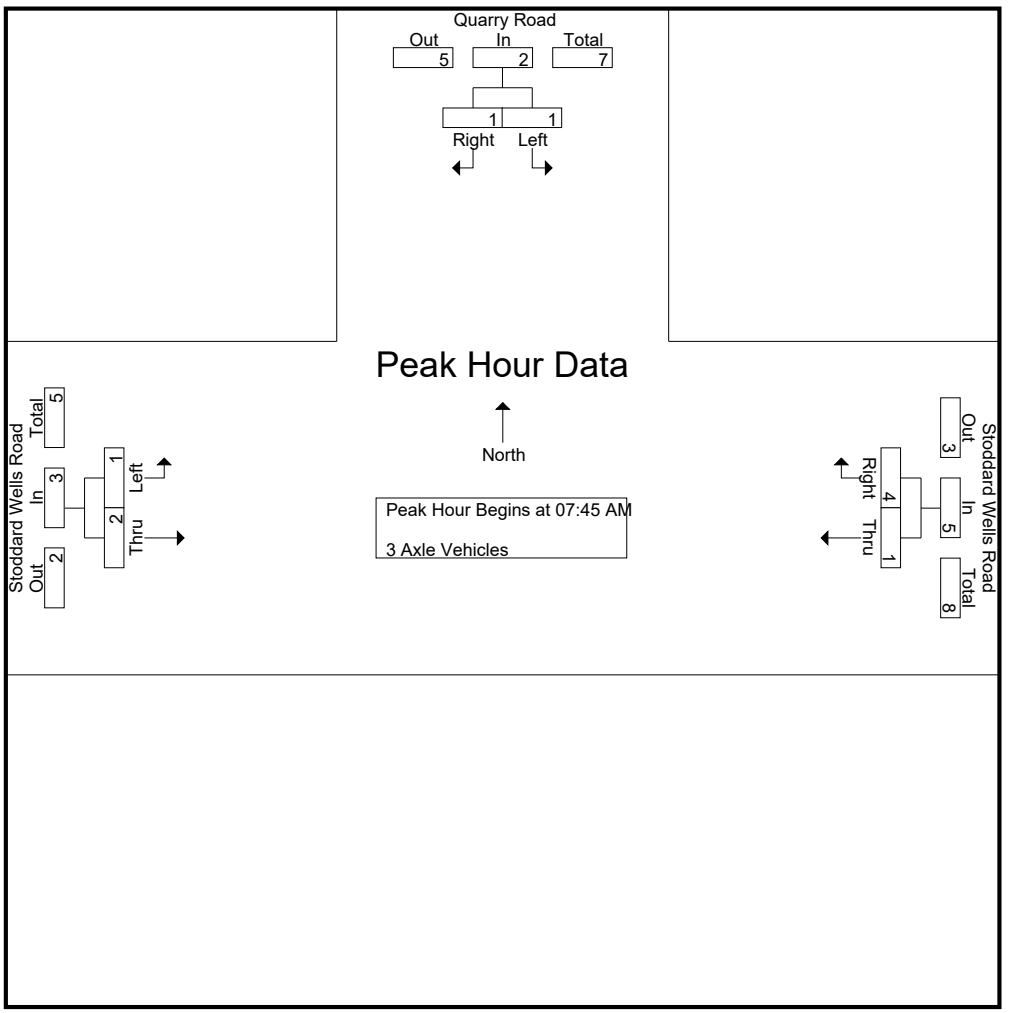
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	1	1	2	0	0	0	2
07:15 AM	0	0	0	0	2	2	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	1	0	0	0	0	0	0	1
Total	1	0	1	1	3	4	0	0	0	5
08:00 AM	0	0	0	0	1	1	0	1	1	2
08:15 AM	0	1	1	1	2	3	0	1	1	5
08:30 AM	0	0	0	0	1	1	1	0	1	2
08:45 AM	0	0	0	0	3	3	0	1	1	4
Total	0	1	1	1	7	8	1	3	4	13
Grand Total	1	1	2	2	10	12	1	3	4	18
Apprch %	50	50		16.7	83.3		25	75		
Total %	5.6	5.6	11.1	11.1	55.6	66.7	5.6	16.7	22.2	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**1**	0	**1**	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	1	1	0	**1**	**1**	2
08:15 AM	0	**1**	1	**1**	**2**	**3**	0	1	1	**5**
08:30 AM	0	0	0	0	1	1	**1**	0	1	2
Total Volume	1	1	2	1	4	5	1	2	3	10
% App. Total	50	50		20	80		33.3	66.7		
PHF	.250	.250	.500	.250	.500	.417	.250	.500	.750	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	**1**	0	**1**	0	0	0	0	0	0
+15 mins.	0	0	0	0	1	1	0	**1**	**1**
+30 mins.	0	**1**	1	**1**	**2**	**3**	0	1	1
+45 mins.	0	0	0	0	1	1	**1**	0	1
Total Volume	1	1	2	1	4	5	1	2	3
% App. Total	50	50		20	80		33.3	66.7	
PHF	.250	.250	.500	.250	.500	.417	.250	.500	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

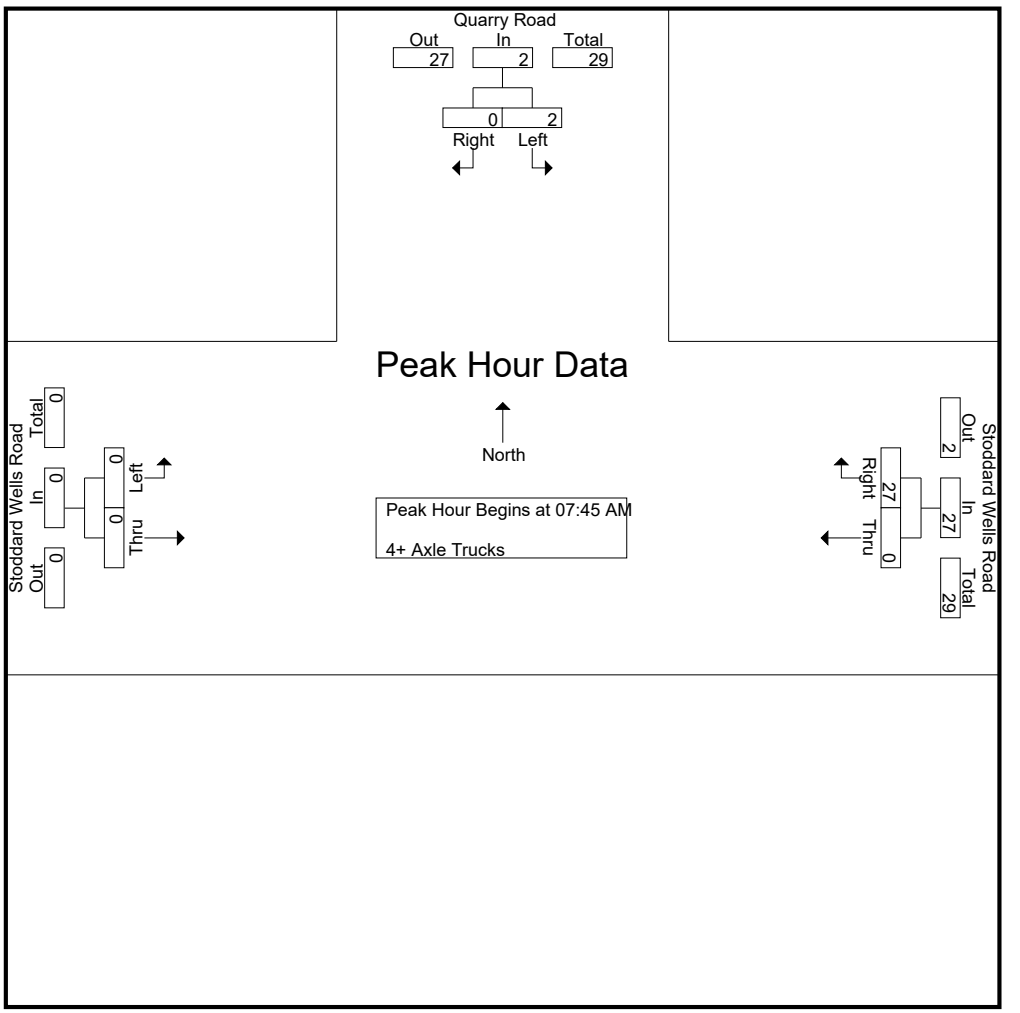
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	0	4	4	0	0	0	4
07:15 AM	0	0	0	0	6	6	0	0	0	6
07:30 AM	0	0	0	0	5	5	0	0	0	5
07:45 AM	0	0	0	0	7	7	0	0	0	7
Total	0	0	0	0	22	22	0	0	0	22
08:00 AM	2	0	2	0	6	6	0	0	0	8
08:15 AM	0	0	0	0	5	5	0	0	0	5
08:30 AM	0	0	0	0	9	9	0	0	0	9
08:45 AM	0	0	0	0	6	6	0	0	0	6
Total	2	0	2	0	26	26	0	0	0	28
Grand Total	2	0	2	0	48	48	0	0	0	50
Apprch %	100	0		0	100		0	0		
Total %	4	0	4	0	96	96	0	0	0	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	0	7	7	0	0	0	7
08:00 AM	**2**	0	**2**	0	6	6	0	0	0	8
08:15 AM	0	0	0	0	5	5	0	0	0	5
08:30 AM	0	0	0	0	**9**	**9**	0	0	0	**9**
Total Volume	2	0	2	0	27	27	0	0	0	29
% App. Total	100	0		0	100		0	0		
PHF	.250	.000	.250	.000	.750	.750	.000	.000	.000	.806

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	0	7	7	0	0	0
+15 mins.	**2**	0	**2**	0	6	6	0	0	0
+30 mins.	0	0	0	0	5	5	0	0	0
+45 mins.	0	0	0	0	**9**	**9**	0	0	0
Total Volume	2	0	2	0	27	27	0	0	0
% App. Total	100	0		0	100		0	0	
PHF	.250	.000	.250	.000	.750	.750	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

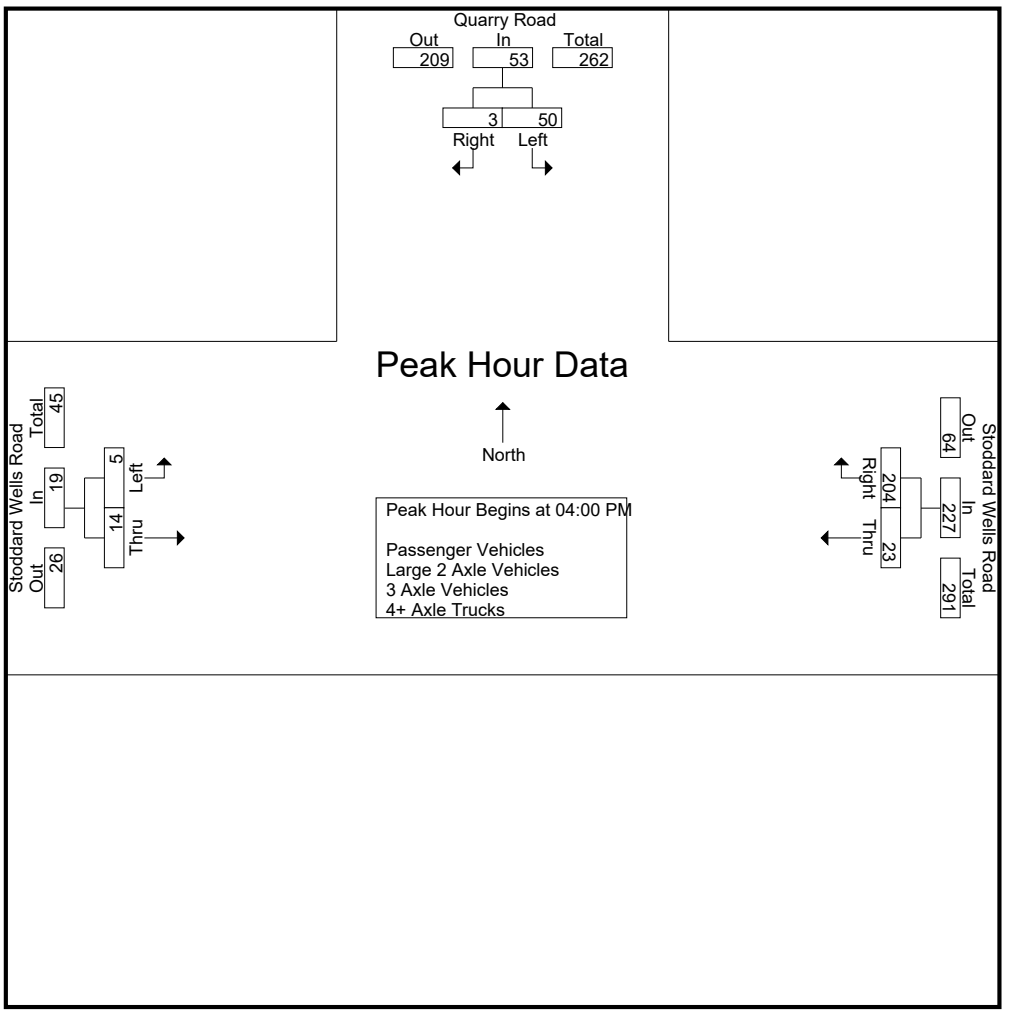
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	10	0	10	5	99	104	2	7	9	123
04:15 PM	17	0	17	7	52	59	0	1	1	77
04:30 PM	13	1	14	5	29	34	2	2	4	52
04:45 PM	10	2	12	6	24	30	1	4	5	47
Total	50	3	53	23	204	227	5	14	19	299
05:00 PM	13	0	13	2	33	35	4	5	9	57
05:15 PM	12	2	14	0	15	15	0	3	3	32
05:30 PM	11	1	12	1	23	24	0	1	1	37
05:45 PM	7	0	7	0	25	25	2	1	3	35
Total	43	3	46	3	96	99	6	10	16	161
Grand Total	93	6	99	26	300	326	11	24	35	460
Apprch %	93.9	6.1		8	92		31.4	68.6		
Total %	20.2	1.3	21.5	5.7	65.2	70.9	2.4	5.2	7.6	
Passenger Vehicles	92	6	98	23	288	311	11	23	34	443
% Passenger Vehicles	98.9	100	99	88.5	96	95.4	100	95.8	97.1	96.3
Large 2 Axle Vehicles	0	0	0	0	2	2	0	0	0	2
% Large 2 Axle Vehicles	0	0	0	0	0.7	0.6	0	0	0	0.4
3 Axle Vehicles	1	0	1	3	1	4	0	1	1	6
% 3 Axle Vehicles	1.1	0	1	11.5	0.3	1.2	0	4.2	2.9	1.3
4+ Axle Trucks	0	0	0	0	9	9	0	0	0	9
% 4+ Axle Trucks	0	0	0	0	3	2.8	0	0	0	2

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	10	0	10	5	**99**	**104**	**2**	**7**	**9**	**123**
04:15 PM	**17**	0	**17**	**7**	52	59	0	1	1	77
04:30 PM	13	1	14	5	29	34	2	2	4	52
04:45 PM	10	**2**	12	6	24	30	1	4	5	47
Total Volume	50	3	53	23	204	227	5	14	19	299
% App. Total	94.3	5.7		10.1	89.9		26.3	73.7		
PHF	.735	.375	.779	.821	.515	.546	.625	.500	.528	.608

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:30 PM		
+0 mins.	**17**	0	**17**	5	**99**	**104**	2	2	4
+15 mins.	13	1	14	**7**	52	59	1	4	5
+30 mins.	10	**2**	12	5	29	34	**4**	**5**	**9**
+45 mins.	13	0	13	6	24	30	0	3	3
Total Volume	53	3	56	23	204	227	7	14	21
% App. Total	94.6	5.4		10.1	89.9		33.3	66.7	
PHF	.779	.375	.824	.821	.515	.546	.438	.700	.583

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

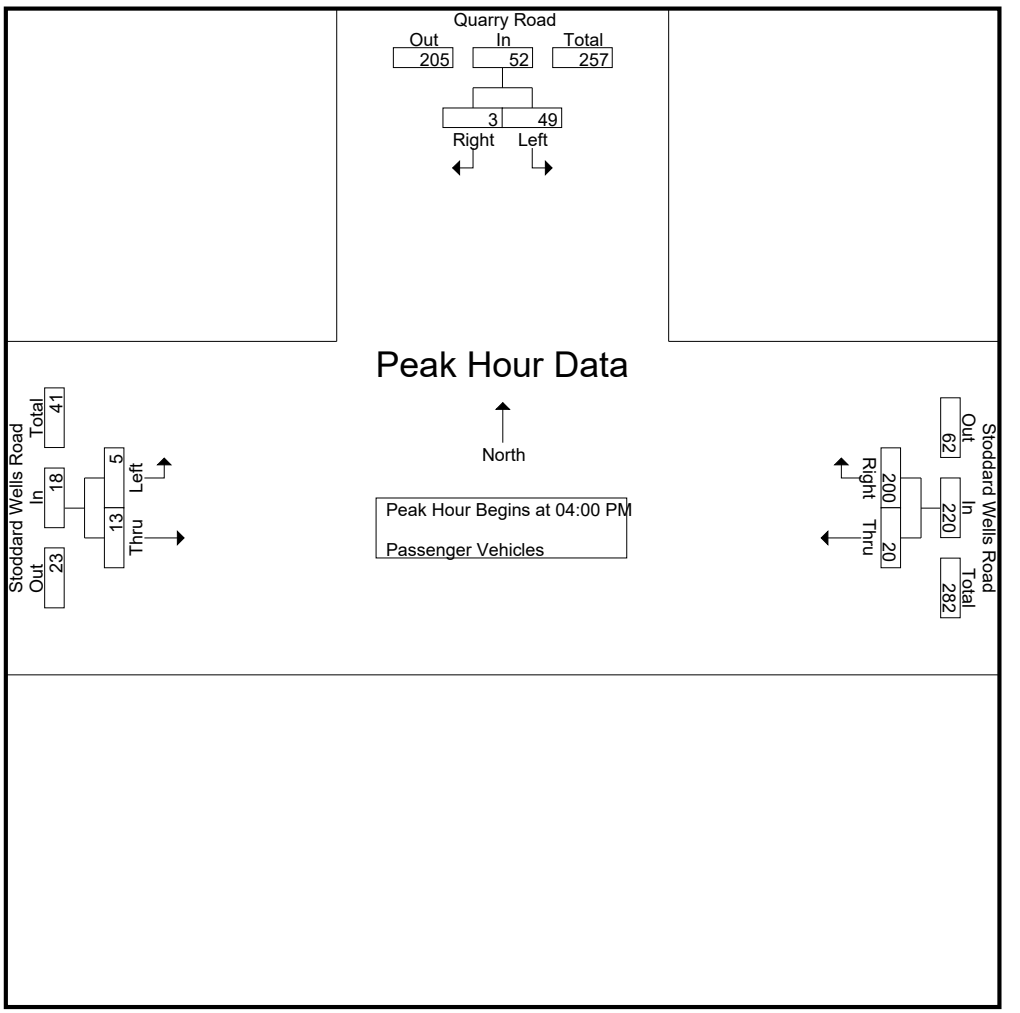
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	10	0	10	5	99	104	2	6	8	122
04:15 PM	16	0	16	4	50	54	0	1	1	71
04:30 PM	13	1	14	5	28	33	2	2	4	51
04:45 PM	10	2	12	6	23	29	1	4	5	46
Total	49	3	52	20	200	220	5	13	18	290
05:00 PM	13	0	13	2	33	35	4	5	9	57
05:15 PM	12	2	14	0	14	14	0	3	3	31
05:30 PM	11	1	12	1	19	20	0	1	1	33
05:45 PM	7	0	7	0	22	22	2	1	3	32
Total	43	3	46	3	88	91	6	10	16	153
Grand Total	92	6	98	23	288	311	11	23	34	443
Apprch %	93.9	6.1		7.4	92.6		32.4	67.6		
Total %	20.8	1.4	22.1	5.2	65	70.2	2.5	5.2	7.7	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	10	0	10	5	**99**	**104**	**2**	**6**	**8**	**122**
04:15 PM	**16**	0	**16**	4	50	54	0	1	1	71
04:30 PM	13	1	14	5	28	33	2	2	4	51
04:45 PM	10	**2**	12	**6**	23	29	1	4	5	46
Total Volume	49	3	52	20	200	220	5	13	18	290
% App. Total	94.2	5.8		9.1	90.9		27.8	72.2		
PHF	.766	.375	.813	.833	.505	.529	.625	.542	.563	.594

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	10	0	10	5	**99**	**104**	**2**	**6**	**8**
+15 mins.	**16**	0	**16**	4	50	54	0	1	1
+30 mins.	13	1	14	5	28	33	2	2	4
+45 mins.	10	**2**	12	**6**	23	29	1	4	5
Total Volume	49	3	52	20	200	220	5	13	18
% App. Total	94.2	5.8		9.1	90.9		27.8	72.2	
PHF	.766	.375	.813	.833	.505	.529	.625	.542	.563

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

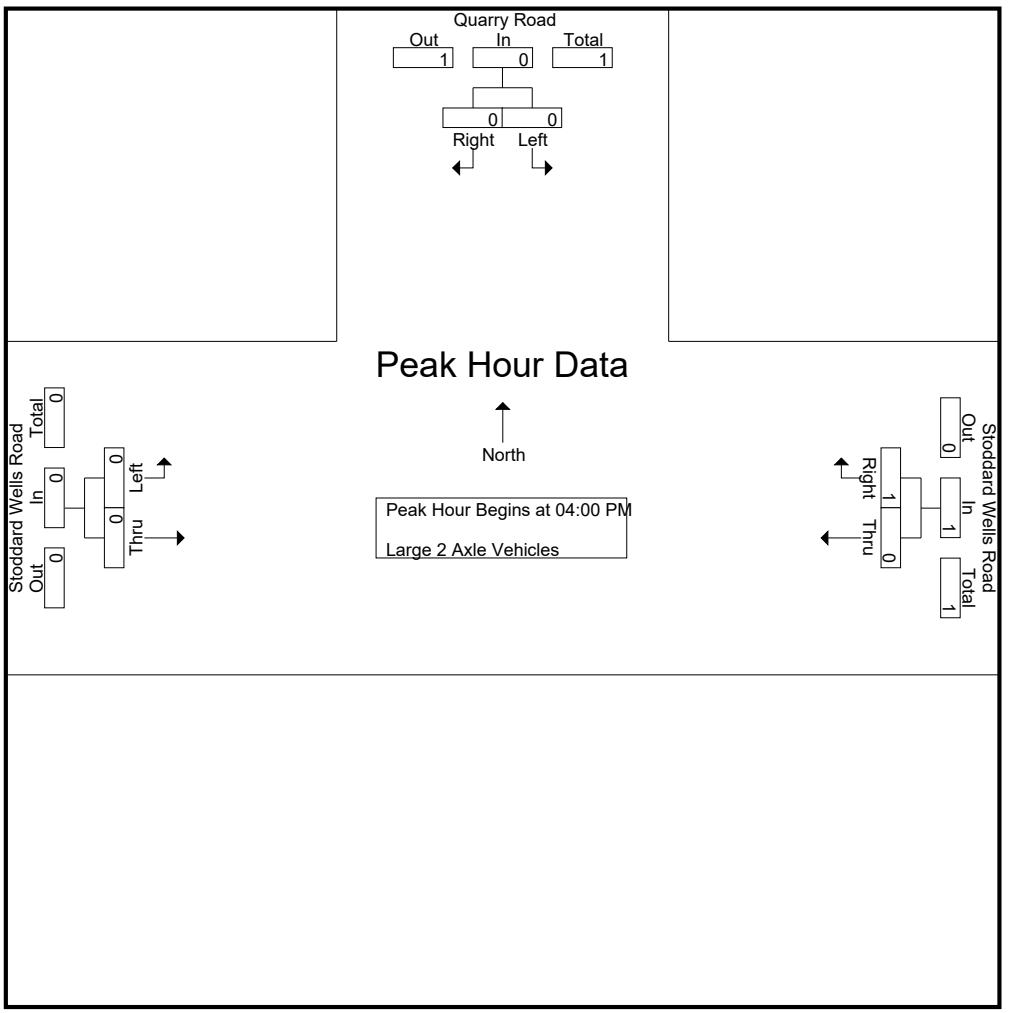
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	1	1	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	1	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	0	1
Grand Total	0	0	0	0	2	2	0	0	0	2
Apprch %	0	0		0	100		0	0		
Total %	0	0	0	0	100	100	0	0	0	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	**1**	**1**	0	0	0	**1**
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	0	0	1
% App. Total	0	0		0	100		0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	**1**	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	0	0
% App. Total	0	0		0	100		0	0	
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

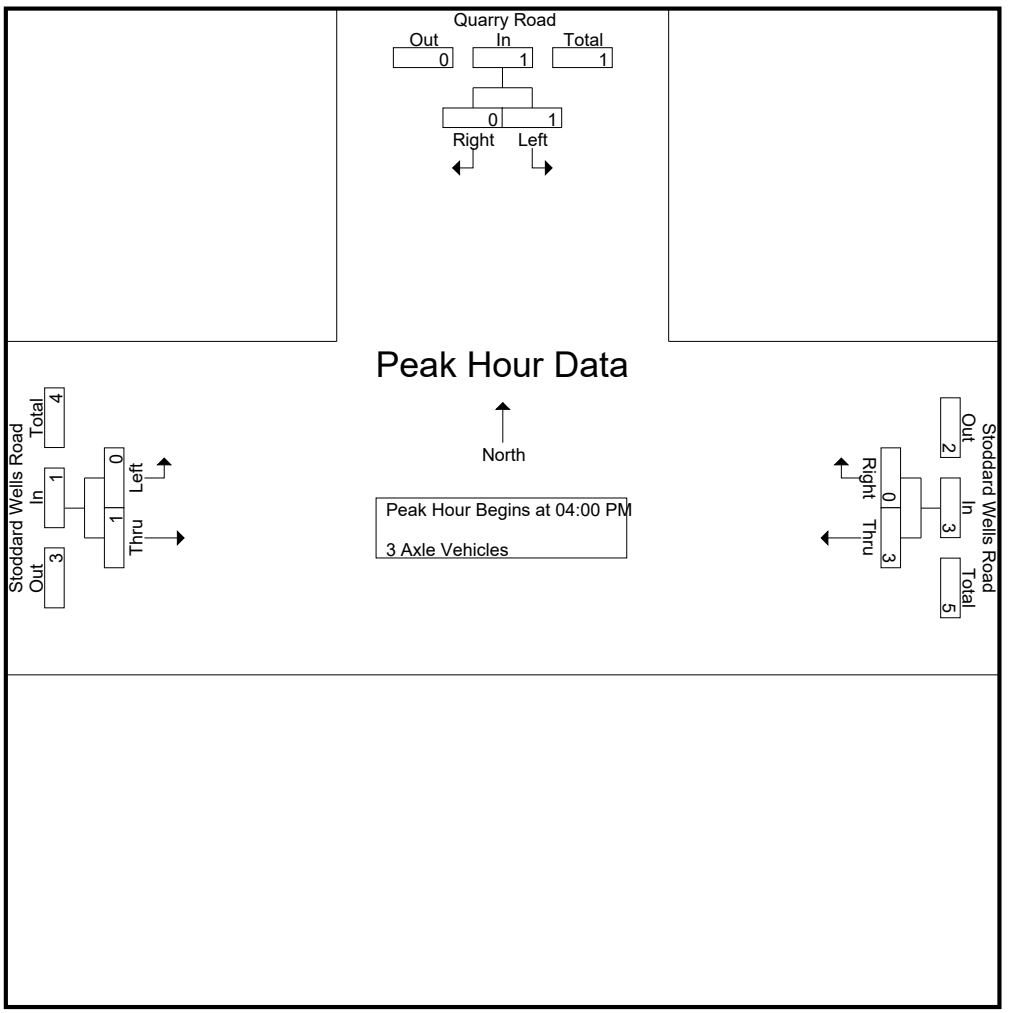
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	1	1
04:15 PM	1	0	1	3	0	3	0	0	0	4
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	1	0	1	3	0	3	0	1	1	5
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	1	1	0	0	0	1
Total	0	0	0	0	1	1	0	0	0	1
Grand Total	1	0	1	3	1	4	0	1	1	6
Apprch %	100	0		75	25		0	100		
Total %	16.7	0	16.7	50	16.7	66.7	0	16.7	16.7	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	**1**	**1**	1
04:15 PM	**1**	0	**1**	**3**	0	**3**	0	0	0	**4**
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	1	3	0	3	0	1	1	5
% App. Total	100	0		100	0		0	100		
PHF	.250	.000	.250	.250	.000	.250	.000	.250	.250	.313

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	**1**	**1**
+15 mins.	**1**	0	**1**	**3**	0	**3**	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	1	0	1	3	0	3	0	1	1
% App. Total	100	0		100	0		0	100	
PHF	.250	.000	.250	.250	.000	.250	.000	.250	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

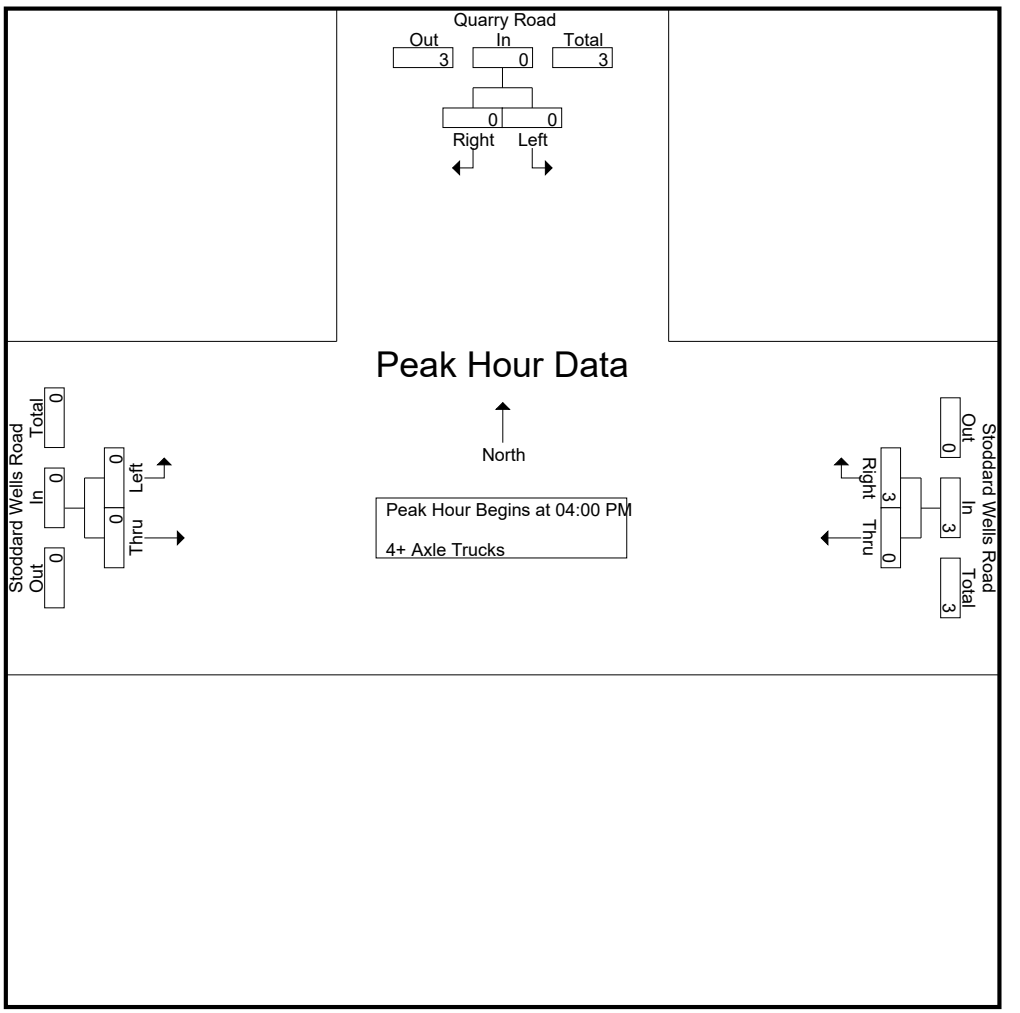
	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	1	1	0	0	0	1
04:30 PM	0	0	0	0	1	1	0	0	0	1
04:45 PM	0	0	0	0	1	1	0	0	0	1
Total	0	0	0	0	3	3	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	4	4	0	0	0	4
05:45 PM	0	0	0	0	2	2	0	0	0	2
Total	0	0	0	0	6	6	0	0	0	6
Grand Total	0	0	0	0	9	9	0	0	0	9
Apprch %	0	0		0	100		0	0		
Total %	0	0	0	0	100	100	0	0	0	

	Quarry Road Southbound			Stoddard Wells Road Westbound			Stoddard Wells Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	**1**	**1**	0	0	0	**1**
04:30 PM	0	0	0	0	1	1	0	0	0	1
04:45 PM	0	0	0	0	1	1	0	0	0	1
Total Volume	0	0	0	0	3	3	0	0	0	3
% App. Total	0	0		0	100		0	0		
PHF	.000	.000	.000	.000	.750	.750	.000	.000	.000	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: Stoddard Wells Road
Weather: Clear

File Name : 05_APV_Qua_SW PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	**1**	0	0	0
+30 mins.	0	0	0	0	1	1	0	0	0
+45 mins.	0	0	0	0	1	1	0	0	0
Total Volume	0	0	0	0	3	3	0	0	0
% App. Total	0	0		0	100		0	0	
PHF	.000	.000	.000	.000	.750	.750	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

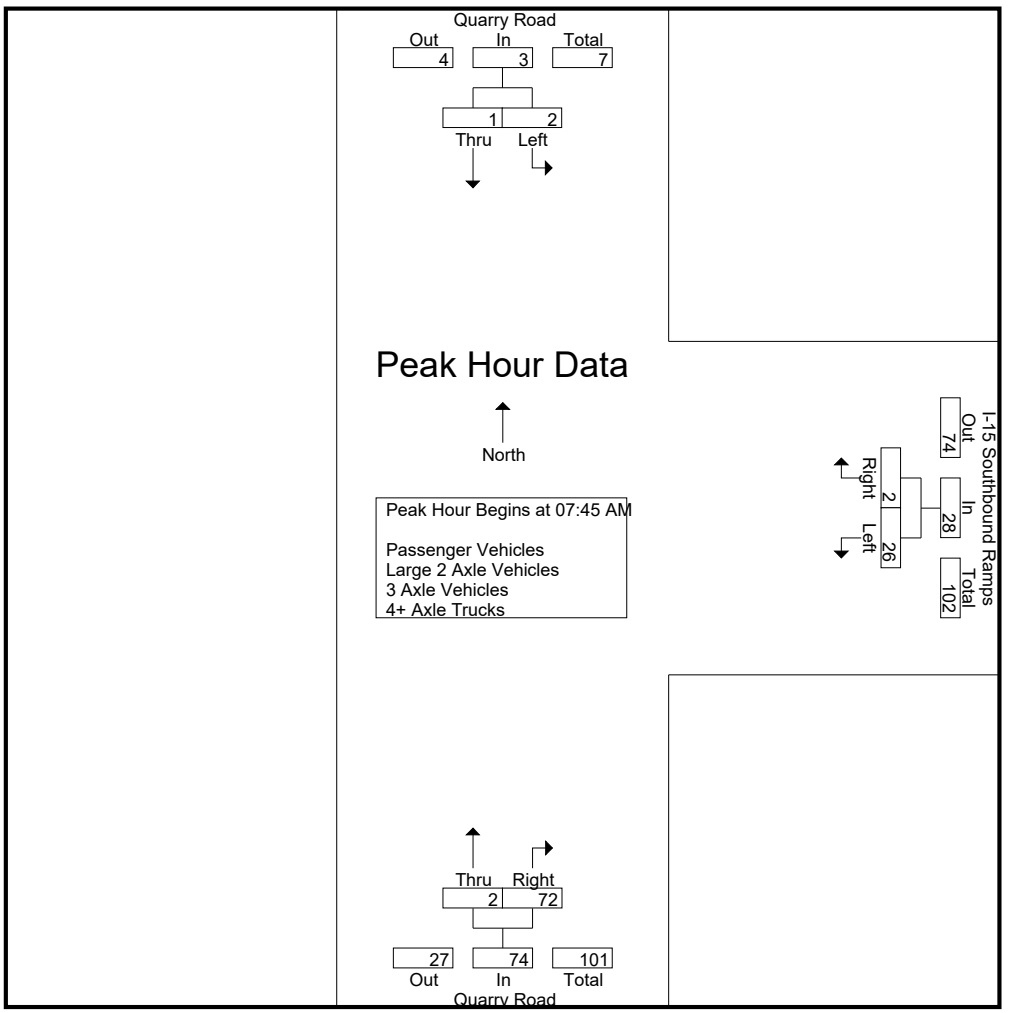
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	3	0	3	0	14	14	17
07:15 AM	0	0	0	6	0	6	0	20	20	26
07:30 AM	0	0	0	6	0	6	0	11	11	17
07:45 AM	0	0	0	7	0	7	0	25	25	32
Total	0	0	0	22	0	22	0	70	70	92
08:00 AM	1	0	1	5	0	5	1	17	18	24
08:15 AM	0	0	0	7	0	7	0	13	13	20
08:30 AM	1	1	2	7	2	9	1	17	18	29
08:45 AM	0	0	0	10	0	10	0	14	14	24
Total	2	1	3	29	2	31	2	61	63	97
Grand Total	2	1	3	51	2	53	2	131	133	189
Apprch %	66.7	33.3		96.2	3.8		1.5	98.5		
Total %	1.1	0.5	1.6	27	1.1	28	1.1	69.3	70.4	
Passenger Vehicles	1	1	2	47	2	49	2	71	73	124
% Passenger Vehicles	50	100	66.7	92.2	100	92.5	100	54.2	54.9	65.6
Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
% Large 2 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
3 Axle Vehicles	0	0	0	1	0	1	0	6	6	7
% 3 Axle Vehicles	0	0	0	2	0	1.9	0	4.6	4.5	3.7
4+ Axle Trucks	1	0	1	3	0	3	0	54	54	58
% 4+ Axle Trucks	50	0	33.3	5.9	0	5.7	0	41.2	40.6	30.7

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	**7**	0	7	0	**25**	**25**	**32**
08:00 AM	**1**	0	1	5	0	5	**1**	17	18	24
08:15 AM	0	0	0	7	0	7	0	13	13	20
08:30 AM	1	**1**	**2**	7	**2**	**9**	1	17	18	29
Total Volume	2	1	3	26	2	28	2	72	74	105
% App. Total	66.7	33.3		92.9	7.1		2.7	97.3		
PHF	.500	.250	.375	.929	.250	.778	.500	.720	.740	.820

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			08:00 AM			07:15 AM		
+0 mins.	0	0	0	5	0	5	0	20	20
+15 mins.	**1**	0	1	7	0	7	0	11	11
+30 mins.	0	0	0	7	**2**	9	0	**25**	**25**
+45 mins.	1	**1**	**2**	**10**	0	**10**	**1**	17	18
Total Volume	2	1	3	29	2	31	1	73	74
% App. Total	66.7	33.3		93.5	6.5		1.4	98.6	
PHF	.500	.250	.375	.725	.250	.775	.250	.730	.740

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

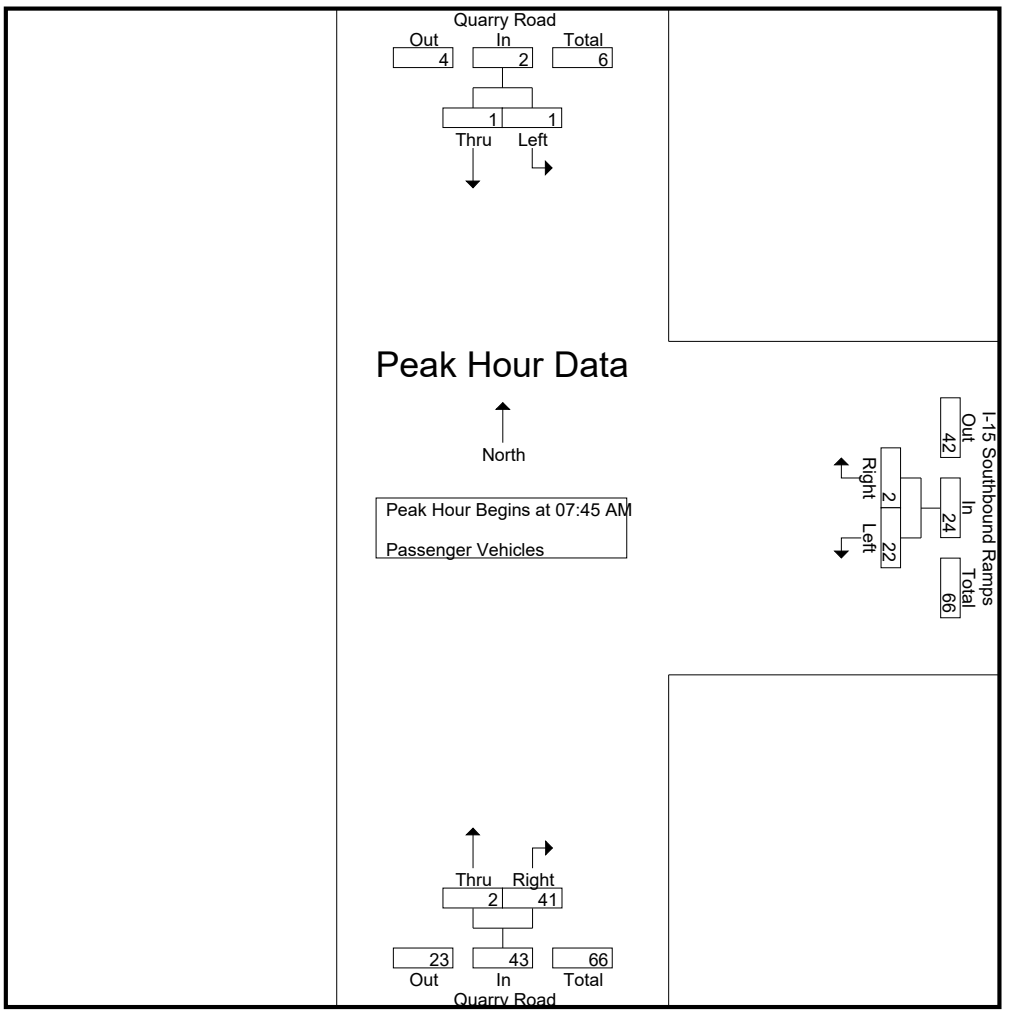
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	3	0	3	0	8	8	11
07:15 AM	0	0	0	6	0	6	0	12	12	18
07:30 AM	0	0	0	6	0	6	0	7	7	13
07:45 AM	0	0	0	6	0	6	0	18	18	24
Total	0	0	0	21	0	21	0	45	45	66
08:00 AM	0	0	0	3	0	3	1	10	11	14
08:15 AM	0	0	0	6	0	6	0	5	5	11
08:30 AM	1	1	2	7	2	9	1	8	9	20
08:45 AM	0	0	0	10	0	10	0	3	3	13
Total	1	1	2	26	2	28	2	26	28	58
Grand Total	1	1	2	47	2	49	2	71	73	124
Apprch %	50	50		95.9	4.1		2.7	97.3		
Total %	0.8	0.8	1.6	37.9	1.6	39.5	1.6	57.3	58.9	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	6	0	6	0	**18**	**18**	**24**
08:00 AM	0	0	0	3	0	3	**1**	10	11	14
08:15 AM	0	0	0	6	0	6	0	5	5	11
08:30 AM	**1**	**1**	**2**	**7**	**2**	**9**	1	8	9	20
Total Volume	1	1	2	22	2	24	2	41	43	69
% App. Total	50	50		91.7	8.3		4.7	95.3		
PHF	.250	.250	.250	.786	.250	.667	.500	.569	.597	.719

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	6	0	6	0	**18**	**18**
+15 mins.	0	0	0	3	0	3	**1**	10	11
+30 mins.	0	0	0	6	0	6	0	5	5
+45 mins.	**1**	**1**	**2**	**7**	**2**	**9**	1	8	9
Total Volume	1	1	2	22	2	24	2	41	43
% App. Total	50	50		91.7	8.3		4.7	95.3	
PHF	.250	.250	.250	.786	.250	.667	.500	.569	.597

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

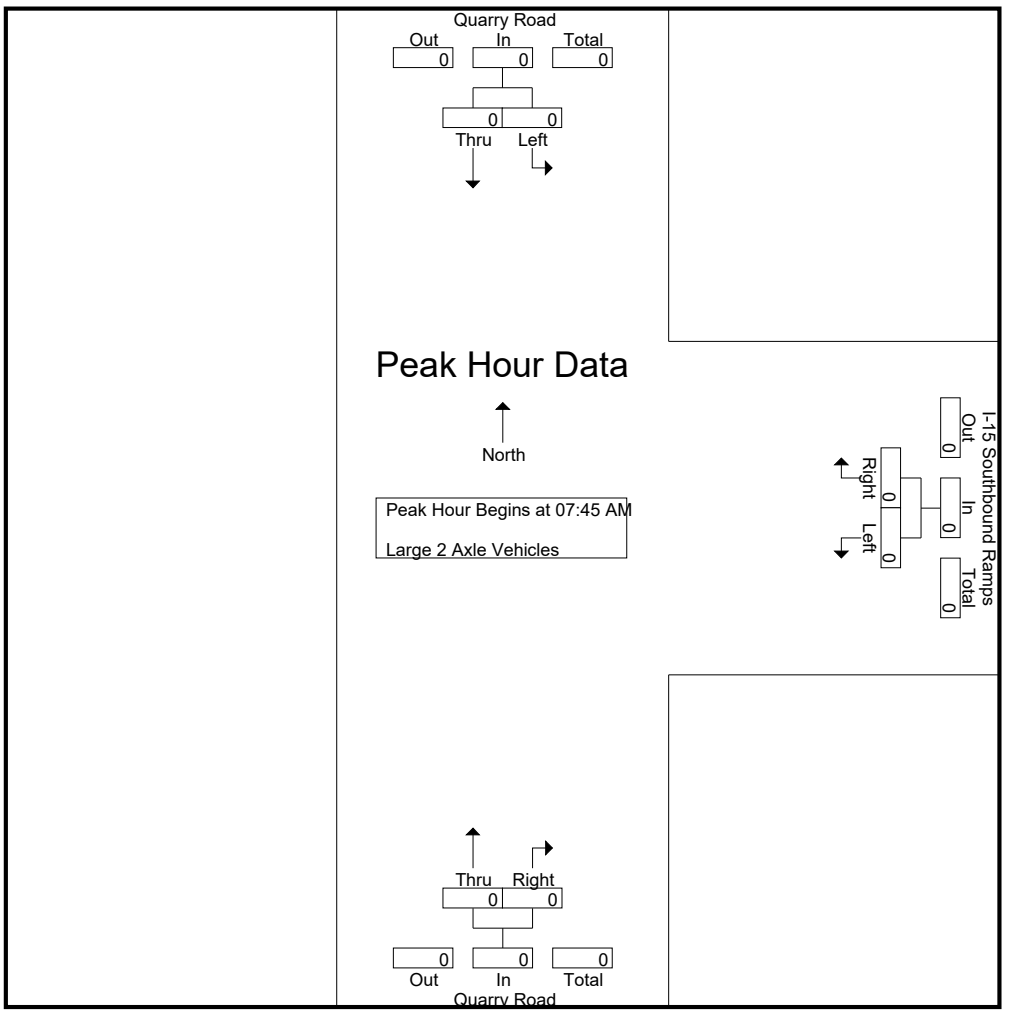
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

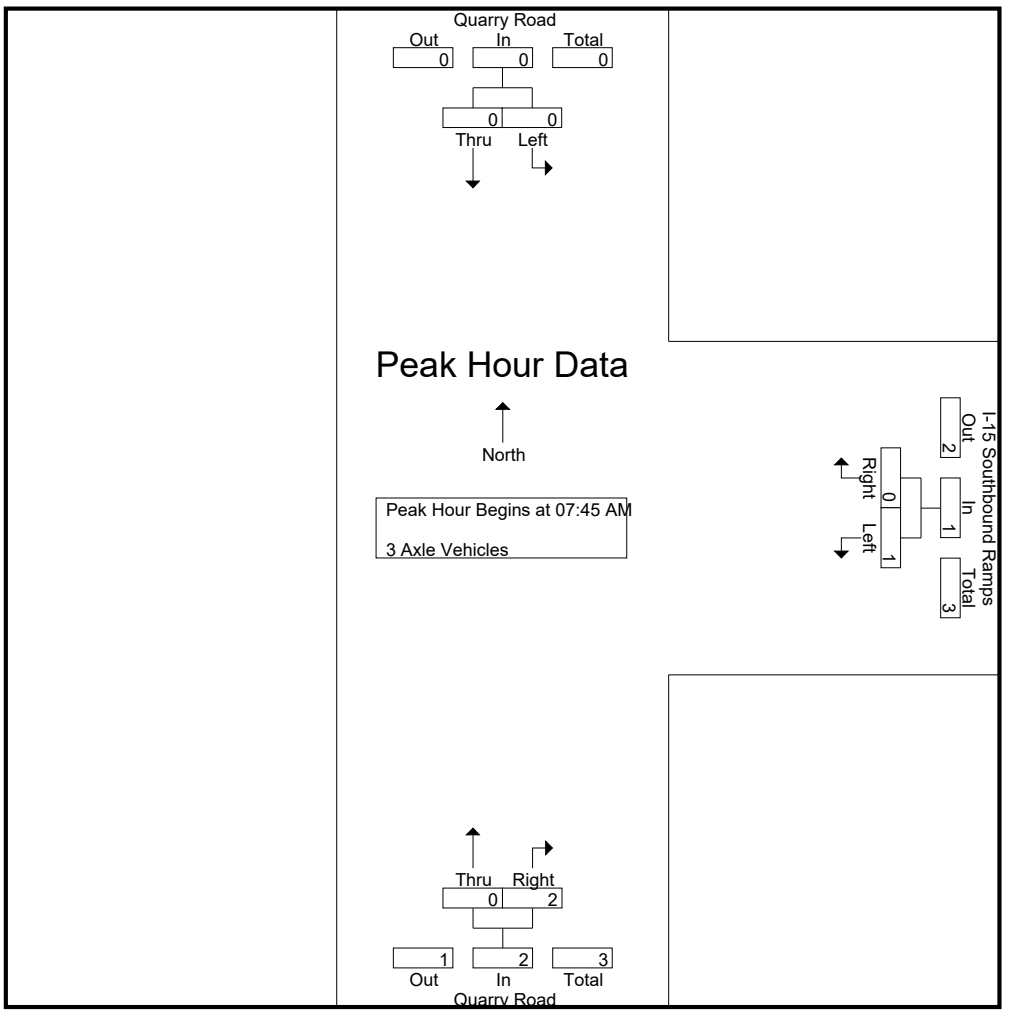
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	2	2	2
07:15 AM	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	3	3	3
08:00 AM	0	0	0	0	0	0	0	1	1	1
08:15 AM	0	0	0	1	0	1	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	1	1	1
08:45 AM	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	1	0	1	0	3	3	4
Grand Total	0	0	0	1	0	1	0	6	6	7
Apprch %	0	0		100	0		0	100		
Total %	0	0	0	14.3	0	14.3	0	85.7	85.7	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	**1**	**1**	**1**
08:15 AM	0	0	0	**1**	0	**1**	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	1	0	1	0	2	2	3
% App. Total	0	0		100	0		0	100		
PHF	.000	.000	.000	.250	.000	.250	.000	.500	.500	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	**1**	**1**
+30 mins.	0	0	0	**1**	0	**1**	0	0	0
+45 mins.	0	0	0	0	0	0	0	1	1
Total Volume	0	0	0	1	0	1	0	2	2
% App. Total	0	0		100	0		0	100	
PHF	.000	.000	.000	.250	.000	.250	.000	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

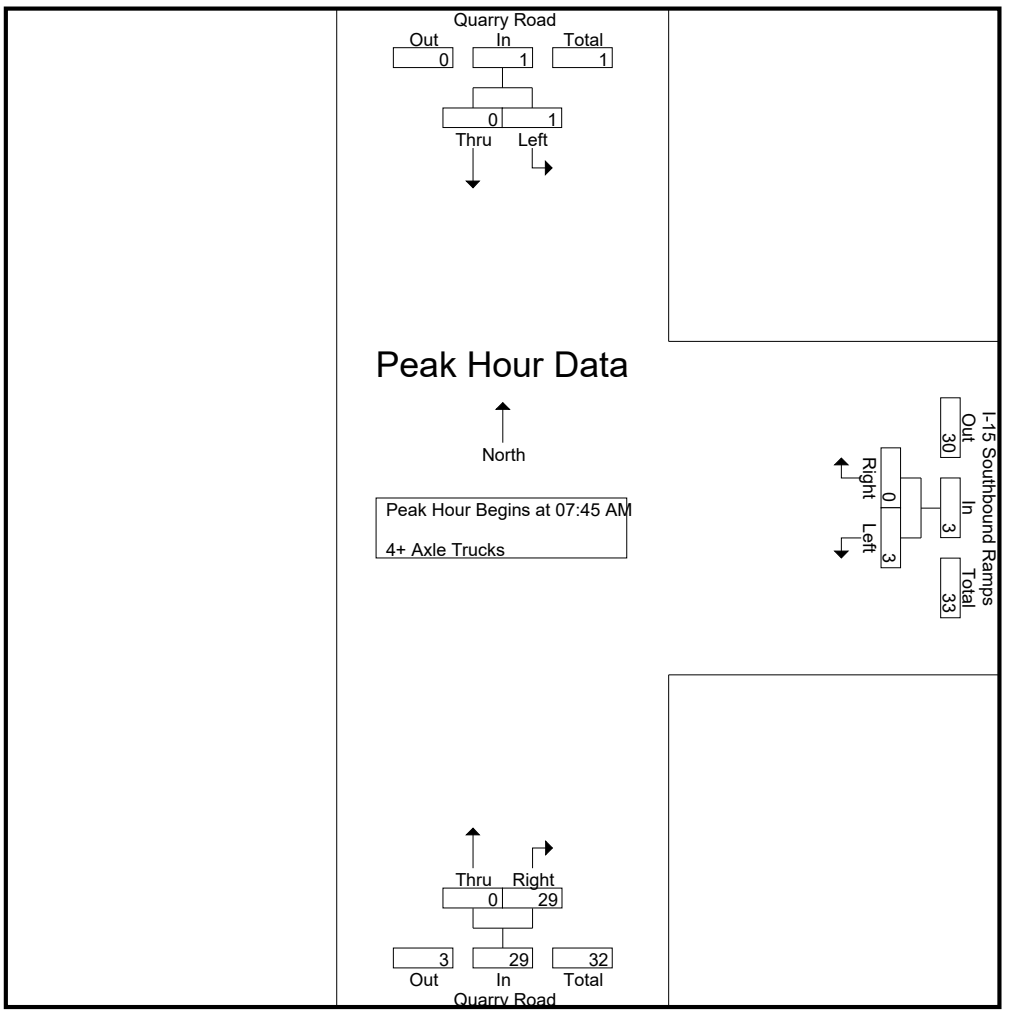
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	4	4	4
07:15 AM	0	0	0	0	0	0	0	7	7	7
07:30 AM	0	0	0	0	0	0	0	4	4	4
07:45 AM	0	0	0	1	0	1	0	7	7	8
Total	0	0	0	1	0	1	0	22	22	23
08:00 AM	1	0	1	2	0	2	0	6	6	9
08:15 AM	0	0	0	0	0	0	0	8	8	8
08:30 AM	0	0	0	0	0	0	0	8	8	8
08:45 AM	0	0	0	0	0	0	0	10	10	10
Total	1	0	1	2	0	2	0	32	32	35
Grand Total	1	0	1	3	0	3	0	54	54	58
Apprch %	100	0		100	0		0	100		
Total %	1.7	0	1.7	5.2	0	5.2	0	93.1	93.1	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	1	0	1	0	7	7	8
08:00 AM	**1**	0	**1**	**2**	0	**2**	0	6	6	**9**
08:15 AM	0	0	0	0	0	0	0	**8**	**8**	8
08:30 AM	0	0	0	0	0	0	0	8	8	8
Total Volume	1	0	1	3	0	3	0	29	29	33
% App. Total	100	0		100	0		0	100		
PHF	.250	.000	.250	.375	.000	.375	.000	.906	.906	.917

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15SAM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	0	0	0	1	0	1	0	7	7
+15 mins.	**1**	0	**1**	**2**	0	**2**	0	6	6
+30 mins.	0	0	0	0	0	0	0	**8**	**8**
+45 mins.	0	0	0	0	0	0	0	8	8
Total Volume	1	0	1	3	0	3	0	29	29
% App. Total	100	0		100	0		0	100	
PHF	.250	.000	.250	.375	.000	.375	.000	.906	.906

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

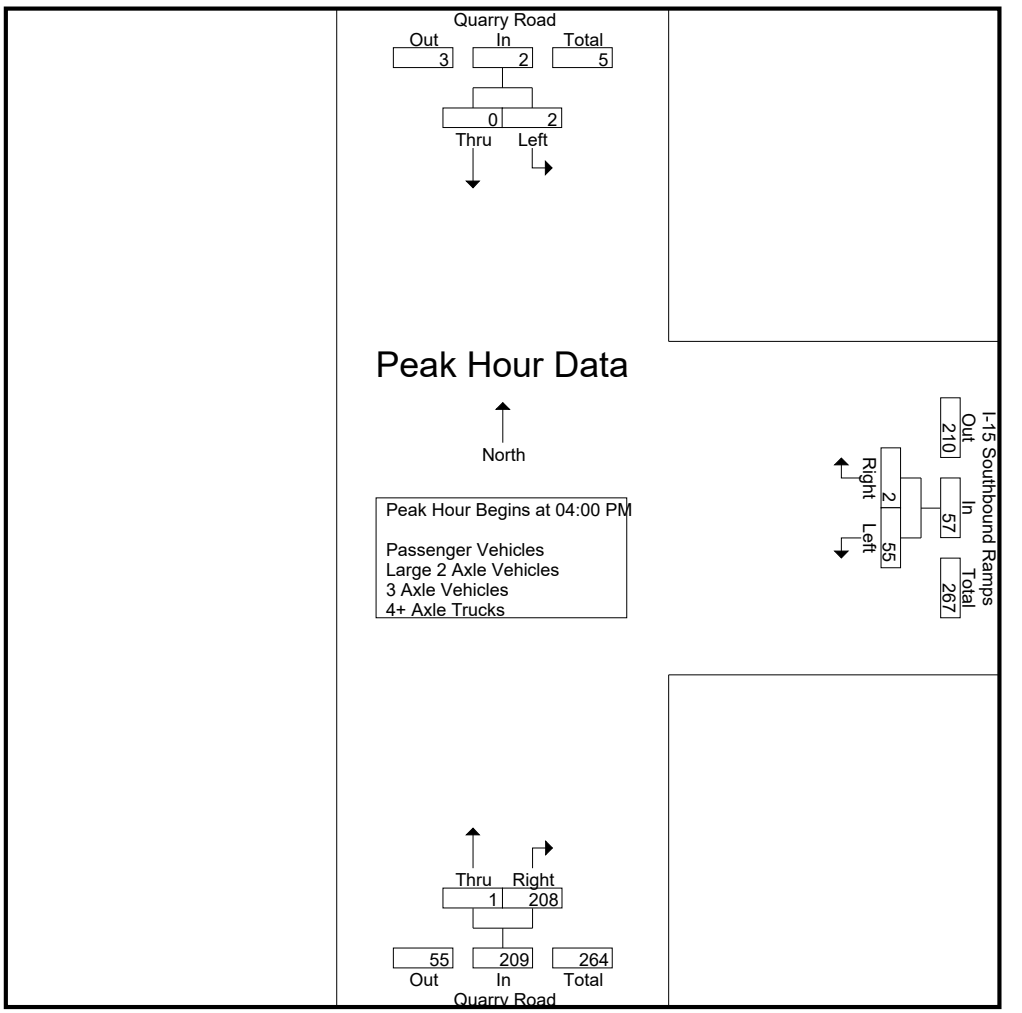
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	11	0	11	0	100	100	111
04:15 PM	1	0	1	17	2	19	0	53	53	73
04:30 PM	1	0	1	16	0	16	0	30	30	47
04:45 PM	0	0	0	11	0	11	1	25	26	37
Total	2	0	2	55	2	57	1	208	209	268
05:00 PM	0	2	2	11	0	11	0	36	36	49
05:15 PM	0	1	1	14	1	15	0	15	15	31
05:30 PM	0	0	0	13	0	13	0	22	22	35
05:45 PM	0	0	0	6	0	6	1	27	28	34
Total	0	3	3	44	1	45	1	100	101	149
Grand Total	2	3	5	99	3	102	2	308	310	417
Apprch %	40	60		97.1	2.9		0.6	99.4		
Total %	0.5	0.7	1.2	23.7	0.7	24.5	0.5	73.9	74.3	
Passenger Vehicles	2	3	5	97	3	100	2	294	296	401
% Passenger Vehicles	100	100	100	98	100	98	100	95.5	95.5	96.2
Large 2 Axle Vehicles	0	0	0	1	0	1	0	4	4	5
% Large 2 Axle Vehicles	0	0	0	1	0	1	0	1.3	1.3	1.2
3 Axle Vehicles	0	0	0	1	0	1	0	1	1	2
% 3 Axle Vehicles	0	0	0	1	0	1	0	0.3	0.3	0.5
4+ Axle Trucks	0	0	0	0	0	0	0	9	9	9
% 4+ Axle Trucks	0	0	0	0	0	0	0	2.9	2.9	2.2

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	11	0	11	0	**100**	**100**	**111**
04:15 PM	**1**	0	**1**	**17**	**2**	**19**	0	53	53	73
04:30 PM	1	0	1	16	0	16	0	30	30	47
04:45 PM	0	0	0	11	0	11	**1**	25	26	37
Total Volume	2	0	2	55	2	57	1	208	209	268
% App. Total	100	0		96.5	3.5		0.5	99.5		
PHF	.500	.000	.500	.809	.250	.750	.250	.520	.523	.604

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:00 PM		
+0 mins.	**1**	0	1	11	0	11	0	**100**	**100**
+15 mins.	1	0	1	**17**	**2**	**19**	0	53	53
+30 mins.	0	0	0	16	0	16	0	30	30
+45 mins.	0	**2**	**2**	11	0	11	**1**	25	26
Total Volume	2	2	4	55	2	57	1	208	209
% App. Total	50	50		96.5	3.5		0.5	99.5	
PHF	.500	.250	.500	.809	.250	.750	.250	.520	.523

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

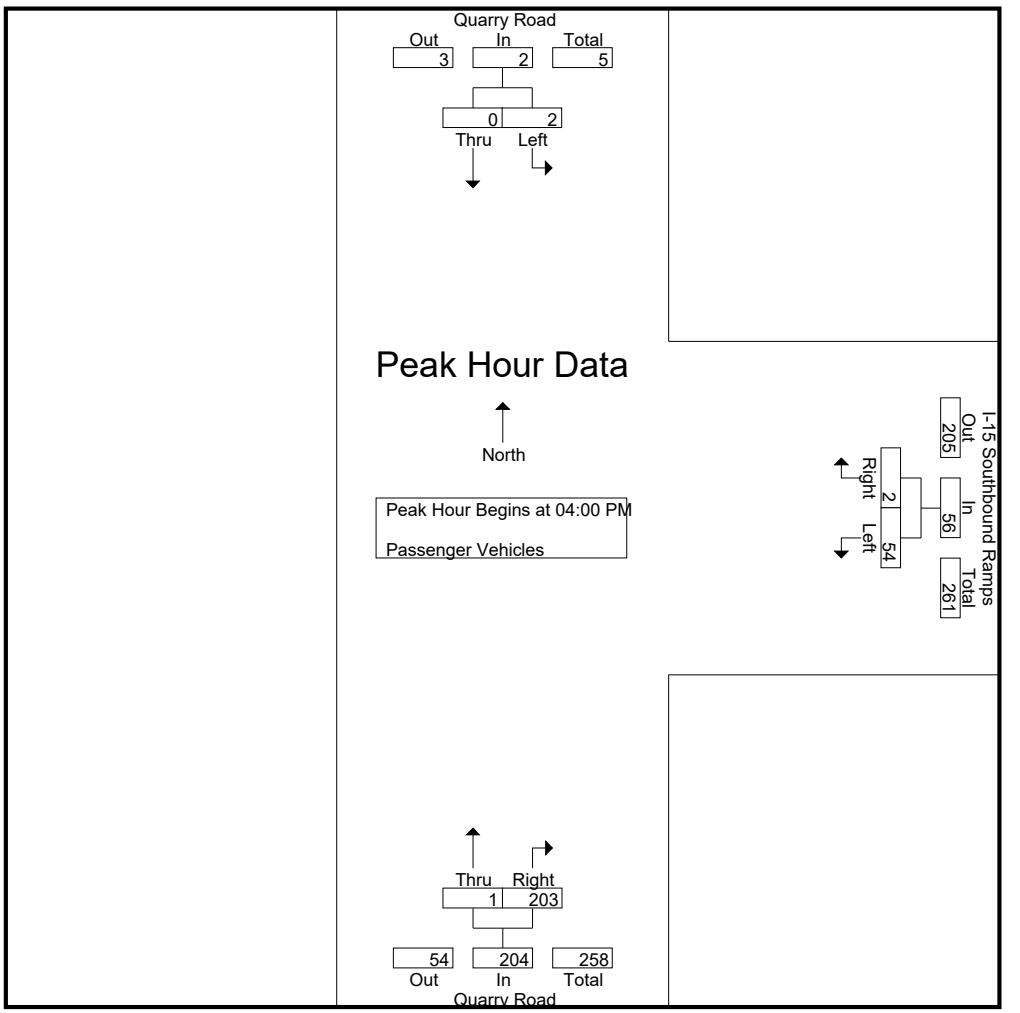
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	11	0	11	0	100	100	111
04:15 PM	1	0	1	16	2	18	0	51	51	70
04:30 PM	1	0	1	16	0	16	0	28	28	45
04:45 PM	0	0	0	11	0	11	1	24	25	36
Total	2	0	2	54	2	56	1	203	204	262
05:00 PM	0	2	2	11	0	11	0	36	36	49
05:15 PM	0	1	1	13	1	14	0	13	13	28
05:30 PM	0	0	0	13	0	13	0	18	18	31
05:45 PM	0	0	0	6	0	6	1	24	25	31
Total	0	3	3	43	1	44	1	91	92	139
Grand Total	2	3	5	97	3	100	2	294	296	401
Apprch %	40	60		97	3		0.7	99.3		
Total %	0.5	0.7	1.2	24.2	0.7	24.9	0.5	73.3	73.8	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	11	0	11	0	**100**	**100**	**111**
04:15 PM	**1**	0	**1**	**16**	**2**	**18**	0	51	51	70
04:30 PM	1	0	1	16	0	16	0	28	28	45
04:45 PM	0	0	0	11	0	11	**1**	24	25	36
Total Volume	2	0	2	54	2	56	1	203	204	262
% App. Total	100	0		96.4	3.6		0.5	99.5		
PHF	.500	.000	.500	.844	.250	.778	.250	.508	.510	.590

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	11	0	11	0	**100**	**100**
+15 mins.	**1**	0	**1**	**16**	**2**	**18**	0	51	51
+30 mins.	1	0	1	16	0	16	0	28	28
+45 mins.	0	0	0	11	0	11	**1**	24	25
Total Volume	2	0	2	54	2	56	1	203	204
% App. Total	100	0		96.4	3.6		0.5	99.5	
PHF	.500	.000	.500	.844	.250	.778	.250	.508	.510

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

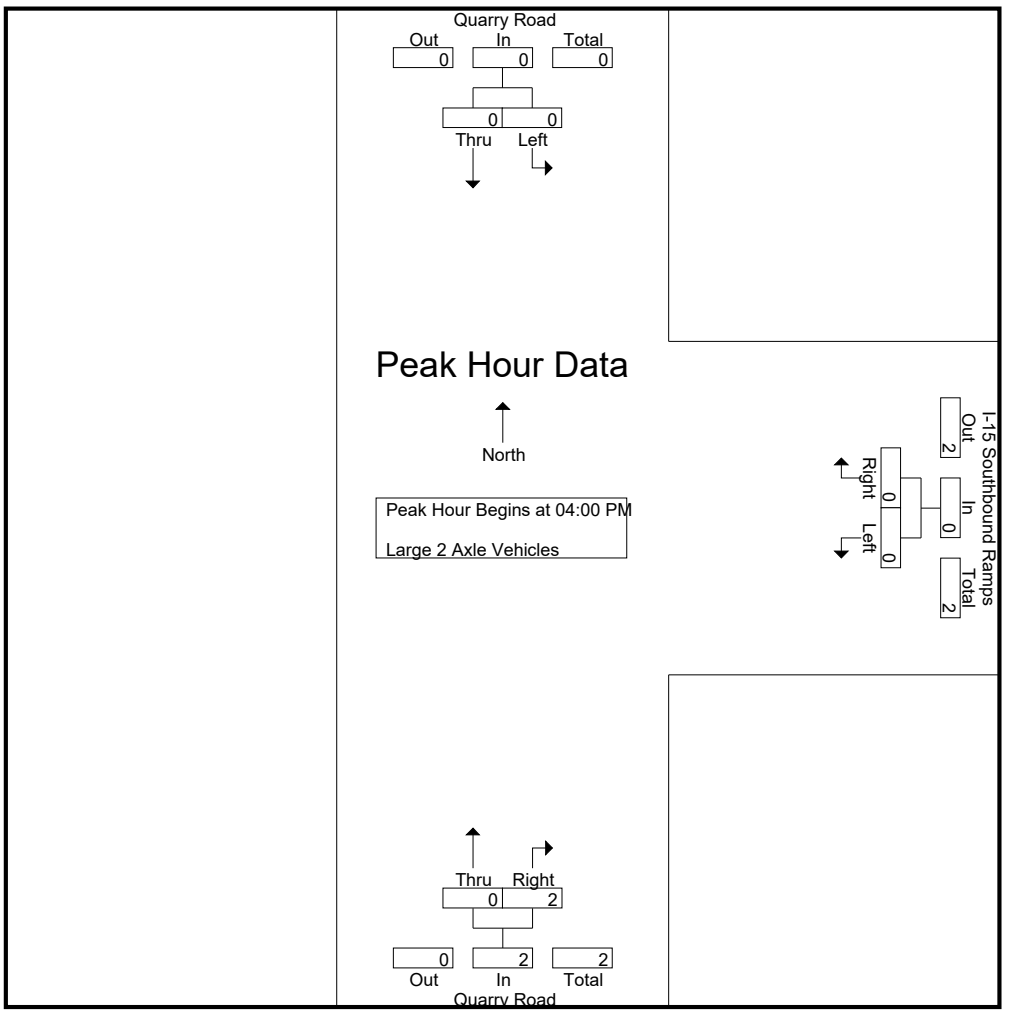
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	1	1
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	1	0	1	0	1	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	1	0	1	0	2	2	3
Grand Total	0	0	0	1	0	1	0	4	4	5
Apprch %	0	0		100	0		0	100		
Total %	0	0	0	20	0	20	0	80	80	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	**1**	**1**	**1**
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	2	2	2
% App. Total	0	0		0	0		0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.500	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	**1**	**1**
+30 mins.	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	2	2
% App. Total	0	0		0	0		0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

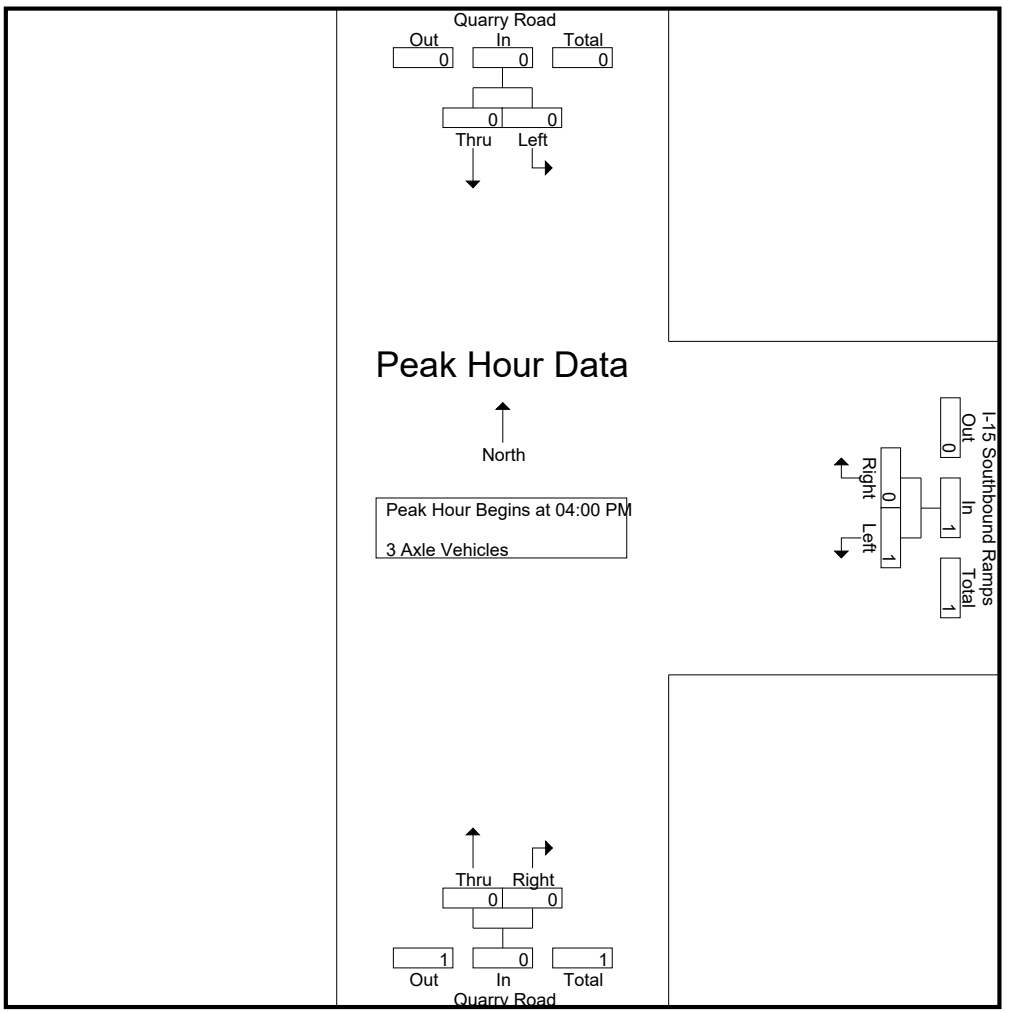
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	1	0	1	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	1	0	1	0	1	1	2
Apprch %	0	0		100	0		0	100		
Total %	0	0	0	50	0	50	0	50	50	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	**1**	0	**1**	0	0	0	**1**
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	**1**	0	**1**	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0		100	0		0	0	
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

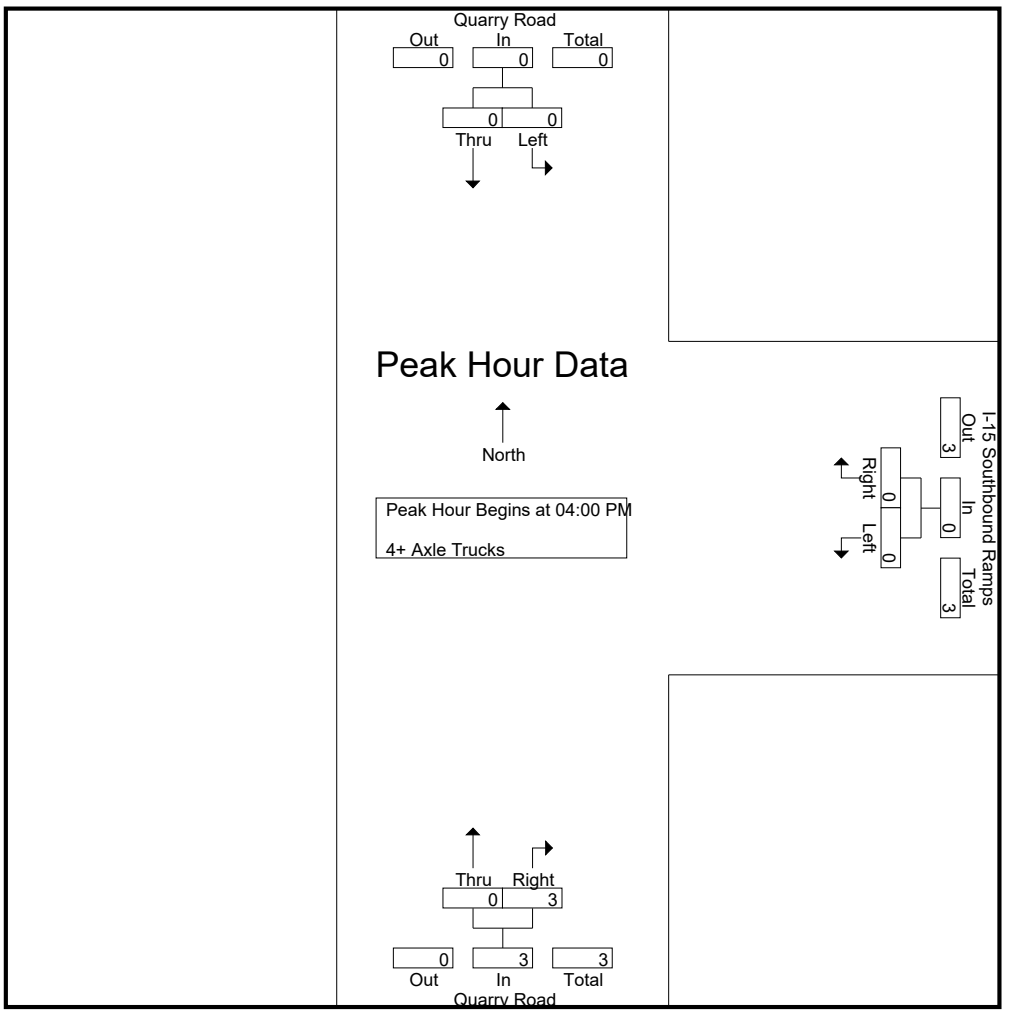
	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	1	1
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	3	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	4	4	4
05:45 PM	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	6	6	6
Grand Total	0	0	0	0	0	0	0	9	9	9
Apprch %	0	0		0	0		0	100		
Total %	0	0	0	0	0	0	0	100	100	

	Quarry Road Southbound			I-15 Southbound Ramps Westbound			Quarry Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	**1**	**1**	**1**
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	3	3	3
% App. Total	0	0		0	0		0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.750	.750	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Quarry Road
E/W: I-15 Southbound Ramps
Weather: Clear

File Name : 06_APV_Qua_15S PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	**1**	**1**
+30 mins.	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	1	1
Total Volume	0	0	0	0	0	0	0	3	3
% App. Total	0	0		0	0		0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.750	.750

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

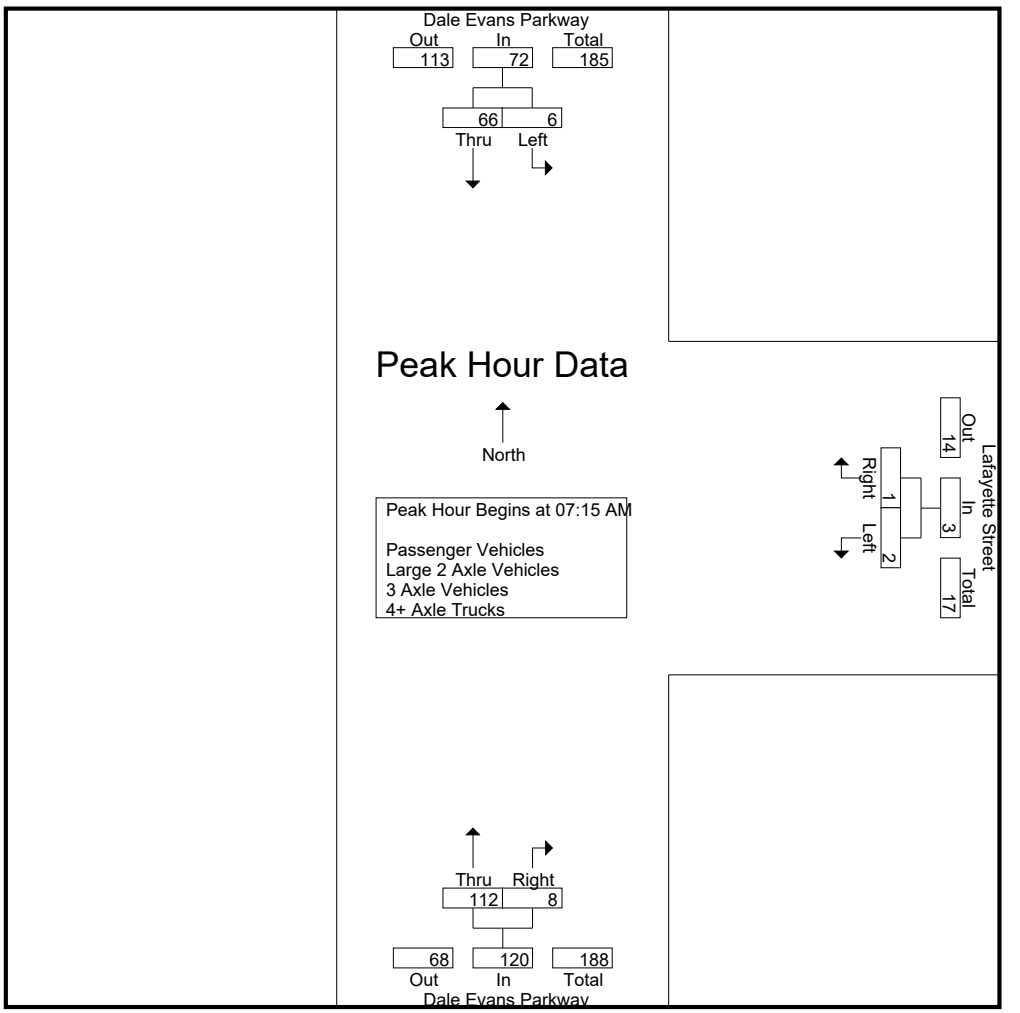
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	1	14	15	0	0	0	28	1	29	44
07:15 AM	0	16	16	0	0	0	29	1	30	46
07:30 AM	4	20	24	0	1	1	30	1	31	56
07:45 AM	2	12	14	0	0	0	28	4	32	46
Total	7	62	69	0	1	1	115	7	122	192
08:00 AM	0	18	18	2	0	2	25	2	27	47
08:15 AM	0	12	12	4	0	4	24	0	24	40
08:30 AM	1	12	13	0	2	2	14	0	14	29
08:45 AM	2	15	17	0	1	1	24	4	28	46
Total	3	57	60	6	3	9	87	6	93	162
Grand Total	10	119	129	6	4	10	202	13	215	354
Apprch %	7.8	92.2		60	40		94	6		
Total %	2.8	33.6	36.4	1.7	1.1	2.8	57.1	3.7	60.7	
Passenger Vehicles	8	108	116	6	1	7	193	13	206	329
% Passenger Vehicles	80	90.8	89.9	100	25	70	95.5	100	95.8	92.9
Large 2 Axle Vehicles	0	9	9	0	0	0	7	0	7	16
% Large 2 Axle Vehicles	0	7.6	7	0	0	0	3.5	0	3.3	4.5
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	2	2	4	0	3	3	2	0	2	9
% 4+ Axle Trucks	20	1.7	3.1	0	75	30	1	0	0.9	2.5

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	16	16	0	0	0	29	1	30	46
07:30 AM	**4**	**20**	**24**	0	**1**	1	**30**	1	31	**56**
07:45 AM	2	12	14	0	0	0	28	**4**	**32**	46
08:00 AM	0	18	18	**2**	0	**2**	25	2	27	47
Total Volume	6	66	72	2	1	3	112	8	120	195
% App. Total	8.3	91.7		66.7	33.3		93.3	6.7		
PHF	.375	.825	.750	.250	.250	.375	.933	.500	.938	.871

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			08:00 AM			07:00 AM		
+0 mins.	0	16	16	2	0	2	28	1	29
+15 mins.	**4**	**20**	**24**	**4**	0	**4**	29	1	30
+30 mins.	2	12	14	0	**2**	2	**30**	1	31
+45 mins.	0	18	18	0	1	1	28	**4**	**32**
Total Volume	6	66	72	6	3	9	115	7	122
% App. Total	8.3	91.7		66.7	33.3		94.3	5.7	
PHF	.375	.825	.750	.375	.375	.563	.958	.438	.953

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

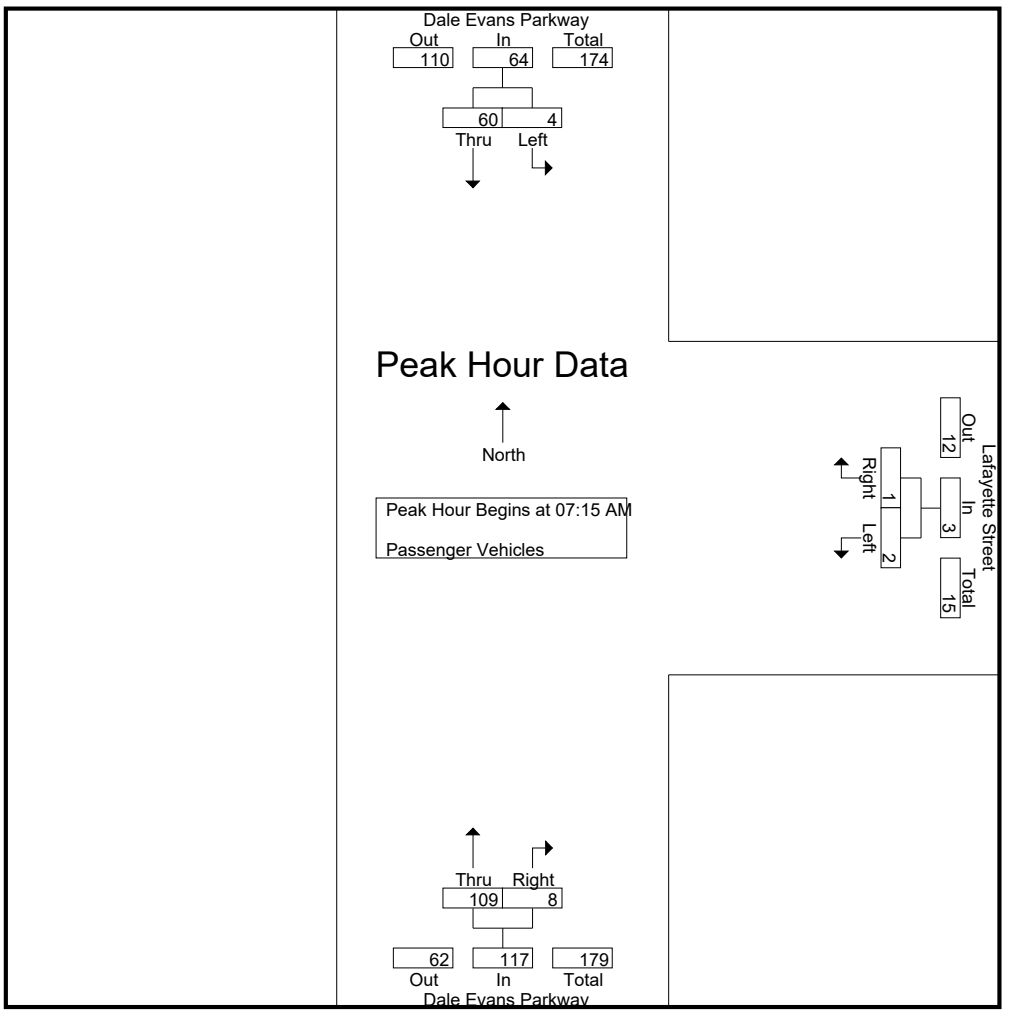
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	1	14	15	0	0	0	27	1	28	43
07:15 AM	0	16	16	0	0	0	29	1	30	46
07:30 AM	2	18	20	0	1	1	28	1	29	50
07:45 AM	2	12	14	0	0	0	28	4	32	46
Total	5	60	65	0	1	1	112	7	119	185
08:00 AM	0	14	14	2	0	2	24	2	26	42
08:15 AM	0	11	11	4	0	4	22	0	22	37
08:30 AM	1	10	11	0	0	0	14	0	14	25
08:45 AM	2	13	15	0	0	0	21	4	25	40
Total	3	48	51	6	0	6	81	6	87	144
Grand Total	8	108	116	6	1	7	193	13	206	329
Apprch %	6.9	93.1		85.7	14.3		93.7	6.3		
Total %	2.4	32.8	35.3	1.8	0.3	2.1	58.7	4	62.6	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	16	16	0	0	0	**29**	1	30	46
07:30 AM	**2**	**18**	**20**	0	**1**	1	28	1	29	**50**
07:45 AM	2	12	14	0	0	0	28	**4**	**32**	46
08:00 AM	0	14	14	**2**	0	**2**	24	2	26	42
Total Volume	4	60	64	2	1	3	109	8	117	184
% App. Total	6.2	93.8		66.7	33.3		93.2	6.8		
PHF	.500	.833	.800	.250	.250	.375	.940	.500	.914	.920

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	16	16	0	0	0	**29**	1	30
+15 mins.	**2**	**18**	**20**	0	**1**	1	28	1	29
+30 mins.	2	12	14	0	0	0	28	**4**	**32**
+45 mins.	0	14	14	**2**	0	**2**	24	2	26
Total Volume	4	60	64	2	1	3	109	8	117
% App. Total	6.2	93.8		66.7	33.3		93.2	6.8	
PHF	.500	.833	.800	.250	.250	.375	.940	.500	.914

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

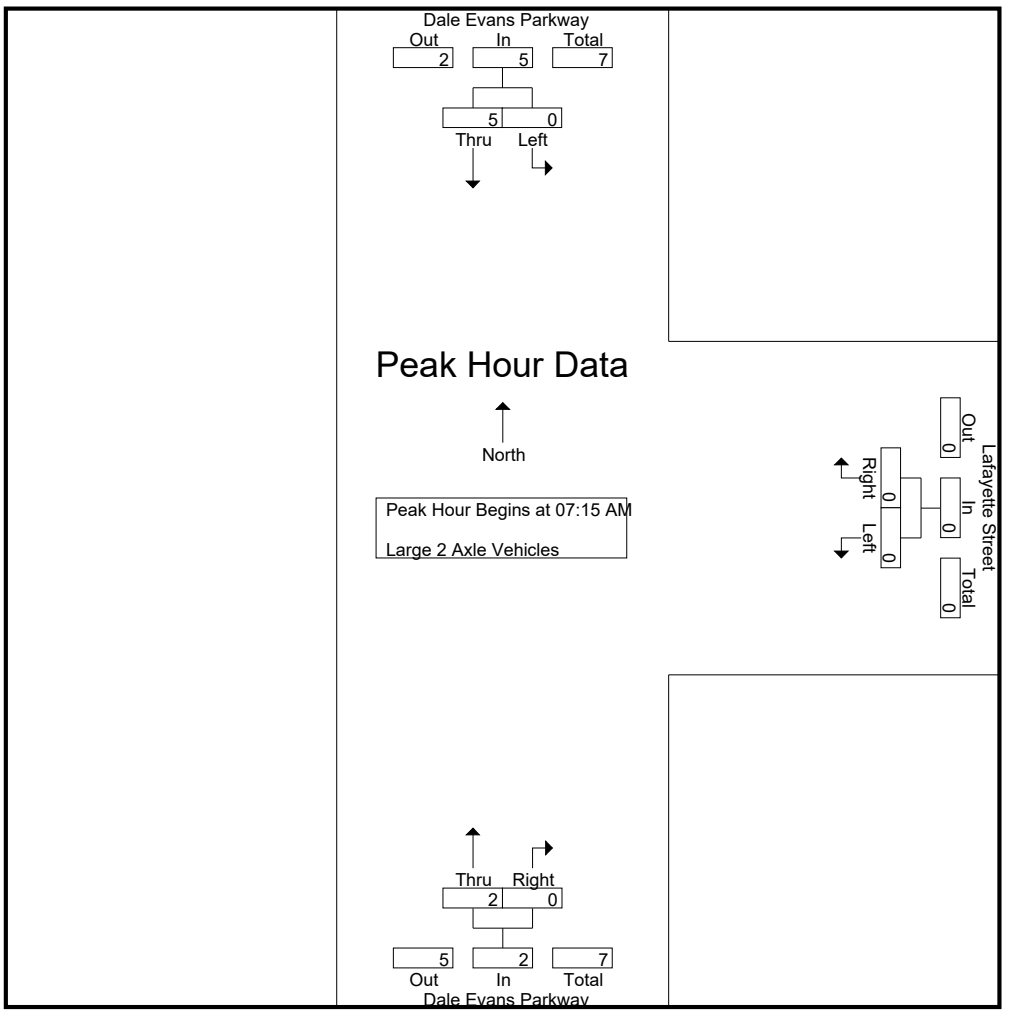
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	2	2	0	0	0	1	0	1	3
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	2	2	0	0	0	2	0	2	4
08:00 AM	0	3	3	0	0	0	1	0	1	4
08:15 AM	0	1	1	0	0	0	1	0	1	2
08:30 AM	0	2	2	0	0	0	0	0	0	2
08:45 AM	0	1	1	0	0	0	3	0	3	4
Total	0	7	7	0	0	0	5	0	5	12
Grand Total	0	9	9	0	0	0	7	0	7	16
Apprch %	0	100		0	0		100	0		
Total %	0	56.2	56.2	0	0	0	43.8	0	43.8	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	2	2	0	0	0	**1**	0	**1**	3
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	**3**	**3**	0	0	0	1	0	1	**4**
Total Volume	0	5	5	0	0	0	2	0	2	7
% App. Total	0	100		0	0		100	0		
PHF	.000	.417	.417	.000	.000	.000	.500	.000	.500	.438

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	2	2	0	0	0	**1**	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	**3**	**3**	0	0	0	1	0	1
Total Volume	0	5	5	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.417	.417	.000	.000	.000	.500	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

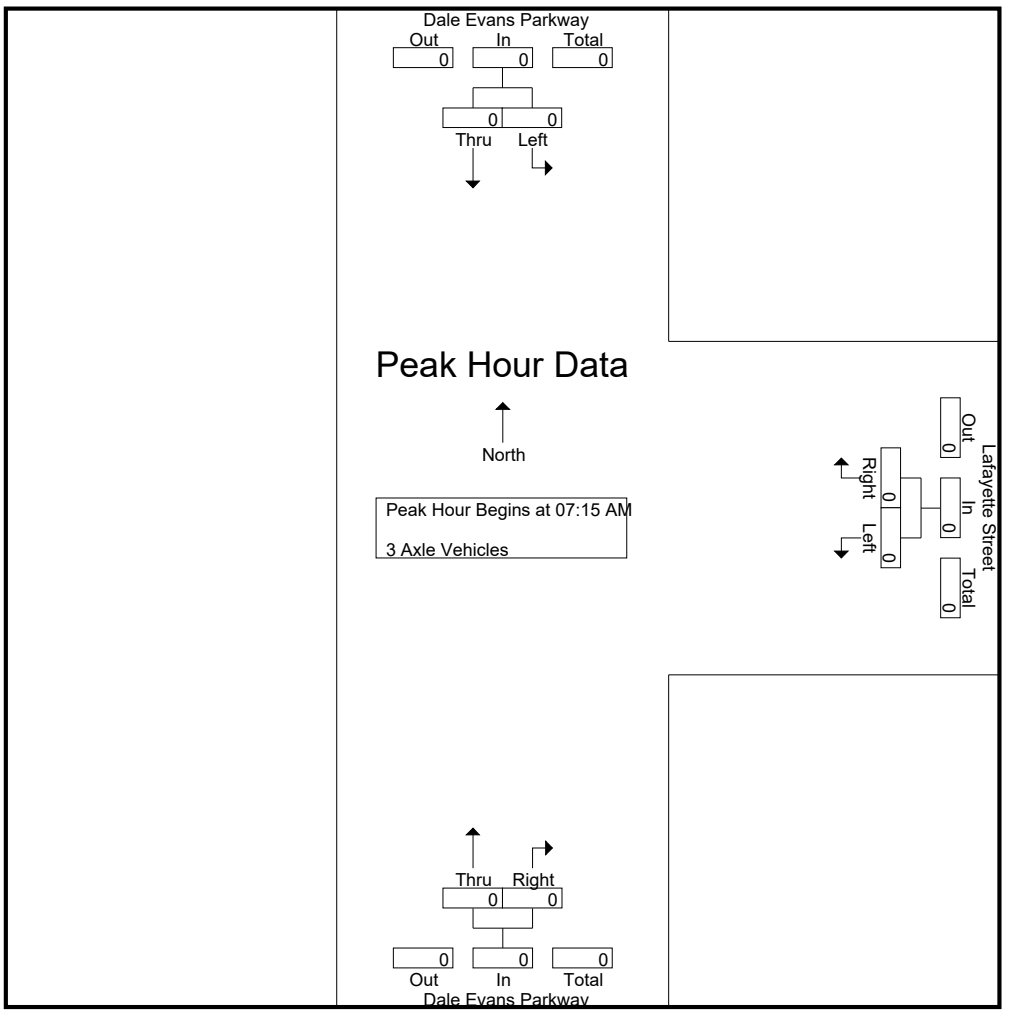
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0		
Total %										

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

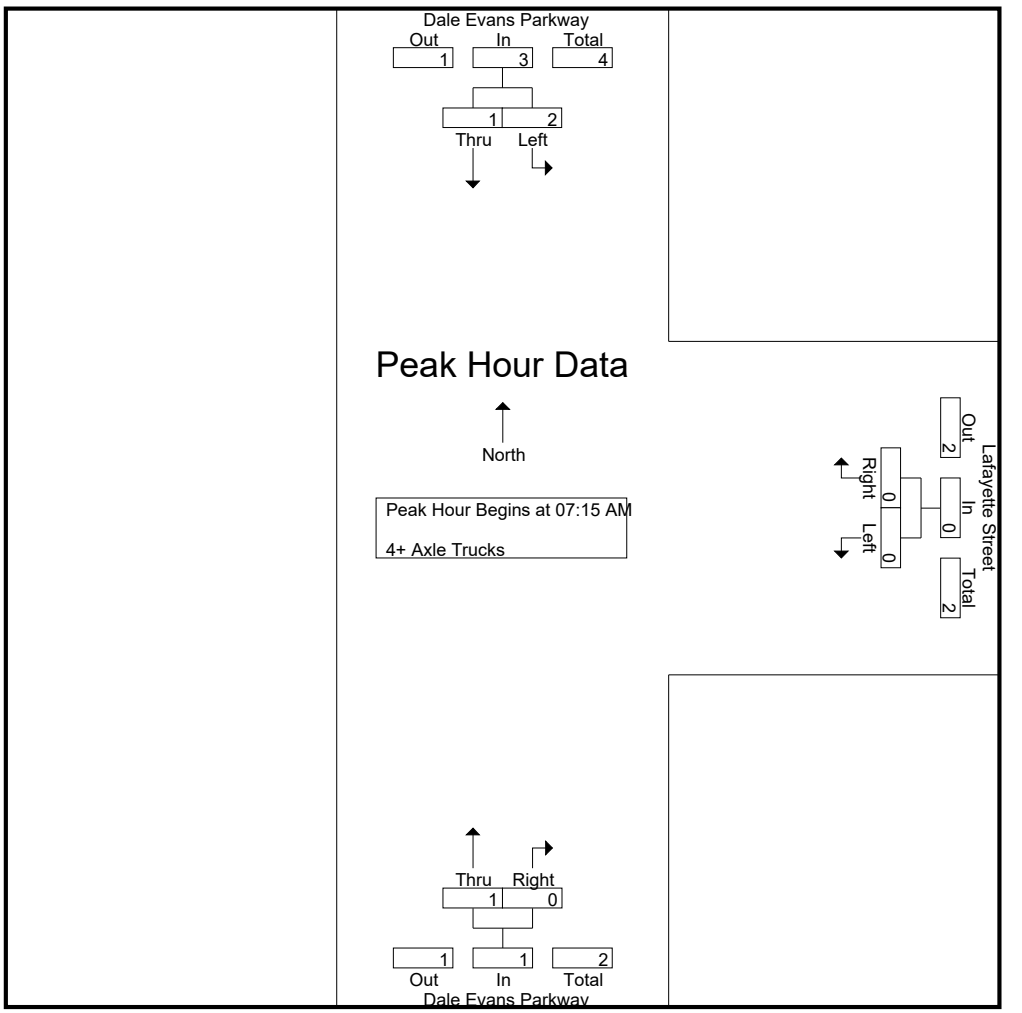
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	2	0	2	0	0	0	1	0	1	3
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	2	0	2	0	0	0	1	0	1	3
08:00 AM	0	1	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	0	2	2	0	0	0	2
08:45 AM	0	1	1	0	1	1	0	0	0	2
Total	0	2	2	0	3	3	1	0	1	6
Grand Total	2	2	4	0	3	3	2	0	2	9
Apprch %	50	50		0	100		100	0		
Total %	22.2	22.2	44.4	0	33.3	33.3	22.2	0	22.2	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	**2**	0	**2**	0	0	0	**1**	0	**1**	**3**
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	**1**	1	0	0	0	0	0	0	1
Total Volume	2	1	3	0	0	0	1	0	1	4
% App. Total	66.7	33.3		0	0		100	0		
PHF	.250	.250	.375	.000	.000	.000	.250	.000	.250	.333

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	**2**	0	**2**	0	0	0	**1**	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	1	0	0	0	0	0	0
Total Volume	2	1	3	0	0	0	1	0	1
% App. Total	66.7	33.3		0	0		100	0	
PHF	.250	.250	.375	.000	.000	.000	.250	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

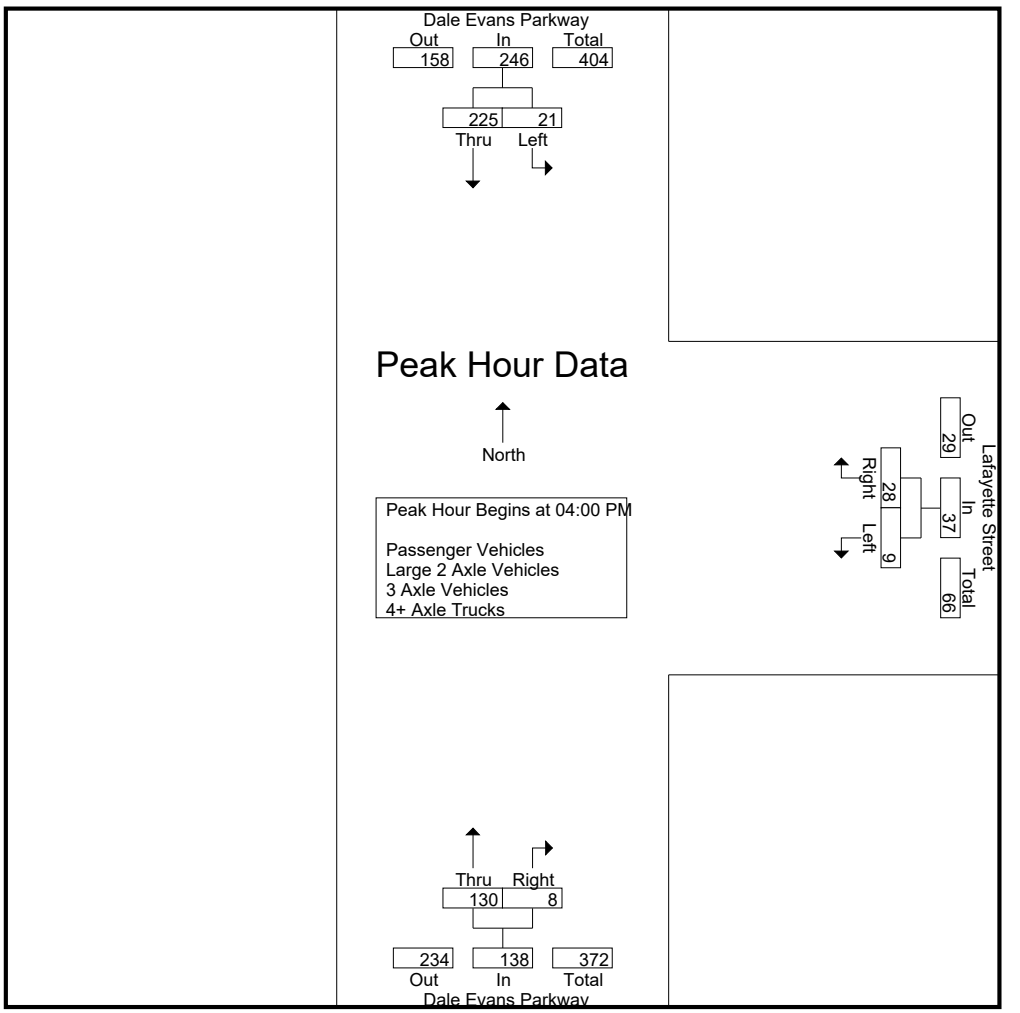
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	13	62	75	3	18	21	39	4	43	139
04:15 PM	5	48	53	3	8	11	48	1	49	113
04:30 PM	2	54	56	2	1	3	23	1	24	83
04:45 PM	1	61	62	1	1	2	20	2	22	86
Total	21	225	246	9	28	37	130	8	138	421
05:00 PM	1	51	52	3	1	4	20	2	22	78
05:15 PM	0	52	52	1	11	12	22	5	27	91
05:30 PM	3	49	52	2	2	4	8	1	9	65
05:45 PM	1	24	25	2	0	2	14	1	15	42
Total	5	176	181	8	14	22	64	9	73	276
Grand Total	26	401	427	17	42	59	194	17	211	697
Apprch %	6.1	93.9		28.8	71.2		91.9	8.1		
Total %	3.7	57.5	61.3	2.4	6	8.5	27.8	2.4	30.3	
Passenger Vehicles	22	395	417	17	41	58	188	17	205	680
% Passenger Vehicles	84.6	98.5	97.7	100	97.6	98.3	96.9	100	97.2	97.6
Large 2 Axle Vehicles	1	3	4	0	0	0	4	0	4	8
% Large 2 Axle Vehicles	3.8	0.7	0.9	0	0	0	2.1	0	1.9	1.1
3 Axle Vehicles	0	1	1	0	0	0	2	0	2	3
% 3 Axle Vehicles	0	0.2	0.2	0	0	0	1	0	0.9	0.4
4+ Axle Trucks	3	2	5	0	1	1	0	0	0	6
% 4+ Axle Trucks	11.5	0.5	1.2	0	2.4	1.7	0	0	0	0.9

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**13**	**62**	**75**	**3**	**18**	**21**	39	**4**	43	**139**
04:15 PM	5	48	53	3	8	11	**48**	1	**49**	113
04:30 PM	2	54	56	2	1	3	23	1	24	83
04:45 PM	1	61	62	1	1	2	20	2	22	86
Total Volume	21	225	246	9	28	37	130	8	138	421
% App. Total	8.5	91.5		24.3	75.7		94.2	5.8		
PHF	.404	.907	.820	.750	.389	.440	.677	.500	.704	.757

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**13**	**62**	**75**	**3**	**18**	**21**	39	**4**	43
+15 mins.	5	48	53	3	8	11	**48**	1	**49**
+30 mins.	2	54	56	2	1	3	23	1	24
+45 mins.	1	61	62	1	1	2	20	2	22
Total Volume	21	225	246	9	28	37	130	8	138
% App. Total	8.5	91.5		24.3	75.7		94.2	5.8	
PHF	.404	.907	.820	.750	.389	.440	.677	.500	.704

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

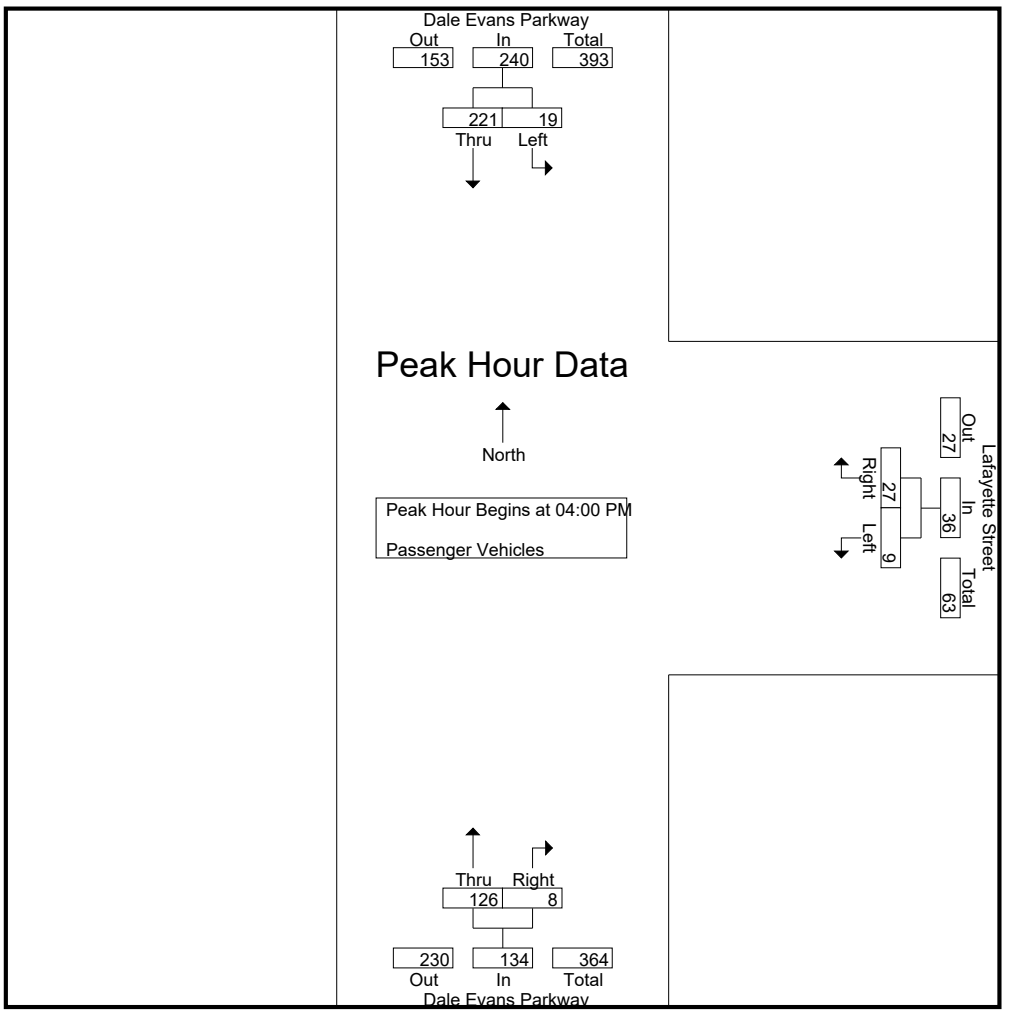
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	12	61	73	3	17	20	37	4	41	134
04:15 PM	5	48	53	3	8	11	47	1	48	112
04:30 PM	1	52	53	2	1	3	23	1	24	80
04:45 PM	1	60	61	1	1	2	19	2	21	84
Total	19	221	240	9	27	36	126	8	134	410
05:00 PM	1	50	51	3	1	4	19	2	21	76
05:15 PM	0	52	52	1	11	12	21	5	26	90
05:30 PM	2	48	50	2	2	4	8	1	9	63
05:45 PM	0	24	24	2	0	2	14	1	15	41
Total	3	174	177	8	14	22	62	9	71	270
Grand Total	22	395	417	17	41	58	188	17	205	680
Apprch %	5.3	94.7		29.3	70.7		91.7	8.3		
Total %	3.2	58.1	61.3	2.5	6	8.5	27.6	2.5	30.1	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**12**	**61**	**73**	**3**	**17**	**20**	37	**4**	41	**134**
04:15 PM	5	48	53	3	8	11	**47**	1	**48**	112
04:30 PM	1	52	53	2	1	3	23	1	24	80
04:45 PM	1	60	61	1	1	2	19	2	21	84
Total Volume	19	221	240	9	27	36	126	8	134	410
% App. Total	7.9	92.1		25	75		94	6		
PHF	.396	.906	.822	.750	.397	.450	.670	.500	.698	.765

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**12**	**61**	**73**	**3**	**17**	**20**	37	**4**	41
+15 mins.	5	48	53	3	8	11	**47**	1	**48**
+30 mins.	1	52	53	2	1	3	23	1	24
+45 mins.	1	60	61	1	1	2	19	2	21
Total Volume	19	221	240	9	27	36	126	8	134
% App. Total	7.9	92.1		25	75		94	6	
PHF	.396	.906	.822	.750	.397	.450	.670	.500	.698

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

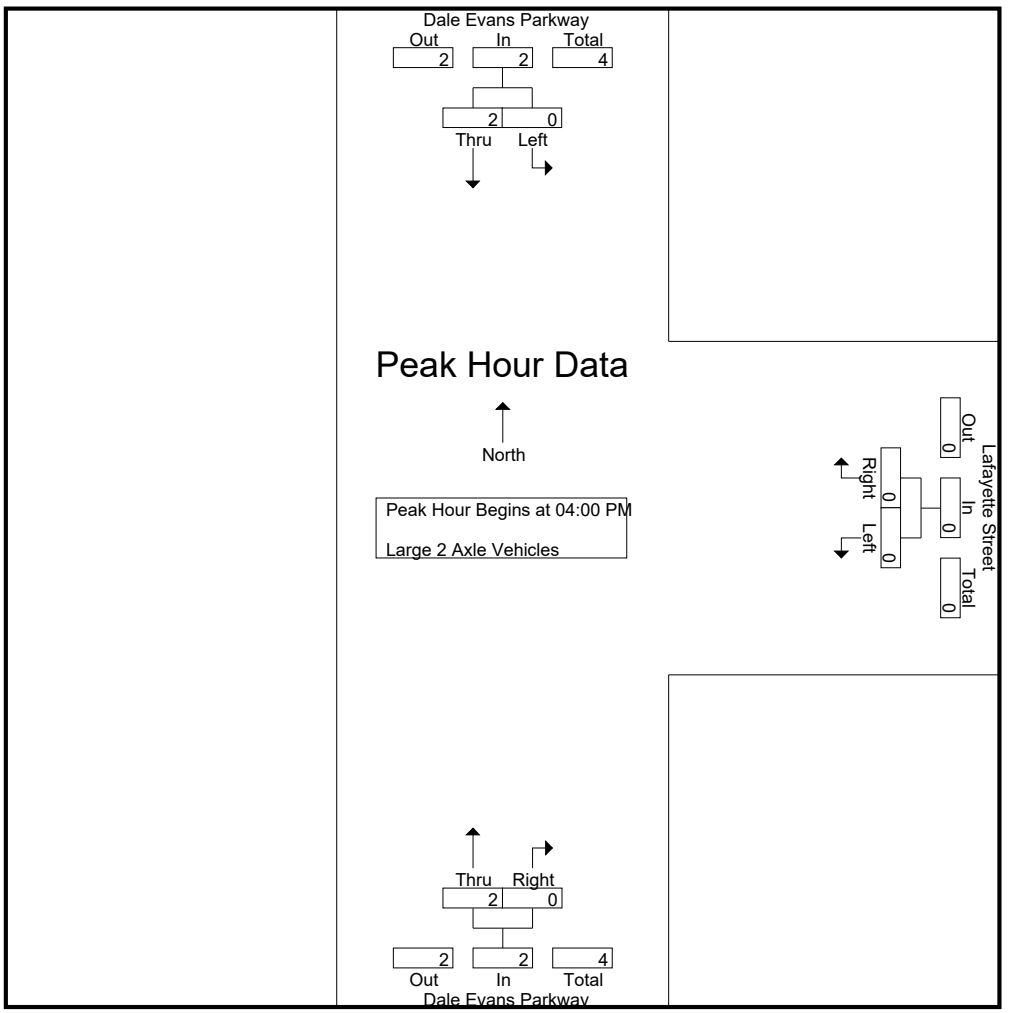
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	2	2	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	2	2	0	0	0	2	0	2	4
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	1	0	1	1
05:30 PM	1	1	2	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	1	1	2	0	0	0	2	0	2	4
Grand Total	1	3	4	0	0	0	4	0	4	8
Apprch %	25	75		0	0		100	0		
Total %	12.5	37.5	50	0	0	0	50	0	50	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	**1**	0	**1**	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	**2**	**2**	0	0	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	2	2	0	0	0	2	0	2	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	**2**	**2**	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	2	2	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023

Groups Printed- 3 Axle Vehicles

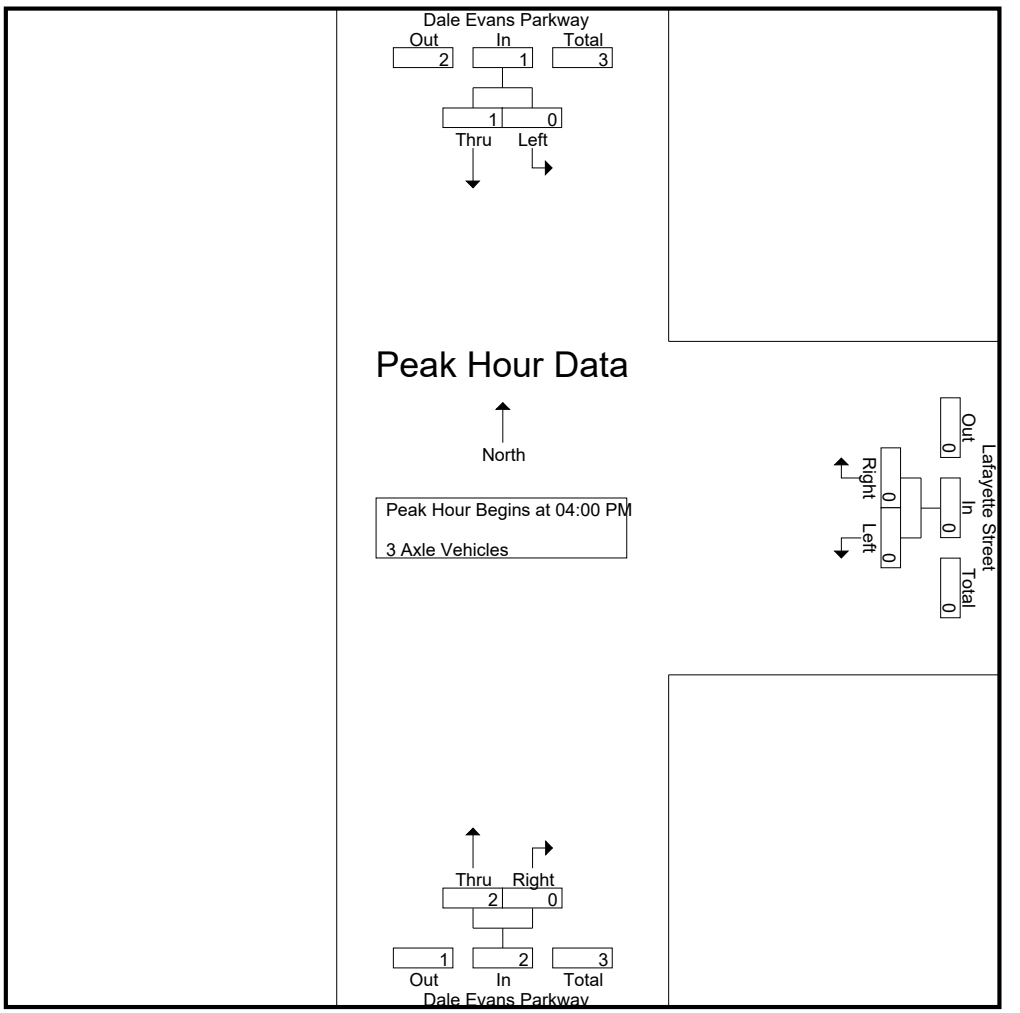
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	0	0	0	1	0	1	2
04:15 PM	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	2	0	2	3
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	2	0	2	3
Apprch %	0	100		0	0		100	0		
Total %	0	33.3	33.3	0	0	0	66.7	0	66.7	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	**1**	**1**	0	0	0	**1**	0	**1**	**2**
04:15 PM	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	**1**	**1**	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

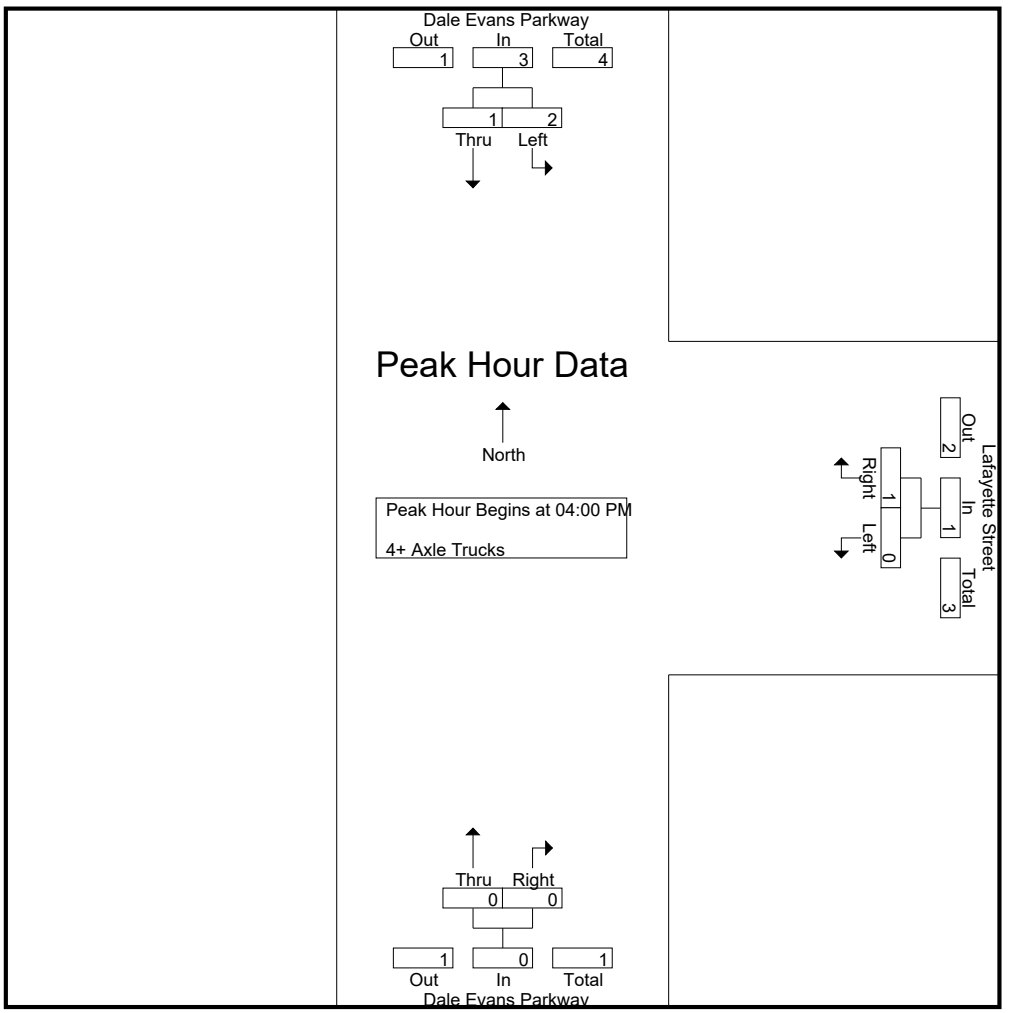
	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	1	0	1	1	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	1	0	1	0	0	0	0	0	0	1
04:45 PM	0	1	1	0	0	0	0	0	0	1
Total	2	1	3	0	1	1	0	0	0	4
05:00 PM	0	1	1	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	1	0	1	0	0	0	0	0	0	1
Total	1	1	2	0	0	0	0	0	0	2
Grand Total	3	2	5	0	1	1	0	0	0	6
Apprch %	60	40		0	100		0	0		
Total %	50	33.3	83.3	0	16.7	16.7	0	0	0	

	Dale Evans Parkway Southbound			Lafayette Street Westbound			Dale Evans Parkway Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**1**	0	**1**	0	**1**	**1**	0	0	0	**2**
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	1	0	1	0	0	0	0	0	0	1
04:45 PM	0	**1**	1	0	0	0	0	0	0	1
Total Volume	2	1	3	0	1	1	0	0	0	4
% App. Total	66.7	33.3		0	100		0	0		
PHF	.500	.250	.750	.000	.250	.250	.000	.000	.000	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Lafayette Street
Weather: Clear

File Name : 07_APV_DEP_Laf PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**1**	0	**1**	0	**1**	**1**	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	1	0	1	0	0	0	0	0	0
+45 mins.	0	**1**	1	0	0	0	0	0	0
Total Volume	2	1	3	0	1	1	0	0	0
% App. Total	66.7	33.3		0	100		0	0	
PHF	.500	.250	.750	.000	.250	.250	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

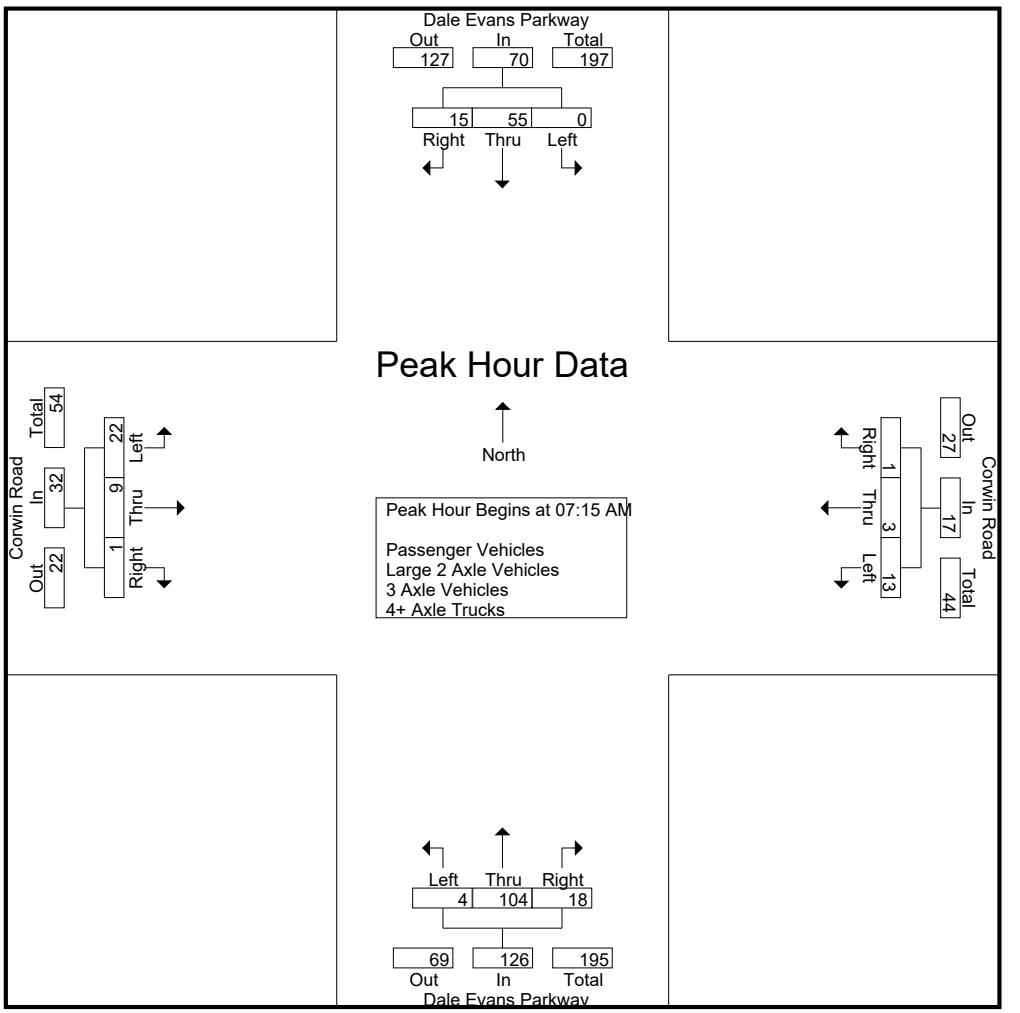
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	10	2	13	0	0	1	1	0	17	6	23	3	3	0	6	43
07:15 AM	0	15	3	18	0	0	1	1	1	27	2	30	6	4	0	10	59
07:30 AM	0	16	3	19	7	0	0	7	1	32	2	35	5	1	0	6	67
07:45 AM	0	11	4	15	2	2	0	4	2	19	8	29	5	1	1	7	55
Total	1	52	12	65	9	2	2	13	4	95	18	117	19	9	1	29	224
08:00 AM	0	13	5	18	4	1	0	5	0	26	6	32	6	3	0	9	64
08:15 AM	0	5	7	12	1	5	0	6	0	16	3	19	3	0	1	4	41
08:30 AM	2	18	8	28	1	2	0	3	0	14	3	17	5	2	2	9	57
08:45 AM	0	11	8	19	1	2	2	5	4	18	5	27	6	6	1	13	64
Total	2	47	28	77	7	10	2	19	4	74	17	95	20	11	4	35	226
Grand Total	3	99	40	142	16	12	4	32	8	169	35	212	39	20	5	64	450
Apprch %	2.1	69.7	28.2		50	37.5	12.5		3.8	79.7	16.5		60.9	31.2	7.8		
Total %	0.7	22	8.9	31.6	3.6	2.7	0.9	7.1	1.8	37.6	7.8	47.1	8.7	4.4	1.1	14.2	
Passenger Vehicles	3	92	35	130	11	8	2	21	2	161	35	198	38	19	3	60	409
% Passenger Vehicles	100	92.9	87.5	91.5	68.8	66.7	50	65.6	25	95.3	100	93.4	97.4	95	60	93.8	90.9
Large 2 Axle Vehicles	0	5	4	9	3	2	2	7	4	6	0	10	0	0	1	1	27
% Large 2 Axle Vehicles	0	5.1	10	6.3	18.8	16.7	50	21.9	50	3.6	0	4.7	0	0	20	1.6	6
3 Axle Vehicles	0	1	0	1	2	2	0	4	2	1	0	3	0	1	1	2	10
% 3 Axle Vehicles	0	1	0	0.7	12.5	16.7	0	12.5	25	0.6	0	1.4	0	5	20	3.1	2.2
4+ Axle Trucks	0	1	1	2	0	0	0	0	0	1	0	1	1	0	0	1	4
% 4+ Axle Trucks	0	1	2.5	1.4	0	0	0	0	0	0.6	0	0.5	2.6	0	0	1.6	0.9

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	15	3	18	0	0	**1**	1	1	27	2	30	**6**	**4**	0	**10**	59
07:30 AM	0	**16**	3	**19**	**7**	0	0	**7**	1	**32**	2	**35**	5	1	0	6	**67**
07:45 AM	0	11	4	15	2	**2**	0	4	**2**	19	**8**	29	5	1	**1**	7	55
08:00 AM	0	13	**5**	18	4	1	0	5	0	26	6	32	6	3	0	9	64
Total Volume	0	55	15	70	13	3	1	17	4	104	18	126	22	9	1	32	245
% App. Total	0	78.6	21.4		76.5	17.6	5.9		3.2	82.5	14.3		68.8	28.1	3.1		
PHF	.000	.859	.750	.921	.464	.375	.250	.607	.500	.813	.563	.900	.917	.563	.250	.800	.914

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:30 AM				07:15 AM				08:00 AM			
+0 mins.	0	13	5	18	**7**	0	0	**7**	1	27	2	30	**6**	3	0	9
+15 mins.	0	5	7	12	2	2	0	4	1	**32**	2	**35**	3	0	1	4
+30 mins.	**2**	**18**	**8**	**28**	4	1	0	5	**2**	19	**8**	29	5	2	**2**	9
+45 mins.	0	11	8	19	1	**5**	0	6	0	26	6	32	6	**6**	1	**13**
Total Volume	2	47	28	77	14	8	0	22	4	104	18	126	20	11	4	35
% App. Total	2.6	61	36.4		63.6	36.4	0		3.2	82.5	14.3		57.1	31.4	11.4	
PHF	.250	.653	.875	.688	.500	.400	.000	.786	.500	.813	.563	.900	.833	.458	.500	.673

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

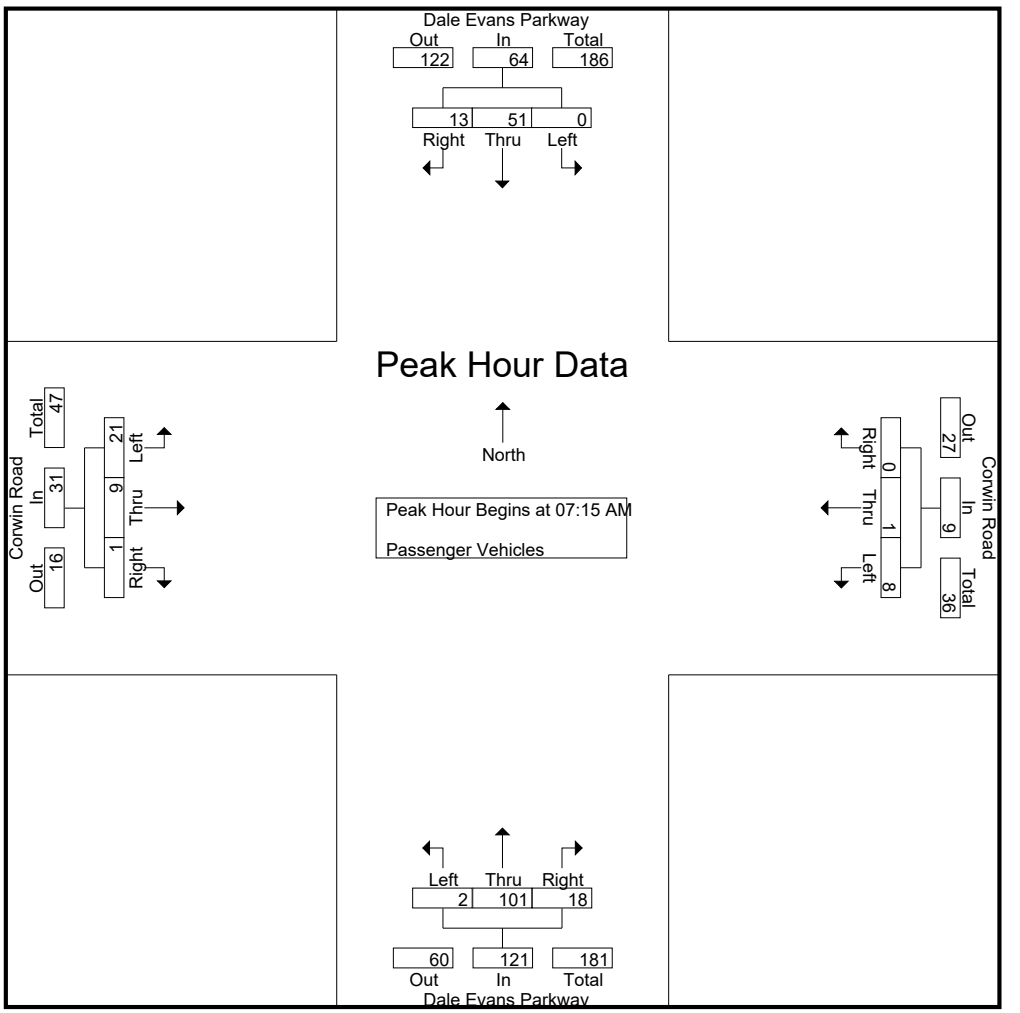
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	10	2	13	0	0	1	1	0	16	6	22	3	3	0	6	42
07:15 AM	0	15	3	18	0	0	0	0	1	27	2	30	6	4	0	10	58
07:30 AM	0	15	2	17	4	0	0	4	1	31	2	34	4	1	0	5	60
07:45 AM	0	11	4	15	1	0	0	1	0	19	8	27	5	1	1	7	50
Total	1	51	11	63	5	0	1	6	2	93	18	113	18	9	1	28	210
08:00 AM	0	10	4	14	3	1	0	4	0	24	6	30	6	3	0	9	57
08:15 AM	0	5	6	11	1	4	0	5	0	14	3	17	3	0	0	3	36
08:30 AM	2	17	7	26	1	2	0	3	0	14	3	17	5	1	2	8	54
08:45 AM	0	9	7	16	1	1	1	3	0	16	5	21	6	6	0	12	52
Total	2	41	24	67	6	8	1	15	0	68	17	85	20	10	2	32	199
Grand Total	3	92	35	130	11	8	2	21	2	161	35	198	38	19	3	60	409
Apprch %	2.3	70.8	26.9		52.4	38.1	9.5		1	81.3	17.7		63.3	31.7	5		
Total %	0.7	22.5	8.6	31.8	2.7	2	0.5	5.1	0.5	39.4	8.6	48.4	9.3	4.6	0.7	14.7	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**15**	3	**18**	0	0	0	0	**1**	27	2	30	**6**	**4**	0	**10**	58
07:30 AM	0	15	2	17	**4**	0	0	**4**	1	**31**	2	**34**	4	1	0	5	**60**
07:45 AM	0	11	**4**	15	1	0	0	1	0	19	**8**	27	5	1	**1**	7	50
08:00 AM	0	10	4	14	3	**1**	0	4	0	24	6	30	6	3	0	9	57
Total Volume	0	51	13	64	8	1	0	9	2	101	18	121	21	9	1	31	225
% App. Total	0	79.7	20.3		88.9	11.1	0		1.7	83.5	14.9		67.7	29	3.2		
PHF	.000	.850	.813	.889	.500	.250	.000	.563	.500	.815	.563	.890	.875	.563	.250	.775	.938

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**15**	3	**18**	0	0	0	0	**1**	27	2	30	**6**	**4**	0	**10**
+15 mins.	0	15	2	17	**4**	0	0	**4**	1	**31**	2	**34**	4	1	0	5
+30 mins.	0	11	**4**	15	1	0	0	1	0	19	**8**	27	5	1	**1**	7
+45 mins.	0	10	4	14	3	**1**	0	4	0	24	6	30	6	3	0	9
Total Volume	0	51	13	64	8	1	0	9	2	101	18	121	21	9	1	31
% App. Total	0	79.7	20.3		88.9	11.1	0		1.7	83.5	14.9		67.7	29	3.2	
PHF	.000	.850	.813	.889	.500	.250	.000	.563	.500	.815	.563	.890	.875	.563	.250	.775

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

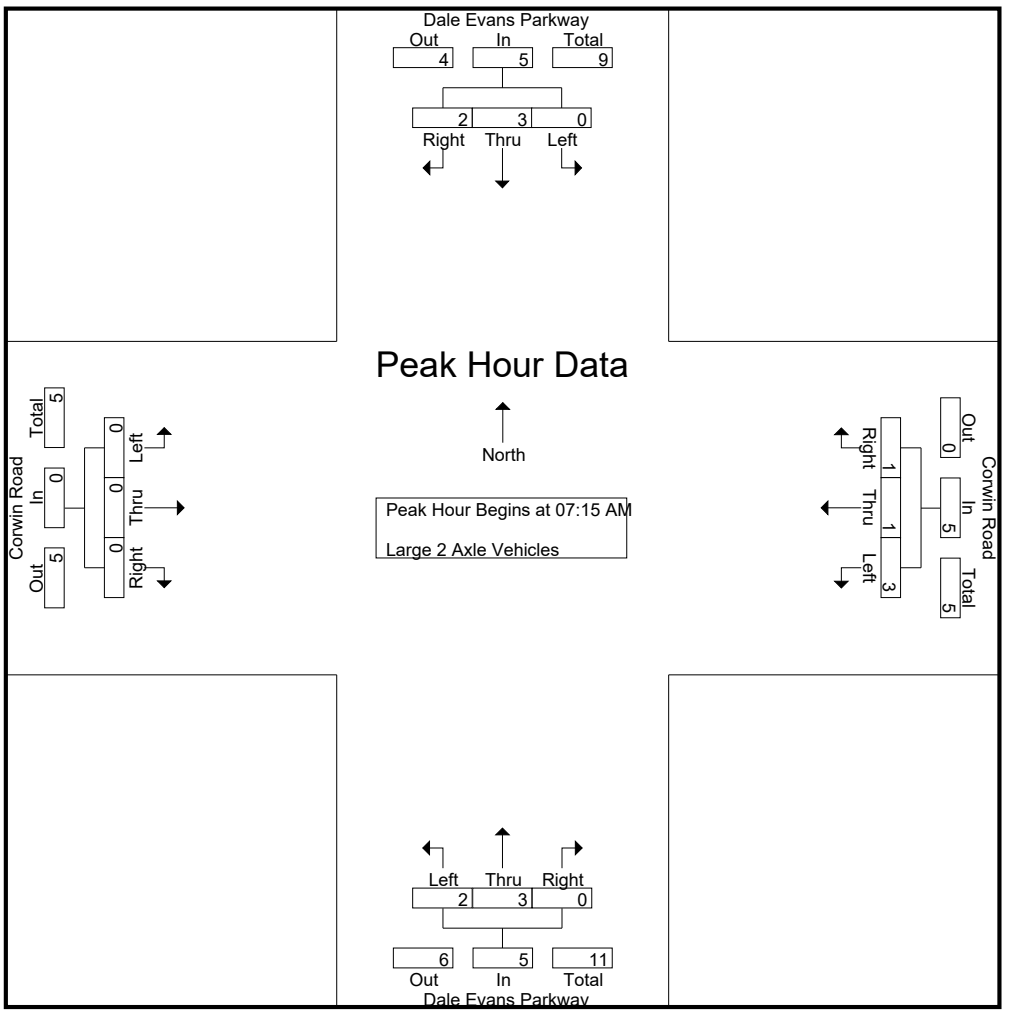
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	1	1	2	2	0	0	2	0	1	0	1	0	0	0	0	5
07:45 AM	0	0	0	0	0	1	0	1	2	0	0	2	0	0	0	0	3
Total	0	1	1	2	2	1	1	4	2	2	0	4	0	0	0	0	10
08:00 AM	0	2	1	3	1	0	0	1	0	2	0	2	0	0	0	0	6
08:15 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
08:30 AM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45 AM	0	1	0	1	0	0	1	1	2	2	0	4	0	0	1	1	7
Total	0	4	3	7	1	1	1	3	2	4	0	6	0	0	1	1	17
Grand Total	0	5	4	9	3	2	2	7	4	6	0	10	0	0	1	1	27
Apprch %	0	55.6	44.4		42.9	28.6	28.6		40	60	0		0	0	100		
Total %	0	18.5	14.8	33.3	11.1	7.4	7.4	25.9	14.8	22.2	0	37	0	0	3.7	3.7	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	1	**1**	2	**2**	0	0	**2**	0	1	0	1	0	0	0	0	5
07:45 AM	0	0	0	0	0	**1**	0	1	**2**	0	0	**2**	0	0	0	0	3
08:00 AM	0	**2**	1	**3**	1	0	0	1	0	**2**	0	2	0	0	0	0	**6**
Total Volume	0	3	2	5	3	1	1	5	2	3	0	5	0	0	0	0	15
% App. Total	0	60	40		60	20	20		40	60	0		0	0	0		
PHF	.000	.375	.500	.417	.375	.250	.250	.625	.250	.375	.000	.625	.000	.000	.000	.000	.625

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0
+15 mins.	0	1	**1**	2	**2**	0	0	**2**	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	**1**	0	1	**2**	0	0	**2**	0	0	0	0
+45 mins.	0	**2**	1	**3**	1	0	0	1	0	**2**	0	2	0	0	0	0
Total Volume	0	3	2	5	3	1	1	5	2	3	0	5	0	0	0	0
% App. Total	0	60	40		60	20	20		40	60	0		0	0	0	
PHF	.000	.375	.500	.417	.375	.250	.250	.625	.250	.375	.000	.625	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

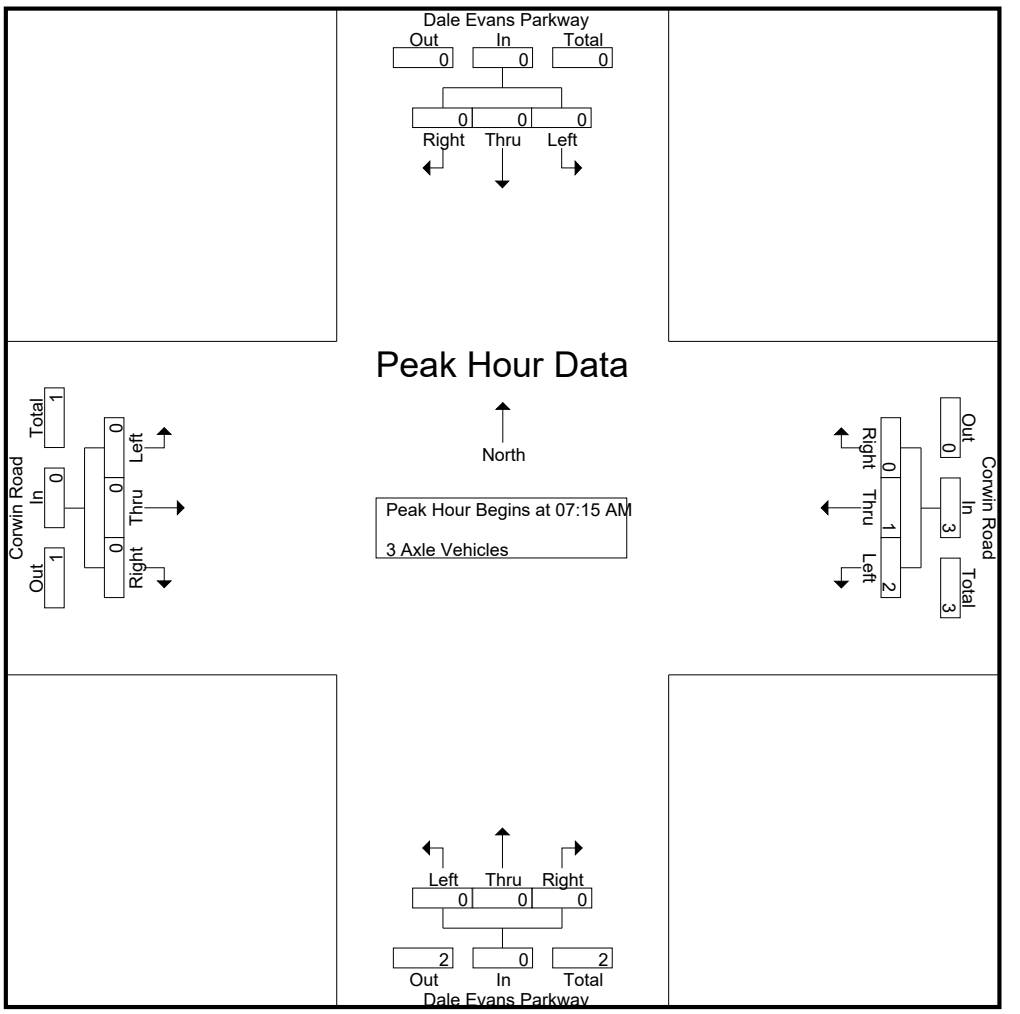
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45 AM	0	1	0	1	0	1	0	1	2	0	0	2	0	0	0	0	4
Total	0	1	0	1	0	1	0	1	2	1	0	3	0	1	1	2	7
Grand Total	0	1	0	1	2	2	0	4	2	1	0	3	0	1	1	2	10
Apprch %	0	100	0		50	50	0		66.7	33.3	0		0	50	50		
Total %	0	10	0	10	20	20	0	40	20	10	0	30	0	10	10	20	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	1	**1**	0	**2**	0	0	0	0	0	0	0	0	**2**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
% App. Total	0	0	0		66.7	33.3	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.500	.250	.000	.375	.000	.000	.000	.000	.000	.000	.000	.000	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	1	**1**	0	**2**	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0
% App. Total	0	0	0		66.7	33.3	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.500	.250	.000	.375	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

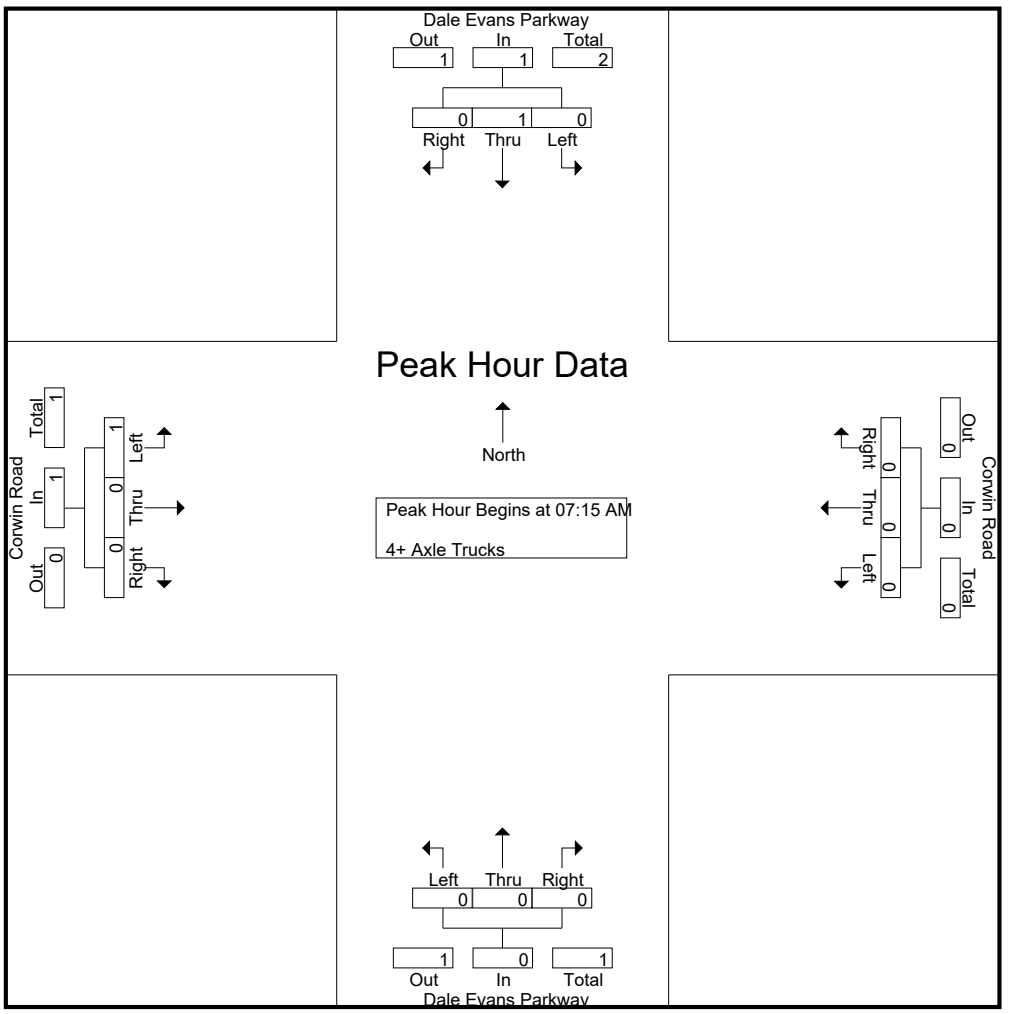
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	1	2	0	0	0	0	0	1	0	1	0	0	0	0	3
Grand Total	0	1	1	2	0	0	0	0	0	1	0	1	1	0	0	1	4
Apprch %	0	50	50		0	0	0		0	100	0		100	0	0		
Total %	0	25	25	50	0	0	0	0	0	25	0	25	25	0	0	25	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**1**
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
% App. Total	0	100	0		0	0	0		0	0	0		100	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw AM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		100	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

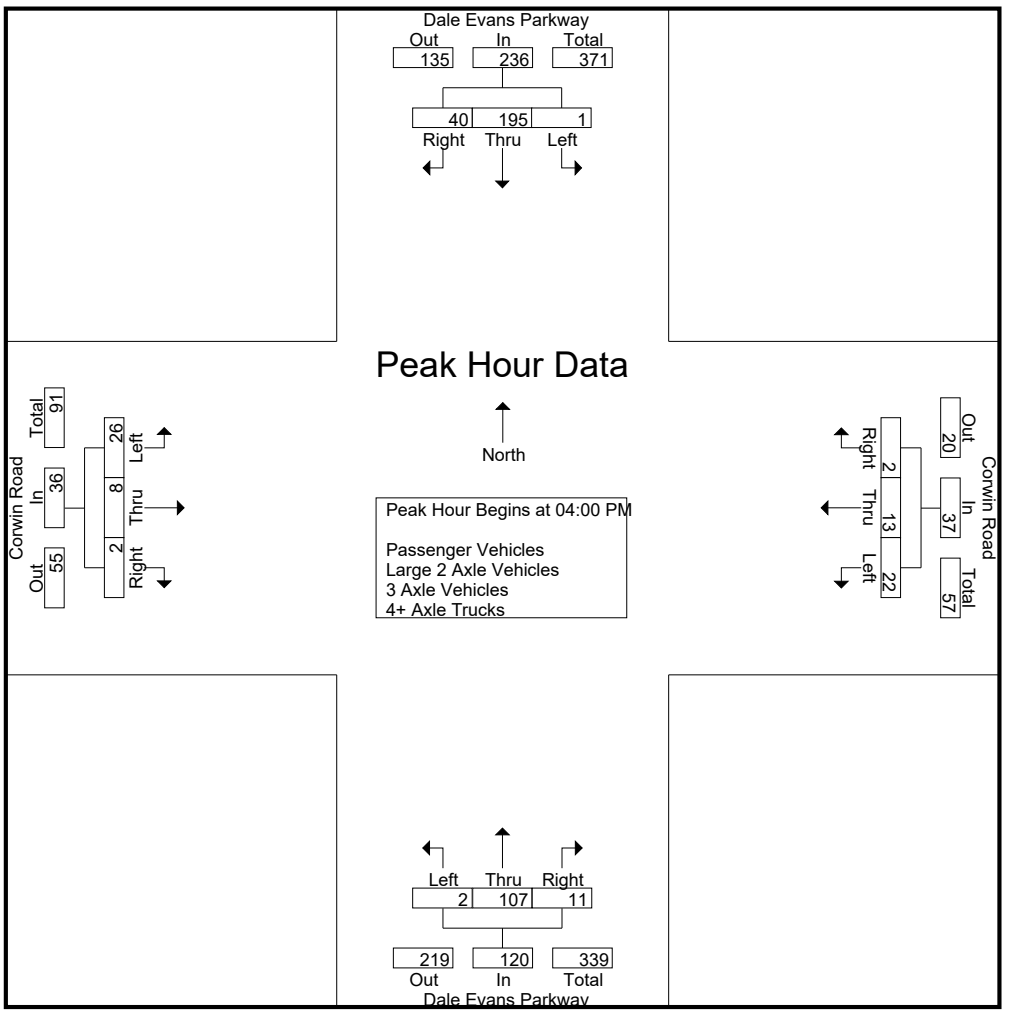
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	56	21	77	8	7	1	16	0	31	3	34	12	5	1	18	145
04:15 PM	1	44	5	50	7	1	0	8	0	39	4	43	8	1	1	10	111
04:30 PM	0	47	5	52	3	3	1	7	0	19	1	20	3	1	0	4	83
04:45 PM	0	48	9	57	4	2	0	6	2	18	3	23	3	1	0	4	90
Total	1	195	40	236	22	13	2	37	2	107	11	120	26	8	2	36	429
05:00 PM	0	56	10	66	4	3	0	7	0	17	0	17	9	2	0	11	101
05:15 PM	0	42	11	53	7	2	0	9	0	17	1	18	5	3	0	8	88
05:30 PM	0	39	12	51	4	0	0	4	0	9	0	9	2	0	0	2	66
05:45 PM	0	22	9	31	2	0	0	2	2	12	1	15	1	0	0	1	49
Total	0	159	42	201	17	5	0	22	2	55	2	59	17	5	0	22	304
Grand Total	1	354	82	437	39	18	2	59	4	162	13	179	43	13	2	58	733
Apprch %	0.2	81	18.8		66.1	30.5	3.4		2.2	90.5	7.3		74.1	22.4	3.4		
Total %	0.1	48.3	11.2	59.6	5.3	2.5	0.3	8	0.5	22.1	1.8	24.4	5.9	1.8	0.3	7.9	
Passenger Vehicles	1	347	80	428	37	18	2	57	2	156	13	171	43	13	2	58	714
% Passenger Vehicles	100	98	97.6	97.9	94.9	100	100	96.6	50	96.3	100	95.5	100	100	100	100	97.4
Large 2 Axle Vehicles	0	3	2	5	2	0	0	2	2	3	0	5	0	0	0	0	12
% Large 2 Axle Vehicles	0	0.8	2.4	1.1	5.1	0	0	3.4	50	1.9	0	2.8	0	0	0	0	1.6
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
% 3 Axle Vehicles	0	0.3	0	0.2	0	0	0	0	0	1.9	0	1.7	0	0	0	0	0.5
4+ Axle Trucks	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% 4+ Axle Trucks	0	0.8	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0.4

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**56**	**21**	**77**	**8**	**7**	**1**	**16**	0	31	3	34	**12**	**5**	**1**	**18**	**145**
04:15 PM	**1**	44	5	50	7	1	0	8	0	**39**	**4**	**43**	8	1	1	10	111
04:30 PM	0	47	5	52	3	3	1	7	0	19	1	20	3	1	0	4	83
04:45 PM	0	48	9	57	4	2	0	6	**2**	18	3	23	3	1	0	4	90
Total Volume	1	195	40	236	22	13	2	37	2	107	11	120	26	8	2	36	429
% App. Total	0.4	82.6	16.9		59.5	35.1	5.4		1.7	89.2	9.2		72.2	22.2	5.6		
PHF	.250	.871	.476	.766	.688	.464	.500	.578	.250	.686	.688	.698	.542	.400	.500	.500	.740

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**56**	**21**	**77**	**8**	**7**	**1**	**16**	0	31	3	34	**12**	**5**	**1**	**18**
+15 mins.	**1**	44	5	50	7	1	0	8	0	**39**	**4**	**43**	8	1	1	10
+30 mins.	0	47	5	52	3	3	1	7	0	19	1	20	3	1	0	4
+45 mins.	0	48	9	57	4	2	0	6	**2**	18	3	23	3	1	0	4
Total Volume	1	195	40	236	22	13	2	37	2	107	11	120	26	8	2	36
% App. Total	0.4	82.6	16.9		59.5	35.1	5.4		1.7	89.2	9.2		72.2	22.2	5.6	
PHF	.250	.871	.476	.766	.688	.464	.500	.578	.250	.686	.688	.698	.542	.400	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Passenger Vehicles

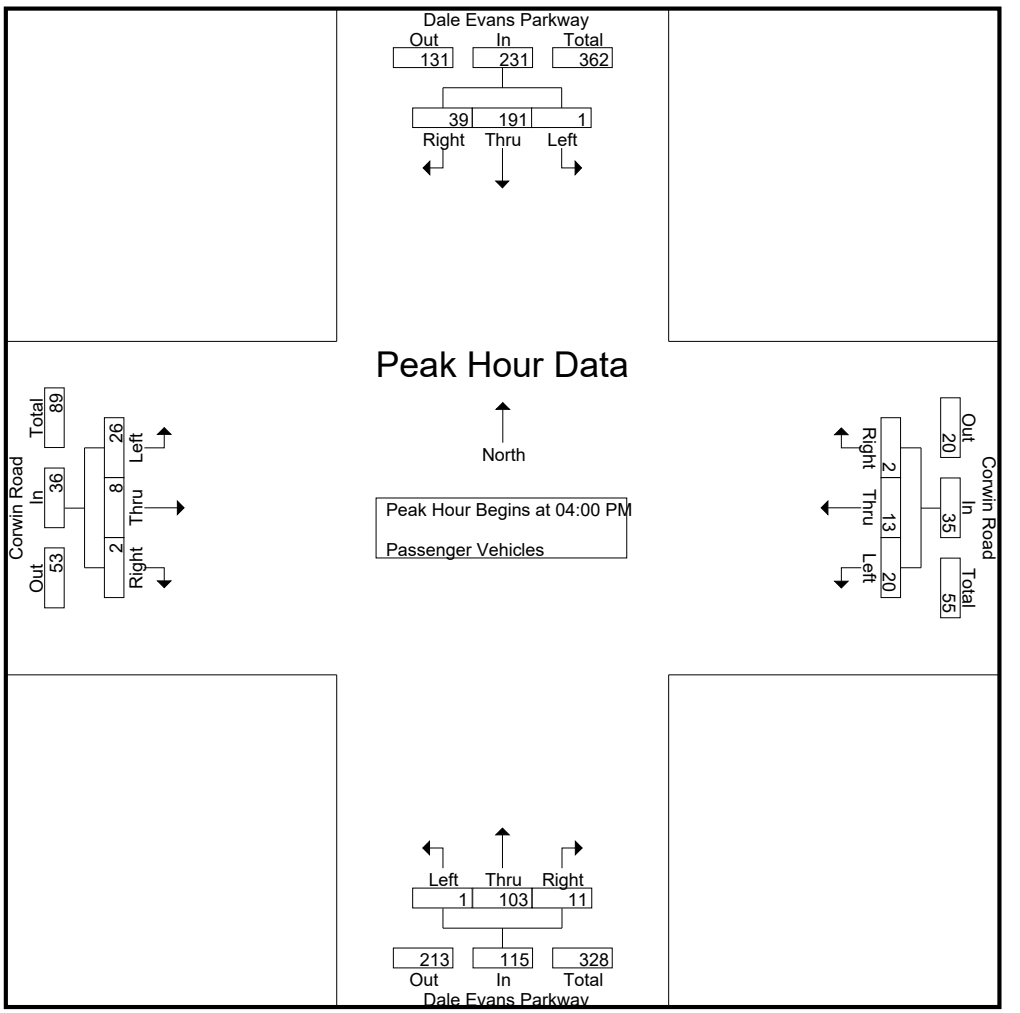
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	54	21	75	7	7	1	15	0	29	3	32	12	5	1	18	140
04:15 PM	1	43	5	49	6	1	0	7	0	38	4	42	8	1	1	10	108
04:30 PM	0	46	4	50	3	3	1	7	0	19	1	20	3	1	0	4	81
04:45 PM	0	48	9	57	4	2	0	6	1	17	3	21	3	1	0	4	88
Total	1	191	39	231	20	13	2	35	1	103	11	115	26	8	2	36	417
05:00 PM	0	55	10	65	4	3	0	7	0	16	0	16	9	2	0	11	99
05:15 PM	0	41	11	52	7	2	0	9	0	16	1	17	5	3	0	8	86
05:30 PM	0	39	12	51	4	0	0	4	0	9	0	9	2	0	0	2	66
05:45 PM	0	21	8	29	2	0	0	2	1	12	1	14	1	0	0	1	46
Total	0	156	41	197	17	5	0	22	1	53	2	56	17	5	0	22	297
Grand Total	1	347	80	428	37	18	2	57	2	156	13	171	43	13	2	58	714
Apprch %	0.2	81.1	18.7		64.9	31.6	3.5		1.2	91.2	7.6		74.1	22.4	3.4		
Total %	0.1	48.6	11.2	59.9	5.2	2.5	0.3	8	0.3	21.8	1.8	23.9	6	1.8	0.3	8.1	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**54**	**21**	**75**	**7**	**7**	**1**	**15**	0	29	3	32	**12**	**5**	**1**	**18**	**140**
04:15 PM	**1**	43	5	49	6	1	0	7	0	**38**	**4**	**42**	8	1	1	10	108
04:30 PM	0	46	4	50	3	3	1	7	0	19	1	20	3	1	0	4	81
04:45 PM	0	48	9	57	4	2	0	6	**1**	17	3	21	3	1	0	4	88
Total Volume	1	191	39	231	20	13	2	35	1	103	11	115	26	8	2	36	417
% App. Total	0.4	82.7	16.9		57.1	37.1	5.7		0.9	89.6	9.6		72.2	22.2	5.6		
PHF	.250	.884	.464	.770	.714	.464	.500	.583	.250	.678	.688	.685	.542	.400	.500	.500	.745

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**54**	**21**	**75**	**7**	**7**	**1**	**15**	0	29	3	32	**12**	**5**	**1**	**18**
+15 mins.	**1**	43	5	49	6	1	0	7	0	**38**	**4**	**42**	8	1	1	10
+30 mins.	0	46	4	50	3	3	1	7	0	19	1	20	3	1	0	4
+45 mins.	0	48	9	57	4	2	0	6	**1**	17	3	21	3	1	0	4
Total Volume	1	191	39	231	20	13	2	35	1	103	11	115	26	8	2	36
% App. Total	0.4	82.7	16.9		57.1	37.1	5.7		0.9	89.6	9.6		72.2	22.2	5.6	
PHF	.250	.884	.464	.770	.714	.464	.500	.583	.250	.678	.688	.685	.542	.400	.500	.500

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- Large 2 Axle Vehicles

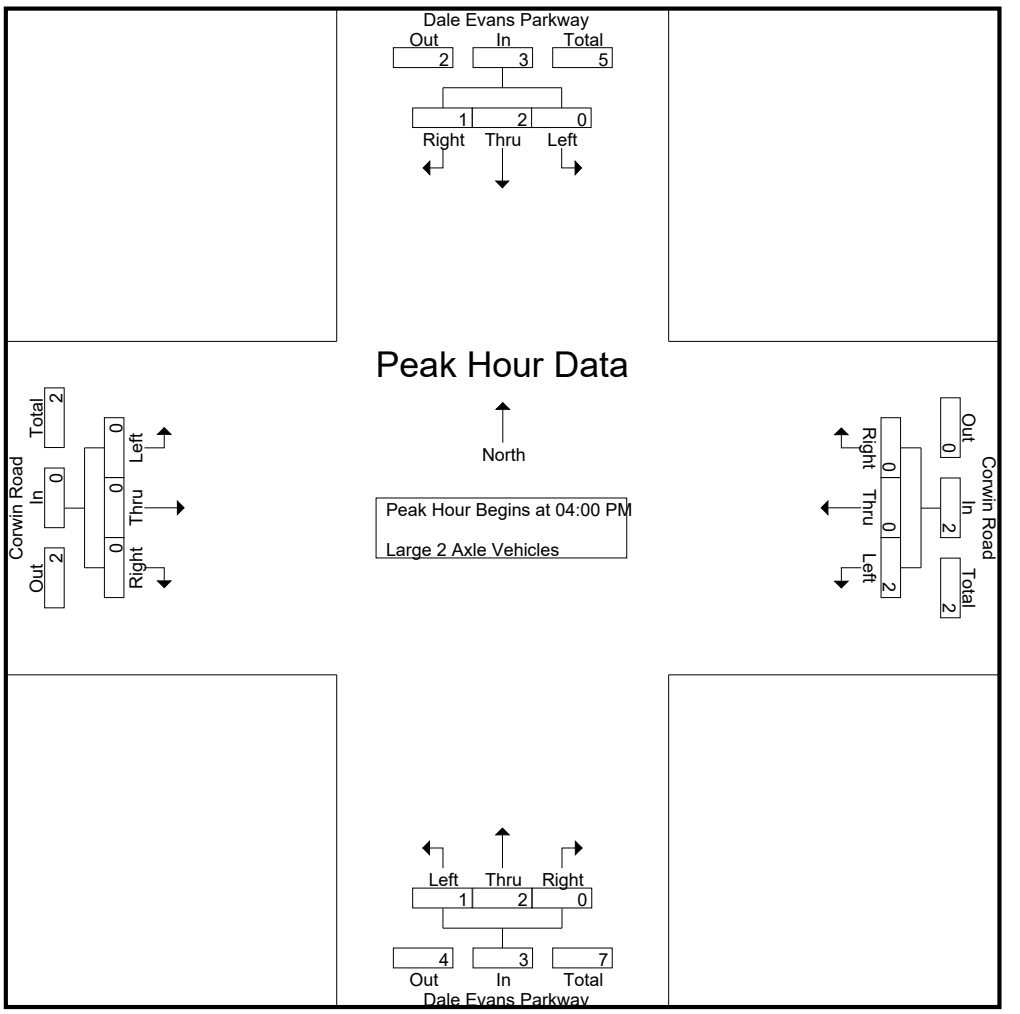
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
04:15 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
Total	0	2	1	3	2	0	0	2	1	2	0	3	0	0	0	0	8
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	2
Total	0	1	1	2	0	0	0	0	1	1	0	2	0	0	0	0	4
Grand Total	0	3	2	5	2	0	0	2	2	3	0	5	0	0	0	0	12
Apprch %	0	60	40		100	0	0		40	60	0		0	0	0		
Total %	0	25	16.7	41.7	16.7	0	0	16.7	16.7	25	0	41.7	0	0	0	0	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	**1**	0	0	**1**	0	**1**	0	1	0	0	0	0	**2**
04:15 PM	0	**1**	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	1	**1**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	**1**	1	0	**2**	0	0	0	0	2
Total Volume	0	2	1	3	2	0	0	2	1	2	0	3	0	0	0	0	8
% App. Total	0	66.7	33.3		100	0	0		33.3	66.7	0		0	0	0		
PHF	.000	.500	.250	.375	.500	.000	.000	.500	.250	.500	.000	.375	.000	.000	.000	.000	1.00

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	**1**	0	0	**1**	0	**1**	0	1	0	0	0	0
+15 mins.	0	**1**	0	1	1	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	1	**1**	**2**	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	**1**	1	0	**2**	0	0	0	0
Total Volume	0	2	1	3	2	0	0	2	1	2	0	3	0	0	0	0
% App. Total	0	66.7	33.3		100	0	0		33.3	66.7	0		0	0	0	
PHF	.000	.500	.250	.375	.500	.000	.000	.500	.250	.500	.000	.375	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 3 Axle Vehicles

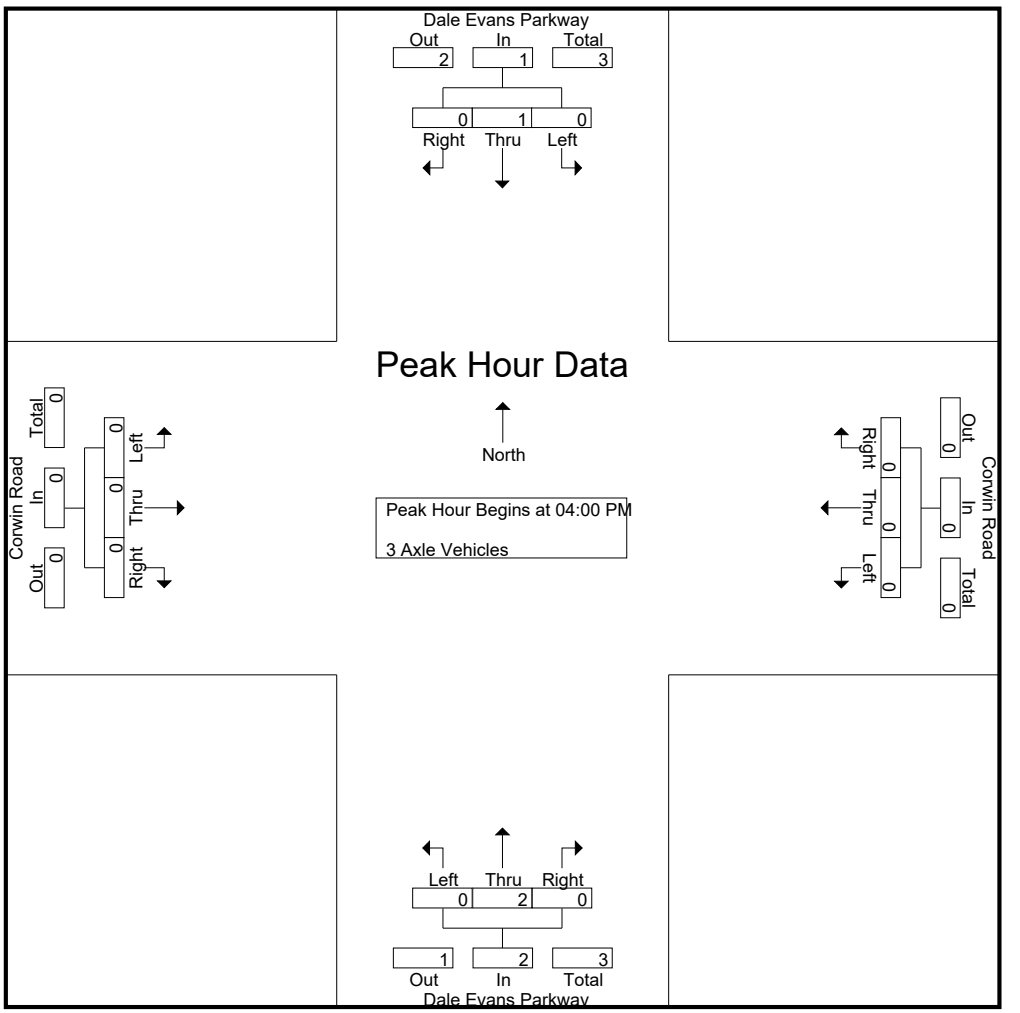
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	25	0	25	0	0	0	0	0	75	0	75	0	0	0	0	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
04:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.375

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 1

Groups Printed- 4+ Axle Trucks

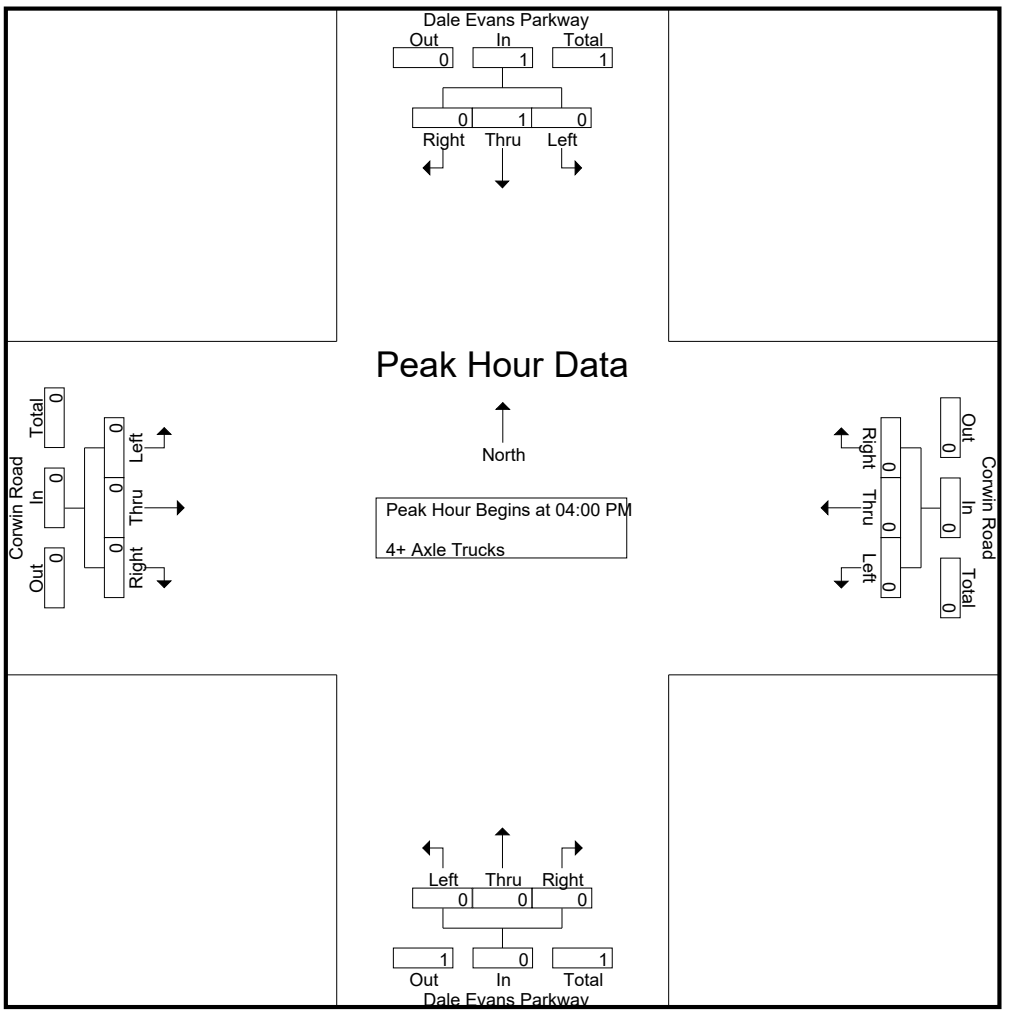
	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	Dale Evans Parkway Southbound				Corwin Road Westbound				Dale Evans Parkway Northbound				Corwin Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Apple Valley
N/S: Dale Evans Parkway
E/W: Corwin Road
Weather: Clear

File Name : 08_APV_DEP_Corw PM
Site Code : 231073
Start Date : 11/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Dale Evans Parkway
N/ Johnson Road
24 Hour Directional Classification Count

APV001
Site Code: 051-231073

Northbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	16	0	0	0	0	0	0	3	0	0	0	0	19
01:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
02:00	0	10	0	0	0	0	0	0	2	0	0	0	0	12
03:00	0	27	0	0	1	0	0	0	1	0	0	0	0	29
04:00	0	51	0	0	2	0	0	0	14	0	0	0	0	67
05:00	0	**121**	**15**	0	**3**	0	0	0	14	0	0	0	0	**153**
06:00	0	115	12	1	1	0	0	0	9	0	0	0	0	138
07:00	0	87	12	1	0	0	0	0	8	0	0	0	0	108
08:00	0	57	11	**3**	2	**1**	0	0	10	0	0	0	0	84
09:00	0	53	10	0	1	0	0	0	**15**	0	0	0	0	79
10:00	0	49	10	0	0	0	0	0	10	0	0	0	0	69
11:00	0	50	11	0	1	0	0	**1**	8	0	0	0	0	71
12 PM	0	50	5	2	**2**	0	0	1	**17**	0	0	0	0	77
13:00	0	61	8	**4**	2	0	0	0	15	0	0	0	0	**90**
14:00	0	57	**11**	2	0	0	0	0	12	0	0	0	0	82
15:00	0	49	5	0	0	0	0	**2**	14	0	0	0	0	70
16:00	0	**65**	8	0	1	0	0	0	5	0	0	0	0	79
17:00	0	56	2	0	0	0	0	0	7	0	0	0	0	65
18:00	0	41	2	0	0	0	0	0	3	0	0	0	0	46
19:00	0	21	0	1	1	0	0	0	4	0	0	0	0	27
20:00	0	28	0	0	2	0	0	0	1	0	0	0	0	31
21:00	0	12	0	0	0	0	0	0	4	0	0	0	0	16
22:00	0	16	0	0	0	0	0	0	2	0	0	0	0	18
23:00	0	11	0	0	0	0	0	0	5	0	0	0	0	16
Total	0	1107	122	14	19	1	0	4	183	0	0	0	0	1450
Percent	0.0%	76.3%	8.4%	1.0%	1.3%	0.1%	0.0%	0.3%	12.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak		05:00	05:00	08:00	05:00	08:00		11:00	09:00					05:00
Vol.		121	15	3	3	1		1	15					153
PM Peak		16:00	14:00	13:00	12:00			15:00	12:00					13:00
Vol.		65	11	4	2			2	17					90
Grand Total	0	1107	122	14	19	1	0	4	183	0	0	0	0	1450
Percent	0.0%	76.3%	8.4%	1.0%	1.3%	0.1%	0.0%	0.3%	12.6%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Dale Evans Parkway
N/ Johnson Road
24 Hour Directional Classification Count

APV001
Site Code: 051-231073

Southbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	10	1	0	0	0	0	0	10	0	0	0	0	21
01:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
02:00	0	8	0	0	1	0	0	0	2	0	0	0	0	11
03:00	0	11	2	0	0	0	0	0	1	0	0	0	0	14
04:00	0	14	2	0	0	0	0	0	1	0	0	0	0	17
05:00	0	23	0	0	1	0	0	1	7	0	0	0	0	32
06:00	0	39	3	0	0	0	0	0	4	0	0	0	0	46
07:00	0	46	9	1	2	0	0	1	11	0	0	0	0	70
08:00	0	45	8	**2**	**4**	0	0	**2**	12	0	0	0	0	73
09:00	0	34	9	0	1	1	0	0	7	0	0	0	0	52
10:00	0	**50**	4	0	4	**2**	0	1	**17**	0	0	0	0	78
11:00	0	48	**13**	0	4	0	0	1	15	0	0	0	0	**81**
12 PM	0	61	9	1	**5**	**1**	0	0	11	0	0	0	0	88
13:00	0	59	10	**3**	1	0	0	0	12	0	0	**1**	0	86
14:00	0	73	23	1	0	0	0	0	**15**	0	0	0	0	112
15:00	0	125	24	0	2	0	0	0	11	0	0	0	0	162
16:00	**1**	**137**	**37**	0	2	0	0	0	10	0	0	0	0	**187**
17:00	1	135	16	0	0	0	**1**	**1**	12	0	0	0	0	166
18:00	0	78	3	0	2	0	0	0	14	0	0	0	0	97
19:00	0	51	1	1	2	0	0	1	12	0	0	0	0	68
20:00	0	31	1	0	0	0	0	1	9	0	0	0	0	42
21:00	0	23	1	0	0	0	0	0	13	0	0	0	0	37
22:00	0	21	0	0	0	0	0	1	7	0	0	0	0	29
23:00	0	32	0	0	1	0	0	0	8	0	0	0	0	41
Total	2	1161	177	9	32	4	1	10	221	0	0	1	0	1618
Percent	0.1%	71.8%	10.9%	0.6%	2.0%	0.2%	0.1%	0.6%	13.7%	0.0%	0.0%	0.1%	0.0%	
AM Peak		10:00	11:00	08:00	08:00	10:00		08:00	10:00					11:00
Vol.		50	13	2	4	2		2	17					81
PM Peak	16:00	16:00	16:00	13:00	12:00	12:00	17:00	17:00	14:00			13:00		16:00
Vol.	1	137	37	3	5	1	1	1	15			1		187
Grand Total	2	1161	177	9	32	4	1	10	221	0	0	1	0	1618
Percent	0.1%	71.8%	10.9%	0.6%	2.0%	0.2%	0.1%	0.6%	13.7%	0.0%	0.0%	0.1%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Dale Evans Parkway
N/ Johnson Road
24 Hour Directional Classification Count
Northbound, Southbound

APV001
Site Code: 051-231073

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	26	1	0	0	0	0	0	13	0	0	0	0	40
01:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
02:00	0	18	0	0	1	0	0	0	4	0	0	0	0	23
03:00	0	38	2	0	1	0	0	0	2	0	0	0	0	43
04:00	0	65	2	0	2	0	0	0	15	0	0	0	0	84
05:00	0	144	15	0	4	0	0	1	21	0	0	0	0	**185**
06:00	0	**154**	15	1	1	0	0	0	13	0	0	0	0	184
07:00	0	133	21	2	2	0	0	1	19	0	0	0	0	178
08:00	0	102	19	**5**	**6**	1	0	**2**	22	0	0	0	0	157
09:00	0	87	19	0	2	1	0	0	22	0	0	0	0	131
10:00	0	99	14	0	4	**2**	0	1	**27**	0	0	0	0	147
11:00	0	98	**24**	0	5	0	0	2	23	0	0	0	0	152
12 PM	0	111	14	3	**7**	**1**	0	1	**28**	0	0	0	0	165
13:00	0	120	18	**7**	3	0	0	0	27	0	0	**1**	0	176
14:00	0	130	34	3	0	0	0	0	27	0	0	0	0	194
15:00	0	174	29	0	2	0	0	**2**	25	0	0	0	0	232
16:00	**1**	**202**	**45**	0	3	0	0	0	15	0	0	0	0	**266**
17:00	1	191	18	0	0	0	**1**	1	19	0	0	0	0	231
18:00	0	119	5	0	2	0	0	0	17	0	0	0	0	143
19:00	0	72	1	2	3	0	0	1	16	0	0	0	0	95
20:00	0	59	1	0	2	0	0	1	10	0	0	0	0	73
21:00	0	35	1	0	0	0	0	0	17	0	0	0	0	53
22:00	0	37	0	0	0	0	0	1	9	0	0	0	0	47
23:00	0	43	0	0	1	0	0	0	13	0	0	0	0	57
Total	2	2268	299	23	51	5	1	14	404	0	0	1	0	3068
Percent	0.1%	73.9%	9.7%	0.7%	1.7%	0.2%	0.0%	0.5%	13.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak		06:00	11:00	08:00	08:00	10:00		08:00	10:00					05:00
Vol.		154	24	5	6	2		2	27					185
PM Peak	16:00	16:00	16:00	13:00	12:00	12:00	17:00	15:00	12:00			13:00		16:00
Vol.	1	202	45	7	7	1	1	2	28			1		266
Grand Total	2	2268	299	23	51	5	1	14	404	0	0	1	0	3068
Percent	0.1%	73.9%	9.7%	0.7%	1.7%	0.2%	0.0%	0.5%	13.2%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Johnson Road
E/ Dale Evans Parkway
24 Hour Directional Classification Count

APV002
Site Code: 051-231073

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	7	0	0	0	0	0	0	13	0	0	0	0	20
01:00	0	10	0	0	0	0	0	1	0	0	0	0	0	11
02:00	0	14	0	0	0	0	0	1	8	0	0	0	0	23
03:00	0	29	0	0	0	0	0	1	3	0	0	0	0	33
04:00	0	120	4	0	0	0	0	1	3	0	0	0	0	128
05:00	0	**155**	5	0	0	0	0	2	12	0	0	0	0	**174**
06:00	0	51	**8**	**1**	2	0	0	3	19	0	0	0	0	84
07:00	**1**	73	3	1	3	0	0	2	24	0	0	0	0	107
08:00	0	44	6	1	1	**3**	0	**5**	30	0	0	0	0	90
09:00	0	20	4	1	1	0	0	0	24	0	0	0	0	50
10:00	0	35	2	1	**5**	0	0	2	**36**	0	0	0	0	81
11:00	0	32	7	1	1	2	0	4	32	0	0	0	0	79
12 PM	**1**	32	6	1	0	**1**	0	**4**	15	0	0	0	0	60
13:00	0	39	8	**2**	1	1	0	1	22	0	0	**1**	0	75
14:00	0	30	8	2	0	0	0	1	**28**	0	0	0	0	69
15:00	0	71	10	1	**2**	1	0	3	18	0	0	0	0	106
16:00	0	**207**	**21**	1	1	1	0	3	14	0	0	0	0	**248**
17:00	0	70	5	1	0	0	0	4	17	0	0	0	0	97
18:00	0	34	0	1	0	0	0	0	24	0	0	0	0	59
19:00	0	26	0	0	1	0	0	0	17	0	0	0	0	44
20:00	0	24	0	0	2	0	0	0	19	0	0	0	0	45
21:00	0	31	0	0	1	0	0	0	20	0	0	0	0	52
22:00	0	9	0	0	0	0	0	0	14	0	0	0	0	23
23:00	0	8	0	0	0	0	0	0	13	0	0	0	0	21
Total	2	1171	97	15	21	9	0	38	425	0	0	1	0	1779
Percent	0.1%	65.8%	5.5%	0.8%	1.2%	0.5%	0.0%	2.1%	23.9%	0.0%	0.0%	0.1%	0.0%	
AM Peak	07:00	05:00	06:00	06:00	10:00	08:00		08:00	10:00					05:00
Vol.	1	155	8	1	5	3		5	36					174
PM Peak	12:00	16:00	16:00	13:00	15:00	12:00		12:00	14:00			13:00		16:00
Vol.	1	207	21	2	2	1		4	28			1		248
Grand Total	2	1171	97	15	21	9	0	38	425	0	0	1	0	1779
Percent	0.1%	65.8%	5.5%	0.8%	1.2%	0.5%	0.0%	2.1%	23.9%	0.0%	0.0%	0.1%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Johnson Road
E/ Dale Evans Parkway
24 Hour Directional Classification Count

APV002
Site Code: 051-231073

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	14	0	0	0	**1**	0	0	9	0	0	0	0	24
01:00	0	8	0	0	0	0	0	0	6	0	0	0	0	14
02:00	0	51	2	0	0	0	0	0	8	0	0	0	0	61
03:00	0	**150**	1	0	0	0	0	0	5	0	0	0	0	**156**
04:00	0	20	0	0	0	0	0	0	21	0	0	0	0	41
05:00	0	29	3	0	0	0	0	0	17	0	0	0	0	49
06:00	0	25	6	**2**	0	0	0	0	16	0	0	0	0	49
07:00	0	32	6	2	0	1	0	2	20	0	0	0	0	63
08:00	0	14	2	1	**2**	1	0	**3**	25	0	0	0	0	48
09:00	0	14	6	1	1	1	0	0	**40**	0	0	0	0	63
10:00	0	30	7	1	2	0	0	0	26	0	0	0	0	66
11:00	0	12	**8**	1	1	1	0	2	26	0	0	0	0	51
12 PM	**1**	27	5	1	**1**	2	0	**4**	**36**	0	0	0	0	77
13:00	0	41	6	**2**	1	0	0	2	34	0	0	0	0	86
14:00	0	48	7	1	0	1	0	1	21	0	0	0	0	79
15:00	0	117	15	1	0	2	0	3	19	0	0	**1**	0	158
16:00	0	**183**	**19**	1	0	1	0	0	6	0	0	0	0	**210**
17:00	0	102	4	0	0	**3**	0	1	10	0	0	0	0	120
18:00	0	40	1	0	1	2	0	0	9	0	0	0	0	53
19:00	0	27	0	1	1	2	0	0	7	0	0	0	0	38
20:00	0	49	0	0	1	0	0	0	9	0	0	0	0	59
21:00	0	32	0	0	0	0	0	0	8	0	0	0	0	40
22:00	0	21	0	0	1	0	0	0	6	0	0	0	0	28
23:00	0	8	0	0	0	0	0	0	9	0	0	0	0	17
Total	1	1094	98	15	12	18	0	18	393	0	0	1	0	1650
Percent	0.1%	66.3%	5.9%	0.9%	0.7%	1.1%	0.0%	1.1%	23.8%	0.0%	0.0%	0.1%	0.0%	
AM Peak		03:00	11:00	06:00	08:00	00:00		08:00	09:00					03:00
Vol.		150	8	2	2	1		3	40					156
PM Peak	12:00	16:00	16:00	13:00	12:00	17:00		12:00	12:00			15:00		16:00
Vol.	1	183	19	2	1	3		4	36			1		210
Grand Total	1	1094	98	15	12	18	0	18	393	0	0	1	0	1650
Percent	0.1%	66.3%	5.9%	0.9%	0.7%	1.1%	0.0%	1.1%	23.8%	0.0%	0.0%	0.1%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Johnson Road
E/ Dale Evans Parkway
24 Hour Directional Classification Count

APV002
Site Code: 051-231073

Eastbound, Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	21	0	0	0	1	0	0	22	0	0	0	0	44
01:00	0	18	0	0	0	0	0	1	6	0	0	0	0	25
02:00	0	65	2	0	0	0	0	1	16	0	0	0	0	84
03:00	0	179	1	0	0	0	0	1	8	0	0	0	0	189
04:00	0	140	4	0	0	0	0	1	24	0	0	0	0	169
05:00	0	**184**	8	0	0	0	0	2	29	0	0	0	0	**223**
06:00	0	76	14	**3**	2	0	0	3	35	0	0	0	0	133
07:00	**1**	105	9	3	3	1	0	4	44	0	0	0	0	170
08:00	0	58	8	2	3	**4**	0	**8**	55	0	0	0	0	138
09:00	0	34	10	2	2	1	0	0	**64**	0	0	0	0	113
10:00	0	65	9	2	**7**	0	0	2	62	0	0	0	0	147
11:00	0	44	**15**	2	2	3	0	6	58	0	0	0	0	130
12 PM	**2**	59	11	2	1	**3**	0	**8**	51	0	0	0	0	137
13:00	0	80	14	**4**	2	1	0	3	**56**	0	0	**1**	0	161
14:00	0	78	15	3	0	1	0	2	49	0	0	0	0	148
15:00	0	188	25	2	2	3	0	6	37	0	0	1	0	264
16:00	0	**390**	**40**	2	1	2	0	3	20	0	0	0	0	**458**
17:00	0	172	9	1	0	3	0	5	27	0	0	0	0	217
18:00	0	74	1	1	1	2	0	0	33	0	0	0	0	112
19:00	0	53	0	1	2	2	0	0	24	0	0	0	0	82
20:00	0	73	0	0	**3**	0	0	0	28	0	0	0	0	104
21:00	0	63	0	0	1	0	0	0	28	0	0	0	0	92
22:00	0	30	0	0	1	0	0	0	20	0	0	0	0	51
23:00	0	16	0	0	0	0	0	0	22	0	0	0	0	38
Total	3	2265	195	30	33	27	0	56	818	0	0	2	0	3429
Percent	0.1%	66.1%	5.7%	0.9%	1.0%	0.8%	0.0%	1.6%	23.9%	0.0%	0.0%	0.1%	0.0%	
AM Peak	07:00	05:00	11:00	06:00	10:00	08:00		08:00	09:00					05:00
Vol.	1	184	15	3	7	4		8	64					223
PM Peak	12:00	16:00	16:00	13:00	20:00	12:00		12:00	13:00			13:00		16:00
Vol.	2	390	40	4	3	3		8	56			1		458
Grand Total	3	2265	195	30	33	27	0	56	818	0	0	2	0	3429
Percent	0.1%	66.1%	5.7%	0.9%	1.0%	0.8%	0.0%	1.6%	23.9%	0.0%	0.0%	0.1%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Stoddard Wells Road
S/ Johnson Road
24 Hour Directional Classification Count

APV003
Site Code: 051-231073

Northbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	5	2	0	0	1	0	1	3	0	0	0	0	12
01:00	0	8	0	0	0	0	0	1	1	0	0	0	0	10
02:00	0	16	2	0	0	0	0	2	6	0	0	0	0	26
03:00	0	31	4	0	0	0	0	1	1	0	0	0	0	37
04:00	0	**130**	23	0	2	1	0	0	9	0	0	0	0	165
05:00	0	130	**33**	0	2	0	0	1	13	0	0	0	0	**179**
06:00	0	68	19	0	2	0	0	**4**	21	0	0	0	0	114
07:00	**1**	66	7	0	1	0	0	1	30	0	0	0	0	106
08:00	0	41	11	0	0	**3**	0	4	**37**	0	0	0	0	96
09:00	0	28	7	0	**5**	0	0	0	31	0	0	0	0	71
10:00	0	23	9	0	3	0	0	3	35	0	0	0	0	73
11:00	0	31	17	0	3	3	0	3	30	0	0	0	0	87
12 PM	**1**	31	11	0	0	**2**	0	3	14	0	0	0	0	62
13:00	0	44	15	0	0	2	0	1	16	0	0	0	0	78
14:00	0	37	12	0	0	0	0	1	**21**	0	0	0	0	71
15:00	0	98	10	0	**4**	1	0	4	13	0	0	0	0	130
16:00	1	**187**	**20**	0	1	2	0	**5**	9	0	0	0	0	**225**
17:00	0	72	7	0	0	0	0	3	12	0	0	0	0	94
18:00	0	33	5	0	1	0	0	1	11	0	0	0	0	51
19:00	0	25	6	0	0	0	0	1	5	0	0	0	0	37
20:00	0	22	2	0	0	0	0	1	10	0	0	0	0	35
21:00	0	19	1	0	0	0	0	2	9	0	0	0	0	31
22:00	0	7	1	0	0	0	0	1	5	0	0	0	0	14
23:00	0	7	0	0	0	0	0	0	4	0	0	0	0	11
Total	3	1159	224	0	24	15	0	44	346	0	0	0	0	1815
Percent	0.2%	63.9%	12.3%	0.0%	1.3%	0.8%	0.0%	2.4%	19.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	04:00	05:00		09:00	08:00		06:00	08:00					05:00
Vol.	1	130	33		5	3		4	37					179
PM Peak	12:00	16:00	16:00		15:00	12:00		16:00	14:00					16:00
Vol.	1	187	20		4	2		5	21					225
Grand Total	3	1159	224	0	24	15	0	44	346	0	0	0	0	1815
Percent	0.2%	63.9%	12.3%	0.0%	1.3%	0.8%	0.0%	2.4%	19.1%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Stoddard Wells Road
S/ Johnson Road
24 Hour Directional Classification Count

APV003
Site Code: 051-231073

Southbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	5	0	0	0	0	0	0	3	0	0	0	0	8
01:00	0	10	0	0	0	0	0	0	8	0	0	0	0	18
02:00	0	26	8	0	0	0	0	**3**	5	0	0	0	0	42
03:00	0	**38**	14	0	0	0	0	0	6	0	0	0	0	58
04:00	0	20	6	0	0	0	0	2	8	0	0	0	0	36
05:00	0	19	4	0	0	**4**	0	0	4	0	0	**1**	0	32
06:00	0	29	5	0	2	2	0	0	15	0	0	0	0	53
07:00	0	33	**15**	0	0	1	0	2	23	0	0	0	0	74
08:00	0	21	9	0	**3**	1	0	2	34	0	0	0	0	70
09:00	0	19	14	0	0	1	**1**	0	**44**	0	0	0	0	**79**
10:00	0	23	13	0	2	0	0	1	33	0	0	0	0	72
11:00	0	21	7	0	0	2	0	1	31	0	0	0	0	62
12 PM	0	31	8	0	2	**3**	0	2	**27**	0	0	0	0	73
13:00	0	31	16	0	2	2	0	2	24	0	0	0	0	77
14:00	0	82	16	0	**3**	2	0	2	17	0	0	0	0	122
15:00	0	116	35	0	1	1	**1**	**3**	18	0	0	0	0	175
16:00	0	**181**	**44**	0	1	3	0	0	4	0	0	0	0	**233**
17:00	**1**	71	24	0	0	0	0	3	7	0	0	0	0	106
18:00	0	17	5	0	1	0	0	3	8	0	0	0	0	34
19:00	0	20	2	0	1	0	0	3	7	0	0	0	0	33
20:00	0	27	5	0	0	0	0	0	8	0	0	0	0	40
21:00	0	18	4	0	0	0	0	0	4	0	0	0	0	26
22:00	0	16	3	0	0	0	0	1	7	0	0	0	0	27
23:00	0	3	4	0	0	0	0	1	3	0	0	0	0	11
Total	1	877	261	0	18	22	2	31	348	0	0	1	0	1561
Percent	0.1%	56.2%	16.7%	0.0%	1.2%	1.4%	0.1%	2.0%	22.3%	0.0%	0.0%	0.1%	0.0%	
AM Peak		03:00	07:00		08:00	05:00	09:00	02:00	09:00			05:00		09:00
Vol.		38	15		3	4	1	3	44			1		79
PM Peak	17:00	16:00	16:00		14:00	12:00	15:00	15:00	12:00					16:00
Vol.	1	181	44		3	3	1	3	27					233
Grand Total	1	877	261	0	18	22	2	31	348	0	0	1	0	1561
Percent	0.1%	56.2%	16.7%	0.0%	1.2%	1.4%	0.1%	2.0%	22.3%	0.0%	0.0%	0.1%	0.0%	

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

Town of Apple Valley
Stoddard Wells Road
S/ Johnson Road
24 Hour Directional Classification Count
Northbound, Southbound

APV003
Site Code: 051-231073

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/08/23	0	10	2	0	0	1	0	1	6	0	0	0	0	20
01:00	0	18	0	0	0	0	0	1	9	0	0	0	0	28
02:00	0	42	10	0	0	0	0	5	11	0	0	0	0	68
03:00	0	69	18	0	0	0	0	1	7	0	0	0	0	95
04:00	0	**150**	29	0	2	1	0	2	17	0	0	0	0	201
05:00	0	149	**37**	0	2	4	0	1	17	0	0	**1**	0	**211**
06:00	0	97	24	0	4	2	0	4	36	0	0	0	0	167
07:00	**1**	99	22	0	1	1	0	3	53	0	0	0	0	180
08:00	0	62	20	0	3	4	0	**6**	71	0	0	0	0	166
09:00	0	47	21	0	**5**	1	**1**	0	**75**	0	0	0	0	150
10:00	0	46	22	0	5	0	0	4	68	0	0	0	0	145
11:00	0	52	24	0	3	**5**	0	4	61	0	0	0	0	149
12 PM	**1**	62	19	0	2	**5**	0	5	**41**	0	0	0	0	135
13:00	0	75	31	0	2	4	0	3	40	0	0	0	0	155
14:00	0	119	28	0	3	2	0	3	38	0	0	0	0	193
15:00	0	214	45	0	**5**	2	**1**	**7**	31	0	0	0	0	305
16:00	1	**368**	**64**	0	2	5	0	5	13	0	0	0	0	**458**
17:00	1	143	31	0	0	0	0	6	19	0	0	0	0	200
18:00	0	50	10	0	2	0	0	4	19	0	0	0	0	85
19:00	0	45	8	0	1	0	0	4	12	0	0	0	0	70
20:00	0	49	7	0	0	0	0	1	18	0	0	0	0	75
21:00	0	37	5	0	0	0	0	2	13	0	0	0	0	57
22:00	0	23	4	0	0	0	0	2	12	0	0	0	0	41
23:00	0	10	4	0	0	0	0	1	7	0	0	0	0	22
Total	4	2036	485	0	42	37	2	75	694	0	0	1	0	3376
Percent	0.1%	60.3%	14.4%	0.0%	1.2%	1.1%	0.1%	2.2%	20.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	04:00	05:00		09:00	11:00	09:00	08:00	09:00			05:00		05:00
Vol.	1	150	37		5	5	1	6	75			1		211
PM Peak	12:00	16:00	16:00		15:00	12:00	15:00	15:00	12:00					16:00
Vol.	1	368	64		5	5	1	7	41					458
Grand Total	4	2036	485	0	42	37	2	75	694	0	0	1	0	3376
Percent	0.1%	60.3%	14.4%	0.0%	1.2%	1.1%	0.1%	2.2%	20.6%	0.0%	0.0%	0.0%	0.0%	

This Page Intentionally Left Blank

APPENDIX 3.2: EXISTING (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	136	22	4	101	6	7
Future Volume (vph)	136	22	4	101	6	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			90		90	
Link Speed (mph)	45			45	30	
Link Distance (ft)	2660			1835	433	
Travel Time (s)	40.3			27.8	9.8	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

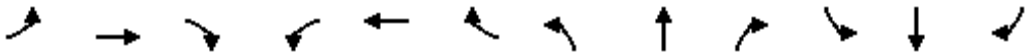
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	136	22	4	101	6	7
Future Vol, veh/h	136	22	4	101	6	7
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	170	28	5	126	8	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	203	0	330	194
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1369	-	665	847
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1362	-	656	839
Mov Cap-2 Maneuver	-	-	-	-	656	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	878	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	656	839	-	-	1362	-
HCM Lane V/C Ratio	0.011	0.01	-	-	0.004	-
HCM Control Delay (s)	10.6	9.3	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	101	21	8	70	29	11	101	13	44	52	2
Future Volume (vph)	4	101	21	8	70	29	11	101	13	44	52	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	101	21	8	70	29	11	101	13	44	52	2
Future Vol, veh/h	4	101	21	8	70	29	11	101	13	44	52	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	109	23	9	75	31	12	109	14	47	56	2
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	9.5	8.8	9.2	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	3%	10%	0%	100%	0%
Vol Thru, %	0%	100%	0%	80%	90%	0%	0%	96%
Vol Right, %	0%	0%	100%	17%	0%	100%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	101	13	126	78	29	44	54
LT Vol	11	0	0	4	8	0	44	0
Through Vol	0	101	0	101	70	0	0	52
RT Vol	0	0	13	21	0	29	0	2
Lane Flow Rate	12	109	14	135	84	31	47	58
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.02	0.166	0.019	0.202	0.13	0.042	0.08	0.089
Departure Headway (Hd)	6.009	5.505	4.8	5.369	5.571	4.818	6.067	5.536
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	647	740	664	640	737	587	643
Service Time	3.776	3.272	2.567	3.134	3.34	2.586	3.84	3.309
HCM Lane V/C Ratio	0.02	0.168	0.019	0.203	0.131	0.042	0.08	0.09
HCM Control Delay	8.9	9.4	7.7	9.5	9.2	7.8	9.4	8.9
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.1	0.8	0.4	0.1	0.3	0.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	82	1	67	124	2	57
Future Volume (vph)	82	1	67	124	2	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

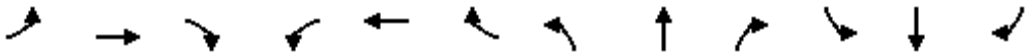
Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	82	1	67	124	2	57
Future Vol, veh/h	82	1	67	124	2	57
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	1	82	151	2	70

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	168	0	0	238	0
Stage 1	163	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	746	876	-	-	1329	-
Stage 1	866	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	737	868	-	-	1323	-
Mov Cap-2 Maneuver	737	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	937	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	738	1323	-
HCM Lane V/C Ratio	-	-	0.137	0.002	-
HCM Control Delay (s)	-	-	10.7	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	35	2	132	1	3	32	8	167	1	15
Future Volume (vph)	4	2	35	2	132	1	3	32	8	167	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

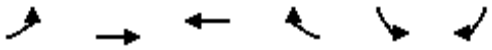
Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	2	35	2	132	1	3	32	8	167	1	15
Future Vol, veh/h	4	2	35	2	132	1	3	32	8	167	1	15
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	45	3	169	1	4	41	10	214	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	175	0	0	53	0	0	232	222	36	247	244	180
Stage 1	-	-	-	-	-	-	41	41	-	181	181	-
Stage 2	-	-	-	-	-	-	191	181	-	66	63	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1401	-	-	1553	-	-	723	677	1037	707	658	863
Stage 1	-	-	-	-	-	-	974	861	-	821	750	-
Stage 2	-	-	-	-	-	-	811	750	-	945	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1394	-	-	1546	-	-	696	666	1027	658	647	855
Mov Cap-2 Maneuver	-	-	-	-	-	-	696	666	-	658	647	-
Stage 1	-	-	-	-	-	-	965	853	-	814	745	-
Stage 2	-	-	-	-	-	-	786	745	-	883	834	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	10.5	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	715	1394	-	-	1546	-	-	671
HCM Lane V/C Ratio	0.077	0.004	-	-	0.002	-	-	0.35
HCM Control Delay (s)	10.5	7.6	0	-	7.3	0	-	13.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	1.6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	9	22	128	32	2
Future Volume (vph)	6	9	22	128	32	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	9	22	128	32	2
Future Vol, veh/h	6	9	22	128	32	2
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	12	28	164	41	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	33	0	-	0	148	120
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1579	-	-	-	844	931
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1571	-	-	-	831	922
Mov Cap-2 Maneuver	-	-	-	-	831	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1571	-	-	-	836
HCM Lane V/C Ratio	0.005	-	-	-	0.052
HCM Control Delay (s)	7.3	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	2	2	132	4	1
Future Volume (vph)	33	2	2	132	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	2	2	132	4	1
Future Vol, veh/h	33	2	2	132	4	1
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	2	2	161	5	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	104	93	0	0	168	0
Stage 1	88	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	894	964	-	-	1410	-
Stage 1	935	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	881	955	-	-	1403	-
Mov Cap-2 Maneuver	881	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	998	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	6.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	885	1403	-
HCM Lane V/C Ratio	-	-	0.048	0.003	-
HCM Control Delay (s)	-	-	9.3	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	124	8	10	71
Future Volume (vph)	5	1	124	8	10	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

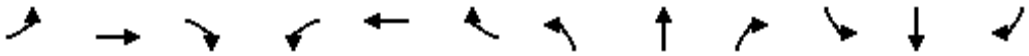
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	1	124	8	10	71
Future Vol, veh/h	5	1	124	8	10	71
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	143	9	11	82

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	257	153	0	0	157	0
Stage 1	148	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	732	893	-	-	1423	-
Stage 1	880	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	719	885	-	-	1416	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	742	1416	-
HCM Lane V/C Ratio	-	-	0.009	0.008	-
HCM Control Delay (s)	-	-	9.9	7.6	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	9	1	17	5	2	5	106	18	1	59	16
Future Volume (vph)	24	9	1	17	5	2	5	106	18	1	59	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	9	1	17	5	2	5	106	18	1	59	16
Future Vol, veh/h	24	9	1	17	5	2	5	106	18	1	59	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	10	1	19	5	2	5	116	20	1	65	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.7	7.9	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	71%	71%	1%
Vol Thru, %	82%	26%	21%	78%
Vol Right, %	14%	3%	8%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	34	24	76
LT Vol	5	24	17	1
Through Vol	106	9	5	59
RT Vol	18	1	2	16
Lane Flow Rate	142	37	26	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.159	0.047	0.033	0.093
Departure Headway (Hd)	4.031	4.574	4.554	4.027
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	788	791	879
Service Time	2.094	2.574	2.555	2.104
HCM Lane V/C Ratio	0.161	0.047	0.033	0.096
HCM Control Delay	7.9	7.8	7.7	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.1	0.1	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	123	159	29	70	152	27
Future Volume (vph)	123	159	29	70	152	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	100
Storage Lanes		0	0		1	1
Taper Length (ft)			90		90	
Link Speed (mph)	45			45	30	
Link Distance (ft)	2660			1835	433	
Travel Time (s)	40.3			27.8	9.8	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

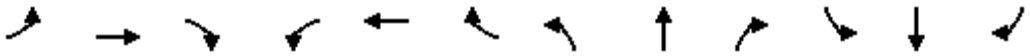
Intersection	
Int Delay, s/veh	5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	159	29	70	152	27
Future Vol, veh/h	123	159	29	70	152	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	186	241	44	106	230	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	427	0	501	307
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1132	-	530	733
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	839	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1132	-	508	733
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	508	733	-	-	1132	-
HCM Lane V/C Ratio	0.453	0.056	-	-	0.039	-
HCM Control Delay (s)	17.8	10.2	-	-	8.3	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	2.3	0.2	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	180	52	52	147	23	50	67	57	45	158	2
Future Volume (vph)	3	180	52	52	147	23	50	67	57	45	158	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	180	52	52	147	23	50	67	57	45	158	2
Future Vol, veh/h	3	180	52	52	147	23	50	67	57	45	158	2
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	247	71	71	201	32	68	92	78	62	216	3
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	23.8	20.2	12.5	16.7
HCM LOS	C	C	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	1%	26%	0%	100%	0%
Vol Thru, %	0%	100%	0%	77%	74%	0%	0%	99%
Vol Right, %	0%	0%	100%	22%	0%	100%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	67	57	235	199	23	45	160
LT Vol	50	0	0	3	52	0	45	0
Through Vol	0	67	0	180	147	0	0	158
RT Vol	0	0	57	52	0	23	0	2
Lane Flow Rate	68	92	78	322	273	32	62	219
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.163	0.205	0.159	0.664	0.59	0.061	0.144	0.48
Departure Headway (Hd)	8.553	8.038	7.316	7.422	7.787	6.939	8.403	7.877
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	444	487	486	461	513	425	456
Service Time	6.345	5.829	5.107	5.201	5.569	4.72	6.189	5.662
HCM Lane V/C Ratio	0.163	0.207	0.16	0.663	0.592	0.062	0.146	0.48
HCM Control Delay	13	12.9	11.5	23.8	21.3	10.2	12.6	17.8
HCM Lane LOS	B	B	B	C	C	B	B	C
HCM 95th-tile Q	0.6	0.8	0.6	4.8	3.7	0.2	0.5	2.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	198	1	21	233	2	44
Future Volume (vph)	198	1	21	233	2	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

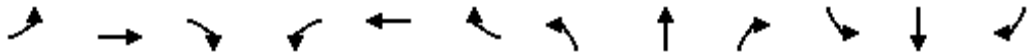
Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	198	1	21	233	2	44
Future Vol, veh/h	198	1	21	233	2	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	305	2	32	358	3	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	285	211	0	0	390	0
Stage 1	211	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	705	829	-	-	1169	-
Stage 1	824	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	703	829	-	-	1169	-
Mov Cap-2 Maneuver	703	-	-	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	704	1169	-
HCM Lane V/C Ratio	-	-	0.435	0.003	-
HCM Control Delay (s)	-	-	14	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.2	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	8	54	10	227	2	3	24	15	230	2	7
Future Volume (vph)	5	8	54	10	227	2	3	24	15	230	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

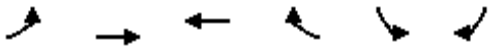
Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	8	54	10	227	2	3	24	15	230	2	7
Future Vol, veh/h	5	8	54	10	227	2	3	24	15	230	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	12	81	15	339	3	4	36	22	343	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	342	0	0	93	0	0	444	439	53	467	478	341
Stage 1	-	-	-	-	-	-	67	67	-	371	371	-
Stage 2	-	-	-	-	-	-	377	372	-	96	107	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1217	-	-	1501	-	-	524	512	1014	506	486	701
Stage 1	-	-	-	-	-	-	943	839	-	649	620	-
Stage 2	-	-	-	-	-	-	644	619	-	911	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1217	-	-	1501	-	-	507	503	1014	461	477	701
Mov Cap-2 Maneuver	-	-	-	-	-	-	507	503	-	461	477	-
Stage 1	-	-	-	-	-	-	937	834	-	645	613	-
Stage 2	-	-	-	-	-	-	624	612	-	848	802	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	11.5	33.8
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	614	1217	-	-	1501	-	-	466
HCM Lane V/C Ratio	0.102	0.006	-	-	0.01	-	-	0.765
HCM Control Delay (s)	11.5	8	0	-	7.4	0	-	33.8
HCM Lane LOS	B	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	6.6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	15	26	211	52	4
Future Volume (vph)	5	15	26	211	52	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	15	26	211	52	4
Future Vol, veh/h	5	15	26	211	52	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	23	40	325	80	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	242	203
Stage 1	-	-	-	-	203	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	746	838
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	742	838
Mov Cap-2 Maneuver	-	-	-	-	742	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	748
HCM Lane V/C Ratio	0.005	-	-	-	0.115
HCM Control Delay (s)	7.3	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	2	1	215	2	0
Future Volume (vph)	56	2	1	215	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	2	1	215	2	0
Future Vol, veh/h	56	2	1	215	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	3	2	331	3	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	168	0	0	333	0
Stage 1	168	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	816	876	-	-	1226	-
Stage 1	862	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	814	876	-	-	1226	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	1015	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	7.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1226	-
HCM Lane V/C Ratio	-	-	0.109	0.003	-
HCM Control Delay (s)	-	-	10	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	30	144	8	25	237
Future Volume (vph)	9	30	144	8	25	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

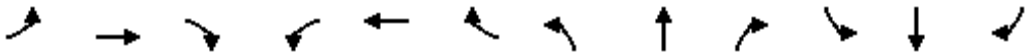
Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	30	144	8	25	237
Future Vol, veh/h	9	30	144	8	25	237
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	39	189	11	33	312

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	567	189	0	0	200	0
Stage 1	189	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	485	853	-	-	1372	-
Stage 1	843	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	473	853	-	-	1372	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	720	1372	-
HCM Lane V/C Ratio	-	-	0.071	0.024	-
HCM Control Delay (s)	-	-	10.4	7.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	8	2	23	13	2	3	124	11	1	204	41
Future Volume (vph)	26	8	2	23	13	2	3	124	11	1	204	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	8	2	23	13	2	3	124	11	1	204	41
Future Vol, veh/h	26	8	2	23	13	2	3	124	11	1	204	41
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	11	3	31	17	3	4	165	15	1	272	55
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.7	8.9	10.1
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	72%	61%	0%
Vol Thru, %	90%	22%	34%	83%
Vol Right, %	8%	6%	5%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	138	36	38	246
LT Vol	3	26	23	1
Through Vol	124	8	13	204
RT Vol	11	2	2	41
Lane Flow Rate	184	48	51	328
Geometry Grp	1	1	1	1
Degree of Util (X)	0.23	0.07	0.073	0.391
Departure Headway (Hd)	4.491	5.244	5.219	4.294
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	799	682	685	840
Service Time	2.519	3.289	3.263	2.318
HCM Lane V/C Ratio	0.23	0.07	0.074	0.39
HCM Control Delay	8.9	8.7	8.7	10.1
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.9	0.2	0.2	1.9

APPENDIX 3.3: EXISTING (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

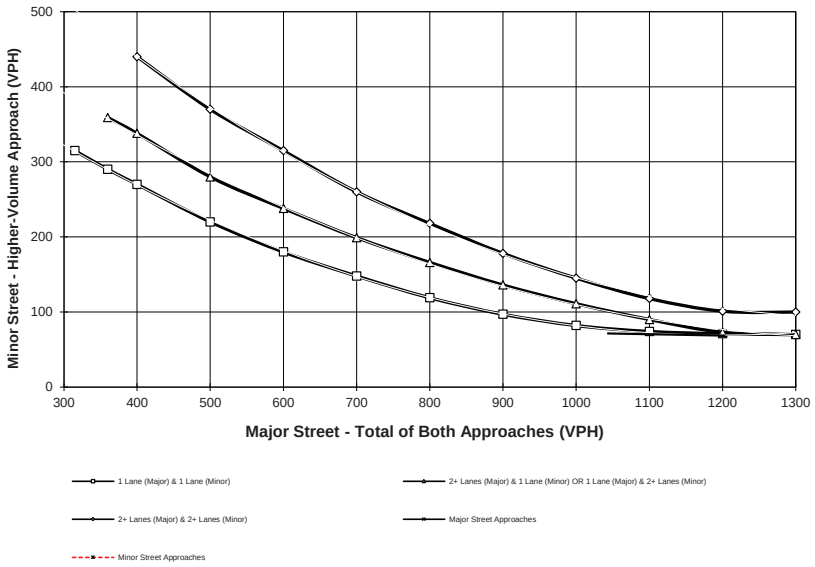
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Johnson Rd.** Total of Both Approaches (VPH) = **263**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **13**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #1

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

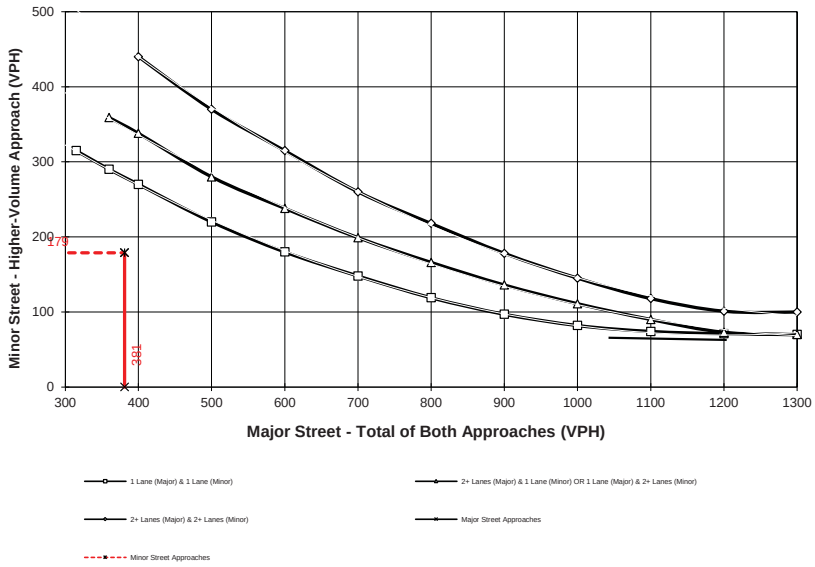
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Johnson Rd.** Total of Both Approaches (VPH) = **381**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **179**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #1

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

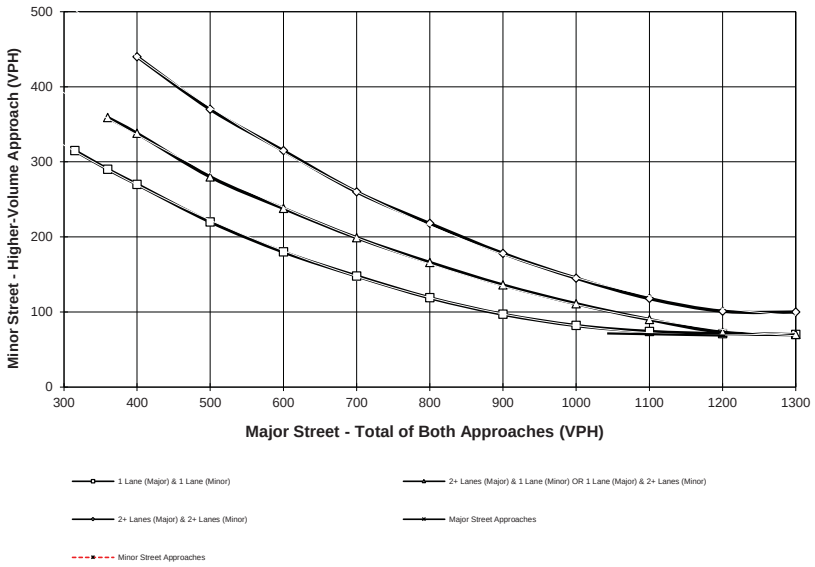
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Johnson Rd.** Total of Both Approaches (VPH) = **233**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dale Evans Pkwy.** High Volume Approach (VPH) = **125**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #2

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\01 - Existing\002R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

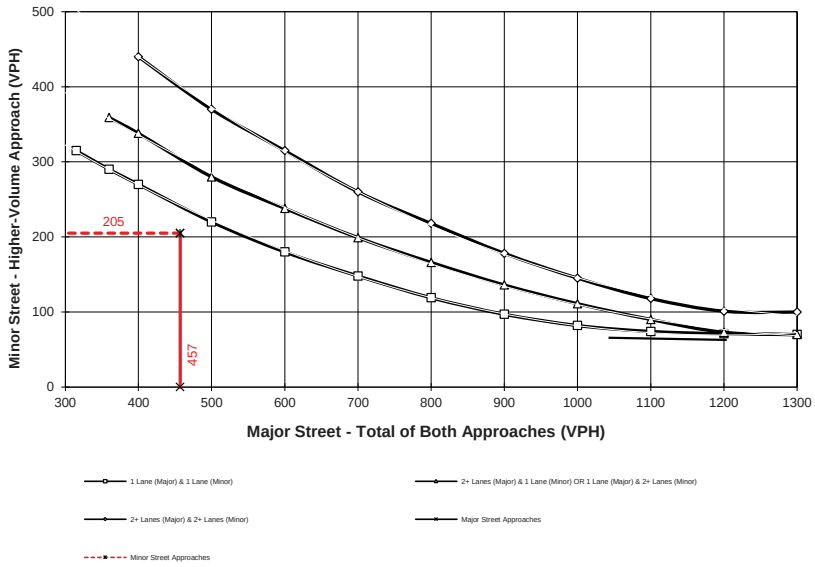
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Johnson Rd.** Total of Both Approaches (VPH) = **457**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dale Evans Pkwy.** High Volume Approach (VPH) = **205**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #2

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\01 - Existing\002R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

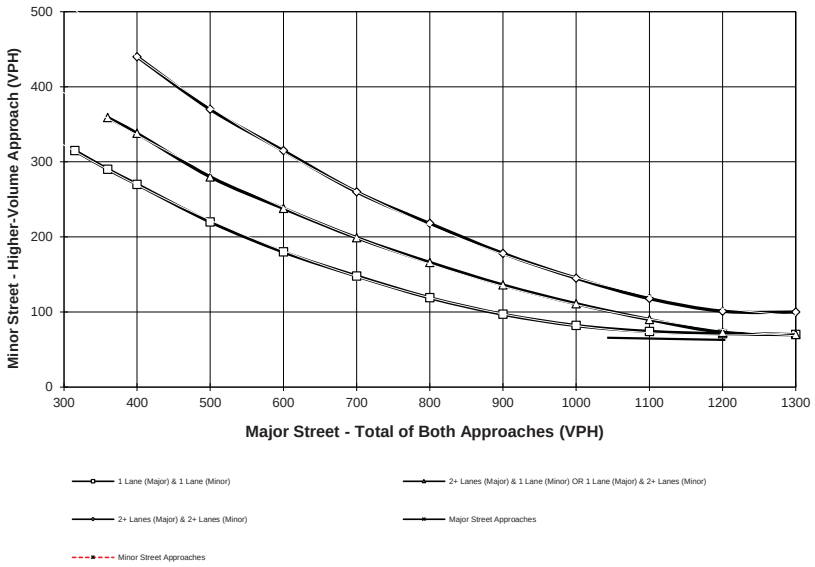
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **250**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Johnson Rd.** High Volume Approach (VPH) = **83**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #3

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

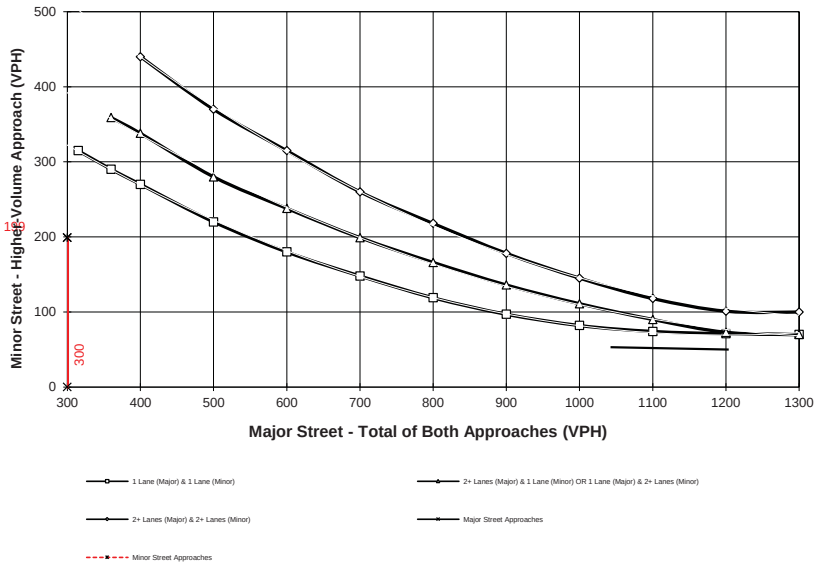
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **300**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Johnson Rd.** High Volume Approach (VPH) = **199**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #3

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

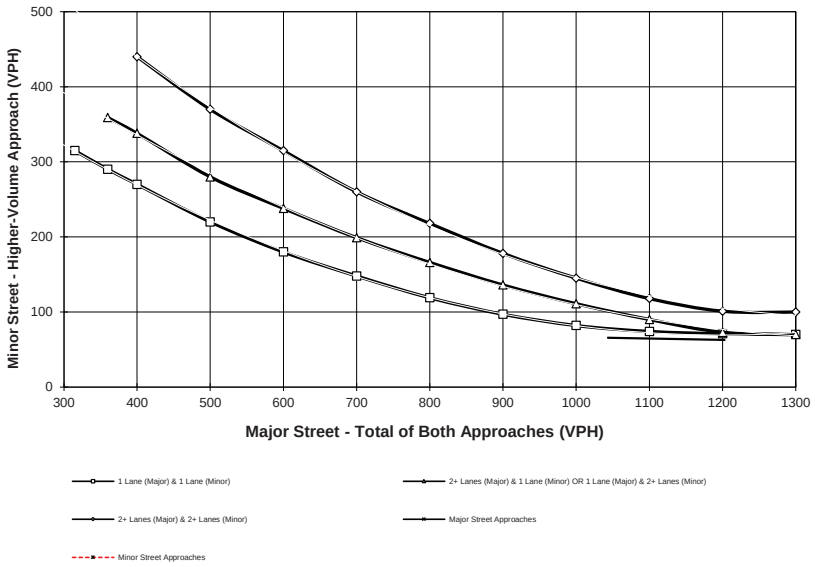
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **I-15 NB Ramps - Outer Hwy. 15** Total of Both Approaches (VPH) = **226**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Stoddard Wells Rd.** High Volume Approach (VPH) = **135**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #4

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

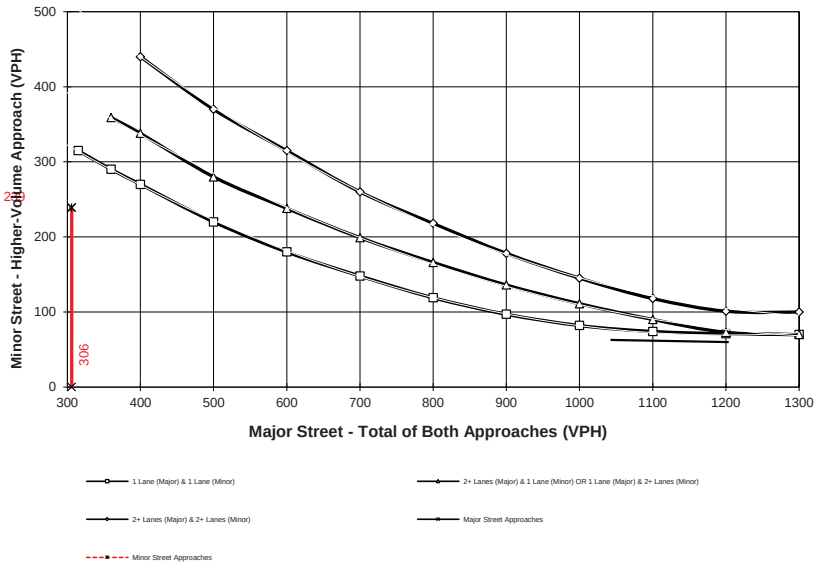
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **306**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 NB Ramps - Outer Hwy. 15** High Volume Approach (VPH) = **239**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #4

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

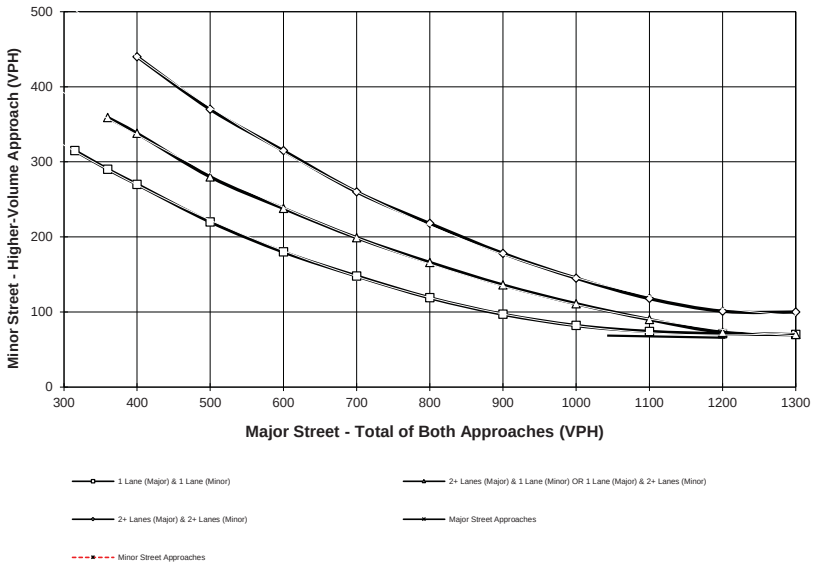
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **165**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Quarry Rd.** High Volume Approach (VPH) = **34**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #5

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

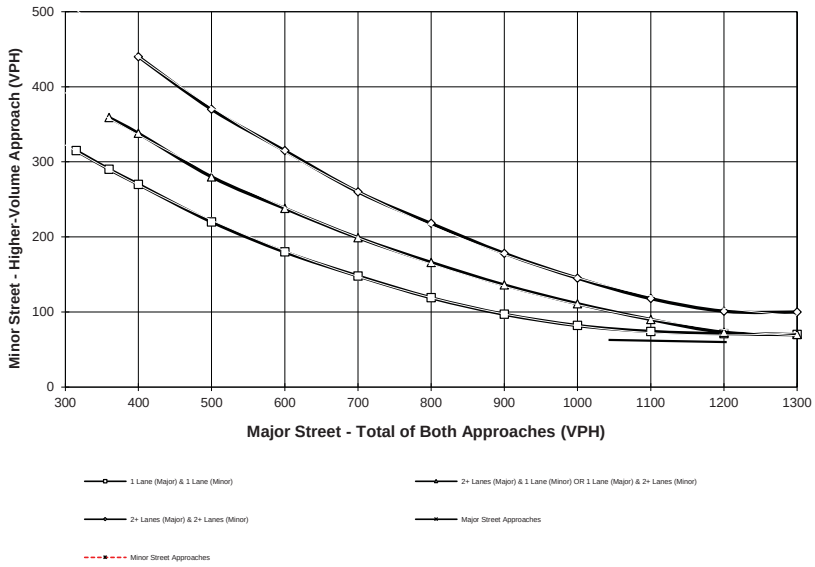
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **257**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Quarry Rd.** High Volume Approach (VPH) = **56**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #5

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

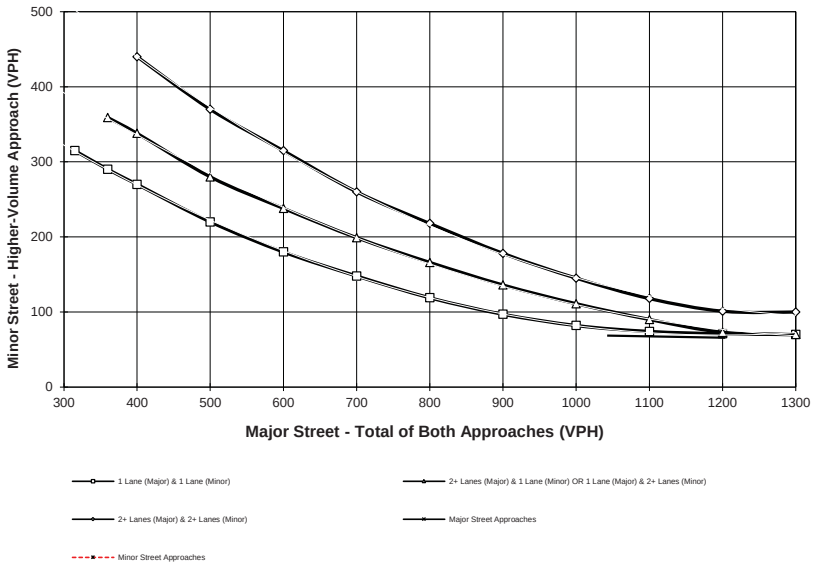
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Quarry Rd.** Total of Both Approaches (VPH) = **139**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 SB Ramps** High Volume Approach (VPH) = **35**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #6

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

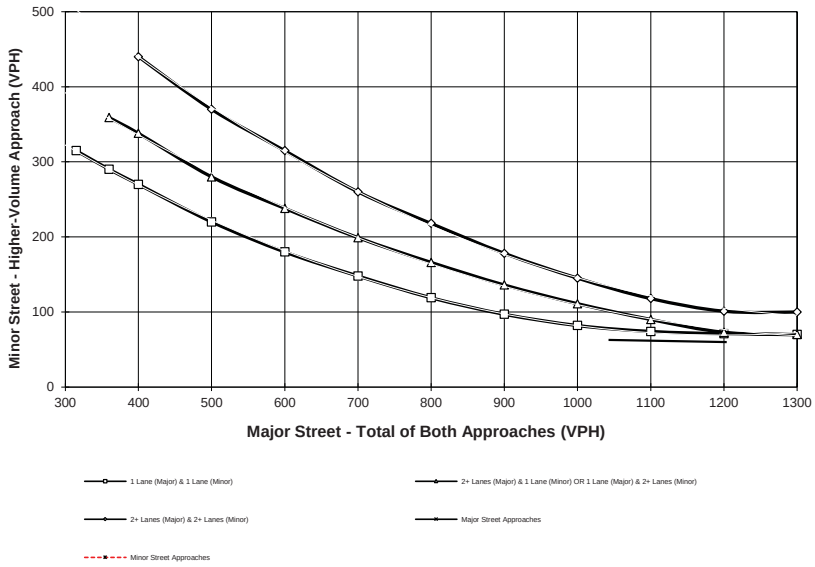
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Quarry Rd.** Total of Both Approaches (VPH) = **218**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 SB Ramps** High Volume Approach (VPH) = **58**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #6

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

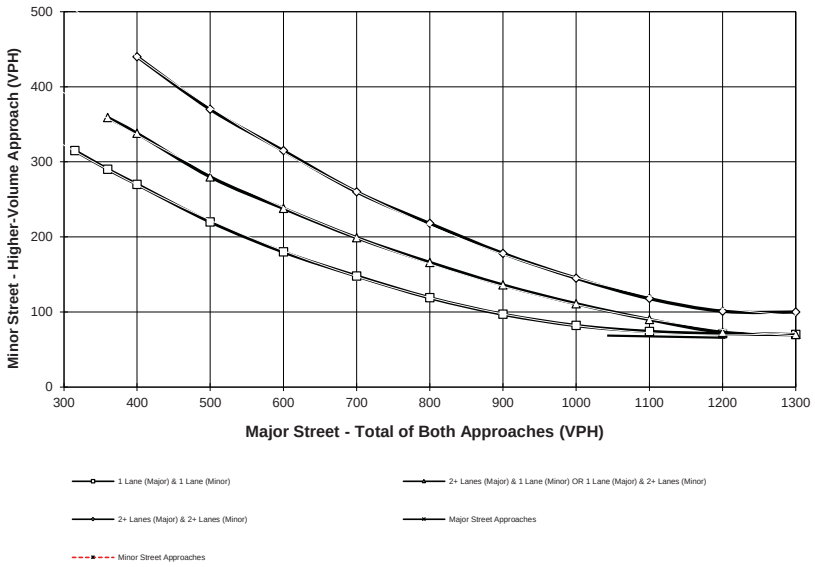
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **213**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Lafayette St.** High Volume Approach (VPH) = **6**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #7

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

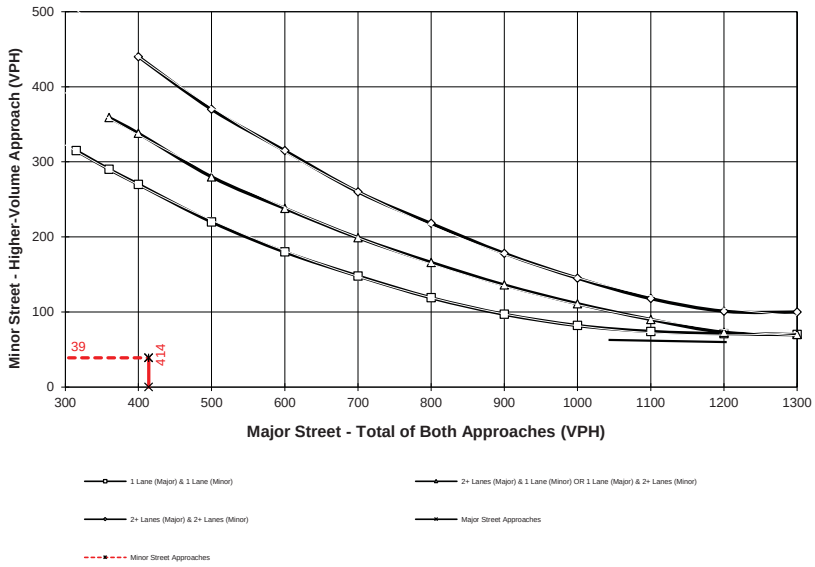
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **414**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Lafayette St.** High Volume Approach (VPH) = **39**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #7

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

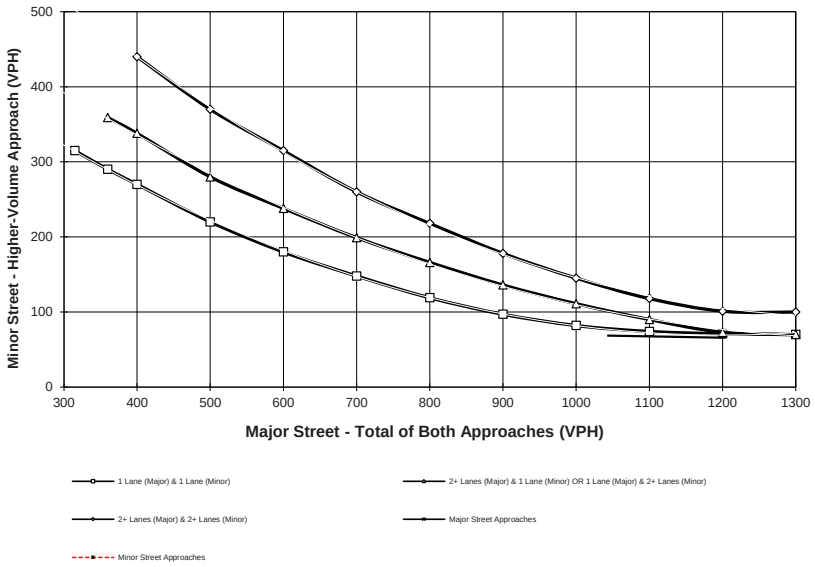
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) AM Peak Hour Warrants**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **205**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **34**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\01 - Existing\008R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

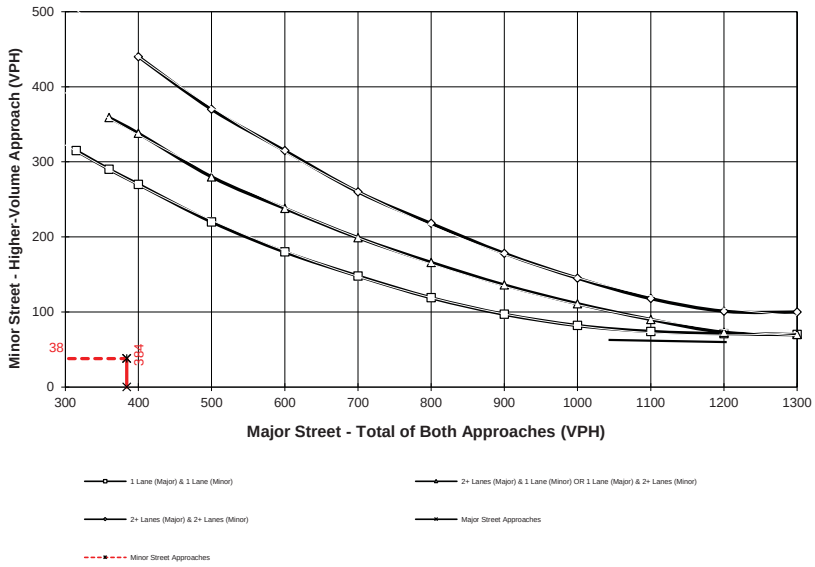
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EXISTING (2023) PM Peak Hour Warrants**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **384**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **38**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



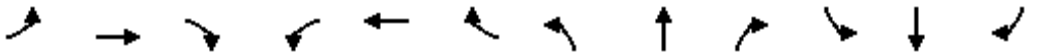
*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\01 - Existing\008R_PM.xls\Fig 4C-4 (Rural Peak)

APPENDIX 5.1: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	973	23	4	465	1	6	1	7	1	1	24
Future Volume (vph)	86	973	23	4	465	1	6	1	7	1	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	86	973	23	4	465	1	6	1	7	1	1	24
Future Vol, veh/h	86	973	23	4	465	1	6	1	7	1	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	1216	29	5	581	1	8	1	9	1	1	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	582	0	0	1245	0	0	2054	2039	1231	2044	2053	582
Stage 1	-	-	-	-	-	-	1447	1447	-	592	592	-
Stage 2	-	-	-	-	-	-	607	592	-	1452	1461	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	992	-	-	559	-	-	41	57	216	42	55	513
Stage 1	-	-	-	-	-	-	163	196	-	493	494	-
Stage 2	-	-	-	-	-	-	483	494	-	162	193	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	559	-	-	34	50	216	36	49	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	50	-	36	49	-
Stage 1	-	-	-	-	-	-	145	175	-	439	490	-
Stage 2	-	-	-	-	-	-	450	490	-	138	172	-

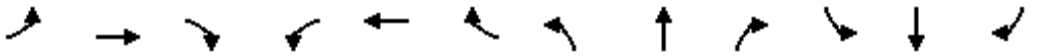
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	76.7	19.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	34	153	992	-	-	559	-	-	36	372
HCM Lane V/C Ratio	0.221	0.065	0.108	-	-	0.009	-	-	0.035	0.084
HCM Control Delay (s)	138.7	30.2	9.1	-	-	11.5	-	-	108.6	15.6
HCM Lane LOS	F	D	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.7	0.2	0.4	-	-	0	-	-	0.1	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	973	23	4	465	1	6	1	7	1	1	24
Future Volume (vph)	86	973	23	4	465	1	6	1	7	1	1	24
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	18.0	87.4		10.0	79.4		22.6	22.6		22.6	22.6	
Total Split (%)	15.0%	72.8%		8.3%	66.2%		18.8%	18.8%		18.8%	18.8%	
Maximum Green (s)	13.5	82.9		5.5	74.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 74.9 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

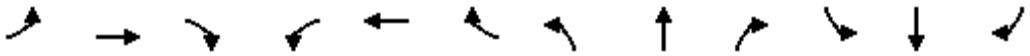
Splits and Phases: 1: Dachshund Rd. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	973	23	4	465	1	6	1	7	1	1	24
Future Volume (veh/h)	86	973	23	4	465	1	6	1	7	1	1	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	91	1024	24	4	489	1	6	1	7	1	1	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	1261	30	8	1180	2	228	29	202	244	9	219
Arrive On Green	0.14	1.00	1.00	0.01	0.67	0.67	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1594	1724	40	1594	1768	4	1239	191	1339	1259	58	1452
Grp Volume(v), veh/h	91	0	1048	4	0	490	6	0	8	1	0	26
Grp Sat Flow(s),veh/h/ln	1594	0	1765	1594	0	1771	1239	0	1531	1259	0	1510
Q Serve(g_s), s	6.7	0.0	0.0	0.3	0.0	15.3	0.5	0.0	0.5	0.1	0.0	1.8
Cycle Q Clear(g_c), s	6.7	0.0	0.0	0.3	0.0	15.3	2.3	0.0	0.5	0.6	0.0	1.8
Prop In Lane	1.00		0.02	1.00		0.00	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	110	0	1291	8	0	1182	228	0	231	244	0	228
V/C Ratio(X)	0.82	0.00	0.81	0.48	0.00	0.41	0.03	0.00	0.03	0.00	0.00	0.11
Avail Cap(c_a), veh/h	179	0	1291	73	0	1182	228	0	231	244	0	228
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.00	0.48	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	0.0	59.5	0.0	9.2	45.0	0.0	43.5	43.8	0.0	44.0
Incr Delay (d2), s/veh	7.6	0.0	2.8	37.7	0.0	1.1	0.2	0.0	0.3	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	1.0	0.2	0.0	5.5	0.2	0.0	0.2	0.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	2.8	97.2	0.0	10.2	45.2	0.0	43.8	43.8	0.0	45.0
LnGrp LOS	E	A	A	F	A	B	D	A	D	D	A	D
Approach Vol, veh/h		1139			494			14			27	
Approach Delay, s/veh		7.3			11.0			44.4			45.0	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	92.3		22.6	12.8	84.6		22.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	82.9		18.1	13.5	74.9		18.1				
Max Q Clear Time (g_c+I1), s	2.3	2.0		3.8	8.7	17.3		4.3				
Green Ext Time (p_c), s	0.0	11.1		0.1	0.1	3.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		9.3	
HCM 6th LOS		A	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	714	110	46	362	87	38	131	141	228	93	8
Future Volume (vph)	20	714	110	46	362	87	38	131	141	228	93	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	312.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	714	110	46	362	87	38	131	141	228	93	8
Future Vol, veh/h	20	714	110	46	362	87	38	131	141	228	93	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	768	118	49	389	94	41	141	152	245	100	9
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

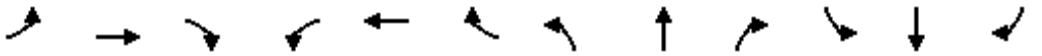
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	644.6	112.8	23	35.9
HCM LOS	F	F	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	11%	0%	100%	0%
Vol Thru, %	0%	100%	0%	85%	89%	0%	0%	92%
Vol Right, %	0%	0%	100%	13%	0%	100%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	131	141	844	408	87	228	101
LT Vol	38	0	0	20	46	0	228	0
Through Vol	0	131	0	714	362	0	0	93
RT Vol	0	0	141	110	0	87	0	8
Lane Flow Rate	41	141	152	908	439	94	245	109
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.118	0.388	0.388	2.368	1.144	0.224	0.695	0.291
Departure Headway (Hd)	13.893	13.351	12.593	9.808	12.248	11.435	13.674	13.062
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	260	272	288	381	298	316	267	277
Service Time	11.593	11.051	10.293	7.508	9.948	9.135	11.374	10.762
HCM Lane V/C Ratio	0.158	0.518	0.528	2.383	1.473	0.297	0.918	0.394
HCM Control Delay	18.4	24.3	23.1	644.6	133.1	17.4	42.5	21
HCM Lane LOS	C	C	C	F	F	C	E	C
HCM 95th-tile Q	0.4	1.8	1.8	67.6	14.2	0.8	4.7	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	714	110	46	362	87	38	131	141	228	93	8
Future Volume (vph)	20	714	110	46	362	87	38	131	141	228	93	8
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		165	100		0	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Free	Prot	NA	Perm	Prot	NA	
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6		Free			8			
Detector Phase	2	2		6	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		10.0	22.5	22.5	10.0	22.5	
Total Split (s)	73.4	73.4		73.4	73.4		12.0	22.6	22.6	24.0	34.6	
Total Split (%)	61.2%	61.2%		61.2%	61.2%		10.0%	18.8%	18.8%	20.0%	28.8%	
Maximum Green (s)	68.9	68.9		68.9	68.9		7.5	18.1	18.1	19.5	30.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	5	5		5	5			5	5		5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	714	110	46	362	87	38	131	141	228	93	8
Future Volume (veh/h)	20	714	110	46	362	87	38	131	141	228	93	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	22	768	118	49	389	0	41	141	152	245	100	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	908	140	168	1073		50	212	179	259	401	36
Arrive On Green	0.61	0.61	0.61	0.20	0.20	0.00	0.03	0.12	0.12	0.16	0.25	0.25
Sat Flow, veh/h	890	1500	230	561	1772	1502	1594	1772	1502	1594	1602	144
Grp Volume(v), veh/h	22	0	886	49	389	0	41	141	152	245	0	109
Grp Sat Flow(s),veh/h/ln	890	0	1730	561	1772	1502	1594	1772	1502	1594	0	1746
Q Serve(g_s), s	1.8	0.0	49.7	10.1	22.7	0.0	3.1	9.1	11.9	18.3	0.0	6.0
Cycle Q Clear(g_c), s	24.5	0.0	49.7	59.8	22.7	0.0	3.1	9.1	11.9	18.3	0.0	6.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	430	0	1048	168	1073		50	212	179	259	0	437
V/C Ratio(X)	0.05	0.00	0.85	0.29	0.36		0.82	0.67	0.85	0.95	0.00	0.25
Avail Cap(c_a), veh/h	430	0	1048	168	1073		100	267	226	259	0	438
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	19.1	66.8	28.0	0.0	57.8	50.6	51.8	49.7	0.0	36.0
Incr Delay (d2), s/veh	0.2	0.0	8.4	4.0	0.9	0.0	26.1	4.3	20.8	41.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	19.9	1.7	11.0	0.0	1.6	4.1	5.3	9.9	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	27.5	70.8	28.9	0.0	83.9	54.8	72.6	91.0	0.0	36.3
LnGrp LOS	C	A	C	E	C		F	D	E	F	A	D
Approach Vol, veh/h		908			438			334			354	
Approach Delay, s/veh		27.4			33.6			66.5			74.2	
Approach LOS		C			C			E			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		77.2	8.3	34.5		77.2	24.0	18.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		68.9	7.5	30.1		68.9	19.5	18.1				
Max Q Clear Time (g_c+I1), s		51.7	5.1	8.0		61.8	20.3	13.9				
Green Ext Time (p_c), s		6.0	0.0	0.4		1.5	0.0	0.4				

Intersection Summary		
HCM 6th Ctrl Delay		43.3
HCM 6th LOS		D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	1	70	842	2	59
Future Volume (vph)	407	1	70	842	2	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	40.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	407	1	70	842	2	59
Future Vol, veh/h	407	1	70	842	2	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	496	1	85	1027	2	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	675	599	0	0	1112	0
Stage 1	599	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 419	502	-	-	628	-
Stage 1	549	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 418	502	-	-	628	-
Mov Cap-2 Maneuver	~ 418	-	-	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	136.7	0	0.4
HCM LOS	F		

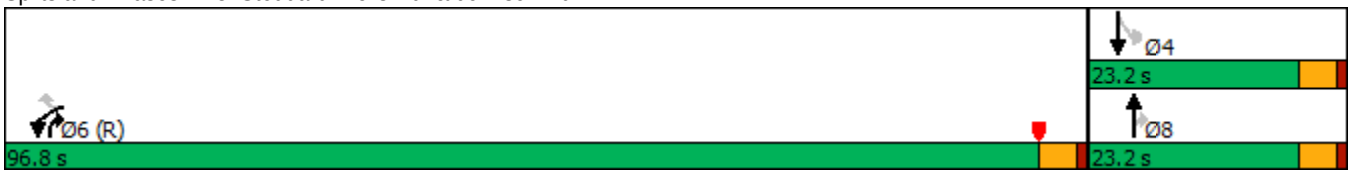
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	418	628	-
HCM Lane V/C Ratio	-	-	1.19	0.004	-
HCM Control Delay (s)	-	-	136.7	10.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	19.5	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	1	70	842	2	59
Future Volume (vph)	407	1	70	842	2	59
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	96.8	96.8	23.2	96.8	23.2	23.2
Total Split (%)	80.7%	80.7%	19.3%	80.7%	19.3%	19.3%
Maximum Green (s)	92.3	92.3	18.7	92.3	18.7	18.7
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

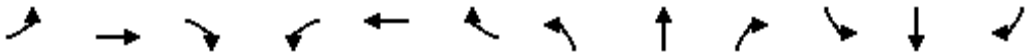
Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	407	1	70	842	2	59
Future Volume (veh/h)	407	1	70	842	2	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	496	1	85	1027	2	72
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1226	1155	276	1389	111	276
Arrive On Green	0.77	0.77	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1594	1502	1772	1502	453	1772
Grp Volume(v), veh/h	496	1	85	1027	2	72
Grp Sat Flow(s),veh/h/ln	1594	1502	1772	1502	453	1772
Q Serve(g_s), s	12.5	0.0	5.1	18.7	0.5	4.3
Cycle Q Clear(g_c), s	12.5	0.0	5.1	18.7	5.6	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1226	1155	276	1389	111	276
V/C Ratio(X)	0.40	0.00	0.31	0.74	0.02	0.26
Avail Cap(c_a), veh/h	1226	1155	276	1389	111	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.6	3.2	44.9	1.0	47.4	44.6
Incr Delay (d2), s/veh	1.0	0.0	2.9	3.6	0.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	2.4	31.9	0.1	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	3.2	47.8	4.6	47.7	46.9
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	497		1112			74
Approach Delay, s/veh	5.6		7.9			46.9
Approach LOS	A		A			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				23.2		96.8	23.2
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				18.7		92.3	18.7
Max Q Clear Time (g_c+I1), s				7.6		14.5	20.7
Green Ext Time (p_c), s				0.2		1.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	131	91	18	632	81	3	49	32	1206	1	16
Future Volume (vph)	4	131	91	18	632	81	3	49	32	1206	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3262.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	131	91	18	632	81	3	49	32	1206	1	16
Future Vol, veh/h	4	131	91	18	632	81	3	49	32	1206	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	168	117	23	810	104	4	63	41	1546	1	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	914	0	0	285	0	0	1156	1197	227	1197	1203	862
Stage 1	-	-	-	-	-	-	237	237	-	908	908	-
Stage 2	-	-	-	-	-	-	919	960	-	289	295	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	746	-	-	1277	-	-	174	186	812	~ 163	184	355
Stage 1	-	-	-	-	-	-	766	709	-	~ 330	354	-
Stage 2	-	-	-	-	-	-	325	335	-	~ 719	669	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	746	-	-	1277	-	-	157	178	812	~ 109	176	355
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	178	-	~ 109	176	-
Stage 1	-	-	-	-	-	-	760	703	-	~ 327	341	-
Stage 2	-	-	-	-	-	-	294	323	-	~ 617	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	29.5	$ 6037.1
HCM LOS			D	F

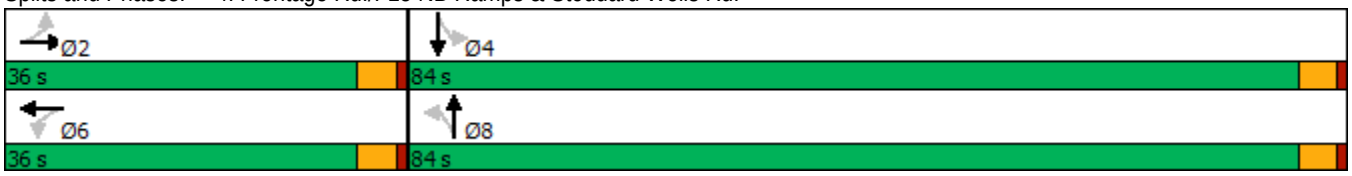
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	252	746	-	-	1277	-	-	110
HCM Lane V/C Ratio	0.427	0.007	-	-	0.018	-	-	14.254
HCM Control Delay (s)	29.5	9.9	0	-	7.9	0	-	$ 6037.1
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2	0	-	-	0.1	-	-	185.4

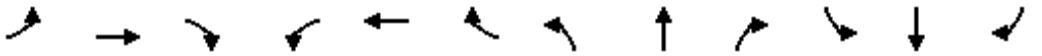
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	131	91	18	632	81	3	49	32	1206	1	16
Future Volume (vph)	4	131	91	18	632	81	3	49	32	1206	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)										49%		
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	36.0	36.0		36.0	36.0		84.0	84.0		84.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	
Maximum Green (s)	31.5	31.5		31.5	31.5		79.5	79.5		79.5	79.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





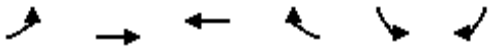
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	131	91	18	632	81	3	49	32	1206	1	16
Future Volume (veh/h)	4	131	91	18	632	81	3	49	32	1206	1	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	168	117	23	810	104	4	63	41	1566	0	0
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	269	188	189	831	107	52	695	438	1851	1239	0
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.66	0.00	0.00
Sat Flow, veh/h	611	1027	715	1094	3167	407	32	1049	661	2580	1870	0
Grp Volume(v), veh/h	5	0	285	23	454	460	108	0	0	1566	0	0
Grp Sat Flow(s),veh/h/ln	611	0	1742	1094	1777	1797	1741	0	0	1290	1870	0
Q Serve(g_s), s	1.0	0.0	17.3	2.3	30.4	30.4	0.0	0.0	0.0	57.3	0.0	0.0
Cycle Q Clear(g_c), s	31.4	0.0	17.3	19.6	30.4	30.4	2.7	0.0	0.0	59.9	0.0	0.0
Prop In Lane	1.00		0.41	1.00		0.23	0.04		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	66	0	457	189	466	472	1185	0	0	1851	1239	0
V/C Ratio(X)	0.08	0.00	0.62	0.12	0.97	0.97	0.09	0.00	0.00	0.85	0.00	0.00
Avail Cap(c_a), veh/h	66	0	457	189	466	472	1185	0	0	1851	1239	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	59.4	0.0	39.0	47.7	43.8	43.8	7.3	0.0	0.0	16.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	2.6	0.3	34.9	34.7	0.2	0.0	0.0	5.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	7.5	0.6	17.3	17.5	1.0	0.0	0.0	17.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	0.0	41.6	47.9	78.7	78.5	7.4	0.0	0.0	21.5	0.0	0.0
LnGrp LOS	E	A	D	D	E	E	A	A	A	C	A	A
Approach Vol, veh/h		290			937			108			1566	
Approach Delay, s/veh		42.0			77.9			7.4			21.5	
Approach LOS		D			E			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		84.0		36.0		84.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		31.5		79.5		31.5		79.5				
Max Q Clear Time (g_c+I1), s		33.4		61.9		32.4		4.7				
Green Ext Time (p_c), s		0.0		7.6		0.0		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			41.3									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	40	85	566	202	2
Future Volume (vph)	6	40	85	566	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

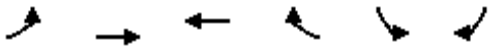
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	40	85	566	202	2
Future Vol, veh/h	6	40	85	566	202	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	109	726	259	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	539	472
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1481	-	-	-	503	592
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	500	592
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1481	-	-	-	501
HCM Lane V/C Ratio	0.005	-	-	-	0.522
HCM Control Delay (s)	7.4	0	-	-	19.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	40	85	566	202	2
Future Volume (vph)	6	40	85	566	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

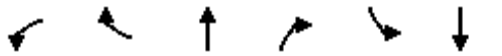
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	40	85	566	202	2
Future Vol, veh/h	6	40	85	566	202	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	109	726	259	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	835	0	-	0	176	109
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	798	-	-	-	814	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	798	-	-	-	806	945
Mov Cap-2 Maneuver	-	-	-	-	806	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	798	-	-	-	807
HCM Lane V/C Ratio	0.01	-	-	-	0.324
HCM Control Delay (s)	9.6	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	2	2	570	4	1
Future Volume (vph)	203	2	2	570	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	2	2	570	4	1
Future Vol, veh/h	203	2	2	570	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	2	2	695	5	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	361	350	0	0	697	0
Stage 1	350	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	638	693	-	-	899	-
Stage 1	713	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	634	693	-	-	899	-
Mov Cap-2 Maneuver	634	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	7.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	635	899	-
HCM Lane V/C Ratio	-	-	0.394	0.005	-
HCM Control Delay (s)	-	-	14.3	9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	2	2	570	4	1
Future Volume (vph)	203	2	2	570	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	2	2	570	4	1
Future Vol, veh/h	203	2	2	570	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	2	2	695	5	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	13	2	0	0	697	0
Stage 1	2	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1006	1082	-	-	899	-
Stage 1	1021	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1000	1082	-	-	899	-
Mov Cap-2 Maneuver	1000	-	-	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1001	899	-
HCM Lane V/C Ratio	-	-	0.25	0.005	-
HCM Control Delay (s)	-	-	9.8	9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	34	276	22	121	128
Future Volume (vph)	10	34	276	22	121	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

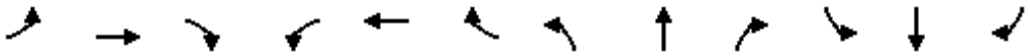
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	34	276	22	121	128
Future Vol, veh/h	10	34	276	22	121	128
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	39	317	25	139	147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	742	317	0	0	342	0
Stage 1	317	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	383	724	-	-	1217	-
Stage 1	738	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	339	724	-	-	1217	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	4.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	575	1217	-
HCM Lane V/C Ratio	-	-	0.088	0.114	-
HCM Control Delay (s)	-	-	11.9	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	13	1	18	6	2	5	210	19	1	95	58
Future Volume (vph)	136	13	1	18	6	2	5	210	19	1	95	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	136	13	1	18	6	2	5	210	19	1	95	58
Future Vol, veh/h	136	13	1	18	6	2	5	210	19	1	95	58
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	14	1	20	7	2	5	231	21	1	104	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	8.5	9.9	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	91%	69%	1%
Vol Thru, %	90%	9%	23%	62%
Vol Right, %	8%	1%	8%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	150	26	154
LT Vol	5	136	18	1
Through Vol	210	13	6	95
RT Vol	19	1	2	58
Lane Flow Rate	257	165	29	169
Geometry Grp	1	1	1	1
Degree of Util (X)	0.328	0.234	0.042	0.212
Departure Headway (Hd)	4.586	5.117	5.236	4.511
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	782	699	679	792
Service Time	2.628	3.171	3.304	2.558
HCM Lane V/C Ratio	0.329	0.236	0.043	0.213
HCM Control Delay	9.9	9.7	8.5	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.9	0.1	0.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	118	6	2	39	3	5
Future Volume (vph)	118	6	2	39	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45			45	45	
Link Distance (ft)	787			1189	2650	
Travel Time (s)	11.9			18.0	40.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

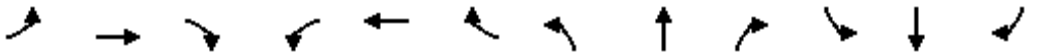
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	118	6	2	39	3	5
Future Vol, veh/h	118	6	2	39	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	7	2	42	3	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	135	0	178	132
Stage 1	-	-	-	-	132	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1449	-	812	917
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1449	-	811	917
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	975	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	874	-	-	1449	-
HCM Lane V/C Ratio	0.01	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	612	165	30	907	1	158	1	28	1	1	75
Future Volume (vph)	38	612	165	30	907	1	158	1	28	1	1	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2218.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	612	165	30	907	1	158	1	28	1	1	75
Future Vol, veh/h	38	612	165	30	907	1	158	1	28	1	1	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	927	250	45	1374	2	239	2	42	2	2	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1376	0	0	1177	0	0	2691	2634	1052	2655	2758	1375
Stage 1	-	-	-	-	-	-	1168	1168	-	1465	1465	-
Stage 2	-	-	-	-	-	-	1523	1466	-	1190	1293	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	498	-	-	593	-	-	~ 14	24	275	15	20	178
Stage 1	-	-	-	-	-	-	~ 236	267	-	160	193	-
Stage 2	-	-	-	-	-	-	~ 148	192	-	229	233	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	498	-	-	593	-	-	~ 4	20	275	10	16	178
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 4	20	-	10	16	-
Stage 1	-	-	-	-	-	-	~ 209	236	-	141	178	-
Stage 2	-	-	-	-	-	-	~ 49	177	-	170	206	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	$ 23892.6	78.1
HCM LOS			F	F

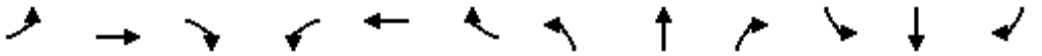
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	4	191	498	-	-	593	-	-	10	157
HCM Lane V/C Ratio	59.848	0.23	0.116	-	-	0.077	-	-	0.152	0.733
HCM Control Delay (s)	$ 28272.5	29.4	13.2	-	-	11.6	-	-	$ 421.1	73.6
HCM Lane LOS	F	D	B	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	32.2	0.9	0.4	-	-	0.2	-	-	0.4	4.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	612	165	30	907	1	158	1	28	1	1	75
Future Volume (vph)	38	612	165	30	907	1	158	1	28	1	1	75
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	10.0	83.0		10.0	83.0		27.0	27.0		27.0	27.0	
Total Split (%)	8.3%	69.2%		8.3%	69.2%		22.5%	22.5%		22.5%	22.5%	
Maximum Green (s)	5.5	78.5		5.5	78.5		22.5	22.5		22.5	22.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 78.5 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

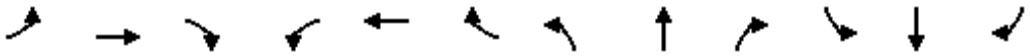
Splits and Phases: 1: Dachshund Rd. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	612	165	30	907	1	158	1	28	1	1	75
Future Volume (veh/h)	38	612	165	30	907	1	158	1	28	1	1	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	40	644	174	32	955	1	166	1	29	1	1	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	904	244	44	1184	1	227	9	274	271	4	279
Arrive On Green	0.02	0.45	0.45	0.03	0.67	0.67	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1594	1344	363	1594	1770	2	1180	50	1459	1234	19	1486
Grp Volume(v), veh/h	40	0	818	32	0	956	166	0	30	1	0	80
Grp Sat Flow(s),veh/h/ln	1594	0	1707	1594	0	1772	1180	0	1509	1234	0	1504
Q Serve(g_s), s	3.0	0.0	46.5	2.4	0.0	46.5	16.9	0.0	2.0	0.1	0.0	5.5
Cycle Q Clear(g_c), s	3.0	0.0	46.5	2.4	0.0	46.5	22.3	0.0	2.0	2.1	0.0	5.5
Prop In Lane	1.00		0.21	1.00		0.00	1.00		0.97	1.00		0.99
Lane Grp Cap(c), veh/h	49	0	1148	44	0	1186	227	0	283	271	0	282
V/C Ratio(X)	0.82	0.00	0.71	0.73	0.00	0.81	0.73	0.00	0.11	0.00	0.00	0.28
Avail Cap(c_a), veh/h	73	0	1148	73	0	1186	227	0	283	271	0	282
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.00	0.48	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	23.6	57.9	0.0	14.3	51.4	0.0	40.4	41.3	0.0	41.8
Incr Delay (d2), s/veh	18.7	0.0	1.8	21.0	0.0	5.9	18.6	0.0	0.8	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	19.8	1.2	0.0	17.5	6.1	0.0	0.8	0.0	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	0.0	25.4	79.0	0.0	20.2	70.0	0.0	41.2	41.3	0.0	44.3
LnGrp LOS	E	A	C	E	A	C	E	A	D	D	A	D
Approach Vol, veh/h		858			988			196			81	
Approach Delay, s/veh		27.8			22.1			65.6			44.3	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	85.2		27.0	8.2	84.8		27.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	78.5		22.5	5.5	78.5		22.5				
Max Q Clear Time (g_c+I1), s	4.4	48.5		7.5	5.0	48.5		24.3				
Green Ext Time (p_c), s	0.0	6.3		0.3	0.0	8.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		29.3	
HCM 6th LOS		C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	575	96	175	757	208	160	114	109	131	193	18
Future Volume (vph)	12	575	96	175	757	208	160	114	109	131	193	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	751.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	575	96	175	757	208	160	114	109	131	193	18
Future Vol, veh/h	12	575	96	175	757	208	160	114	109	131	193	18
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	788	132	240	1037	285	219	156	149	179	264	25
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

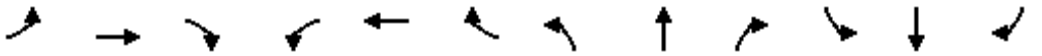
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	919.8	1092.4	43.6	68.6
HCM LOS	F	F	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	19%	0%	100%	0%
Vol Thru, %	0%	100%	0%	84%	81%	0%	0%	91%
Vol Right, %	0%	0%	100%	14%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	114	109	683	932	208	131	211
LT Vol	160	0	0	12	175	0	131	0
Through Vol	0	114	0	575	757	0	0	193
RT Vol	0	0	109	96	0	208	0	18
Lane Flow Rate	219	156	149	936	1277	285	179	289
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.702	0.478	0.428	2.956	3.856	0.798	0.579	0.888
Departure Headway (Hd)	18.692	18.141	17.369	14.927	15.287	14.411	18.57	17.934
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	195	201	209	253	255	254	197	205
Service Time	16.392	15.841	15.069	12.627	12.987	12.111	16.27	15.634
HCM Lane V/C Ratio	1.123	0.776	0.713	3.7	5.008	1.122	0.909	1.41
HCM Control Delay	56.3	36.4	32.5	919.8	1323.5	56.8	44.1	83.8
HCM Lane LOS	F	E	D	F	F	F	E	F
HCM 95th-tile Q	4.4	2.3	2	63.2	87.9	6	3.2	6.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	575	96	175	757	208	160	114	109	131	193	18
Future Volume (vph)	12	575	96	175	757	208	160	114	109	131	193	18
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		165	100		0	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Free	Prot	NA	Perm	Prot	NA	
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6		Free			8			
Detector Phase	2	2		6	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		20.0	22.5	22.5	20.0	22.5	
Total Split (s)	77.5	77.5		77.5	77.5		20.0	22.5	22.5	20.0	22.5	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		16.7%	18.8%	18.8%	16.7%	18.8%	
Maximum Green (s)	73.0	73.0		73.0	73.0		15.5	18.0	18.0	15.5	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	5	5		5	5			5	5		5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	575	96	175	757	208	160	114	109	131	193	18
Future Volume (veh/h)	12	575	96	175	757	208	160	114	109	131	193	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	16	788	132	240	1037	0	219	156	149	179	264	25
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	900	151	391	1078		206	270	229	202	239	23
Arrive On Green	1.00	1.00	1.00	1.00	1.00	0.00	0.13	0.15	0.15	0.13	0.15	0.15
Sat Flow, veh/h	487	1479	248	543	1772	1502	1594	1772	1502	1594	1594	151
Grp Volume(v), veh/h	16	0	920	240	1037	0	219	156	149	179	0	289
Grp Sat Flow(s),veh/h/ln	487	0	1727	543	1772	1502	1594	1772	1502	1594	0	1745
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	15.5	9.8	11.2	13.3	0.0	18.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	15.5	9.8	11.2	13.3	0.0	18.0
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	356	0	1051	391	1078		206	270	229	202	0	262
V/C Ratio(X)	0.04	0.00	0.88	0.61	0.96		1.06	0.58	0.65	0.89	0.00	1.10
Avail Cap(c_a), veh/h	356	0	1051	391	1078		206	270	229	206	0	262
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.50	0.50	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	52.3	47.3	47.9	51.5	0.0	51.0
Incr Delay (d2), s/veh	0.2	0.0	10.2	3.6	12.3	0.0	80.6	3.0	6.4	33.2	0.0	86.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.0	0.4	3.7	0.0	10.5	4.4	4.4	6.9	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.2	0.0	10.2	3.6	12.3	0.0	132.9	50.3	54.3	84.7	0.0	137.5
LnGrp LOS	A	A	B	A	B		F	D	D	F	A	F
Approach Vol, veh/h		936			1277			524			468	
Approach Delay, s/veh		10.0			10.7			86.0			117.3	
Approach LOS		B			B			F			F	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		77.5	20.0	22.5		77.5	19.7	22.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		73.0	15.5	18.0		73.0	15.5	18.0				
Max Q Clear Time (g_c+I1), s		2.0	17.5	20.0		2.0	15.3	13.2				
Green Ext Time (p_c), s		8.8	0.0	0.0		16.8	0.0	0.5				

Intersection Summary												
HCM 6th Ctrl Delay			38.4									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	934	1	22	681	2	46
Future Volume (vph)	934	1	22	681	2	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	393.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	934	1	22	681	2	46
Future Vol, veh/h	934	1	22	681	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1245	1	29	908	3	61

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	550	483	0	0	937	0
Stage 1	483	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 496	584	-	-	731	-
Stage 1	~ 620	-	-	-	-	-
Stage 2	~ 956	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 494	584	-	-	731	-
Mov Cap-2 Maneuver	~ 494	-	-	-	-	-
Stage 1	~ 620	-	-	-	-	-
Stage 2	~ 952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 709.8	0	0.4
HCM LOS	F		

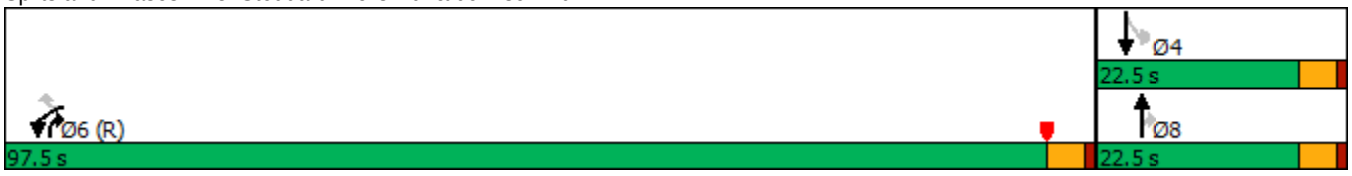
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	494	731	-
HCM Lane V/C Ratio	-	-	2.524	0.004	-
HCM Control Delay (s)	-	-	$ 709.8	9.9	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	98.8	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	934	1	22	681	2	46
Future Volume (vph)	934	1	22	681	2	46
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	97.5	97.5	22.5	97.5	22.5	22.5
Total Split (%)	81.3%	81.3%	18.8%	81.3%	18.8%	18.8%
Maximum Green (s)	93.0	93.0	18.0	93.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	

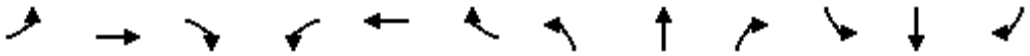
Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	934	1	22	681	2	46
Future Volume (veh/h)	934	1	22	681	2	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	1245	1	29	908	3	61
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1235	1164	266	1389	133	266
Arrive On Green	0.77	0.77	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1594	1502	1772	1502	535	1772
Grp Volume(v), veh/h	1245	1	29	908	3	61
Grp Sat Flow(s),veh/h/ln	1594	1502	1772	1502	535	1772
Q Serve(g_s), s	93.0	0.0	1.7	13.8	0.6	3.6
Cycle Q Clear(g_c), s	93.0	0.0	1.7	13.8	2.3	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1235	1164	266	1389	133	266
V/C Ratio(X)	1.01	0.00	0.11	0.65	0.02	0.23
Avail Cap(c_a), veh/h	1235	1164	266	1389	133	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	3.0	44.1	0.9	45.1	44.9
Incr Delay (d2), s/veh	27.6	0.0	0.8	2.4	0.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.1	0.0	0.8	27.9	0.1	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	3.0	44.9	3.3	45.4	46.9
LnGrp LOS	F	A	D	A	D	D
Approach Vol, veh/h	1246		937			64
Approach Delay, s/veh	41.0		4.6			46.8
Approach LOS	D		A			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				22.5		97.5	22.5
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				18.0		93.0	18.0
Max Q Clear Time (g_c+I1), s				5.6		95.0	15.8
Green Ext Time (p_c), s				0.2		0.0	1.0

Intersection Summary			
HCM 6th Ctrl Delay		26.0	
HCM 6th LOS		C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	118	77	34	1270	115	3	77	33	923	2	7
Future Volume (vph)	5	118	77	34	1270	115	3	77	33	923	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	66

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	118	77	34	1270	115	3	77	33	923	2	7
Future Vol, veh/h	5	118	77	34	1270	115	3	77	33	923	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	176	115	51	1896	172	4	115	49	1378	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2068	0	0	291	0	0	2339	2418	234	2414	2389	1982
Stage 1	-	-	-	-	-	-	248	248	-	2084	2084	-
Stage 2	-	-	-	-	-	-	2091	2170	-	330	305	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	269	-	-	1271	-	-	26	~ 32	805	~ 23	34	77
Stage 1	-	-	-	-	-	-	756	701	-	~ 69	95	-
Stage 2	-	-	-	-	-	-	69	~ 85	-	~ 683	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	269	-	-	1271	-	-	20	~ 31	805	-	33	77
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	~ 31	-	-	33	-
Stage 1	-	-	-	-	-	-	732	679	-	~ 67	95	-
Stage 2	-	-	-	-	-	-	58	~ 85	-	~ 516	641	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	$ 1553.6	
HCM LOS			F	-

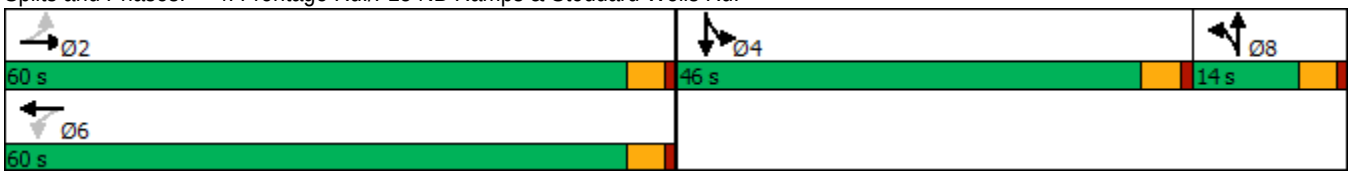
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	42	269	-	-	1271	-	-	-
HCM Lane V/C Ratio	4.016	0.028	-	-	0.04	-	-	-
HCM Control Delay (s)	$ 1553.6	18.8	0	-	8	0	-	-
HCM Lane LOS	F	C	A	-	A	A	-	-
HCM 95th %tile Q(veh)	19.1	0.1	-	-	0.1	-	-	-

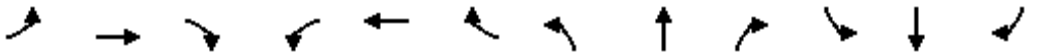
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	118	77	34	1270	115	3	77	33	923	2	7
Future Volume (vph)	5	118	77	34	1270	115	3	77	33	923	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										49%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	60.0	60.0		60.0	60.0		14.0	14.0		46.0	46.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		11.7%	11.7%		38.3%	38.3%	
Maximum Green (s)	55.5	55.5		55.5	55.5		9.5	9.5		41.5	41.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 118.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





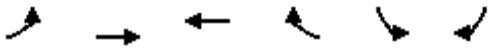
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	118	77	34	1270	115	3	77	33	923	2	7
Future Volume (veh/h)	5	118	77	34	1270	115	3	77	33	923	2	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	128	84	37	1380	125	3	84	36	1012	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	471	309	495	1473	133	4	99	42	1268	666	0
Arrive On Green	0.45	0.45	0.45	0.67	0.67	0.67	0.08	0.08	0.08	0.46	0.00	0.00
Sat Flow, veh/h	348	1054	692	1170	3296	297	43	1212	519	3563	1870	0
Grp Volume(v), veh/h	5	0	212	37	741	764	123	0	0	1012	0	0
Grp Sat Flow(s),veh/h/ln	348	0	1746	1170	1777	1817	1775	0	0	1781	1870	0
Q Serve(g_s), s	1.6	0.0	8.9	1.7	42.8	43.8	8.0	0.0	0.0	28.2	0.0	0.0
Cycle Q Clear(g_c), s	45.4	0.0	8.9	10.6	42.8	43.8	8.0	0.0	0.0	28.2	0.0	0.0
Prop In Lane	1.00		0.40	1.00		0.16	0.02		0.29	1.00		0.00
Lane Grp Cap(c), veh/h	86	0	780	495	794	812	145	0	0	1268	666	0
V/C Ratio(X)	0.06	0.00	0.27	0.07	0.93	0.94	0.85	0.00	0.00	0.80	0.00	0.00
Avail Cap(c_a), veh/h	97	0	831	529	846	865	145	0	0	1268	666	0
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.50	1.00	1.00	1.00	1.30	1.30	1.30
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.0	0.0	20.3	14.5	17.7	17.9	52.8	0.0	0.0	27.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.1	16.5	17.5	43.2	0.0	0.0	5.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.5	0.4	14.2	15.0	5.3	0.0	0.0	11.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	20.5	14.5	34.2	35.4	96.0	0.0	0.0	33.0	0.0	0.0
LnGrp LOS	D	A	C	B	C	D	F	A	A	C	A	A
Approach Vol, veh/h		217			1542			123			1012	
Approach Delay, s/veh		21.2			34.3			96.0			33.0	
Approach LOS		C			C			F			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.6		46.0		56.6		14.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		41.5		55.5		9.5				
Max Q Clear Time (g_c+I1), s		47.4		30.2		45.8		10.0				
Green Ext Time (p_c), s		0.7		3.3		6.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			35.5									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	24	68	1212	177	4
Future Volume (vph)	5	24	68	1212	177	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	18.9

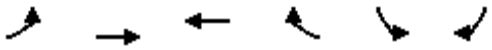
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	24	68	1212	177	4
Future Vol, veh/h	5	24	68	1212	177	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	37	105	1865	272	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	1091	1038
Stage 1	-	-	-	-	1038	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1486	-	-	-	~ 238	280
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1486	-	-	-	~ 237	280
Mov Cap-2 Maneuver	-	-	-	-	~ 237	-
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	155.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1486	-	-	-	238
HCM Lane V/C Ratio	0.005	-	-	-	1.17
HCM Control Delay (s)	7.4	0	-	-	155.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	13.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	24	68	1212	177	4
Future Volume (vph)	5	24	68	1212	177	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	24	68	1212	177	4
Future Vol, veh/h	5	24	68	1212	177	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	37	105	1865	272	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1970	0	-	0	158	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	294	-	-	-	833	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	294	-	-	-	810	949
Mov Cap-2 Maneuver	-	-	-	-	810	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	294	-	-	-	813
HCM Lane V/C Ratio	0.026	-	-	-	0.343
HCM Control Delay (s)	17.6	0	-	-	11.7
HCM Lane LOS	C	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	2	1	1216	2	0
Future Volume (vph)	181	2	1	1216	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	11.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	181	2	1	1216	2	0
Future Vol, veh/h	181	2	1	1216	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	278	3	2	1871	3	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	944	938	0	0	1873	0
Stage 1	938	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	291	321	-	-	321	-
Stage 1	381	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	288	321	-	-	321	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	381	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	86.8	0	16.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	288	321	-
HCM Lane V/C Ratio	-	-	0.978	0.01	-
HCM Control Delay (s)	-	-	86.8	16.3	0
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	9.9	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	2	1	1216	2	0
Future Volume (vph)	181	2	1	1216	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	181	2	1	1216	2	0
Future Vol, veh/h	181	2	1	1216	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	278	3	2	1871	3	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	8	2	0	0	1873	0
Stage 1	2	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1013	1082	-	-	321	-
Stage 1	1021	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1004	1082	-	-	321	-
Mov Cap-2 Maneuver	1004	-	-	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	16.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1005	321	-
HCM Lane V/C Ratio	-	-	0.28	0.01	-
HCM Control Delay (s)	-	-	10	16.3	0
HCM Lane LOS	-	-	B	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	216	16	79	386
Future Volume (vph)	22	167	216	16	79	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

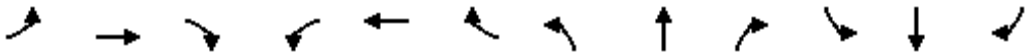
Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	167	216	16	79	386
Future Vol, veh/h	22	167	216	16	79	386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	220	284	21	104	508

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1000	284	0	0	305	0
Stage 1	284	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	270	755	-	-	1256	-
Stage 1	764	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	755	-	-	1256	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	444	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	610	1256	-
HCM Lane V/C Ratio	-	-	0.408	0.083	-
HCM Control Delay (s)	-	-	14.9	8.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	2	0.3	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	11	2	24	19	2	3	177	11	1	320	151
Future Volume (vph)	79	11	2	24	19	2	3	177	11	1	320	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	79	11	2	24	19	2	3	177	11	1	320	151
Future Vol, veh/h	79	11	2	24	19	2	3	177	11	1	320	151
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	105	15	3	32	25	3	4	236	15	1	427	201
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.2	10.3	11.5	26.2
HCM LOS	B	B	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	86%	53%	0%
Vol Thru, %	93%	12%	42%	68%
Vol Right, %	6%	2%	4%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	92	45	472
LT Vol	3	79	24	1
Through Vol	177	11	19	320
RT Vol	11	2	2	151
Lane Flow Rate	255	123	60	629
Geometry Grp	1	1	1	1
Degree of Util (X)	0.375	0.217	0.108	0.828
Departure Headway (Hd)	5.304	6.359	6.453	4.736
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	677	563	553	768
Service Time	3.349	4.419	4.519	2.736
HCM Lane V/C Ratio	0.377	0.218	0.108	0.819
HCM Control Delay	11.5	11.2	10.3	26.2
HCM Lane LOS	B	B	B	D
HCM 95th-tile Q	1.7	0.8	0.4	9.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	3	3	114	4	2
Future Volume (vph)	52	3	3	114	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45			45	45	
Link Distance (ft)	787			1189	2650	
Travel Time (s)	11.9			18.0	40.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	3	3	114	4	2
Future Vol, veh/h	52	3	3	114	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	3	3	124	4	2

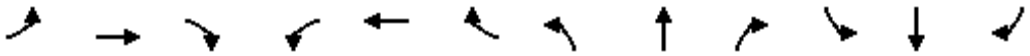
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	189	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1544	-	800	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1544	-	798	1007
Mov Cap-2 Maneuver	-	-	-	-	798	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	894	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	857	-	-	1544	-
HCM Lane V/C Ratio	0.008	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX 5.2: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	973	23	4	465	15	6	1	7	5	1	70
Future Volume (vph)	241	973	23	4	465	15	6	1	7	5	1	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	241	973	23	4	465	15	6	1	7	5	1	70
Future Vol, veh/h	241	973	23	4	465	15	6	1	7	5	1	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	301	1216	29	5	581	19	8	1	9	6	1	88

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	1245	0	0	2478	2443	1231	2439	2448	591
Stage 1	-	-	-	-	-	-	1833	1833	-	601	601	-
Stage 2	-	-	-	-	-	-	645	610	-	1838	1847	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	977	-	-	559	-	-	20	31	216	22	31	507
Stage 1	-	-	-	-	-	-	98	127	-	487	489	-
Stage 2	-	-	-	-	-	-	461	485	-	97	125	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	977	-	-	559	-	-	12	21	216	15	21	507
Mov Cap-2 Maneuver	-	-	-	-	-	-	12	21	-	15	21	-
Stage 1	-	-	-	-	-	-	68	88	-	337	485	-
Stage 2	-	-	-	-	-	-	377	481	-	63	87	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.1	249.9	40.1
HCM LOS			F	E

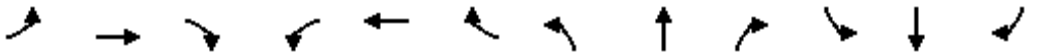
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	12	100	977	-	-	559	-	-	15	382
HCM Lane V/C Ratio	0.625	0.1	0.308	-	-	0.009	-	-	0.417	0.232
HCM Control Delay (s)	$ 523.1	45	10.3	-	-	11.5	-	-	$ 363.2	17.3
HCM Lane LOS	F	E	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.4	0.3	1.3	-	-	0	-	-	1.1	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	973	23	4	465	15	6	1	7	5	1	70
Future Volume (vph)	241	973	23	4	465	15	6	1	7	5	1	70
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	35.0	87.2		10.0	62.2		22.8	22.8		22.8	22.8	
Total Split (%)	29.2%	72.7%		8.3%	51.8%		19.0%	19.0%		19.0%	19.0%	
Maximum Green (s)	30.5	82.7		5.5	57.7		18.3	18.3		18.3	18.3	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

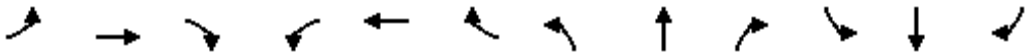
Splits and Phases: 1: Dachshund Rd. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	973	23	4	465	15	6	1	7	5	1	70
Future Volume (veh/h)	241	973	23	4	465	15	6	1	7	5	1	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	254	1024	24	4	489	16	6	1	7	5	1	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	1258	29	8	958	31	186	29	201	243	3	223
Arrive On Green	0.35	1.00	1.00	0.01	0.56	0.56	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1594	1724	40	1594	1706	56	1170	189	1320	1239	20	1461
Grp Volume(v), veh/h	254	0	1048	4	0	505	6	0	8	5	0	75
Grp Sat Flow(s),veh/h/ln	1594	0	1764	1594	0	1762	1170	0	1508	1239	0	1480
Q Serve(g_s), s	18.3	0.0	0.0	0.3	0.0	21.1	0.6	0.0	0.5	0.4	0.0	5.4
Cycle Q Clear(g_c), s	18.3	0.0	0.0	0.3	0.0	21.1	6.0	0.0	0.5	1.0	0.0	5.4
Prop In Lane	1.00		0.02	1.00		0.03	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	277	0	1288	8	0	989	186	0	230	243	0	226
V/C Ratio(X)	0.92	0.00	0.81	0.48	0.00	0.51	0.03	0.00	0.03	0.02	0.00	0.33
Avail Cap(c_a), veh/h	405	0	1288	73	0	989	186	0	230	243	0	226
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.00	0.32	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	0.0	59.5	0.0	16.2	48.1	0.0	43.3	43.7	0.0	45.4
Incr Delay (d2), s/veh	8.0	0.0	1.9	37.7	0.0	1.9	0.3	0.0	0.3	0.2	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.7	0.2	0.0	8.3	0.2	0.0	0.2	0.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	0.0	1.9	97.2	0.0	18.1	48.4	0.0	43.6	43.9	0.0	49.3
LnGrp LOS	D	A	A	F	A	B	D	A	D	D	A	D
Approach Vol, veh/h		1302			509			14			80	
Approach Delay, s/veh		10.6			18.7			45.7			49.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	92.1		22.8	25.3	71.9		22.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	82.7		18.3	30.5	57.7		18.3				
Max Q Clear Time (g_c+I1), s	2.3	2.0		7.4	20.3	23.1		8.0				
Green Ext Time (p_c), s	0.0	11.1		0.2	0.5	3.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	812	110	63	391	87	38	131	198	228	93	8
Future Volume (vph)	20	812	110	63	391	87	38	131	198	228	93	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	401
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	812	110	63	391	87	38	131	198	228	93	8
Future Vol, veh/h	20	812	110	63	391	87	38	131	198	228	93	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	873	118	68	420	94	41	141	213	245	100	9
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	806.8	166.2	28.5	40.5
HCM LOS	F	F	D	E

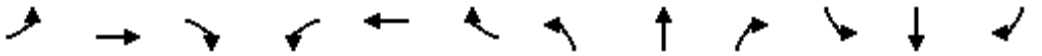
Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	14%	0%	100%	0%
Vol Thru, %	0%	100%	0%	86%	86%	0%	0%	92%
Vol Right, %	0%	0%	100%	12%	0%	100%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	131	198	942	454	87	228	101
LT Vol	38	0	0	20	63	0	228	0
Through Vol	0	131	0	812	391	0	0	93
RT Vol	0	0	198	110	0	87	0	8
Lane Flow Rate	41	141	213	1013	488	94	245	109
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.119	0.391	0.55	2.728	1.299	0.229	0.713	0.299
Departure Headway (Hd)	14.962	14.416	13.651	10.389	13.361	12.523	15.072	14.451
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	241	252	266	365	278	289	243	251
Service Time	12.662	12.116	11.351	8.089	11.061	10.223	12.772	12.151
HCM Lane V/C Ratio	0.17	0.56	0.801	2.775	1.755	0.325	1.008	0.434
HCM Control Delay	19.7	26.1	31.8	806.8	194.4	18.9	48.1	23.2
HCM Lane LOS	C	D	D	F	F	C	E	C
HCM 95th-tile Q	0.4	1.8	3	79.3	17.5	0.9	4.8	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	812	110	63	391	87	38	131	198	228	93	8
Future Volume (vph)	20	812	110	63	391	87	38	131	198	228	93	8
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		165	100		0	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Free	Prot	NA	Perm	Prot	NA	
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6		Free			8			
Detector Phase	2	2		6	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		10.0	22.5	22.5	10.0	22.5	
Total Split (s)	75.5	75.5		75.5	75.5		11.0	22.5	22.5	22.0	33.5	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		9.2%	18.8%	18.8%	18.3%	27.9%	
Maximum Green (s)	71.0	71.0		71.0	71.0		6.5	18.0	18.0	17.5	29.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	5	5		5	5			5	5		5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	812	110	63	391	87	38	131	198	228	93	8
Future Volume (veh/h)	20	812	110	63	391	87	38	131	198	228	93	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	22	873	118	68	420	0	41	141	213	245	100	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	571	904	122	84	1048		50	266	221	232	423	38
Arrive On Green	0.59	0.59	0.59	1.00	1.00	0.00	0.03	0.15	0.15	0.15	0.26	0.26
Sat Flow, veh/h	864	1527	206	508	1772	1502	1594	1772	1477	1594	1600	144
Grp Volume(v), veh/h	22	0	991	68	420	0	41	141	213	245	0	109
Grp Sat Flow(s),veh/h/ln	864	0	1734	508	1772	1502	1594	1772	1477	1594	0	1744
Q Serve(g_s), s	1.3	0.0	65.4	5.6	0.0	0.0	3.1	8.8	17.2	17.5	0.0	5.9
Cycle Q Clear(g_c), s	1.3	0.0	65.4	71.0	0.0	0.0	3.1	8.8	17.2	17.5	0.0	5.9
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	571	0	1026	84	1048		50	266	221	232	0	461
V/C Ratio(X)	0.04	0.00	0.97	0.81	0.40		0.82	0.53	0.96	1.05	0.00	0.24
Avail Cap(c_a), veh/h	571	0	1026	84	1048		86	266	221	232	0	461
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.83	0.83	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	23.4	34.5	0.0	0.0	57.8	47.1	50.7	51.3	0.0	34.6
Incr Delay (d2), s/veh	0.1	0.0	21.0	48.7	0.9	0.0	26.2	2.0	49.5	74.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	29.2	3.0	0.3	0.0	1.6	3.9	9.1	11.4	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	0.0	44.4	83.2	0.9	0.0	83.9	49.1	100.2	125.2	0.0	34.9
LnGrp LOS	B	A	D	F	A		F	D	F	F	A	C
Approach Vol, veh/h		1013			488			395			354	
Approach Delay, s/veh		43.6			12.4			80.3			97.4	
Approach LOS		D			B			F			F	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		75.5	8.3	36.2		75.5	22.0	22.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		71.0	6.5	29.0		71.0	17.5	18.0				
Max Q Clear Time (g_c+I1), s		67.4	5.1	7.9		73.0	19.5	19.2				
Green Ext Time (p_c), s		2.2	0.0	0.4		0.0	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			51.8									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	436	1	70	940	2	59
Future Volume (vph)	436	1	70	940	2	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	62.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	436	1	70	940	2	59
Future Vol, veh/h	436	1	70	940	2	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	532	1	85	1146	2	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	734	658	0	0	1231	0
Stage 1	658	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 387	464	-	-	566	-
Stage 1	~ 515	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 385	464	-	-	566	-
Mov Cap-2 Maneuver	~ 385	-	-	-	-	-
Stage 1	~ 515	-	-	-	-	-
Stage 2	943	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	216.1	0	0.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	385	566	-
HCM Lane V/C Ratio	-	-	1.384	0.004	-
HCM Control Delay (s)	-	-	216.1	11.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	26.1	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	436	1	70	940	2	59
Future Volume (vph)	436	1	70	940	2	59
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	97.2	97.2	22.8	97.2	22.8	22.8
Total Split (%)	81.0%	81.0%	19.0%	81.0%	19.0%	19.0%
Maximum Green (s)	92.7	92.7	18.3	92.7	18.3	18.3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

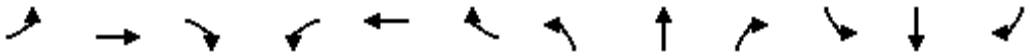
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	436	1	70	940	2	59
Future Volume (veh/h)	436	1	70	940	2	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	532	1	85	1146	2	72
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1231	1160	270	1385	104	270
Arrive On Green	0.77	0.77	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1594	1502	1772	1477	404	1772
Grp Volume(v), veh/h	532	1	85	1146	2	72
Grp Sat Flow(s),veh/h/ln	1594	1502	1772	1477	404	1772
Q Serve(g_s), s	13.7	0.0	5.1	18.3	0.5	4.3
Cycle Q Clear(g_c), s	13.7	0.0	5.1	18.3	5.7	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1231	1160	270	1385	104	270
V/C Ratio(X)	0.43	0.00	0.31	0.83	0.02	0.27
Avail Cap(c_a), veh/h	1231	1160	270	1385	104	270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.7	3.1	45.3	1.0	47.8	44.9
Incr Delay (d2), s/veh	1.1	0.0	3.0	5.8	0.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	2.4	36.3	0.1	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	3.1	48.3	6.8	48.1	47.3
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	533		1231			74
Approach Delay, s/veh	5.8		9.7			47.3
Approach LOS	A		A			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				22.8		97.2	22.8
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				18.3		92.7	18.3
Max Q Clear Time (g_c+I1), s				7.7		15.7	20.3
Green Ext Time (p_c), s				0.2		1.7	0.0

Intersection Summary			
HCM 6th Ctrl Delay		10.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	131	91	18	661	81	3	49	32	1304	1	16
Future Volume (vph)	4	131	91	18	661	81	3	49	32	1304	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3964.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	131	91	18	661	81	3	49	32	1304	1	16
Future Vol, veh/h	4	131	91	18	661	81	3	49	32	1304	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	168	117	23	847	104	4	63	41	1672	1	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	951	0	0	285	0	0	1193	1234	227	1234	1240	899
Stage 1	-	-	-	-	-	-	237	237	-	945	945	-
Stage 2	-	-	-	-	-	-	956	997	-	289	295	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	722	-	-	1277	-	-	164	177	812	~ 153	175	338
Stage 1	-	-	-	-	-	-	766	709	-	~ 314	340	-
Stage 2	-	-	-	-	-	-	310	322	-	~ 719	669	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	722	-	-	1277	-	-	148	169	812	~ 100	167	338
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	169	-	~ 100	167	-
Stage 1	-	-	-	-	-	-	760	703	-	~ 311	327	-
Stage 2	-	-	-	-	-	-	279	309	-	~ 617	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	31.7	$ 7174
HCM LOS			D	F

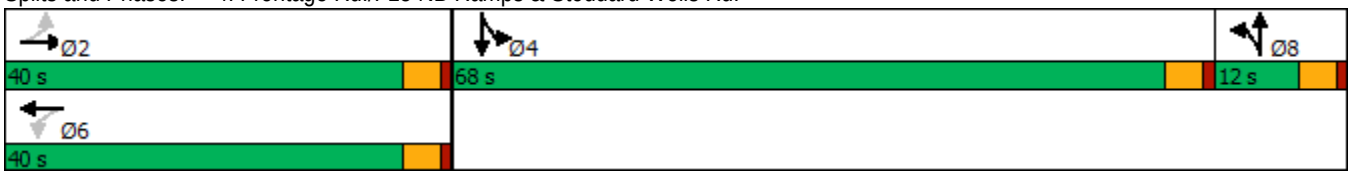
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	240	722	-	-	1277	-	-	101
HCM Lane V/C Ratio	0.449	0.007	-	-	0.018	-	-	16.768
HCM Control Delay (s)	31.7	10	0	-	7.9	0	-	$ 7174
HCM Lane LOS	D	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.2	0	-	-	0.1	-	-	202.2

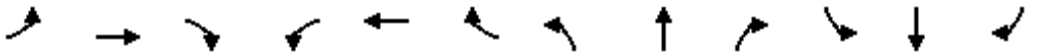
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	131	91	18	661	81	3	49	32	1304	1	16
Future Volume (vph)	4	131	91	18	661	81	3	49	32	1304	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)										49%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	40.0	40.0		40.0	40.0		12.0	12.0		68.0	68.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		10.0%	10.0%		56.7%	56.7%	
Maximum Green (s)	35.5	35.5		35.5	35.5		7.5	7.5		63.5	63.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 119.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





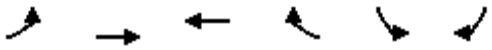
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	131	91	18	661	81	3	49	32	1304	1	16
Future Volume (veh/h)	4	131	91	18	661	81	3	49	32	1304	1	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	168	117	23	847	104	4	63	41	1692	0	0
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	294	205	222	916	113	4	64	42	1906	1001	0
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.06	0.06	0.54	0.00	0.00
Sat Flow, veh/h	589	1023	712	1089	3182	391	64	1009	657	3563	1870	0
Grp Volume(v), veh/h	5	0	285	23	473	478	108	0	0	1692	0	0
Grp Sat Flow(s),veh/h/ln	589	0	1735	1089	1777	1796	1730	0	0	1781	1870	0
Q Serve(g_s), s	1.0	0.0	16.6	2.2	30.6	30.7	7.4	0.0	0.0	49.9	0.0	0.0
Cycle Q Clear(g_c), s	31.6	0.0	16.6	18.8	30.6	30.7	7.4	0.0	0.0	49.9	0.0	0.0
Prop In Lane	1.00		0.41	1.00		0.22	0.04		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	78	0	500	222	512	517	109	0	0	1906	1001	0
V/C Ratio(X)	0.06	0.00	0.57	0.10	0.92	0.92	0.99	0.00	0.00	0.89	0.00	0.00
Avail Cap(c_a), veh/h	85	0	519	234	532	537	109	0	0	1906	1001	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.3	0.0	36.0	44.0	41.0	41.0	55.5	0.0	0.0	24.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.4	0.2	21.7	21.5	82.8	0.0	0.0	6.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	7.0	0.6	15.9	16.1	5.7	0.0	0.0	21.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	0.0	37.4	44.2	62.7	62.5	138.4	0.0	0.0	31.0	0.0	0.0
LnGrp LOS	E	A	D	D	E	E	F	A	A	C	A	A
Approach Vol, veh/h		290			974			108			1692	
Approach Delay, s/veh		37.7			62.2			138.4			31.0	
Approach LOS		D			E			F			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.7		68.0		38.7		12.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		35.5		63.5		35.5		7.5				
Max Q Clear Time (g_c+I1), s		33.6		51.9		32.7		9.4				
Green Ext Time (p_c), s		0.3		6.1		1.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			45.3									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	40	85	595	202	2
Future Volume (vph)	6	40	85	595	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

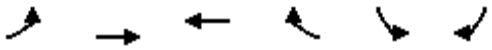
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	40	85	595	202	2
Future Vol, veh/h	6	40	85	595	202	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	109	763	259	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	558	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1481	-	-	-	491	578
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	488	578
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1481	-	-	-	489
HCM Lane V/C Ratio	0.005	-	-	-	0.535
HCM Control Delay (s)	7.4	0	-	-	20.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	40	85	595	202	2
Future Volume (vph)	6	40	85	595	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	40	85	595	202	2
Future Vol, veh/h	6	40	85	595	202	2
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	109	763	259	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	877	0	-	0	186	119
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	770	-	-	-	803	933
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	766	-	-	-	786	924
Mov Cap-2 Maneuver	-	-	-	-	786	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	946	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	766	-	-	-	787
HCM Lane V/C Ratio	0.01	-	-	-	0.332
HCM Control Delay (s)	9.7	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	2	2	599	4	1
Future Volume (vph)	203	2	2	599	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	2	2	599	4	1
Future Vol, veh/h	203	2	2	599	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	2	2	730	5	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	378	367	0	0	732	0
Stage 1	367	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	624	678	-	-	873	-
Stage 1	701	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	620	678	-	-	873	-
Mov Cap-2 Maneuver	620	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	7.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	621	873	-
HCM Lane V/C Ratio	-	-	0.403	0.006	-
HCM Control Delay (s)	-	-	14.6	9.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	2	2	599	4	1
Future Volume (vph)	203	2	2	599	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	2	2	599	4	1
Future Vol, veh/h	203	2	2	599	4	1
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	2	2	730	5	1

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	23	12	0	0	737	0
Stage 1	7	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	993	1069	-	-	869	-
Stage 1	1016	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	977	1059	-	-	865	-
Mov Cap-2 Maneuver	977	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	996	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	978	865	-
HCM Lane V/C Ratio	-	-	0.256	0.006	-
HCM Control Delay (s)	-	-	9.9	9.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	34	333	22	121	145
Future Volume (vph)	10	34	333	22	121	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

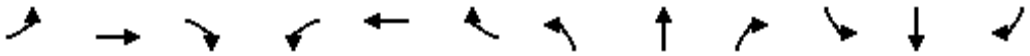
Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	34	333	22	121	145
Future Vol, veh/h	10	34	333	22	121	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	39	383	25	139	167

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	828	383	0	0	408	0
Stage 1	383	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	664	-	-	1151	-
Stage 1	689	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	300	664	-	-	1151	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	520	1151	-
HCM Lane V/C Ratio	-	-	0.097	0.121	-
HCM Control Delay (s)	-	-	12.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	13	1	18	6	2	5	237	19	1	103	67
Future Volume (vph)	166	13	1	18	6	2	5	237	19	1	103	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

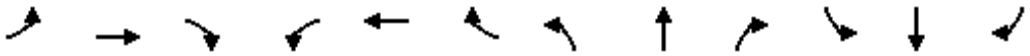
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	166	13	1	18	6	2	5	237	19	1	103	67
Future Vol, veh/h	166	13	1	18	6	2	5	237	19	1	103	67
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	182	14	1	20	7	2	5	260	21	1	113	74
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	8.8	10.6	9.2
HCM LOS	B	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	92%	69%	1%
Vol Thru, %	91%	7%	23%	60%
Vol Right, %	7%	1%	8%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	261	180	26	171
LT Vol	5	166	18	1
Through Vol	237	13	6	103
RT Vol	19	1	2	67
Lane Flow Rate	287	198	29	188
Geometry Grp	1	1	1	1
Degree of Util (X)	0.376	0.288	0.043	0.243
Departure Headway (Hd)	4.717	5.245	5.425	4.647
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	757	680	653	767
Service Time	2.775	3.319	3.521	2.71
HCM Lane V/C Ratio	0.379	0.291	0.044	0.245
HCM Control Delay	10.6	10.5	8.8	9.2
HCM Lane LOS	B	B	A	A
HCM 95th-tile Q	1.8	1.2	0.1	1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	133	6	21	44	1	3	107	68	1	32	3
Future Volume (vph)	10	133	6	21	44	1	3	107	68	1	32	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	133	6	21	44	1	3	107	68	1	32	3
Future Vol, veh/h	10	133	6	21	44	1	3	107	68	1	32	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	145	7	23	48	1	3	116	74	1	35	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	152	0	0	285	266	149	361	269	49
Stage 1	-	-	-	-	-	-	171	171	-	95	95	-
Stage 2	-	-	-	-	-	-	114	95	-	266	174	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1558	-	-	1429	-	-	667	640	898	595	637	1020
Stage 1	-	-	-	-	-	-	831	757	-	912	816	-
Stage 2	-	-	-	-	-	-	891	816	-	739	755	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1558	-	-	1429	-	-	624	624	898	459	621	1020
Mov Cap-2 Maneuver	-	-	-	-	-	-	624	624	-	459	621	-
Stage 1	-	-	-	-	-	-	824	751	-	905	802	-
Stage 2	-	-	-	-	-	-	835	802	-	569	749	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.4	12	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	706	1558	-	-	1429	-	-	635
HCM Lane V/C Ratio	0.274	0.007	-	-	0.016	-	-	0.062
HCM Control Delay (s)	12	7.3	0	-	7.6	0	-	11
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	0	0	26	0	0
Future Volume (vph)	8	0	0	26	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	335		269			195
Travel Time (s)	7.6		4.1			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

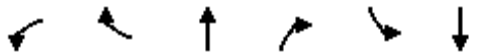
Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	0	26	0	0
Future Vol, veh/h	8	0	0	26	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	0	28	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	15	14	0	0	28	0
Stage 1	14	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1004	1066	-	-	1585	-
Stage 1	1009	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1004	1066	-	-	1585	-
Mov Cap-2 Maneuver	1004	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1004	1585	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s)	-	-	8.6	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	0	26	27	0	8
Future Volume (vph)	8	0	26	27	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	313		1795			269
Travel Time (s)	7.1		27.2			4.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	0	26	27	0	8
Future Vol, veh/h	8	0	26	27	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	28	29	0	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	52	43	0	0	57	0
Stage 1	43	-	-	-	-	-
Stage 2	9	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	957	1027	-	-	1547	-
Stage 1	979	-	-	-	-	-
Stage 2	1014	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	957	1027	-	-	1547	-
Mov Cap-2 Maneuver	957	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	1014	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	957	1547	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s)	-	-	8.8	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	1	53	38	1	16
Future Volume (vph)	11	1	53	38	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	333		257			1795
Travel Time (s)	7.6		3.9			27.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	1	53	38	1	16
Future Vol, veh/h	11	1	53	38	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	1	58	41	1	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	98	79	0	0	99	0
Stage 1	79	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	901	981	-	-	1494	-
Stage 1	944	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	981	-	-	1494	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	906	1494	-
HCM Lane V/C Ratio	-	-	0.014	0.001	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	1	91	26	1	27
Future Volume (vph)	8	1	91	26	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	340		316			257
Travel Time (s)	7.7		4.8			3.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

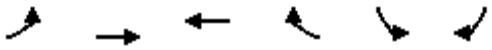
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	1	91	26	1	27
Future Vol, veh/h	8	1	91	26	1	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	99	28	1	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	144	113	0	0	127	0
Stage 1	113	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	849	940	-	-	1459	-
Stage 1	912	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	848	940	-	-	1459	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	857	1459	-
HCM Lane V/C Ratio	-	-	0.011	0.001	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	143	46	1	1	13
Future Volume (vph)	43	143	46	1	1	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		1189	461		387	
Travel Time (s)		18.0	7.0		8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

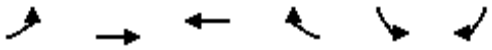
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	143	46	1	1	13
Future Vol, veh/h	43	143	46	1	1	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	155	50	1	1	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	51	0	-	0	300	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1555	-	-	-	691	1017
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1555	-	-	-	668	1017
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1555	-	-	-	980
HCM Lane V/C Ratio	0.03	-	-	-	0.016
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	108	36	1	1	10
Future Volume (vph)	35	108	36	1	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		461	686		374	
Travel Time (s)		7.0	10.4		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

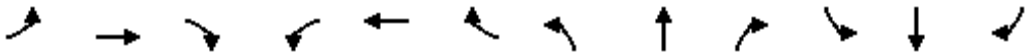
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	108	36	1	1	10
Future Vol, veh/h	35	108	36	1	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	117	39	1	1	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	233	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	193	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	755	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	840	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	735	1031
Mov Cap-2 Maneuver	-	-	-	-	735	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	840	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	995
HCM Lane V/C Ratio	0.024	-	-	-	0.012
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	612	165	30	907	7	158	1	28	19	1	267
Future Volume (vph)	112	612	165	30	907	7	158	1	28	19	1	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	114.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	612	165	30	907	7	158	1	28	19	1	267
Future Vol, veh/h	112	612	165	30	907	7	158	1	28	19	1	267
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	170	927	250	45	1374	11	239	2	42	29	2	405

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1385	0	0	1177	0	0	3065	2867	1052	2884	2987	1380
Stage 1	-	-	-	-	-	-	1392	1392	-	1470	1470	-
Stage 2	-	-	-	-	-	-	1673	1475	-	1414	1517	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	494	-	-	593	-	-	~ 8	17	275	~ 10	14	~ 177
Stage 1	-	-	-	-	-	-	~ 176	209	-	158	191	-
Stage 2	-	-	-	-	-	-	~ 121	190	-	171	182	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	494	-	-	593	-	-	-	10	275	~ 5	8	~ 177
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	10	-	~ 5	8	-
Stage 1	-	-	-	-	-	-	~ 115	137	-	104	176	-
Stage 2	-	-	-	-	-	-	-	176	-	94	119	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.4		$ 911.8
HCM LOS			-	F

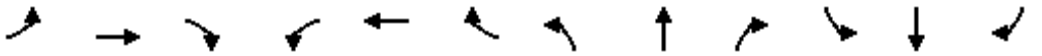
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	144	494	-	-	593	-	-	5	164
HCM Lane V/C Ratio	-	0.305	0.344	-	-	0.077	-	-	5.758	2.476
HCM Control Delay (s)	-	40.6	16.1	-	-	11.6	-	-	$ 3530.8	$ 726.1
HCM Lane LOS	-	E	C	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	-	1.2	1.5	-	-	0.2	-	-	5.1	34.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	612	165	30	907	7	158	1	28	19	1	267
Future Volume (vph)	112	612	165	30	907	7	158	1	28	19	1	267
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	14.0	73.6		10.0	69.6		36.4	36.4		36.4	36.4	
Total Split (%)	11.7%	61.3%		8.3%	58.0%		30.3%	30.3%		30.3%	30.3%	
Maximum Green (s)	9.5	69.1		5.5	65.1		31.9	31.9		31.9	31.9	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 65.1 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

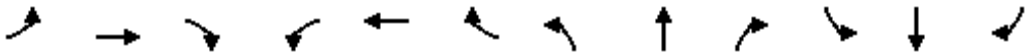
Splits and Phases: 1: Dachshund Rd. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	612	165	30	907	7	158	1	28	19	1	267
Future Volume (veh/h)	112	612	165	30	907	7	158	1	28	19	1	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	118	644	174	32	955	7	166	1	29	20	1	281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	799	216	44	953	7	154	13	388	370	1	398
Arrive On Green	0.08	0.59	0.59	0.03	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1594	1344	363	1594	1757	13	982	50	1459	1234	5	1497
Grp Volume(v), veh/h	118	0	818	32	0	962	166	0	30	20	0	282
Grp Sat Flow(s),veh/h/ln	1594	0	1707	1594	0	1770	982	0	1509	1234	0	1502
Q Serve(g_s), s	8.8	0.0	44.8	2.4	0.0	65.1	11.5	0.0	1.8	1.5	0.0	20.4
Cycle Q Clear(g_c), s	8.8	0.0	44.8	2.4	0.0	65.1	31.9	0.0	1.8	3.3	0.0	20.4
Prop In Lane	1.00		0.21	1.00		0.01	1.00		0.97	1.00		1.00
Lane Grp Cap(c), veh/h	126	0	1014	44	0	960	154	0	401	370	0	399
V/C Ratio(X)	0.94	0.00	0.81	0.73	0.00	1.00	1.07	0.00	0.07	0.05	0.00	0.71
Avail Cap(c_a), veh/h	126	0	1014	73	0	960	154	0	401	370	0	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.00	0.43	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	19.0	57.9	0.0	27.5	56.5	0.0	33.0	34.2	0.0	39.8
Incr Delay (d2), s/veh	35.7	0.0	3.1	21.0	0.0	29.5	93.8	0.0	0.4	0.3	0.0	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	16.5	1.2	0.0	32.4	8.7	0.0	0.7	0.5	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.7	0.0	22.0	79.0	0.0	57.0	150.3	0.0	33.4	34.5	0.0	49.9
LnGrp LOS	F	A	C	E	A	F	F	A	C	C	A	D
Approach Vol, veh/h		936			994			196			302	
Approach Delay, s/veh		30.7			57.7			132.4			48.9	
Approach LOS		C			E			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	75.8		36.4	14.0	69.6		36.4				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	69.1		31.9	9.5	65.1		31.9				
Max Q Clear Time (g_c+I1), s	4.4	46.8		22.4	10.8	67.1		33.9				
Green Ext Time (p_c), s	0.0	5.8		1.3	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		52.2	
HCM 6th LOS		D	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	622	96	246	878	208	160	114	136	131	193	18
Future Volume (vph)	12	622	96	246	878	208	160	114	136	131	193	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	971.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	622	96	246	878	208	160	114	136	131	193	18
Future Vol, veh/h	12	622	96	246	878	208	160	114	136	131	193	18
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	852	132	337	1203	285	219	156	186	179	264	25
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

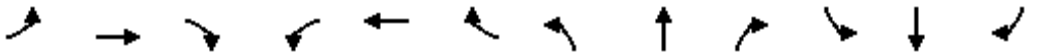
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	1034.3	1453.1	47.3	72.3
HCM LOS	F	F	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	22%	0%	100%	0%
Vol Thru, %	0%	100%	0%	85%	78%	0%	0%	91%
Vol Right, %	0%	0%	100%	13%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	114	136	730	1124	208	131	211
LT Vol	160	0	0	12	246	0	131	0
Through Vol	0	114	0	622	878	0	0	193
RT Vol	0	0	136	96	0	208	0	18
Lane Flow Rate	219	156	186	1000	1540	285	179	289
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.703	0.479	0.536	3.206	4.716	0.809	0.586	0.898
Departure Headway (Hd)	19.831	19.277	18.502	16.081	15.932	15.032	19.37	18.729
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	184	189	197	240	246	245	188	197
Service Time	17.531	16.977	16.202	13.781	13.632	12.732	17.07	16.429
HCM Lane V/C Ratio	1.19	0.825	0.944	4.167	6.26	1.163	0.952	1.467
HCM Control Delay	59.3	38.5	40.7	1034.3	1710.8	60.3	46.3	88.5
HCM Lane LOS	F	E	E	F	F	F	E	F
HCM 95th-tile Q	4.3	2.3	2.8	65.8	108.6	6.1	3.2	6.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	622	96	246	878	208	160	114	136	131	193	18
Future Volume (vph)	12	622	96	246	878	208	160	114	136	131	193	18
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		165	100		0	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA	Free	Prot	NA	Perm	Prot	NA	
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6		Free			8			
Detector Phase	2	2		6	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		20.0	22.5	22.5	20.0	22.5	
Total Split (s)	77.5	77.5		77.5	77.5		20.0	22.5	22.5	20.0	22.5	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		16.7%	18.8%	18.8%	16.7%	18.8%	
Maximum Green (s)	73.0	73.0		73.0	73.0		15.5	18.0	18.0	15.5	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	5	5		5	5			5	5		5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	622	96	246	878	208	160	114	136	131	193	18
Future Volume (veh/h)	12	622	96	246	878	208	160	114	136	131	193	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	16	852	132	337	1203	0	219	156	186	179	264	25
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	911	141	371	1078		206	248	210	222	239	23
Arrive On Green	1.00	1.00	1.00	1.00	1.00	0.00	0.13	0.14	0.14	0.14	0.15	0.15
Sat Flow, veh/h	416	1498	232	512	1772	1502	1594	1772	1502	1594	1594	151
Grp Volume(v), veh/h	16	0	984	337	1203	0	219	156	186	179	0	289
Grp Sat Flow(s),veh/h/ln	416	0	1730	512	1772	1502	1594	1772	1502	1594	0	1745
Q Serve(g_s), s	0.0	0.0	0.0	73.0	73.0	0.0	15.5	10.0	14.6	13.1	0.0	18.0
Cycle Q Clear(g_c), s	73.0	0.0	0.0	73.0	73.0	0.0	15.5	10.0	14.6	13.1	0.0	18.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	60	0	1053	371	1078		206	248	210	222	0	262
V/C Ratio(X)	0.27	0.00	0.93	0.91	1.12		1.06	0.63	0.89	0.81	0.00	1.10
Avail Cap(c_a), veh/h	60	0	1053	371	1078		206	266	225	222	0	262
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.09	0.09	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	0.0	2.8	0.0	0.0	52.3	48.7	50.7	50.1	0.0	51.0
Incr Delay (d2), s/veh	10.6	0.0	15.9	3.9	53.6	0.0	80.6	4.2	30.3	19.3	0.0	86.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	4.7	0.4	16.1	0.0	10.5	4.5	7.0	6.2	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	15.9	6.7	53.6	0.0	132.9	52.9	80.9	69.4	0.0	137.5
LnGrp LOS	D	A	B	A	F		F	D	F	E	A	F
Approach Vol, veh/h		1000			1540			561			468	
Approach Delay, s/veh		16.4			43.4			93.4			111.4	
Approach LOS		B			D			F			F	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		77.5	20.0	22.5		77.5	21.2	21.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		73.0	15.5	18.0		73.0	15.5	18.0				
Max Q Clear Time (g_c+I1), s		75.0	17.5	20.0		75.0	15.1	16.6				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	0.2				

Intersection Summary		
HCM 6th Ctrl Delay		52.6
HCM 6th LOS		D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1055	1	22	728	2	46
Future Volume (vph)	1055	1	22	728	2	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	520.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1055	1	22	728	2	46
Future Vol, veh/h	1055	1	22	728	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1407	1	29	971	3	61

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	582	515	0	0	1000	0
Stage 1	515	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 475	560	-	-	692	-
Stage 1	~ 600	-	-	-	-	-
Stage 2	~ 956	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 473	560	-	-	692	-
Mov Cap-2 Maneuver	~ 473	-	-	-	-	-
Stage 1	~ 600	-	-	-	-	-
Stage 2	~ 952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 913.5	0	0.4
HCM LOS	F		

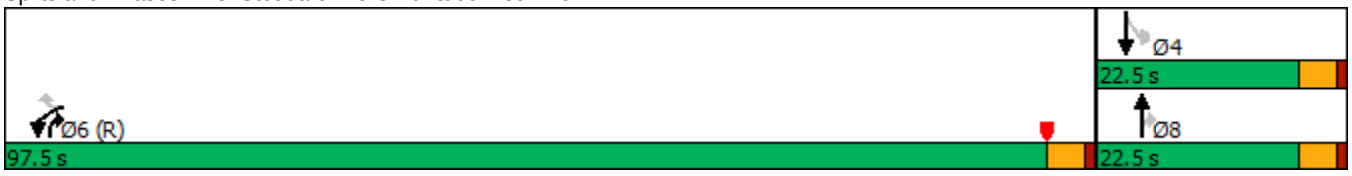
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	473	692	-
HCM Lane V/C Ratio	-	-	2.977	0.004	-
HCM Control Delay (s)	-	-	$ 913.5	10.2	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	121.2	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1055	1	22	728	2	46
Future Volume (vph)	1055	1	22	728	2	46
Ideal Flow (vphpl)	1700	1800	1800	1800	1700	1800
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.5	9.5	22.5	9.5	14.5	14.5
Total Split (s)	97.5	97.5	22.5	97.5	22.5	22.5
Total Split (%)	81.3%	81.3%	18.8%	81.3%	18.8%	18.8%
Maximum Green (s)	93.0	93.0	18.0	93.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	None	None
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.



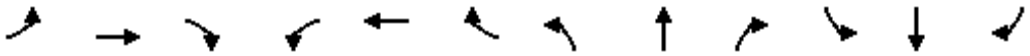
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1055	1	22	728	2	46
Future Volume (veh/h)	1055	1	22	728	2	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1673	1772	1772	1772	1673	1772
Adj Flow Rate, veh/h	1407	1	29	971	3	61
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1235	1164	266	1389	128	266
Arrive On Green	0.77	0.77	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1594	1502	1772	1502	504	1772
Grp Volume(v), veh/h	1407	1	29	971	3	61
Grp Sat Flow(s),veh/h/ln	1594	1502	1772	1502	504	1772
Q Serve(g_s), s	93.0	0.0	1.7	16.5	0.6	3.6
Cycle Q Clear(g_c), s	93.0	0.0	1.7	16.5	2.3	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1235	1164	266	1389	128	266
V/C Ratio(X)	1.14	0.00	0.11	0.70	0.02	0.23
Avail Cap(c_a), veh/h	1235	1164	266	1389	128	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	3.0	44.1	1.0	45.1	44.9
Incr Delay (d2), s/veh	72.8	0.0	0.8	2.9	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	46.6	0.0	0.8	30.0	0.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	86.3	3.0	44.9	3.9	45.1	45.3
LnGrp LOS	F	A	D	A	D	D
Approach Vol, veh/h	1408		1000			64
Approach Delay, s/veh	86.3		5.1			45.3
Approach LOS	F		A			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				22.5		97.5	22.5
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				18.0		93.0	18.0
Max Q Clear Time (g_c+I1), s				5.6		95.0	18.5
Green Ext Time (p_c), s				0.2		0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	118	77	34	1391	115	3	77	33	970	2	7
Future Volume (vph)	5	118	77	34	1391	115	3	77	33	970	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	83.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	118	77	34	1391	115	3	77	33	970	2	7
Future Vol, veh/h	5	118	77	34	1391	115	3	77	33	970	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	176	115	51	2076	172	4	115	49	1448	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2248	0	0	291	0	0	2519	2598	234	2594	2569	2162
Stage 1	-	-	-	-	-	-	248	248	-	2264	2264	-
Stage 2	-	-	-	-	-	-	2271	2350	-	330	305	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	229	-	-	1271	-	-	19	~ 25	805	~ 17	26	60
Stage 1	-	-	-	-	-	-	756	701	-	~ 54	76	-
Stage 2	-	-	-	-	-	-	54	~ 69	-	~ 683	662	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	229	-	-	1271	-	-	14	~ 24	805	-	25	60
Mov Cap-2 Maneuver	-	-	-	-	-	-	14	~ 24	-	-	25	-
Stage 1	-	-	-	-	-	-	728	675	-	~ 52	76	-
Stage 2	-	-	-	-	-	-	43	~ 69	-	~ 512	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	$ 2090.9	
HCM LOS			F	-

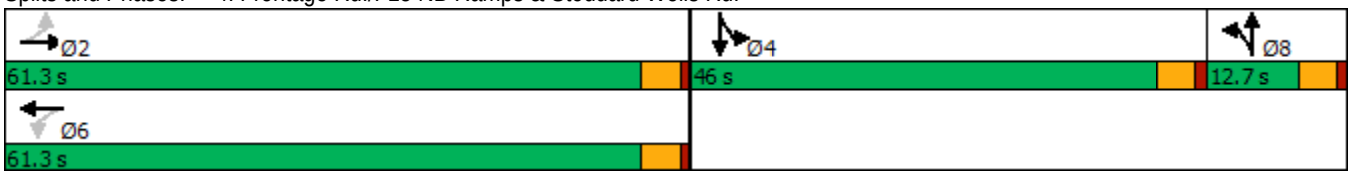
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	33	229	-	-	1271	-	-	-
HCM Lane V/C Ratio	5.111	0.033	-	-	0.04	-	-	-
HCM Control Delay (s)	$ 2090.9	21.2	0	-	8	0	-	-
HCM Lane LOS	F	C	A	-	A	A	-	-
HCM 95th %tile Q(veh)	20.1	0.1	-	-	0.1	-	-	-

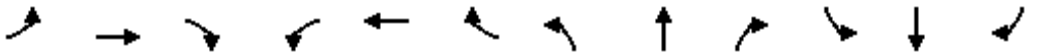
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	118	77	34	1391	115	3	77	33	970	2	7
Future Volume (vph)	5	118	77	34	1391	115	3	77	33	970	2	7
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1800	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										49%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	61.3	61.3		61.3	61.3		12.7	12.7		46.0	46.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		10.6%	10.6%		38.3%	38.3%	
Maximum Green (s)	56.8	56.8		56.8	56.8		8.2	8.2		41.5	41.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





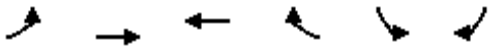
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	118	77	34	1391	115	3	77	33	970	2	7
Future Volume (veh/h)	5	118	77	34	1391	115	3	77	33	970	2	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1772	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	5	128	84	37	1512	125	3	84	36	1063	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	474	311	476	1494	123	3	79	34	1098	610	0
Arrive On Green	0.47	0.47	0.47	0.71	0.71	0.71	0.07	0.07	0.07	0.45	0.00	0.00
Sat Flow, veh/h	274	999	655	1046	3150	259	41	1148	492	3188	1772	0
Grp Volume(v), veh/h	5	0	212	37	803	834	123	0	0	1063	0	0
Grp Sat Flow(s),veh/h/ln	274	0	1654	1046	1683	1725	1681	0	0	1594	1772	0
Q Serve(g_s), s	0.0	0.0	9.3	1.8	56.8	56.8	8.2	0.0	0.0	38.9	0.0	0.0
Cycle Q Clear(g_c), s	56.8	0.0	9.3	11.1	56.8	56.8	8.2	0.0	0.0	38.9	0.0	0.0
Prop In Lane	1.00		0.40	1.00		0.15	0.02		0.29	1.00		0.00
Lane Grp Cap(c), veh/h	60	0	785	476	799	818	115	0	0	1098	610	0
V/C Ratio(X)	0.08	0.00	0.27	0.08	1.01	1.02	1.07	0.00	0.00	0.97	0.00	0.00
Avail Cap(c_a), veh/h	60	0	785	476	799	818	115	0	0	1105	614	0
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.50	1.00	1.00	1.00	1.30	1.30	1.30
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	59.9	0.0	19.0	12.6	17.3	17.3	55.8	0.0	0.0	32.4	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.8	0.3	33.3	36.2	103.4	0.0	0.0	19.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.6	0.4	19.2	20.3	6.8	0.0	0.0	16.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	19.8	13.0	50.6	53.5	159.2	0.0	0.0	52.2	0.0	0.0
LnGrp LOS	E	A	B	B	F	F	F	A	A	D	A	A
Approach Vol, veh/h		217			1674			123			1063	
Approach Delay, s/veh		20.8			51.2			159.2			52.2	
Approach LOS		C			D			F			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		61.3		45.7		61.3		12.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		56.8		41.5		56.8		8.2				
Max Q Clear Time (g_c+I1), s		58.8		40.9		58.8		10.2				
Green Ext Time (p_c), s		0.0		0.3		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			53.7									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	24	68	1333	177	4
Future Volume (vph)	5	24	68	1333	177	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	25.1

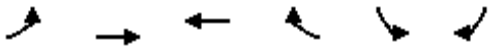
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	24	68	1333	177	4
Future Vol, veh/h	5	24	68	1333	177	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	37	105	2051	272	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	1184	1131
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1486	-	-	-	~ 209	248
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1486	-	-	-	~ 208	248
Mov Cap-2 Maneuver	-	-	-	-	~ 208	-
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	223.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1486	-	-	-	209
HCM Lane V/C Ratio	0.005	-	-	-	1.332
HCM Control Delay (s)	7.4	0	-	-	223.2
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	15.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	24	68	1333	177	4
Future Volume (vph)	5	24	68	1333	177	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	24	68	1333	177	4
Future Vol, veh/h	5	24	68	1333	177	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	37	105	2051	272	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2156	0	-	0	158	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	249	-	-	-	833	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	249	-	-	-	806	949
Mov Cap-2 Maneuver	-	-	-	-	806	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	970	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	249	-	-	-	809
HCM Lane V/C Ratio	0.031	-	-	-	0.344
HCM Control Delay (s)	19.9	0	-	-	11.8
HCM Lane LOS	C	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	2	1	1337	2	0
Future Volume (vph)	181	2	1	1337	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	16

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	181	2	1	1337	2	0
Future Vol, veh/h	181	2	1	1337	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	278	3	2	2057	3	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1037	1031	0	0	2059	0
Stage 1	1031	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 256	283	-	-	271	-
Stage 1	344	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 253	283	-	-	271	-
Mov Cap-2 Maneuver	~ 253	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	132.8	0	18.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	253	271	-
HCM Lane V/C Ratio	-	-	1.113	0.011	-
HCM Control Delay (s)	-	-	132.8	18.4	0
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	12.2	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	2	1	1337	2	0
Future Volume (vph)	181	2	1	1337	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	181	2	1	1337	2	0
Future Vol, veh/h	181	2	1	1337	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	278	3	2	2057	3	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	8	2	0	0	2059	0
Stage 1	2	-	-	-	-	-
Stage 2	6	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1013	1082	-	-	271	-
Stage 1	1021	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1002	1082	-	-	271	-
Mov Cap-2 Maneuver	1002	-	-	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	18.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1003	271	-
HCM Lane V/C Ratio	-	-	0.281	0.011	-
HCM Control Delay (s)	-	-	10	18.4	0
HCM Lane LOS	-	-	B	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	243	16	79	457
Future Volume (vph)	22	167	243	16	79	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		400	415	
Storage Lanes	1	0		1	1	
Taper Length (ft)	90				90	
Link Speed (mph)	45		55			55
Link Distance (ft)	304		1385			2620
Travel Time (s)	4.6		17.2			32.5
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

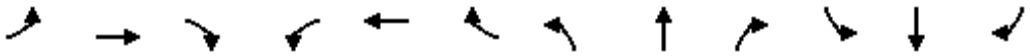
Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	167	243	16	79	457
Future Vol, veh/h	22	167	243	16	79	457
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	400	415	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	220	320	21	104	601

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1129	320	0	0	341	0
Stage 1	320	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	226	721	-	-	1218	-
Stage 1	736	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	207	721	-	-	1218	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	401	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	559	1218	-
HCM Lane V/C Ratio	-	-	0.445	0.085	-
HCM Control Delay (s)	-	-	16.5	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.3	0.3	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	11	2	24	19	2	3	190	11	1	354	188
Future Volume (vph)	93	11	2	24	19	2	3	190	11	1	354	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

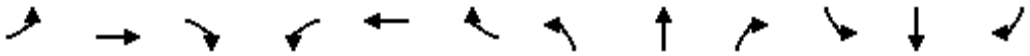
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	34
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	11	2	24	19	2	3	190	11	1	354	188
Future Vol, veh/h	93	11	2	24	19	2	3	190	11	1	354	188
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	124	15	3	32	25	3	4	253	15	1	472	251
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.2	10.8	12.6	48.2
HCM LOS	B	B	B	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	88%	53%	0%
Vol Thru, %	93%	10%	42%	65%
Vol Right, %	5%	2%	4%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	106	45	543
LT Vol	3	93	24	1
Through Vol	190	11	19	354
RT Vol	11	2	2	188
Lane Flow Rate	272	141	60	724
Geometry Grp	1	1	1	1
Degree of Util (X)	0.42	0.263	0.114	0.972
Departure Headway (Hd)	5.561	6.688	6.858	4.831
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	534	519	753
Service Time	3.62	4.758	4.945	2.874
HCM Lane V/C Ratio	0.422	0.264	0.116	0.961
HCM Control Delay	12.6	12.2	10.8	48.2
HCM Lane LOS	B	B	B	E
HCM 95th-tile Q	2.1	1	0.4	15.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	59	3	81	133	1	4	51	32	1	133	12
Future Volume (vph)	5	59	3	81	133	1	4	51	32	1	133	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	59	3	81	133	1	4	51	32	1	133	12
Future Vol, veh/h	5	59	3	81	133	1	4	51	32	1	133	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	64	3	88	145	1	4	55	35	1	145	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	67	0	0	477	398	66	443	399	146
Stage 1	-	-	-	-	-	-	76	76	-	322	322	-
Stage 2	-	-	-	-	-	-	401	322	-	121	77	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1436	-	-	1535	-	-	498	540	998	525	539	901
Stage 1	-	-	-	-	-	-	933	832	-	690	651	-
Stage 2	-	-	-	-	-	-	626	651	-	883	831	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1436	-	-	1535	-	-	364	504	998	441	503	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	364	504	-	441	503	-
Stage 1	-	-	-	-	-	-	929	829	-	687	611	-
Stage 2	-	-	-	-	-	-	442	611	-	792	828	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.8	12.1	14.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	603	1436	-	-	1535	-	-	521
HCM Lane V/C Ratio	0.157	0.004	-	-	0.057	-	-	0.305
HCM Control Delay (s)	12.1	7.5	0	-	7.5	0	-	14.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.2	-	-	1.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	0	0	13	0	0
Future Volume (vph)	32	0	0	13	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	335		269			195
Travel Time (s)	7.6		4.1			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	0	0	13	0	0
Future Vol, veh/h	32	0	0	13	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	0	0	14	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	8	7	0	0	14	0
Stage 1	7	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1013	1075	-	-	1604	-
Stage 1	1016	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1013	1075	-	-	1604	-
Mov Cap-2 Maneuver	1013	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1604	-
HCM Lane V/C Ratio	-	-	0.034	-	-
HCM Control Delay (s)	-	-	8.7	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	0	13	13	0	32
Future Volume (vph)	33	0	13	13	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	313		1795			269
Travel Time (s)	7.1		27.2			4.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	0	13	13	0	32
Future Vol, veh/h	33	0	13	13	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	0	14	14	0	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	56	21	0	0	28	0
Stage 1	21	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	952	1056	-	-	1585	-
Stage 1	1002	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	952	1056	-	-	1585	-
Mov Cap-2 Maneuver	952	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	1585	-
HCM Lane V/C Ratio	-	-	0.038	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	1	25	18	1	66
Future Volume (vph)	46	1	25	18	1	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	333		257			1795
Travel Time (s)	7.6		3.9			27.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	1	25	18	1	66
Future Vol, veh/h	46	1	25	18	1	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	1	27	20	1	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	111	37	0	0	47	0
Stage 1	37	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	886	1035	-	-	1560	-
Stage 1	985	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	885	1035	-	-	1560	-
Mov Cap-2 Maneuver	885	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	948	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	888	1560	-
HCM Lane V/C Ratio	-	-	0.058	0.001	-
HCM Control Delay (s)	-	-	9.3	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	1	43	13	1	112
Future Volume (vph)	32	1	43	13	1	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	340		316			257
Travel Time (s)	7.7		4.8			3.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

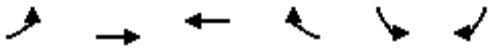
Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	1	43	13	1	112
Future Vol, veh/h	32	1	43	13	1	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	1	47	14	1	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	178	54	0	0	61	0
Stage 1	54	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	812	1013	-	-	1542	-
Stage 1	969	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	811	1013	-	-	1542	-
Mov Cap-2 Maneuver	811	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1542	-
HCM Lane V/C Ratio	-	-	0.044	0.001	-
HCM Control Delay (s)	-	-	9.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	65	149	1	1	53
Future Volume (vph)	20	65	149	1	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		1189	461		387	
Travel Time (s)		18.0	7.0		8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

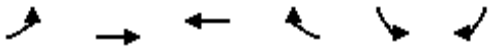
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	65	149	1	1	53
Future Vol, veh/h	20	65	149	1	1	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	71	162	1	1	58

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	163	0	-	0	278	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	115	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1416	-	-	-	712	882
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1416	-	-	-	701	882
Mov Cap-2 Maneuver	-	-	-	-	701	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	910	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1416	-	-	-	878
HCM Lane V/C Ratio	0.015	-	-	-	0.067
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	48	106	1	1	43
Future Volume (vph)	17	48	106	1	1	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		461	686		374	
Travel Time (s)		7.0	10.4		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	48	106	1	1	43
Future Vol, veh/h	17	48	106	1	1	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	52	115	1	1	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	116	0	-	0	204	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1473	-	-	-	784	936
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	935	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1473	-	-	-	774	936
Mov Cap-2 Maneuver	-	-	-	-	774	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1473	-	-	-	932
HCM Lane V/C Ratio	0.013	-	-	-	0.051
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

APPENDIX 5.3: OPENING YEAR CUMULATIVE (2025) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

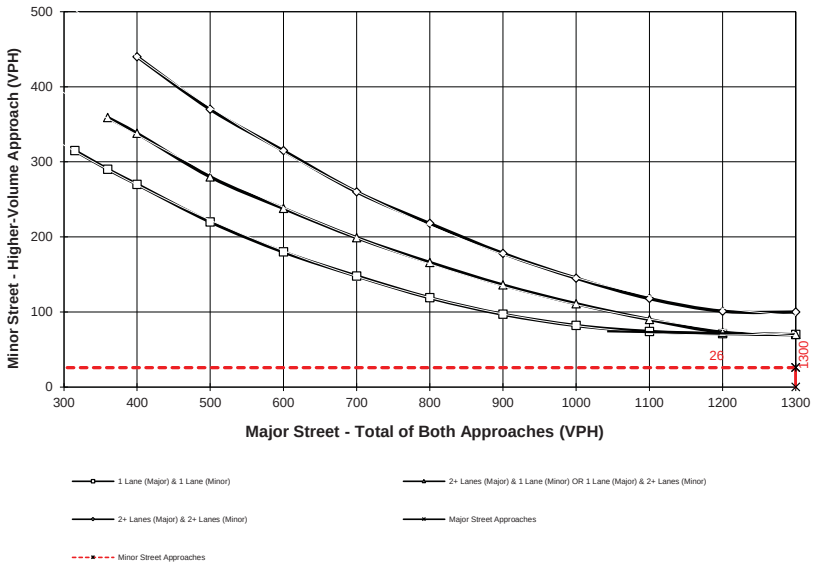
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Johnson Rd.**
Total of Both Approaches (VPH) = **1,552**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.**
High Volume Approach (VPH) = **26**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #1

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\001R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

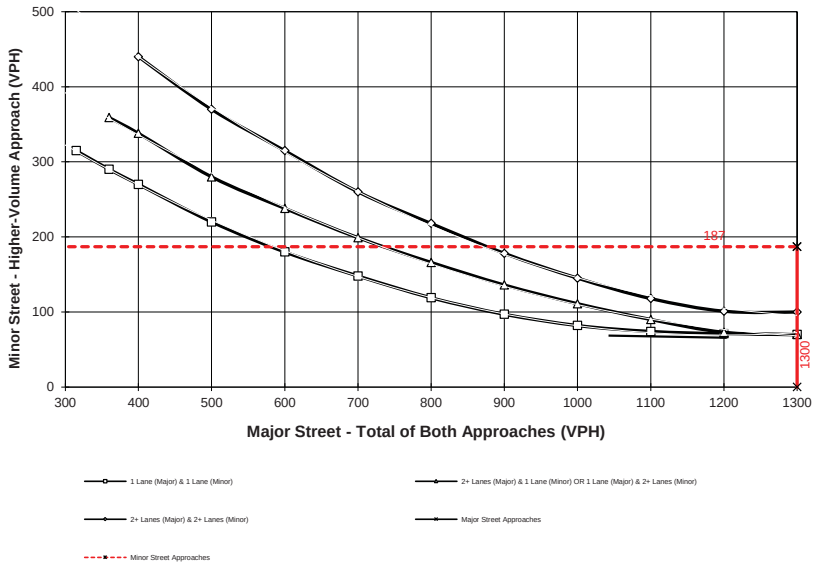
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Johnson Rd.**
Total of Both Approaches (VPH) = **1,753**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.**
High Volume Approach (VPH) = **187**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #1

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\001R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

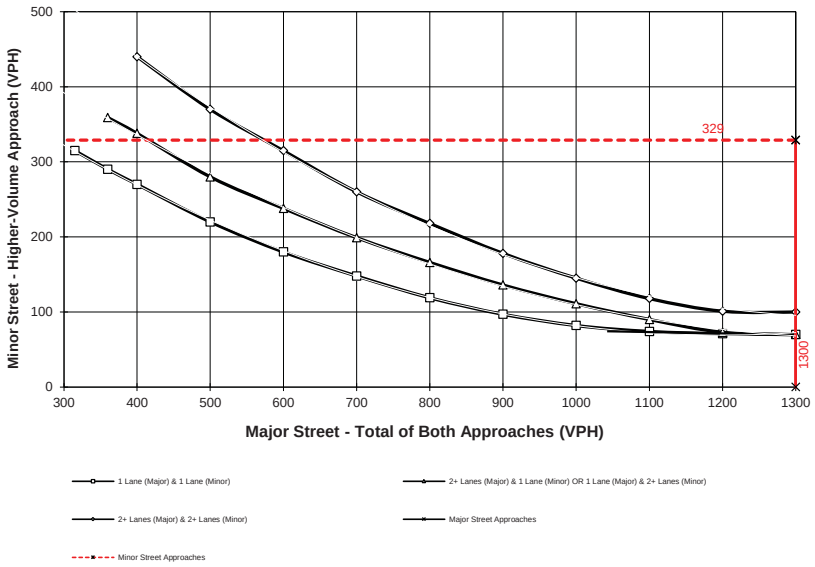
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Johnson Rd.**
Total of Both Approaches (VPH) = **1,339**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dale Evans Pkwy.**
High Volume Approach (VPH) = **329**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #2

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

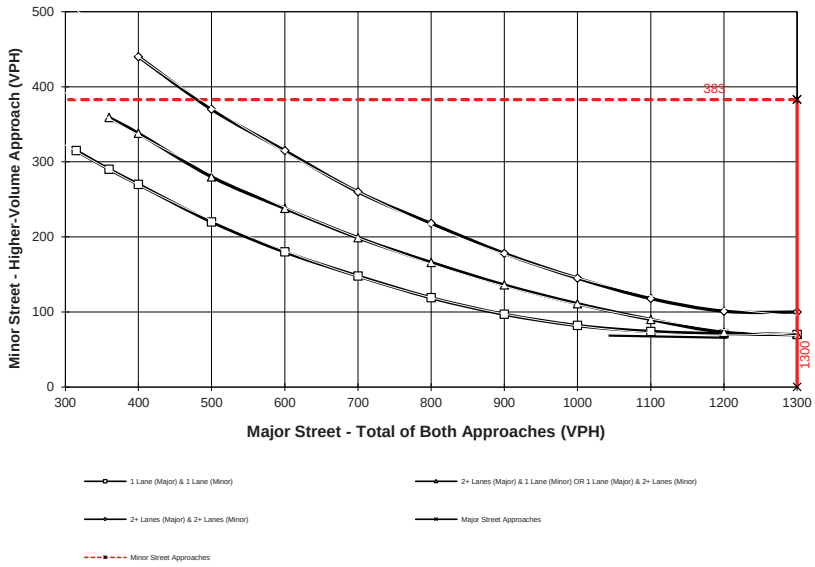
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Johnson Rd.**
Total of Both Approaches (VPH) = **1,823**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dale Evans Pkwy.**
High Volume Approach (VPH) = **383**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #2

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

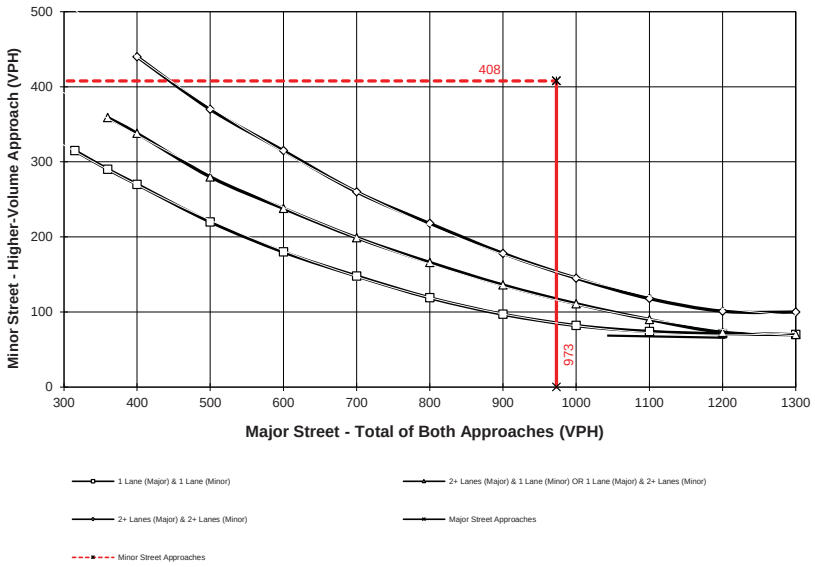
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **973**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Johnson Rd.** High Volume Approach (VPH) = **408**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #3

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\003R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

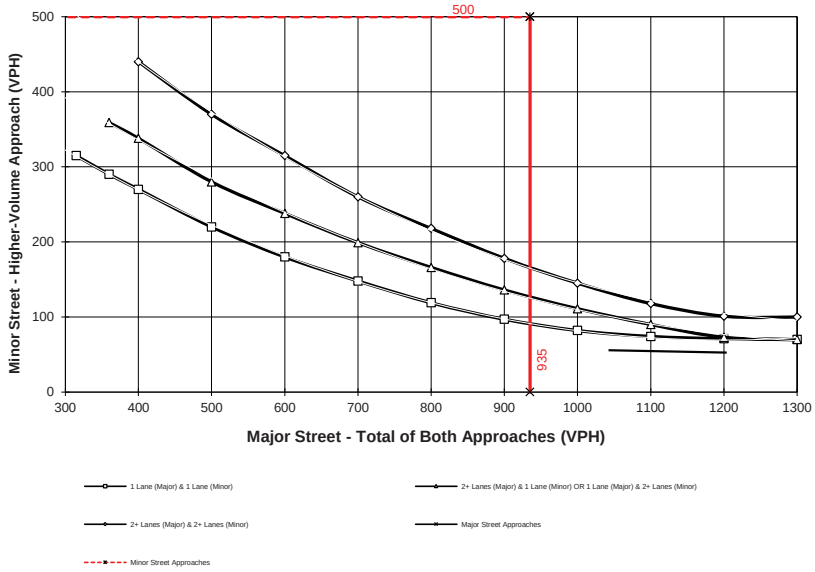
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Johnson Rd.** Total of Both Approaches (VPH) = **935**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Stoddard Wells Rd.** High Volume Approach (VPH) = **703**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #3

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\003R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

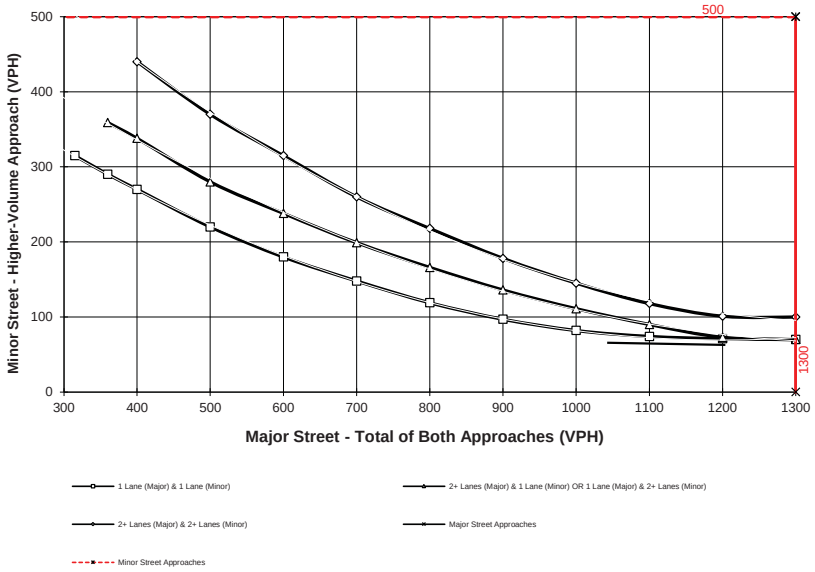
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **I-15 NB Ramps - Outer Hwy. 15** Total of Both Approaches (VPH) = **1,307**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Stoddard Wells Rd.** High Volume Approach (VPH) = **731**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #4

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\004R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

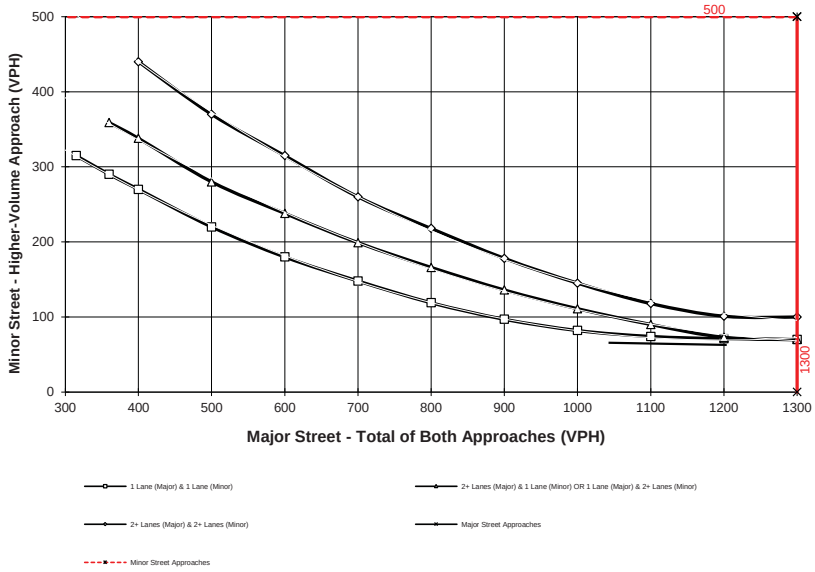
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **1,619**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 NB Ramps - Outer Hwy. 15** High Volume Approach (VPH) = **932**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #4

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\004R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

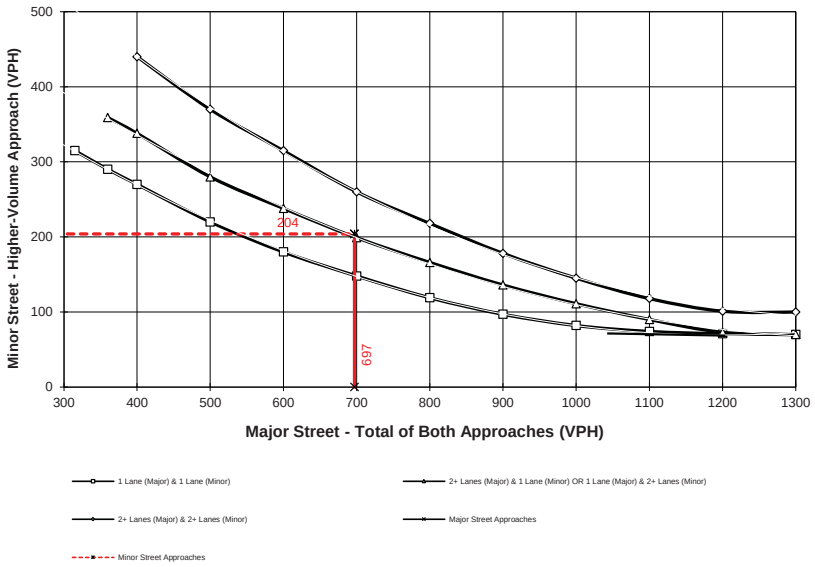
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **697**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Quarry Rd.** High Volume Approach (VPH) = **204**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #5

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\005R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

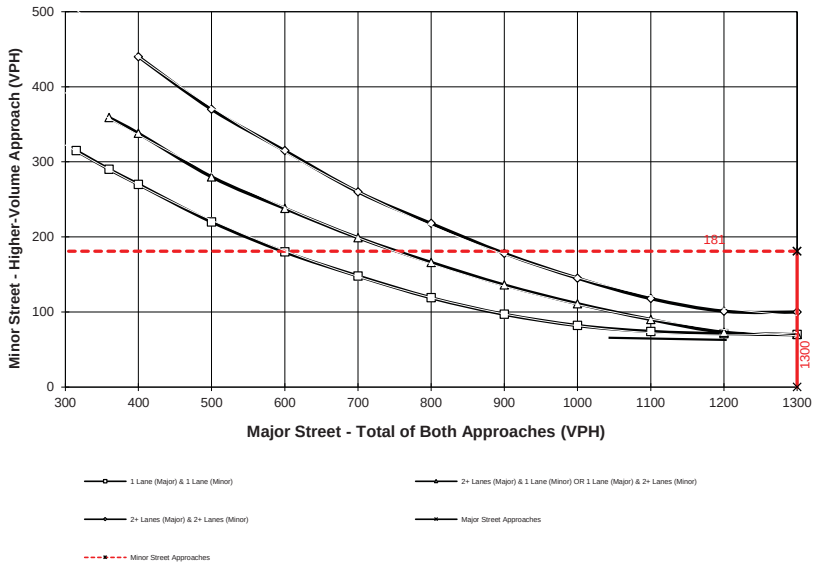
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Stoddard Wells Rd.** Total of Both Approaches (VPH) = **1,309**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Quarry Rd.** High Volume Approach (VPH) = **181**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #5

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\005R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

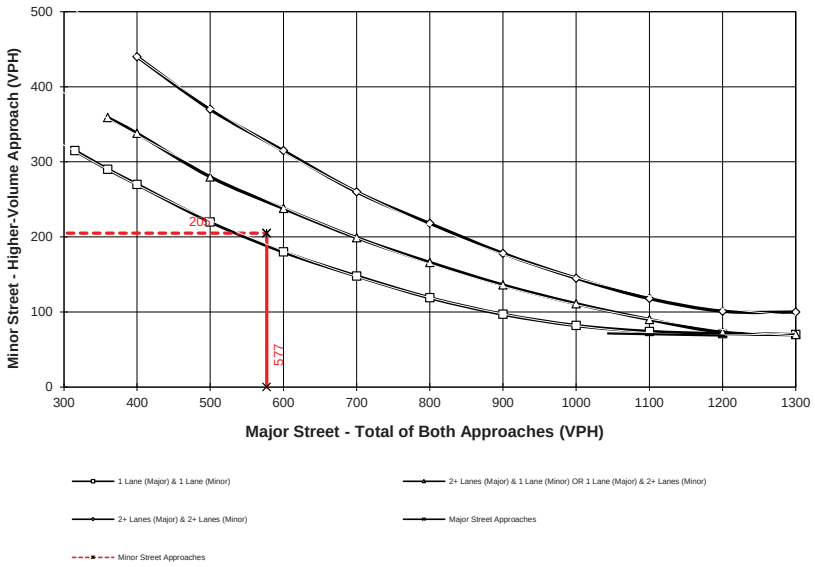
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Quarry Rd.**
Total of Both Approaches (VPH) = **577**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 SB Ramps**
High Volume Approach (VPH) = **205**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #6

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\006R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

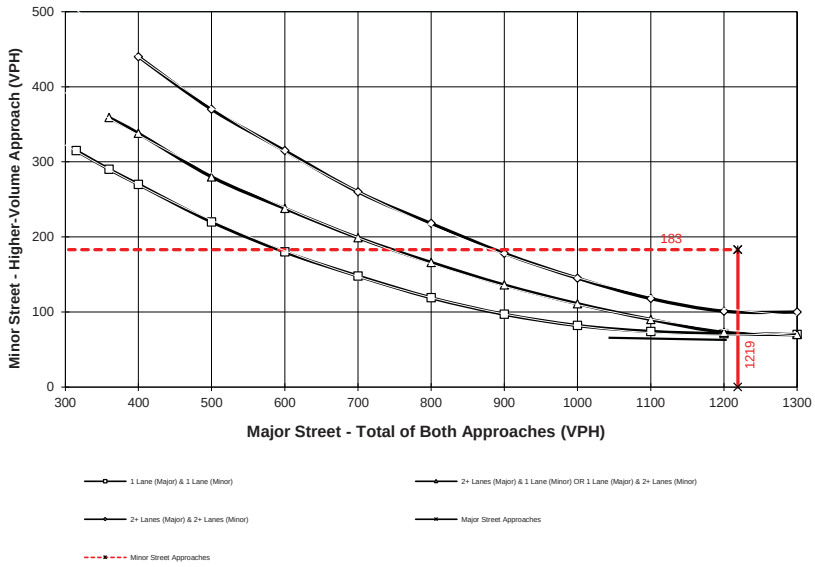
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Quarry Rd.**
Total of Both Approaches (VPH) = **1,219**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 SB Ramps**
High Volume Approach (VPH) = **183**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #6

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\006R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

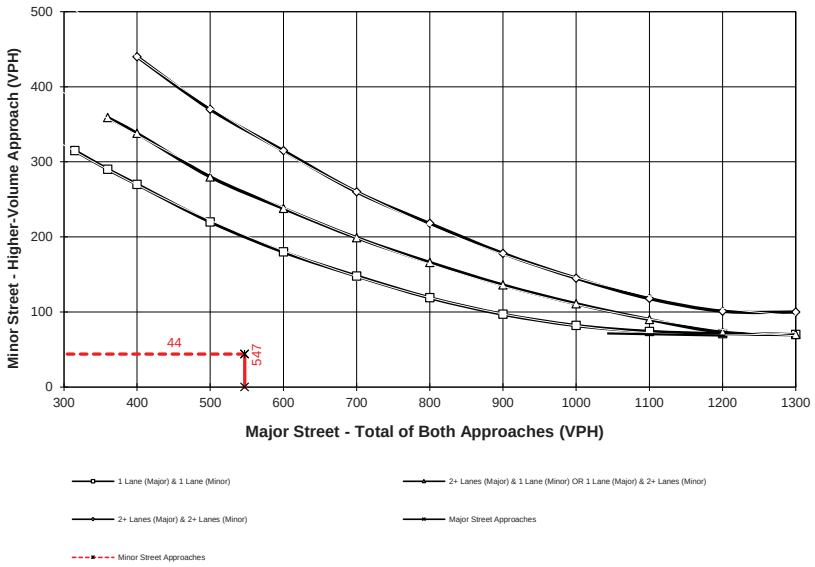
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **547**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Lafayette St.** High Volume Approach (VPH) = **44**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #7

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

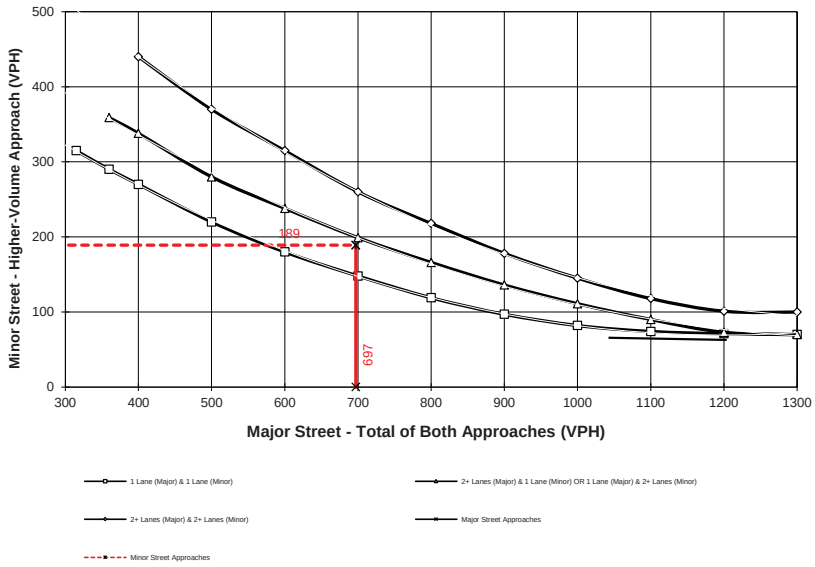
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **697**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Lafayette St.** High Volume Approach (VPH) = **189**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #7

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

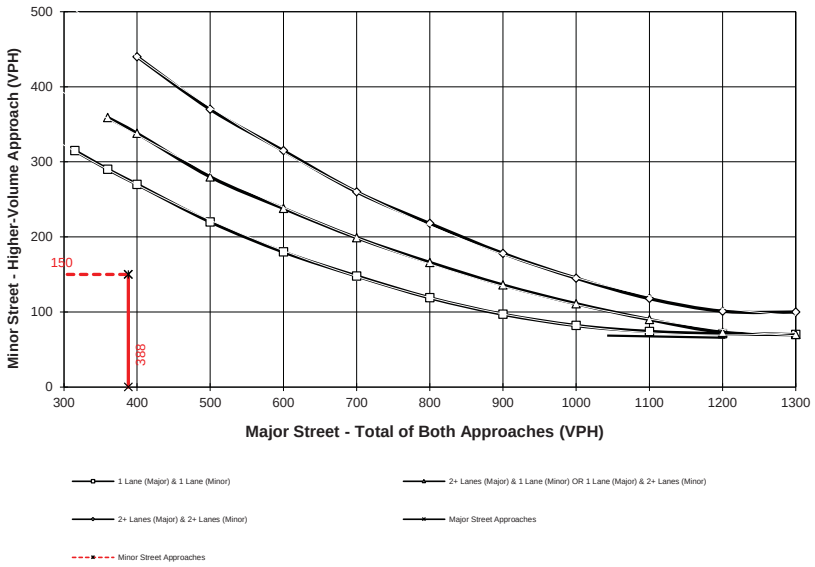
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **388**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **150**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\008R_AM.xls\Fig 4C-4 (Rural Peak)

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

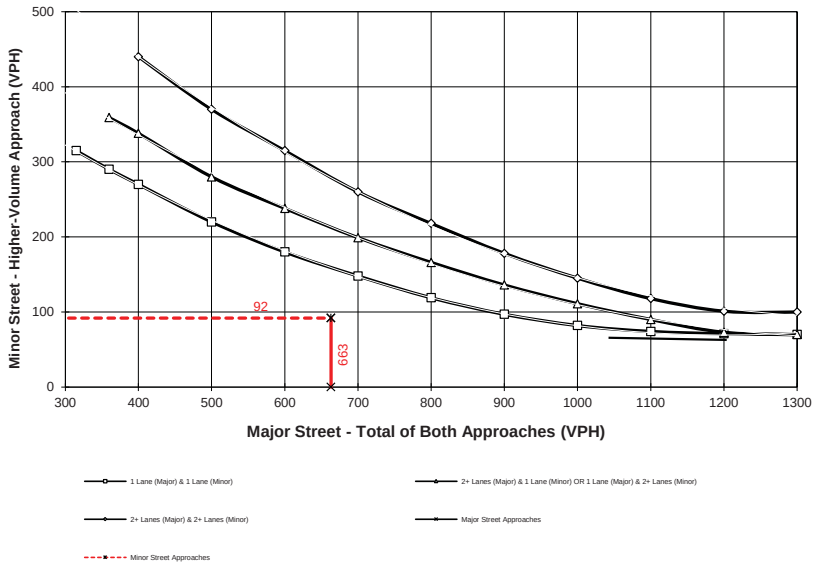
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **663**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **92**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\02 - EAC\008R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

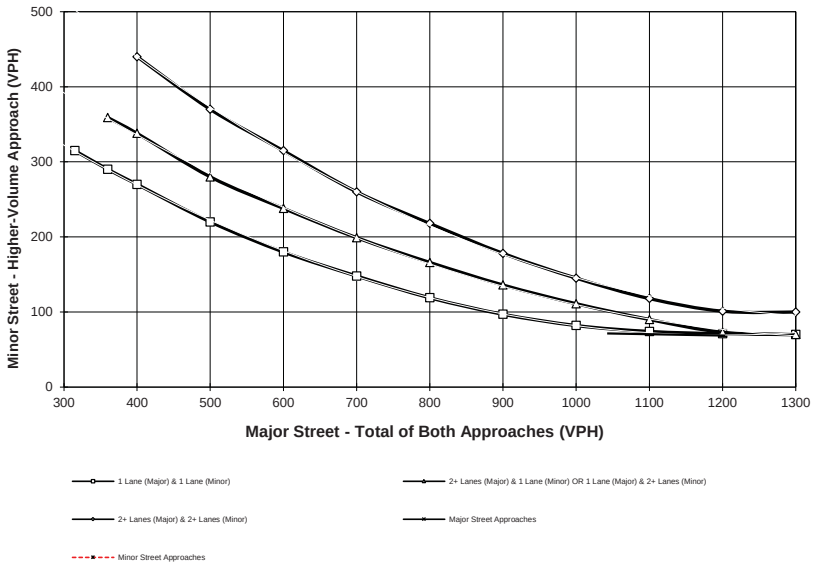
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC AM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **165**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **8**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

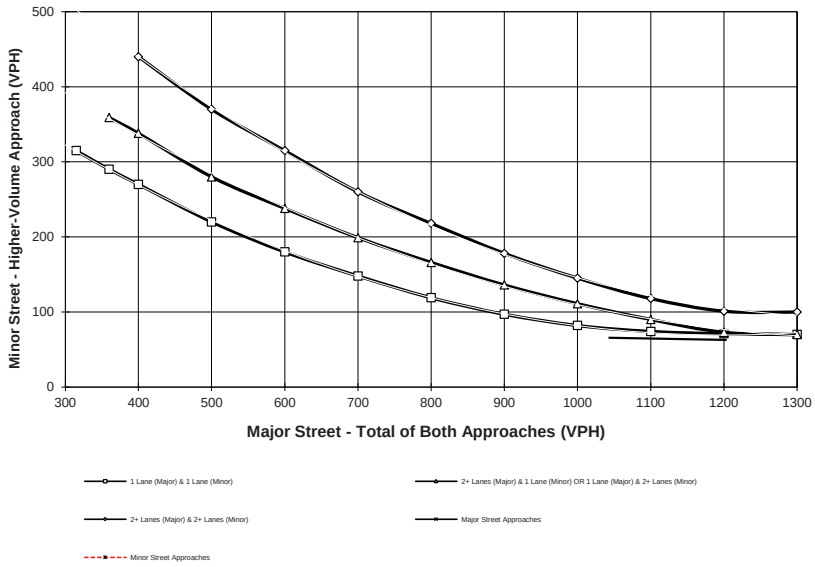
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAC PM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **172**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **6**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAC (2025)
				CALC JC	DATE 12/04/23
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Cordova Rd.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dachshund Av.**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,448** vpd Minor Street Future ADT = **126** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **2,448**	1 **126**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **2,448**	1 **126**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 8% B: 15%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 5.4: OPENING YEAR CUMULATIVE (2025) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

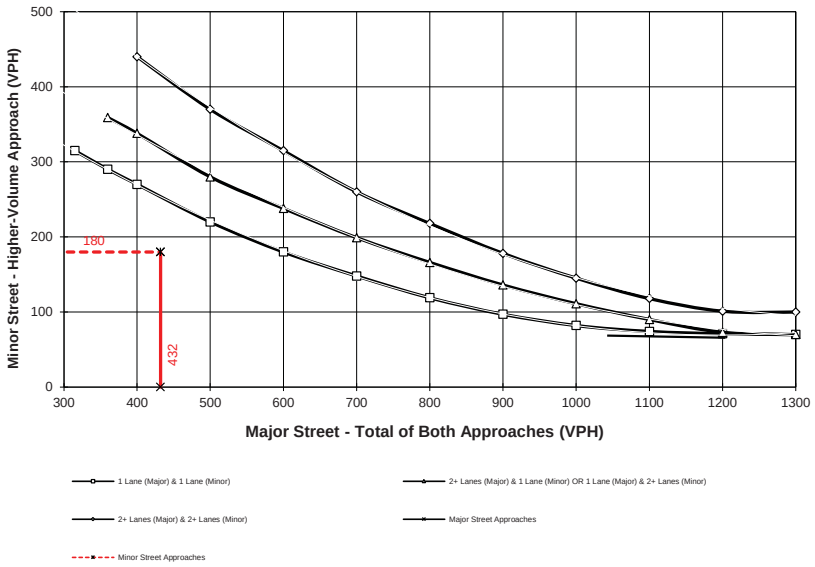
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) AM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **432**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **180**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

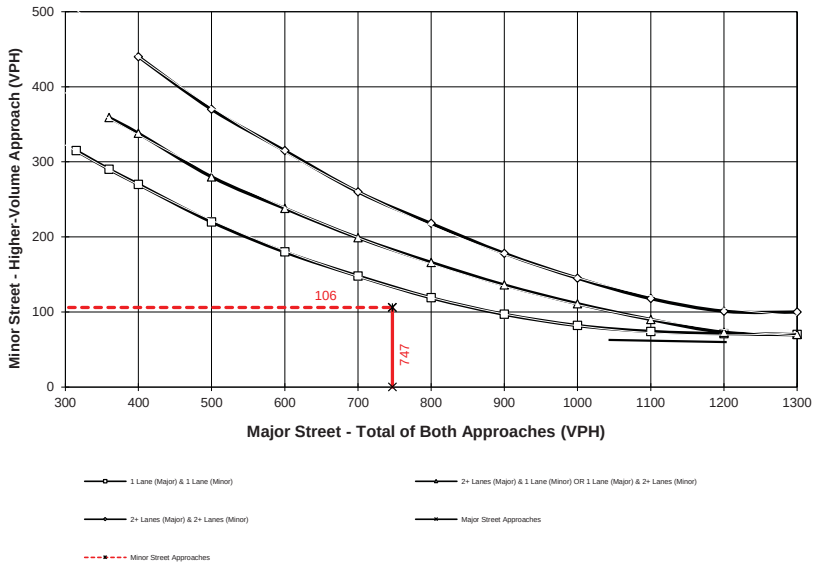
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) PM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **747**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **106**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

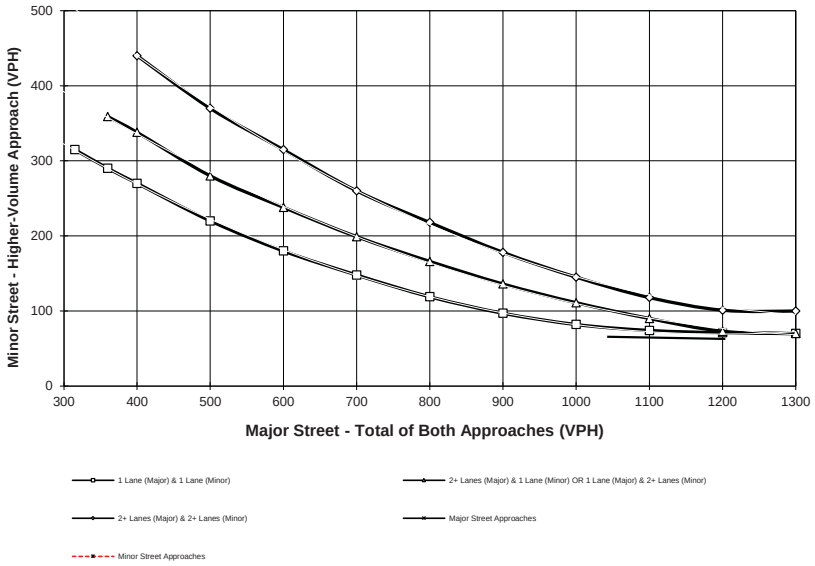
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) AM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **215**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **178**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

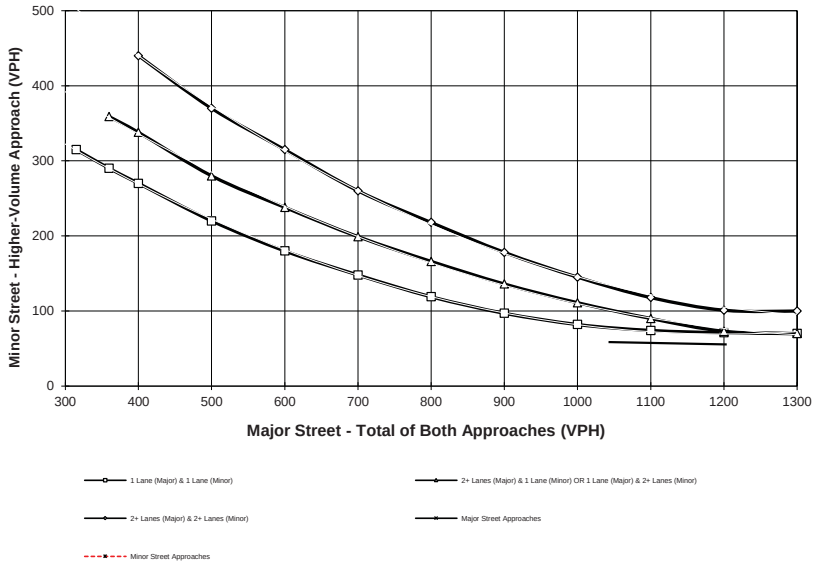
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2025) PM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **282**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **146**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
				CHK	DATE

Jurisdiction: **Town of Apple Valley**

Major Street: **Cordova Rd.** — Critical Approach Speed (Major) 45 mph

Minor Street: **Dachshund Av.** — Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **3,642** vpd — Minor Street Future ADT = **2,096** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL — XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied — XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **3,642**	1 **2,096**	8,000	5,600	2,400	1,680 *
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied — XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **3,642**	1 **2,096**	12,000	8,400	1,200	850 *
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied — XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 65% **B** 43%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
				CHK	DATE

Jurisdiction: **Town of Apple Valley**

Major Street: **Dachshund Av.** — Critical Approach Speed (Major) 45 mph

Minor Street: **Dwy. 1** — Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **299** vpd — Minor Street Future ADT = **299** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements ADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **299**	*1* **299**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **299**	*1* **299**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 5% **B** 4%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
				CHK	DATE

Jurisdiction: **Town of Apple Valley**

Major Street: **Dachshund Av.** — Critical Approach Speed (Major) 45 mph

Minor Street: **Dwy. 2** — Critical Approach Speed (Minor) 35 mph

Major Street Approach Lanes = **1** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **914** vpd — Minor Street Future ADT = **316** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements ADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **914**	*1* **316**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **914**	*1* **316**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 16% **B** 11%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Dachshund Av.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 3**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,671** vpd Minor Street Future ADT = **441** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **1,671**	1 **441**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **1,671**	1 **441**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 26% **B** 20%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Dachshund Av.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 4**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,411** vpd Minor Street Future ADT = **299** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Minimum Requirements ADT			
Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1 **2,411**	*1* **299**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,411**	*1* **299**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 18% **B** 29%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Cordova Rd.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 5**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,385** vpd Minor Street Future ADT = **505** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **3,385**	1 **505**	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **3,385**	1 **505**	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 30% **B** 34%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	EAPC (2025)
				CALC JC	DATE 12/04/23
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Cordova Rd.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 6**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,481** vpd Minor Street Future ADT = **399** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **2,481**	1 **399**	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **2,481**	1 **399**	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 24% **B** 25%

2 CONDITIONS 80%

2 CONDITIONS 80%

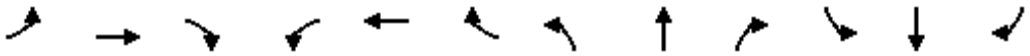
Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

This Page Intentionally Left Blank

APPENDIX 6.1: HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1214	23	4	756	10	6	1	7	10	1	24
Future Volume (vph)	86	1214	23	4	756	10	6	1	7	10	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	86	1214	23	4	756	10	6	1	7	10	1	24
Future Vol, veh/h	86	1214	23	4	756	10	6	1	7	10	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	1278	24	4	796	11	6	1	7	11	1	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	807	0	0	1302	0	0	2295	2287	1290	2286	2294	802
Stage 1	-	-	-	-	-	-	1472	1472	-	810	810	-
Stage 2	-	-	-	-	-	-	823	815	-	1476	1484	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	818	-	-	532	-	-	27	39	200	28	39	384
Stage 1	-	-	-	-	-	-	158	191	-	374	393	-
Stage 2	-	-	-	-	-	-	368	391	-	157	188	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	818	-	-	532	-	-	22	34	200	24	34	384
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	34	-	24	34	-
Stage 1	-	-	-	-	-	-	140	170	-	332	390	-
Stage 2	-	-	-	-	-	-	340	388	-	134	167	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	116.9	83.2
HCM LOS			F	F

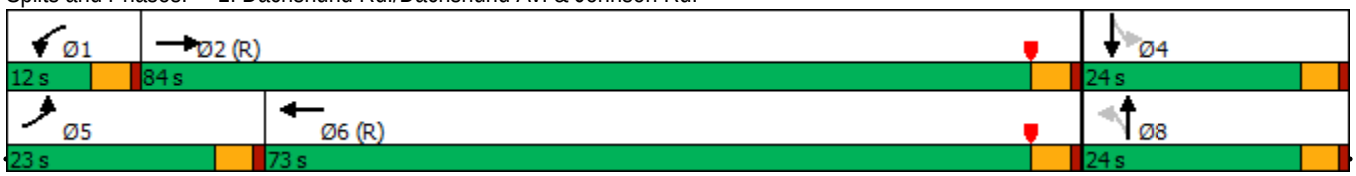
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	22	124	818	-	-	532	-	-	24	272
HCM Lane V/C Ratio	0.287	0.068	0.111	-	-	0.008	-	-	0.439	0.097
HCM Control Delay (s)	224.7	36.1	9.9	-	-	11.8	-	-	242.1	19.6
HCM Lane LOS	F	E	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.8	0.2	0.4	-	-	0	-	-	1.3	0.3

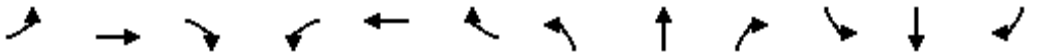
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1214	23	4	756	10	6	1	7	10	1	24
Future Volume (vph)	86	1214	23	4	756	10	6	1	7	10	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	23.0	84.0		12.0	73.0		24.0	24.0		24.0	24.0	
Total Split (%)	19.2%	70.0%		10.0%	60.8%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	18.5	79.5		7.5	68.5		19.5	19.5		19.5	19.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74.9 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Dachshund Rd./Dachshund Av. & Johnson Rd.

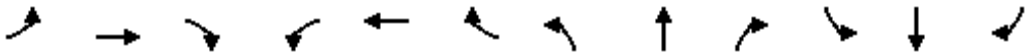




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1214	23	4	756	10	6	1	7	10	1	24
Future Volume (veh/h)	86	1214	23	4	756	10	6	1	7	10	1	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	1278	24	4	796	11	6	1	7	11	1	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	2568	48	9	2369	33	264	33	228	281	10	247
Arrive On Green	0.06	0.72	0.72	0.01	0.66	0.66	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3568	67	1781	3588	50	1373	200	1402	1395	61	1519
Grp Volume(v), veh/h	91	636	666	4	394	413	6	0	8	11	0	26
Grp Sat Flow(s),veh/h/ln	1781	1777	1858	1781	1777	1861	1373	0	1603	1395	0	1580
Q Serve(g_s), s	6.0	18.8	18.8	0.3	11.6	11.6	0.4	0.0	0.5	0.8	0.0	1.7
Cycle Q Clear(g_c), s	6.0	18.8	18.8	0.3	11.6	11.6	2.1	0.0	0.5	1.3	0.0	1.7
Prop In Lane	1.00		0.04	1.00		0.03	1.00		0.88	1.00		0.96
Lane Grp Cap(c), veh/h	115	1279	1337	9	1173	1229	264	0	260	281	0	257
V/C Ratio(X)	0.79	0.50	0.50	0.43	0.34	0.34	0.02	0.00	0.03	0.04	0.00	0.10
Avail Cap(c_a), veh/h	275	1279	1337	111	1173	1229	264	0	260	281	0	257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.52	0.52	0.52	1.00	1.00	1.00	1.00	0.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	55.3	7.3	7.3	59.5	8.9	8.9	43.7	0.0	42.3	42.8	0.0	42.8
Incr Delay (d2), s/veh	6.1	0.7	0.7	28.7	0.8	0.7	0.2	0.0	0.2	0.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.0	6.2	0.2	4.2	4.4	0.2	0.0	0.2	0.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	8.1	8.0	88.2	9.7	9.6	43.9	0.0	42.5	43.1	0.0	43.6
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1393			811			14			37	
Approach Delay, s/veh		11.5			10.0			43.1			43.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	90.9		24.0	12.3	83.7		24.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	79.5		19.5	18.5	68.5		19.5				
Max Q Clear Time (g_c+I1), s	2.3	20.8		3.7	8.0	13.6		4.1				
Green Ext Time (p_c), s	0.0	10.9		0.1	0.1	5.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.7	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	714	258	337	362	87	172	423	381	228	188	19
Future Volume (vph)	23	714	258	337	362	87	172	423	381	228	188	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	567.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	714	258	337	362	87	172	423	381	228	188	19
Future Vol, veh/h	23	714	258	337	362	87	172	423	381	228	188	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	752	272	355	381	92	181	445	401	240	198	20
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	1139.6	625.8	160.8	64.4
HCM LOS	F	F	F	F

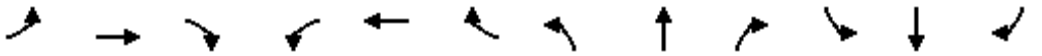
Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	48%	0%	100%	0%
Vol Thru, %	0%	100%	0%	72%	52%	0%	0%	91%
Vol Right, %	0%	0%	100%	26%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	423	381	995	699	87	228	207
LT Vol	172	0	0	23	337	0	228	0
Through Vol	0	423	0	714	362	0	0	188
RT Vol	0	0	381	258	0	87	0	19
Lane Flow Rate	181	445	401	1047	736	92	240	218
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.561	1.317	1.108	3.449	2.454	0.282	0.806	0.698
Departure Headway (Hd)	19.913	19.356	18.578	14.605	16.676	15.623	19.188	18.534
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	183	191	201	262	228	232	192	198
Service Time	17.613	17.056	16.278	12.305	14.376	13.323	16.888	16.234
HCM Lane V/C Ratio	0.989	2.33	1.995	3.996	3.228	0.397	1.25	1.101
HCM Control Delay	45.4	222.1	144.8	1139.6	700.7	24.3	72.4	55.5
HCM Lane LOS	E	F	F	F	F	C	F	F
HCM 95th-tile Q	3	14	10.4	79.5	43.8	1.1	5.6	4.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	714	258	337	362	87	172	423	381	228	188	19
Future Volume (vph)	23	714	258	337	362	87	172	423	381	228	188	19
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		165	100		150	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						Free			8			
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		10.0	22.5	9.5	10.0	22.5	
Total Split (s)	10.5	48.5		34.0	72.0		22.0	23.0	34.0	24.0	25.0	
Total Split (%)	8.1%	37.5%		26.3%	55.6%		17.0%	17.8%	26.3%	18.5%	19.3%	
Maximum Green (s)	6.0	44.0		29.5	67.5		17.5	18.5	29.5	19.5	20.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary

Area Type: Other
Cycle Length: 129.5
Actuated Cycle Length: 129.5
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	714	258	337	362	87	172	423	381	228	188	19
Future Volume (veh/h)	23	714	258	337	362	87	172	423	381	228	188	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	24	752	272	355	381	0	181	445	401	240	198	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	892	323	371	1944		202	506	572	253	563	56
Arrive On Green	0.02	0.35	0.35	0.44	1.00	0.00	0.24	0.28	0.28	0.15	0.17	0.17
Sat Flow, veh/h	1688	2553	923	1688	3554	1585	1688	3554	1568	1688	3260	326
Grp Volume(v), veh/h	24	523	501	355	381	0	181	445	401	240	107	111
Grp Sat Flow(s),veh/h/ln	1688	1777	1699	1688	1777	1585	1688	1777	1568	1688	1777	1808
Q Serve(g_s), s	1.8	35.3	35.3	26.5	0.0	0.0	13.5	15.5	18.5	18.3	6.9	7.0
Cycle Q Clear(g_c), s	1.8	35.3	35.3	26.5	0.0	0.0	13.5	15.5	18.5	18.3	6.9	7.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	38	621	594	371	1944		202	506	572	253	307	312
V/C Ratio(X)	0.64	0.84	0.84	0.96	0.20		0.90	0.88	0.70	0.95	0.35	0.36
Avail Cap(c_a), veh/h	78	621	594	383	1944		227	506	572	253	307	312
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.00	0.49	0.49	0.49	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.0	39.0	39.0	35.8	0.0	0.0	48.7	45.4	30.8	54.7	47.4	47.4
Incr Delay (d2), s/veh	16.5	13.1	13.7	33.1	0.2	0.0	18.4	8.9	1.9	42.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	17.0	16.4	11.4	0.1	0.0	5.8	6.2	9.5	10.4	3.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.6	52.1	52.7	68.9	0.2	0.0	67.0	54.3	32.7	97.1	48.0	48.1
LnGrp LOS	E	D	D	E	A		E	D	C	F	D	D
Approach Vol, veh/h		1048			736			1027			458	
Approach Delay, s/veh		53.0			33.3			48.1			73.8	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.1	49.9	20.1	26.9	7.4	75.6	24.0	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	29.5	44.0	17.5	20.5	6.0	67.5	19.5	18.5
Max Q Clear Time (g_c+I1), s	28.5	37.3	15.5	9.0	3.8	2.0	20.3	20.5
Green Ext Time (p_c), s	0.1	3.3	0.1	0.7	0.0	2.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	70	400	842	20	120
Future Volume (vph)	407	70	400	842	20	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	121.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	407	70	400	842	20	120
Future Vol, veh/h	407	70	400	842	20	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	428	74	421	886	21	126

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1032	864	0	0	1307	0
Stage 1	864	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 258	354	-	-	530	-
Stage 1	~ 413	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 247	354	-	-	530	-
Mov Cap-2 Maneuver	~ 247	-	-	-	-	-
Stage 1	~ 413	-	-	-	-	-
Stage 2	825	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 471.7	0	1.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	258	530	-
HCM Lane V/C Ratio	-	-	1.946	0.04	-
HCM Control Delay (s)	-	-	$ 471.7	12.1	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	35.8	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	70	400	842	20	120
Future Volume (vph)	407	70	400	842	20	120
Ideal Flow (vphpl)	1800	1900	1900	1900	1800	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	89.0	89.0	31.0	89.0	31.0	31.0
Total Split (%)	74.2%	74.2%	25.8%	74.2%	25.8%	25.8%
Maximum Green (s)	84.5	84.5	26.5	84.5	26.5	26.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

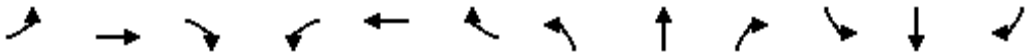
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	407	70	400	842	20	120
Future Volume (veh/h)	407	70	400	842	20	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1772	1870	1870	1870	1772	1870
Adj Flow Rate, veh/h	428	74	421	886	21	126
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1188	1116	785	1462	106	785
Arrive On Green	0.70	0.70	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1688	1585	3647	1567	399	3647
Grp Volume(v), veh/h	428	74	421	886	21	126
Grp Sat Flow(s),veh/h/ln	1688	1585	1777	1567	399	1777
Q Serve(g_s), s	12.1	1.7	12.6	11.7	5.9	3.4
Cycle Q Clear(g_c), s	12.1	1.7	12.6	11.7	18.5	3.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1188	1116	785	1462	106	785
V/C Ratio(X)	0.36	0.07	0.54	0.61	0.20	0.16
Avail Cap(c_a), veh/h	1188	1116	785	1462	106	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	5.5	41.3	0.8	49.5	37.8
Incr Delay (d2), s/veh	0.9	0.1	2.6	1.9	4.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.5	5.6	27.1	0.7	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.9	5.6	43.9	2.6	53.6	38.2
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	502		1307			147
Approach Delay, s/veh	7.6		16.0			40.4
Approach LOS	A		B			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				31.0		89.0	31.0
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				26.5		84.5	26.5
Max Q Clear Time (g_c+I1), s				20.5		14.1	14.6
Green Ext Time (p_c), s				0.4		1.6	5.2

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	131	91	18	632	81	10	69	32	1206	2	36
Future Volume (vph)	15	131	91	18	632	81	10	69	32	1206	2	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2070.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	131	91	18	632	81	10	69	32	1206	2	36
Future Vol, veh/h	15	131	91	18	632	81	10	69	32	1206	2	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	142	99	20	687	88	11	75	35	1311	2	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	775	0	0	241	0	0	1016	1039	192	1050	1044	731
Stage 1	-	-	-	-	-	-	224	224	-	771	771	-
Stage 2	-	-	-	-	-	-	792	815	-	279	273	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	841	-	-	1326	-	-	216	231	850	~ 205	229	422
Stage 1	-	-	-	-	-	-	779	718	-	~ 393	410	-
Stage 2	-	-	-	-	-	-	382	391	-	~ 728	684	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	841	-	-	1326	-	-	187	220	850	~ 140	218	422
Mov Cap-2 Maneuver	-	-	-	-	-	-	187	220	-	~ 140	218	-
Stage 1	-	-	-	-	-	-	762	702	-	~ 384	399	-
Stage 2	-	-	-	-	-	-	335	380	-	~ 610	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	28.1	$ 3863.2
HCM LOS			D	F

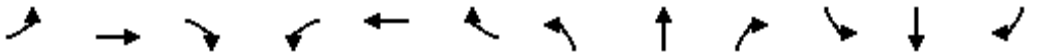
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	274	841	-	-	1326	-	-	143
HCM Lane V/C Ratio	0.44	0.019	-	-	0.015	-	-	9.456
HCM Control Delay (s)	28.1	9.4	0	-	7.8	0	-	$ 3863.2
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0	-	-	154.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	131	91	18	632	81	10	69	32	1206	2	36
Future Volume (vph)	15	131	91	18	632	81	10	69	32	1206	2	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										48%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	41.0	41.0		41.0	41.0		15.0	15.0		64.0	64.0	
Total Split (%)	34.2%	34.2%		34.2%	34.2%		12.5%	12.5%		53.3%	53.3%	
Maximum Green (s)	36.5	36.5		36.5	36.5		10.5	10.5		59.5	59.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 116.1	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.



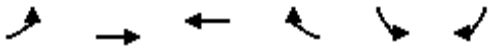
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	131	91	18	632	81	10	69	32	1206	2	36
Future Volume (veh/h)	15	131	91	18	632	81	10	69	32	1206	2	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	16	142	99	20	687	88	11	75	35	1349	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	360	283	45	803	102	156	111	52	1770	981	0
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.09	0.09	0.09	0.52	0.00	0.00
Sat Flow, veh/h	36	1364	1069	46	3038	384	1688	1199	560	3375	1870	0
Grp Volume(v), veh/h	118	0	139	422	0	373	11	0	110	1349	0	0
Grp Sat Flow(s),veh/h/ln	972	0	1497	1840	0	1628	1688	0	1759	1688	1870	0
Q Serve(g_s), s	1.1	0.0	8.5	10.9	0.0	24.8	0.7	0.0	6.9	35.9	0.0	0.0
Cycle Q Clear(g_c), s	25.9	0.0	8.5	24.8	0.0	24.8	0.7	0.0	6.9	35.9	0.0	0.0
Prop In Lane	0.14		0.71	0.05		0.24	1.00		0.32	1.00		0.00
Lane Grp Cap(c), veh/h	293	0	396	520	0	430	156	0	163	1770	981	0
V/C Ratio(X)	0.40	0.00	0.35	0.81	0.00	0.87	0.07	0.00	0.68	0.76	0.00	0.00
Avail Cap(c_a), veh/h	380	0	482	624	0	524	156	0	163	1770	981	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.7	0.0	33.9	39.7	0.0	39.8	47.0	0.0	49.8	21.4	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.5	6.9	0.0	12.3	0.9	0.0	20.3	3.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	3.1	11.7	0.0	11.0	0.3	0.0	3.9	14.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	34.4	46.6	0.0	52.2	47.9	0.0	70.1	24.6	0.0	0.0
LnGrp LOS	C	A	C	D	A	D	D	A	E	C	A	A
Approach Vol, veh/h		257			795			121			1349	
Approach Delay, s/veh		34.5			49.2			68.1			24.6	
Approach LOS		C			D			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.5		64.0		34.5		15.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		36.5		59.5		36.5		10.5				
Max Q Clear Time (g_c+I1), s		27.9		37.9		26.8		8.9				
Green Ext Time (p_c), s		0.9		6.1		3.2		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		35.4
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	40	85	588	202	8
Future Volume (vph)	33	40	85	588	202	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

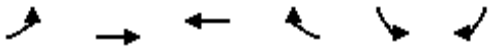
Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	40	85	588	202	8
Future Vol, veh/h	33	40	85	588	202	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	51	109	754	259	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	621	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1481	-	-	-	451	581
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	438	581
Mov Cap-2 Maneuver	-	-	-	-	438	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	25
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1481	-	-	-	442
HCM Lane V/C Ratio	0.029	-	-	-	0.609
HCM Control Delay (s)	7.5	0	-	-	25
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	40	85	588	202	8
Future Volume (vph)	33	40	85	588	202	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	40	85	588	202	8
Future Vol, veh/h	33	40	85	588	202	8
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	43	92	639	220	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	736	0	-	0	196	56
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	865	-	-	-	774	999
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	861	-	-	-	733	990
Mov Cap-2 Maneuver	-	-	-	-	733	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	861	-	-	-	740
HCM Lane V/C Ratio	0.042	-	-	-	0.308
HCM Control Delay (s)	9.4	0.1	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	10	7	614	8	7
Future Volume (vph)	203	10	7	614	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	10	7	614	8	7
Future Vol, veh/h	203	10	7	614	8	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	12	9	749	10	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	413	384	0	0	758	0
Stage 1	384	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	595	664	-	-	853	-
Stage 1	688	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	588	664	-	-	853	-
Mov Cap-2 Maneuver	588	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	4.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	591	853	-
HCM Lane V/C Ratio	-	-	0.44	0.011	-
HCM Control Delay (s)	-	-	15.8	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	10	7	614	8	7
Future Volume (vph)	203	10	7	614	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

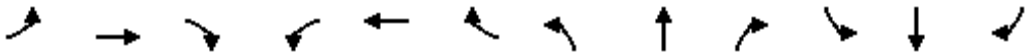
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	10	7	614	8	7
Future Vol, veh/h	203	10	7	614	8	7
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	12	9	749	10	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	48	19	0	0	763	0
Stage 1	14	-	-	-	-	-
Stage 2	34	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	962	1059	-	-	850	-
Stage 1	1009	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	941	1049	-	-	846	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	946	846	-
HCM Lane V/C Ratio	-	-	0.275	0.012	-
HCM Control Delay (s)	-	-	10.2	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	413	184	174	362	76	174	553	384	173	402	194
Future Volume (vph)	266	413	184	174	362	76	174	553	384	173	402	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		400	415		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		414			304			1385			2620	
Travel Time (s)		6.3			4.6			17.2			32.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	266	413	184	174	362	76	174	553	384	173	402	194
Future Vol, veh/h	266	413	184	174	362	76	174	553	384	173	402	194
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	400	415	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	306	475	211	200	416	87	200	636	441	199	462	223

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2480	2449	574	2351	2119	636	685	0	0	1077	0	0
Stage 1	972	972	-	1036	1036	-	-	-	-	-	-	-
Stage 2	1508	1477	-	1315	1083	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 20	~ 31	518	~ 25	~ 50	478	908	-	-	647	-	-
Stage 1	~ 304	~ 331	-	280	~ 309	-	-	-	-	-	-	-
Stage 2	~ 151	~ 190	-	~ 194	~ 293	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 17	518	-	~ 27	478	908	-	-	647	-	-
Mov Cap-2 Maneuver	-	~ 17	-	-	~ 27	-	-	-	-	-	-	-
Stage 1	~ 237	~ 229	-	218	~ 241	-	-	-	-	-	-	-
Stage 2	-	~ 148	-	-	~ 203	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			1.6	2.9
HCM LOS	-	-		

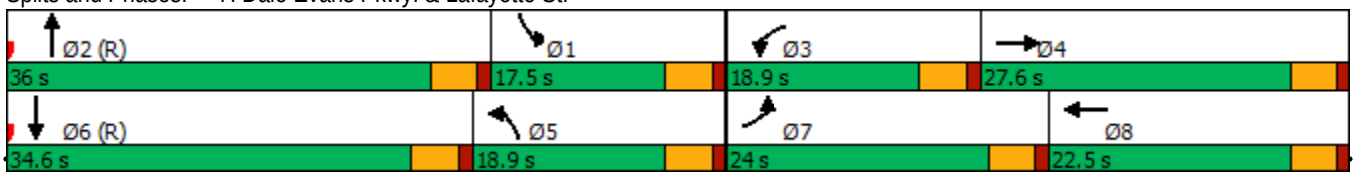
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	908	-	-	-	-	647	-	-
HCM Lane V/C Ratio	0.22	-	-	-	-	0.307	-	-
HCM Control Delay (s)	10.1	-	-	-	-	13	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	-	1.3	-	-

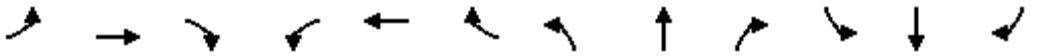
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	413	184	174	362	76	174	553	384	173	402	194
Future Volume (vph)	266	413	184	174	362	76	174	553	384	173	402	194
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		400	415		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		539			304			1385			2620	
Travel Time (s)		12.3			4.6			17.2			32.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	24.0	27.6		18.9	22.5		18.9	36.0		17.5	34.6	
Total Split (%)	24.0%	27.6%		18.9%	22.5%		18.9%	36.0%		17.5%	34.6%	
Maximum Green (s)	19.5	23.1		14.4	18.0		14.4	31.5		13.0	30.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Dale Evans Pkwy. & Lafayette St.

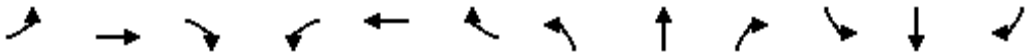




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	413	184	174	362	76	174	553	384	173	402	194
Future Volume (veh/h)	266	413	184	174	362	76	174	553	384	173	402	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	280	435	194	183	381	80	183	582	404	182	423	204
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	516	228	213	464	96	298	630	437	275	701	335
Arrive On Green	0.18	0.22	0.22	0.13	0.16	0.16	0.18	0.31	0.31	0.16	0.30	0.30
Sat Flow, veh/h	1688	2392	1056	1688	2924	607	1688	2001	1389	1688	2329	1111
Grp Volume(v), veh/h	280	322	307	183	230	231	183	517	469	182	322	305
Grp Sat Flow(s),veh/h/ln	1688	1777	1672	1688	1777	1754	1688	1777	1613	1688	1777	1664
Q Serve(g_s), s	16.2	17.4	17.6	10.6	12.5	12.8	10.0	28.1	28.1	10.1	15.4	15.7
Cycle Q Clear(g_c), s	16.2	17.4	17.6	10.6	12.5	12.8	10.0	28.1	28.1	10.1	15.4	15.7
Prop In Lane	1.00		0.63	1.00		0.35	1.00		0.86	1.00		0.67
Lane Grp Cap(c), veh/h	310	384	361	213	282	278	298	560	508	275	535	501
V/C Ratio(X)	0.90	0.84	0.85	0.86	0.82	0.83	0.61	0.92	0.92	0.66	0.60	0.61
Avail Cap(c_a), veh/h	329	410	386	243	320	316	298	560	508	275	535	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	40.0	37.5	37.7	42.8	40.7	40.8	38.0	33.1	33.1	39.3	29.8	29.9
Incr Delay (d2), s/veh	26.1	13.7	15.7	23.1	13.6	15.3	3.7	23.2	24.9	3.7	3.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	8.9	8.7	5.6	6.3	6.5	4.2	14.5	13.4	4.2	6.5	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	51.2	53.3	65.9	54.3	56.0	41.7	56.3	57.9	43.0	33.0	33.4
LnGrp LOS	E	D	D	E	D	E	D	E	E	D	C	C
Approach Vol, veh/h		909			644			1169			809	
Approach Delay, s/veh		56.5			58.2			54.7			35.4	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	36.0	17.1	26.1	22.2	34.6	22.9	20.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.0	31.5	14.4	23.1	14.4	30.1	19.5	18.0
Max Q Clear Time (g_c+I1), s	12.1	30.1	12.6	19.6	12.0	17.7	18.2	14.8
Green Ext Time (p_c), s	0.0	0.8	0.1	1.3	0.1	2.7	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	51.4
HCM 6th LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	25	12	18	17	15	11	775	28	12	296	61
Future Volume (vph)	136	25	12	18	17	15	11	775	28	12	296	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	98.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	136	25	12	18	17	15	11	775	28	12	296	61
Future Vol, veh/h	136	25	12	18	17	15	11	775	28	12	296	61
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	143	26	13	19	18	16	12	816	29	13	312	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.4	11.7	157.7	18.2
HCM LOS	B	B	F	C

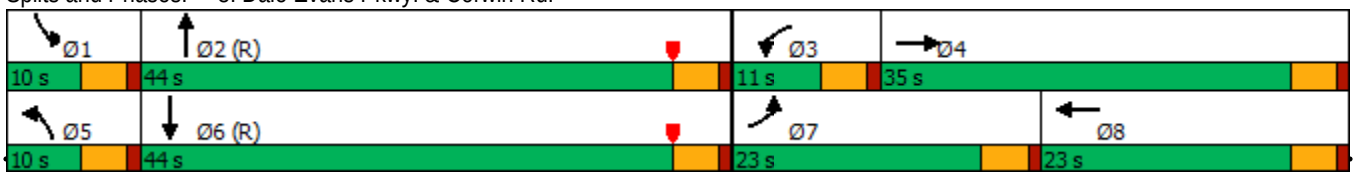
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	79%	36%	3%
Vol Thru, %	95%	14%	34%	80%
Vol Right, %	3%	7%	30%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	814	173	50	369
LT Vol	11	136	18	12
Through Vol	775	25	17	296
RT Vol	28	12	15	61
Lane Flow Rate	857	182	53	388
Geometry Grp	1	1	1	1
Degree of Util (X)	1.285	0.348	0.104	0.612
Departure Headway (Hd)	5.398	7.481	7.838	6.069
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	677	484	460	598
Service Time	3.429	5.481	5.838	4.069
HCM Lane V/C Ratio	1.266	0.376	0.115	0.649
HCM Control Delay	157.7	14.4	11.7	18.2
HCM Lane LOS	F	B	B	C
HCM 95th-tile Q	33.2	1.5	0.3	4.1

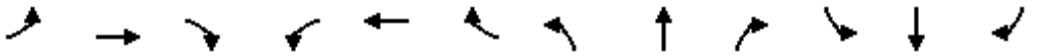
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	25	12	18	17	15	11	775	28	12	296	61
Future Volume (vph)	136	25	12	18	17	15	11	775	28	12	296	61
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	23.0	35.0		11.0	23.0		10.0	44.0		10.0	44.0	
Total Split (%)	23.0%	35.0%		11.0%	23.0%		10.0%	44.0%		10.0%	44.0%	
Maximum Green (s)	18.5	30.5		6.5	18.5		5.5	39.5		5.5	39.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 8: Dale Evans Pkwy. & Corwin Rd.

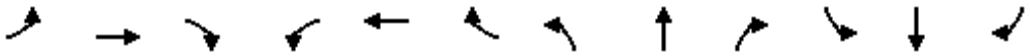




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	25	12	18	17	15	11	775	28	12	296	61
Future Volume (veh/h)	136	25	12	18	17	15	11	775	28	12	296	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	143	26	13	19	18	16	12	816	29	13	312	64
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	439	203	35	197	152	24	2093	74	26	1763	357
Arrive On Green	0.10	0.19	0.19	0.02	0.10	0.10	0.01	0.60	0.60	0.02	0.60	0.60
Sat Flow, veh/h	1688	2354	1087	1688	1898	1461	1688	3500	124	1688	2943	596
Grp Volume(v), veh/h	143	19	20	19	17	17	12	414	431	13	187	189
Grp Sat Flow(s),veh/h/ln	1688	1777	1664	1688	1777	1582	1688	1777	1848	1688	1777	1761
Q Serve(g_s), s	8.3	0.9	1.0	1.1	0.8	1.0	0.7	12.2	12.2	0.8	4.7	4.8
Cycle Q Clear(g_c), s	8.3	0.9	1.0	1.1	0.8	1.0	0.7	12.2	12.2	0.8	4.7	4.8
Prop In Lane	1.00		0.65	1.00		0.92	1.00		0.07	1.00		0.34
Lane Grp Cap(c), veh/h	174	331	310	35	184	164	24	1063	1105	26	1064	1055
V/C Ratio(X)	0.82	0.06	0.06	0.55	0.09	0.11	0.50	0.39	0.39	0.51	0.18	0.18
Avail Cap(c_a), veh/h	312	542	508	110	329	293	93	1063	1105	93	1064	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	33.5	33.5	48.5	40.5	40.6	48.9	10.5	10.5	48.9	9.0	9.0
Incr Delay (d2), s/veh	9.3	0.1	0.1	12.9	0.2	0.3	15.3	1.1	1.0	14.7	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.4	0.4	0.6	0.4	0.4	0.4	4.2	4.3	0.4	1.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	33.5	33.6	61.4	40.7	40.9	64.3	11.6	11.6	63.6	9.3	9.4
LnGrp LOS	D	C	C	E	D	D	E	B	B	E	A	A
Approach Vol, veh/h		182			53			857			389	
Approach Delay, s/veh		49.0			48.2			12.3			11.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	64.3	6.6	23.1	5.9	64.4	14.8	14.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	39.5	6.5	30.5	5.5	39.5	18.5	18.5
Max Q Clear Time (g_c+I1), s	2.8	14.2	3.1	3.0	2.7	6.8	10.3	3.0
Green Ext Time (p_c), s	0.0	4.7	0.0	0.1	0.0	1.9	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	168	114	10	170	30	131	5	5	50	10	86
Future Volume (vph)	54	168	114	10	170	30	131	5	5	50	10	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	54	168	114	10	170	30	131	5	5	50	10	86
Future Vol, veh/h	54	168	114	10	170	30	131	5	5	50	10	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	177	120	11	179	32	138	5	5	53	11	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	211	0	0	297	0	0	619	584	237	573	628	195
Stage 1	-	-	-	-	-	-	351	351	-	217	217	-
Stage 2	-	-	-	-	-	-	268	233	-	356	411	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1360	-	-	1264	-	-	401	423	802	430	400	846
Stage 1	-	-	-	-	-	-	666	632	-	785	723	-
Stage 2	-	-	-	-	-	-	738	712	-	661	595	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1360	-	-	1264	-	-	334	398	802	403	376	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	334	398	-	403	376	-
Stage 1	-	-	-	-	-	-	632	600	-	745	716	-
Stage 2	-	-	-	-	-	-	643	705	-	618	565	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	23.3	13.4
HCM LOS			C	B

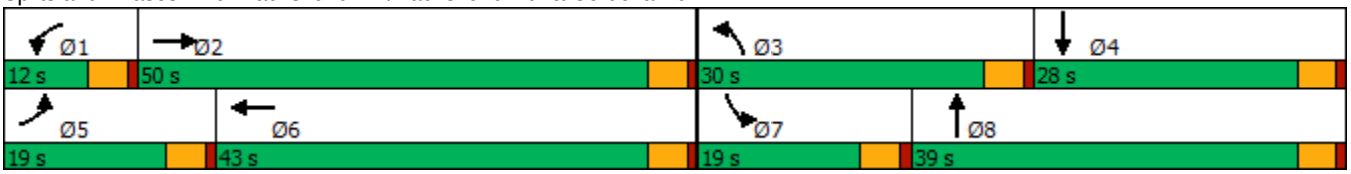
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	343	1360	-	-	1264	-	-	579
HCM Lane V/C Ratio	0.433	0.042	-	-	0.008	-	-	0.265
HCM Control Delay (s)	23.3	7.8	0	-	7.9	0	-	13.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0	-	-	1.1

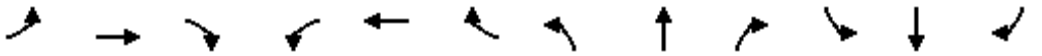
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	168	114	10	170	30	131	5	5	50	10	86
Future Volume (vph)	54	168	114	10	170	30	131	5	5	50	10	86
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	19.0	50.0		12.0	43.0		30.0	39.0		19.0	28.0	
Total Split (%)	15.8%	41.7%		10.0%	35.8%		25.0%	32.5%		15.8%	23.3%	
Maximum Green (s)	14.5	45.5		7.5	38.5		25.5	34.5		14.5	23.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 51.8
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.

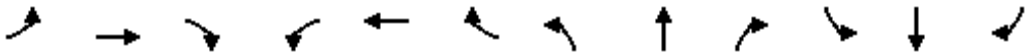




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	168	114	10	170	30	131	5	5	50	10	86
Future Volume (veh/h)	54	168	114	10	170	30	131	5	5	50	10	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	57	177	120	11	179	32	138	5	5	53	11	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	270	183	24	334	60	182	170	170	95	25	210
Arrive On Green	0.06	0.26	0.26	0.01	0.22	0.22	0.11	0.20	0.20	0.06	0.15	0.15
Sat Flow, veh/h	1688	1035	701	1688	1541	276	1688	852	852	1688	171	1416
Grp Volume(v), veh/h	57	0	297	11	0	211	138	0	10	53	0	102
Grp Sat Flow(s),veh/h/ln	1688	0	1736	1688	0	1817	1688	0	1704	1688	0	1587
Q Serve(g_s), s	1.3	0.0	5.9	0.2	0.0	4.0	3.1	0.0	0.2	1.2	0.0	2.2
Cycle Q Clear(g_c), s	1.3	0.0	5.9	0.2	0.0	4.0	3.1	0.0	0.2	1.2	0.0	2.2
Prop In Lane	1.00		0.40	1.00		0.15	1.00		0.50	1.00		0.89
Lane Grp Cap(c), veh/h	100	0	454	24	0	393	182	0	340	95	0	235
V/C Ratio(X)	0.57	0.00	0.65	0.45	0.00	0.54	0.76	0.00	0.03	0.56	0.00	0.43
Avail Cap(c_a), veh/h	637	0	2056	329	0	1821	1120	0	1530	637	0	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	12.6	18.8	0.0	13.3	16.7	0.0	12.4	17.7	0.0	14.9
Incr Delay (d2), s/veh	5.0	0.0	1.6	12.6	0.0	1.1	6.4	0.0	0.0	5.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.7	0.2	0.0	1.3	1.2	0.0	0.1	0.5	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	0.0	14.3	31.3	0.0	14.5	23.0	0.0	12.4	22.7	0.0	16.2
LnGrp LOS	C	A	B	C	A	B	C	A	B	C	A	B
Approach Vol, veh/h		354			222			148			155	
Approach Delay, s/veh		15.6			15.3			22.3			18.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	14.5	8.6	10.2	6.8	12.8	6.7	12.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	45.5	25.5	23.5	14.5	38.5	14.5	34.5
Max Q Clear Time (g_c+I1), s	2.2	7.9	5.1	4.2	3.3	6.0	3.2	2.2
Green Ext Time (p_c), s	0.0	1.8	0.3	0.4	0.1	1.1	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	937	165	30	1121	10	158	1	28	10	1	75
Future Volume (vph)	38	937	165	30	1121	10	158	1	28	10	1	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	395.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	937	165	30	1121	10	158	1	28	10	1	75
Future Vol, veh/h	38	937	165	30	1121	10	158	1	28	10	1	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	986	174	32	1180	11	166	1	29	11	1	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1191	0	0	1160	0	0	2443	2408	1073	2418	2490	1186
Stage 1	-	-	-	-	-	-	1153	1153	-	1250	1250	-
Stage 2	-	-	-	-	-	-	1290	1255	-	1168	1240	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	586	-	-	602	-	-	~ 21	33	268	22	29	230
Stage 1	-	-	-	-	-	-	240	272	-	212	244	-
Stage 2	-	-	-	-	-	-	201	243	-	236	247	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	602	-	-	~ 12	29	268	17	26	230
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 12	29	-	17	26	-
Stage 1	-	-	-	-	-	-	224	254	-	198	231	-
Stage 2	-	-	-	-	-	-	~ 124	230	-	195	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	$ 5410.4	74.1
HCM LOS			F	F

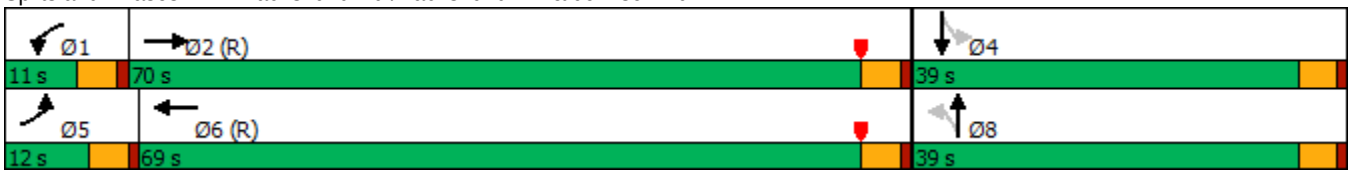
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	12	209	586	-	-	602	-	-	17	208
HCM Lane V/C Ratio	13.86	0.146	0.068	-	-	0.052	-	-	0.619	0.385
HCM Control Delay (s)	$ 6398.9	25.1	11.6	-	-	11.3	-	-	$ 388.7	32.7
HCM Lane LOS	F	D	B	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	22.1	0.5	0.2	-	-	0.2	-	-	1.6	1.7

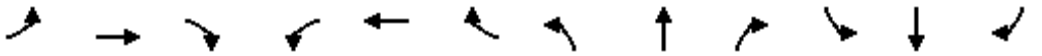
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	937	165	30	1121	10	158	1	28	10	1	75
Future Volume (vph)	38	937	165	30	1121	10	158	1	28	10	1	75
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	70.0		11.0	69.0		39.0	39.0		39.0	39.0	
Total Split (%)	10.0%	58.3%		9.2%	57.5%		32.5%	32.5%		32.5%	32.5%	
Maximum Green (s)	7.5	65.5		6.5	64.5		34.5	34.5		34.5	34.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 78.5 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: Dachshund Rd./Dachshund Av. & Johnson Rd.

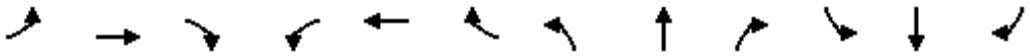




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	937	165	30	1121	10	158	1	28	10	1	75
Future Volume (veh/h)	38	937	165	30	1121	10	158	1	28	10	1	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	40	986	174	32	1180	11	166	1	29	11	1	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1638	289	44	1945	18	352	14	419	397	5	427
Arrive On Green	0.01	0.19	0.19	0.03	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1594	2860	504	1594	3418	32	1180	50	1459	1234	19	1486
Grp Volume(v), veh/h	40	580	580	32	581	610	166	0	30	11	0	80
Grp Sat Flow(s),veh/h/ln	1594	1683	1681	1594	1683	1766	1180	0	1509	1234	0	1504
Q Serve(g_s), s	3.0	37.8	37.9	2.4	27.3	27.3	14.8	0.0	1.7	0.8	0.0	4.8
Cycle Q Clear(g_c), s	3.0	37.8	37.9	2.4	27.3	27.3	19.6	0.0	1.7	2.5	0.0	4.8
Prop In Lane	1.00		0.30	1.00		0.02	1.00		0.97	1.00		0.99
Lane Grp Cap(c), veh/h	49	964	963	44	958	1005	352	0	434	397	0	433
V/C Ratio(X)	0.82	0.60	0.60	0.73	0.61	0.61	0.47	0.00	0.07	0.03	0.00	0.18
Avail Cap(c_a), veh/h	100	964	963	86	958	1005	352	0	434	397	0	433
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	1.00	0.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	59.1	36.1	36.2	57.9	17.0	17.0	39.5	0.0	31.1	32.0	0.0	32.2
Incr Delay (d2), s/veh	17.4	1.7	1.7	21.0	2.8	2.7	4.5	0.0	0.3	0.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	17.4	17.4	1.2	10.3	10.8	4.7	0.0	0.7	0.3	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.4	37.8	37.8	79.0	19.9	19.7	44.0	0.0	31.4	32.1	0.0	33.1
LnGrp LOS	E	D	D	E	B	B	D	A	C	C	A	C
Approach Vol, veh/h		1200			1223			196			91	
Approach Delay, s/veh		39.1			21.3			42.1			32.9	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	73.2		39.0	8.2	72.8		39.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	65.5		34.5	7.5	64.5		34.5				
Max Q Clear Time (g_c+I1), s	4.4	39.9		6.8	5.0	29.3		21.6				
Green Ext Time (p_c), s	0.0	7.9		0.5	0.0	8.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		31.1	
HCM 6th LOS		C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	575	305	389	757	208	204	273	434	131	511	35
Future Volume (vph)	18	575	305	389	757	208	204	273	434	131	511	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	766.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	575	305	389	757	208	204	273	434	131	511	35
Future Vol, veh/h	18	575	305	389	757	208	204	273	434	131	511	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	605	321	409	797	219	215	287	457	138	538	37
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

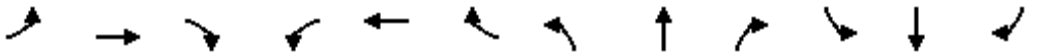
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	1036.2	1193.7	151.2	384.3
HCM LOS	F	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	34%	0%	100%	0%
Vol Thru, %	0%	100%	0%	64%	66%	0%	0%	94%
Vol Right, %	0%	0%	100%	34%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	273	434	898	1146	208	131	546
LT Vol	204	0	0	18	389	0	131	0
Through Vol	0	273	0	575	757	0	0	511
RT Vol	0	0	434	305	0	208	0	35
Lane Flow Rate	215	287	457	945	1206	219	138	575
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.687	0.879	1.309	3.212	4.018	0.677	0.481	1.92
Departure Headway (Hd)	22.963	22.408	21.631	15.756	17.657	16.677	18.081	17.453
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	161	164	174	246	217	219	201	213
Service Time	20.663	20.108	19.331	13.456	15.357	14.377	15.781	15.153
HCM Lane V/C Ratio	1.335	1.75	2.626	3.841	5.558	1	0.687	2.7
HCM Control Delay	65.1	95.9	226.4	1036.2	1401.6	48.5	36.5	467.8
HCM Lane LOS	F	F	F	F	F	E	E	F
HCM 95th-tile Q	4	6.2	12.8	67.3	80.7	4.2	2.4	28.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	575	305	389	757	208	204	273	434	131	511	35
Future Volume (vph)	18	575	305	389	757	208	204	273	434	131	511	35
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1800	1800	1900	1900
Storage Length (ft)	150		0	150		165	100		150	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						Free			8			
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		20.0	22.5	9.5	20.0	22.5	
Total Split (s)	10.1	40.0		35.0	64.9		20.0	24.0	35.0	21.0	25.0	
Total Split (%)	8.4%	33.3%		29.2%	54.1%		16.7%	20.0%	29.2%	17.5%	20.8%	
Maximum Green (s)	5.6	35.5		30.5	60.4		15.5	19.5	30.5	16.5	20.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	575	305	389	757	208	204	273	434	131	511	35
Future Volume (veh/h)	18	575	305	389	757	208	204	273	434	131	511	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1772	1772	1870	1870
Adj Flow Rate, veh/h	19	605	321	409	797	0	215	287	457	138	538	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	670	355	424	1885		218	721	682	164	576	40
Arrive On Green	0.02	0.30	0.30	0.50	1.00	0.00	0.13	0.20	0.20	0.10	0.17	0.17
Sat Flow, veh/h	1688	2243	1190	1688	3554	1585	1688	3554	1502	1688	3374	232
Grp Volume(v), veh/h	19	479	447	409	797	0	215	287	457	138	283	292
Grp Sat Flow(s),veh/h/ln	1688	1777	1656	1688	1777	1585	1688	1777	1502	1688	1777	1829
Q Serve(g_s), s	1.3	31.1	31.1	28.1	0.0	0.0	15.3	8.4	24.3	9.6	18.8	18.9
Cycle Q Clear(g_c), s	1.3	31.1	31.1	28.1	0.0	0.0	15.3	8.4	24.3	9.6	18.8	18.9
Prop In Lane	1.00		0.72	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	33	531	495	424	1885		218	721	682	164	304	312
V/C Ratio(X)	0.58	0.90	0.90	0.96	0.42		0.99	0.40	0.67	0.84	0.93	0.94
Avail Cap(c_a), veh/h	79	531	495	429	1885		218	721	682	232	304	312
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.00	0.70	0.70	0.70	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.3	40.4	40.4	29.3	0.0	0.0	52.1	41.5	25.7	53.3	49.1	49.1
Incr Delay (d2), s/veh	14.9	21.2	22.4	28.7	0.5	0.0	47.1	0.2	1.8	17.2	34.2	34.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	16.1	15.2	10.9	0.1	0.0	9.0	3.5	9.7	4.7	10.8	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	61.6	62.8	58.1	0.5	0.0	99.3	41.7	27.5	70.5	83.3	83.4
LnGrp LOS	E	E	E	E	A		F	D	C	E	F	F
Approach Vol, veh/h		945			1206			959			713	
Approach Delay, s/veh		62.4			20.0			47.8			80.9	
Approach LOS		E			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.6	40.4	20.0	25.0	6.8	68.2	16.2	28.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	30.5	35.5	15.5	20.5	5.6	60.4	16.5	19.5
Max Q Clear Time (g_c+I1), s	30.1	33.1	17.3	20.9	3.3	2.0	11.6	26.3
Green Ext Time (p_c), s	0.1	1.3	0.0	0.0	0.0	5.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	934	98	239	681	95	403
Future Volume (vph)	934	98	239	681	95	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1043.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	934	98	239	681	95	403
Future Vol, veh/h	934	98	239	681	95	403
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	983	103	252	717	100	424

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1235	611	0	0	969	0
Stage 1	611	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 195	494	-	-	711	-
Stage 1	~ 542	-	-	-	-	-
Stage 2	~ 534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 159	494	-	-	711	-
Mov Cap-2 Maneuver	~ 159	-	-	-	-	-
Stage 1	~ 542	-	-	-	-	-
Stage 2	~ 436	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 2476.6	0	2.1
HCM LOS	F		

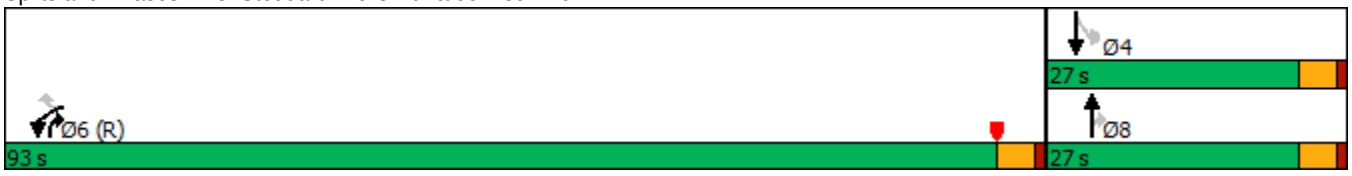
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	170	711	-
HCM Lane V/C Ratio	-	-	6.39	0.141	-
HCM Control Delay (s)	-	-	$ 2476.6	10.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	118	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	934	98	239	681	95	403
Future Volume (vph)	934	98	239	681	95	403
Ideal Flow (vphpl)	1800	1900	1900	1900	1800	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	27.0	93.0	27.0	27.0
Total Split (%)	77.5%	77.5%	22.5%	77.5%	22.5%	22.5%
Maximum Green (s)	88.5	88.5	22.5	88.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	934	98	239	681	95	403
Future Volume (veh/h)	934	98	239	681	95	403
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1772	1870	1870	1870	1772	1870
Adj Flow Rate, veh/h	983	103	252	717	100	424
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1245	1169	666	1466	129	666
Arrive On Green	0.74	0.74	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1688	1585	3647	1585	550	3647
Grp Volume(v), veh/h	983	103	252	717	100	424
Grp Sat Flow(s),veh/h/ln	1688	1585	1777	1585	550	1777
Q Serve(g_s), s	43.9	2.2	7.4	7.4	15.1	13.2
Cycle Q Clear(g_c), s	43.9	2.2	7.4	7.4	22.5	13.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1245	1169	666	1466	129	666
V/C Ratio(X)	0.79	0.09	0.38	0.49	0.78	0.64
Avail Cap(c_a), veh/h	1245	1169	666	1466	129	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	4.4	42.6	0.6	54.8	45.0
Incr Delay (d2), s/veh	5.2	0.1	1.6	1.2	35.6	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	0.6	3.3	21.8	4.3	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	4.6	44.3	1.8	90.4	49.6
LnGrp LOS	B	A	D	A	F	D
Approach Vol, veh/h	1086		969			524
Approach Delay, s/veh	14.1		12.8			57.4
Approach LOS	B		B			E

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				27.0		93.0	27.0
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				22.5		88.5	22.5
Max Q Clear Time (g_c+I1), s				24.5		45.9	9.4
Green Ext Time (p_c), s				0.0		4.8	3.7

Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	145	77	34	1270	115	3	77	33	923	2	37
Future Volume (vph)	10	145	77	34	1270	115	3	77	33	923	2	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	14.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	145	77	34	1270	115	3	77	33	923	2	37
Future Vol, veh/h	10	145	77	34	1270	115	3	77	33	923	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	158	84	37	1380	125	3	84	36	1003	2	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1505	0	0	242	0	0	1760	1801	200	1799	1781	1443
Stage 1	-	-	-	-	-	-	222	222	-	1517	1517	-
Stage 2	-	-	-	-	-	-	1538	1579	-	282	264	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	445	-	-	1324	-	-	66	~ 80	841	~ 62	82	162
Stage 1	-	-	-	-	-	-	780	720	-	~ 149	182	-
Stage 2	-	-	-	-	-	-	145	169	-	~ 725	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	445	-	-	1324	-	-	41	~ 63	841	-	65	162
Mov Cap-2 Maneuver	-	-	-	-	-	-	41	~ 63	-	-	65	-
Stage 1	-	-	-	-	-	-	757	699	-	~ 145	148	-
Stage 2	-	-	-	-	-	-	87	137	-	~ 593	670	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	$ 341.3	
HCM LOS			F	-

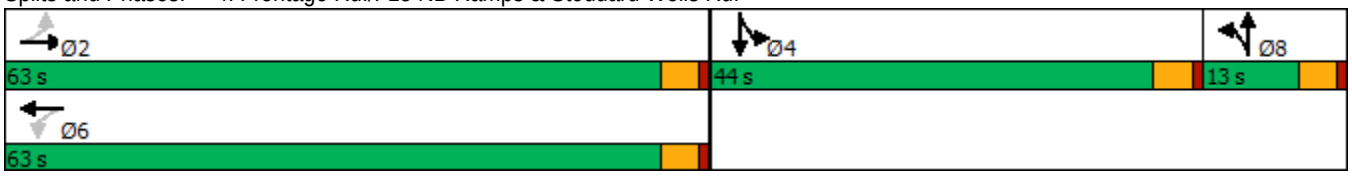
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	85	445	-	-	1324	-	-	-
HCM Lane V/C Ratio	1.445	0.024	-	-	0.028	-	-	-
HCM Control Delay (s)	$ 341.3	13.3	0	-	7.8	0	-	-
HCM Lane LOS	F	B	A	-	A	A	-	-
HCM 95th %tile Q(veh)	9.6	0.1	-	-	0.1	-	-	-

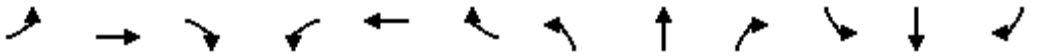
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	145	77	34	1270	115	3	77	33	923	2	37
Future Volume (vph)	10	145	77	34	1270	115	3	77	33	923	2	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										48%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	63.0	63.0		63.0	63.0		13.0	13.0		44.0	44.0	
Total Split (%)	52.5%	52.5%		52.5%	52.5%		10.8%	10.8%		36.7%	36.7%	
Maximum Green (s)	58.5	58.5		58.5	58.5		8.5	8.5		39.5	39.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 119.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





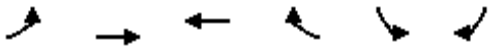
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	145	77	34	1270	115	3	77	33	923	2	37
Future Volume (veh/h)	10	145	77	34	1270	115	3	77	33	923	2	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	11	158	84	37	1380	125	3	84	36	1042	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	665	419	59	1477	132	124	91	39	1150	638	0
Arrive On Green	0.47	0.47	0.47	0.70	0.70	0.70	0.07	0.07	0.07	0.44	0.00	0.00
Sat Flow, veh/h	22	1417	894	55	3148	282	1688	1242	532	3375	1870	0
Grp Volume(v), veh/h	108	0	145	811	0	731	3	0	120	1042	0	0
Grp Sat Flow(s),veh/h/ln	792	0	1541	1835	0	1651	1688	0	1775	1688	1870	0
Q Serve(g_s), s	2.6	0.0	6.4	26.7	0.0	45.2	0.2	0.0	7.8	33.3	0.0	0.0
Cycle Q Clear(g_c), s	47.9	0.0	6.4	44.7	0.0	45.2	0.2	0.0	7.8	33.3	0.0	0.0
Prop In Lane	0.10		0.58	0.05		0.17	1.00		0.30	1.00		0.00
Lane Grp Cap(c), veh/h	406	0	723	893	0	775	124	0	130	1150	638	0
V/C Ratio(X)	0.27	0.00	0.20	0.91	0.00	0.94	0.02	0.00	0.92	0.91	0.00	0.00
Avail Cap(c_a), veh/h	452	0	778	958	0	834	124	0	130	1150	638	0
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.50	1.00	1.00	1.00	1.30	1.30	1.30
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.2	0.0	18.0	15.6	0.0	15.8	49.8	0.0	53.4	30.5	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.1	11.7	0.0	18.3	0.4	0.0	60.2	11.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.2	12.7	0.0	13.1	0.1	0.0	5.6	14.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	18.1	27.3	0.0	34.1	50.2	0.0	113.6	42.3	0.0	0.0
LnGrp LOS	C	A	B	C	A	C	D	A	F	D	A	A
Approach Vol, veh/h		253			1542			123			1042	
Approach Delay, s/veh		19.6			30.5			112.0			42.3	
Approach LOS		B			C			F			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	58.9	44.0	58.9	13.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	58.5	39.5	58.5	8.5
Max Q Clear Time (g_c+I1), s	49.9	35.3	47.2	9.8
Green Ext Time (p_c), s	0.9	1.8	7.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	55	68	1241	177	12
Future Volume (vph)	25	55	68	1241	177	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	33.7

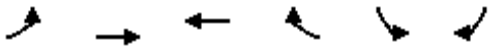
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	68	1241	177	12
Future Vol, veh/h	25	55	68	1241	177	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	85	105	1909	272	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	1221	1060
Stage 1	-	-	-	-	1060	-
Stage 2	-	-	-	-	161	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1486	-	-	-	~ 199	272
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1486	-	-	-	~ 194	272
Mov Cap-2 Maneuver	-	-	-	-	~ 194	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	280.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1486	-	-	-	198
HCM Lane V/C Ratio	0.026	-	-	-	1.469
HCM Control Delay (s)	7.5	0	-	-	280.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	17.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	55	68	1241	177	12
Future Volume (vph)	25	55	68	1241	177	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	68	1241	177	12
Future Vol, veh/h	25	55	68	1241	177	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	60	74	1349	192	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1423	0	-	0	158	37
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	474	-	-	-	818	1027
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	930	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	474	-	-	-	770	1027
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	474	-	-	-	782
HCM Lane V/C Ratio	0.057	-	-	-	0.263
HCM Control Delay (s)	13.1	0.2	-	-	11.2
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	183	6	6	1260	6	6
Future Volume (vph)	183	6	6	1260	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	17

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	183	6	6	1260	6	6
Future Vol, veh/h	183	6	6	1260	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	9	9	1938	9	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1005	978	0	0	1947	0
Stage 1	978	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 268	304	-	-	300	-
Stage 1	364	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 260	304	-	-	300	-
Mov Cap-2 Maneuver	~ 260	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	131.5	0	8.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	261	300	-
HCM Lane V/C Ratio	-	-	1.114	0.031	-
HCM Control Delay (s)	-	-	131.5	17.4	0
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	12.5	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	183	6	6	1260	6	6
Future Volume (vph)	183	6	6	1260	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

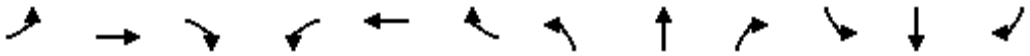
Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	183	6	6	1260	6	6
Future Vol, veh/h	183	6	6	1260	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	9	9	1938	9	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	36	9	0	0	1947	0
Stage 1	9	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	977	1073	-	-	300	-
Stage 1	1014	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	948	1073	-	-	300	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	8.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	300	-
HCM Lane V/C Ratio	-	-	0.305	0.031	-
HCM Control Delay (s)	-	-	10.4	17.4	0
HCM Lane LOS	-	-	B	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	263	124	216	436	243	241	370	302	161	776	206
Future Volume (vph)	223	263	124	216	436	243	241	370	302	161	776	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		400	415		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		414			304			1385			2620	
Travel Time (s)		9.4			4.6			17.2			32.5	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	223	263	124	216	436	243	241	370	302	161	776	206
Future Vol, veh/h	223	263	124	216	436	243	241	370	302	161	776	206
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	400	415	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	293	346	163	284	574	320	317	487	397	212	1021	271

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3348	3099	1157	2956	2837	487	1292	0	0	884	0	0
Stage 1	1581	1581	-	1121	1121	-	-	-	-	-	-	-
Stage 2	1767	1518	-	1835	1716	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 5	~ 12	239	~ 9	~ 17	581	537	-	-	765	-	-
Stage 1	~ 137	~ 169	-	~ 250	~ 282	-	-	-	-	-	-	-
Stage 2	~ 107	~ 181	-	~ 97	~ 145	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 4	239	-	~ 5	581	537	-	-	765	-	-
Mov Cap-2 Maneuver	-	~ 4	-	-	~ 5	-	-	-	-	-	-	-
Stage 1	~ 56	~ 122	-	~ 103	~ 116	-	-	-	-	-	-	-
Stage 2	-	~ 74	-	-	~ 105	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			5.5	1.6
HCM LOS	-	-		

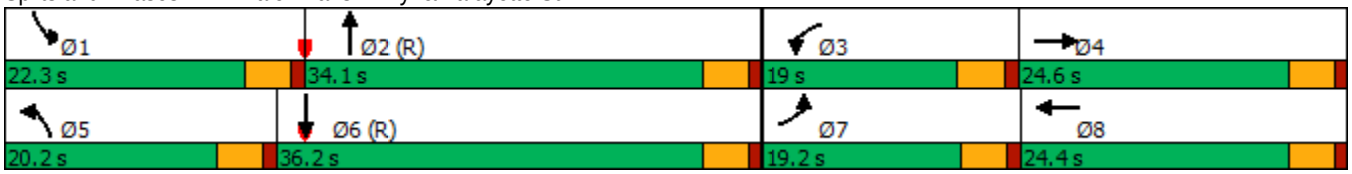
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	537	-	-	-	-	765	-	-
HCM Lane V/C Ratio	0.591	-	-	-	-	0.277	-	-
HCM Control Delay (s)	20.9	-	-	-	-	11.5	-	-
HCM Lane LOS	C	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	3.8	-	-	-	-	1.1	-	-

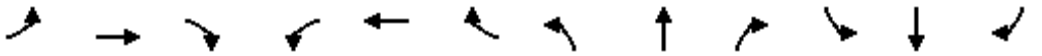
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	263	124	216	436	243	241	370	302	161	776	206
Future Volume (vph)	223	263	124	216	436	243	241	370	302	161	776	206
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		400	415		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		539			304			1385			2620	
Travel Time (s)		12.3			4.6			17.2			32.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	19.2	24.6		19.0	24.4		20.2	34.1		22.3	36.2	
Total Split (%)	19.2%	24.6%		19.0%	24.4%		20.2%	34.1%		22.3%	36.2%	
Maximum Green (s)	14.7	20.1		14.5	19.9		15.7	29.6		17.8	31.7	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Dale Evans Pkwy. & Lafayette St.

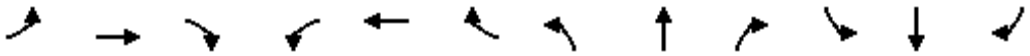




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	263	124	216	436	243	241	370	302	161	776	206
Future Volume (veh/h)	223	263	124	216	436	243	241	370	302	161	776	206
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	235	277	131	227	459	256	254	389	318	169	817	217
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	475	219	245	439	243	265	664	538	199	880	234
Arrive On Green	0.15	0.20	0.20	0.14	0.20	0.20	0.31	0.71	0.71	0.18	0.48	0.48
Sat Flow, veh/h	1688	2363	1088	1688	2205	1222	1688	1866	1510	1688	2777	737
Grp Volume(v), veh/h	235	206	202	227	369	346	254	370	337	169	523	511
Grp Sat Flow(s),veh/h/ln	1688	1777	1675	1688	1777	1650	1688	1777	1599	1688	1777	1738
Q Serve(g_s), s	13.8	10.5	10.9	13.3	19.9	19.9	14.8	10.3	10.5	9.7	27.6	27.6
Cycle Q Clear(g_c), s	13.8	10.5	10.9	13.3	19.9	19.9	14.8	10.3	10.5	9.7	27.6	27.6
Prop In Lane	1.00		0.65	1.00		0.74	1.00		0.94	1.00		0.42
Lane Grp Cap(c), veh/h	248	357	337	245	354	328	265	633	569	199	563	551
V/C Ratio(X)	0.95	0.58	0.60	0.93	1.04	1.05	0.96	0.59	0.59	0.85	0.93	0.93
Avail Cap(c_a), veh/h	248	357	337	245	354	328	265	633	569	300	563	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.50	1.50	1.50
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.21	0.21	0.21
Uniform Delay (d), s/veh	42.3	36.1	36.3	42.2	40.1	40.1	34.0	10.7	10.8	40.3	25.2	25.2
Incr Delay (d2), s/veh	42.7	2.3	2.9	38.4	59.8	64.2	43.9	3.9	4.5	3.2	7.1	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	4.7	4.7	7.9	14.1	13.5	7.8	3.2	3.0	3.7	9.1	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.0	38.4	39.2	80.6	99.9	104.3	77.9	14.7	15.2	43.5	32.2	32.4
LnGrp LOS	F	D	D	F	F	F	E	B	B	D	C	C
Approach Vol, veh/h		643			942			961			1203	
Approach Delay, s/veh		55.7			96.9			31.6			33.9	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	40.1	19.0	24.6	20.2	36.2	19.2	24.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.8	29.6	14.5	20.1	15.7	31.7	14.7	19.9
Max Q Clear Time (g_c+I1), s	11.7	12.5	15.3	12.9	16.8	29.6	15.8	21.9
Green Ext Time (p_c), s	0.2	3.6	0.0	1.4	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.9
HCM 6th LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	18	15	28	30	13	9	543	25	14	709	151
Future Volume (vph)	83	18	15	28	30	13	9	543	25	14	709	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	134.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	83	18	15	28	30	13	9	543	25	14	709	151
Future Vol, veh/h	83	18	15	28	30	13	9	543	25	14	709	151
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	19	16	29	32	14	9	572	26	15	746	159
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

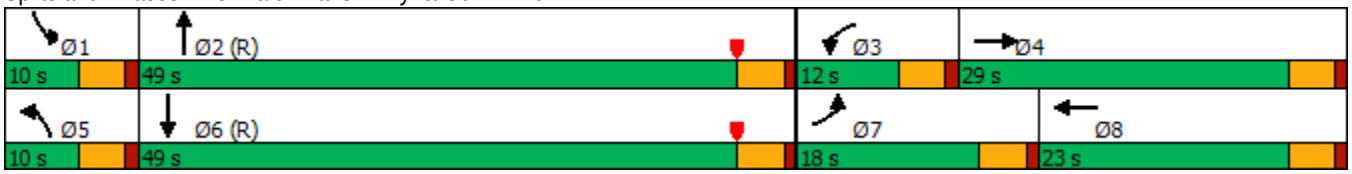
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.9	13	50.7	214.9
HCM LOS	B	B	F	F

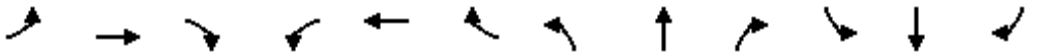
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	72%	39%	2%
Vol Thru, %	94%	16%	42%	81%
Vol Right, %	4%	13%	18%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	577	116	71	874
LT Vol	9	83	28	14
Through Vol	543	18	30	709
RT Vol	25	15	13	151
Lane Flow Rate	607	122	75	920
Geometry Grp	1	1	1	1
Degree of Util (X)	0.951	0.251	0.156	1.42
Departure Headway (Hd)	6.17	8.212	8.411	5.557
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	595	441	429	653
Service Time	4.17	6.212	6.411	3.6
HCM Lane V/C Ratio	1.02	0.277	0.175	1.409
HCM Control Delay	50.7	13.9	13	214.9
HCM Lane LOS	F	B	B	F
HCM 95th-tile Q	12.7	1	0.5	41.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	18	15	28	30	13	9	543	25	14	709	151
Future Volume (vph)	83	18	15	28	30	13	9	543	25	14	709	151
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	18.0	29.0		12.0	23.0		10.0	49.0		10.0	49.0	
Total Split (%)	18.0%	29.0%		12.0%	23.0%		10.0%	49.0%		10.0%	49.0%	
Maximum Green (s)	13.5	24.5		7.5	18.5		5.5	44.5		5.5	44.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Dale Evans Pkwy. & Corwin Rd.

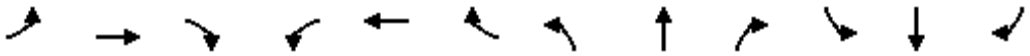




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	18	15	28	30	13	9	543	25	14	709	151
Future Volume (veh/h)	83	18	15	28	30	13	9	543	25	14	709	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	87	19	16	29	32	14	9	572	26	15	746	159
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	258	192	47	234	96	19	2224	101	29	1890	403
Arrive On Green	0.07	0.13	0.13	0.03	0.10	0.10	0.01	0.64	0.64	0.02	0.65	0.65
Sat Flow, veh/h	1688	1944	1444	1688	2459	1007	1688	3462	157	1688	2914	621
Grp Volume(v), veh/h	87	17	18	29	23	23	9	293	305	15	455	450
Grp Sat Flow(s),veh/h/ln	1688	1777	1611	1688	1777	1689	1688	1777	1842	1688	1777	1759
Q Serve(g_s), s	5.1	0.8	1.0	1.7	1.2	1.3	0.5	7.1	7.1	0.9	12.1	12.1
Cycle Q Clear(g_c), s	5.1	0.8	1.0	1.7	1.2	1.3	0.5	7.1	7.1	0.9	12.1	12.1
Prop In Lane	1.00		0.90	1.00		0.60	1.00		0.09	1.00		0.35
Lane Grp Cap(c), veh/h	110	236	214	47	169	161	19	1142	1183	29	1152	1140
V/C Ratio(X)	0.79	0.07	0.08	0.62	0.13	0.15	0.48	0.26	0.26	0.52	0.39	0.39
Avail Cap(c_a), veh/h	228	435	395	127	329	312	93	1142	1183	93	1152	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	38.0	38.0	48.1	41.5	41.5	49.2	7.7	7.7	48.7	8.3	8.3
Incr Delay (d2), s/veh	11.9	0.1	0.2	12.7	0.4	0.4	18.0	0.5	0.5	13.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.4	0.4	0.8	0.5	0.5	0.3	2.3	2.3	0.5	3.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	38.1	38.2	60.8	41.8	41.9	67.2	8.2	8.2	62.6	9.3	9.3
LnGrp LOS	E	D	D	E	D	D	E	A	A	E	A	A
Approach Vol, veh/h		122			75			607			920	
Approach Delay, s/veh		52.3			49.2			9.1			10.2	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	68.7	7.3	17.8	5.6	69.3	11.0	14.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	44.5	7.5	24.5	5.5	44.5	13.5	18.5
Max Q Clear Time (g_c+I1), s	2.9	9.1	3.7	3.0	2.5	14.1	7.1	3.3
Green Ext Time (p_c), s	0.0	3.2	0.0	0.1	0.0	5.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	217	201	3	245	66	162	10	10	53	5	83
Future Volume (vph)	115	217	201	3	245	66	162	10	10	53	5	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	18.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	115	217	201	3	245	66	162	10	10	53	5	83
Future Vol, veh/h	115	217	201	3	245	66	162	10	10	53	5	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	121	228	212	3	258	69	171	11	11	56	5	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	327	0	0	440	0	0	921	909	334	886	981	293
Stage 1	-	-	-	-	-	-	576	576	-	299	299	-
Stage 2	-	-	-	-	-	-	345	333	-	587	682	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1233	-	-	1120	-	-	251	275	708	265	249	746
Stage 1	-	-	-	-	-	-	503	502	-	710	666	-
Stage 2	-	-	-	-	-	-	671	644	-	496	450	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1233	-	-	1120	-	-	195	237	708	226	215	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	237	-	226	215	-
Stage 1	-	-	-	-	-	-	436	435	-	615	664	-
Stage 2	-	-	-	-	-	-	586	642	-	413	390	-

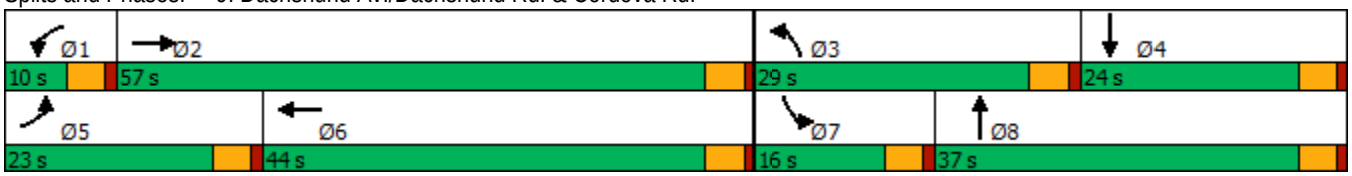
Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.1	95	20.3
HCM LOS			F	C

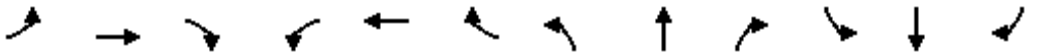
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	1233	-	-	1120	-	-	382
HCM Lane V/C Ratio	0.935	0.098	-	-	0.003	-	-	0.389
HCM Control Delay (s)	95	8.2	0	-	8.2	0	-	20.3
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	7.7	0.3	-	-	0	-	-	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	217	201	3	245	66	162	10	10	53	5	83
Future Volume (vph)	115	217	201	3	245	66	162	10	10	53	5	83
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	23.0	57.0		10.0	44.0		29.0	37.0		16.0	24.0	
Total Split (%)	19.2%	47.5%		8.3%	36.7%		24.2%	30.8%		13.3%	20.0%	
Maximum Green (s)	18.5	52.5		5.5	39.5		24.5	32.5		11.5	19.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 66.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.





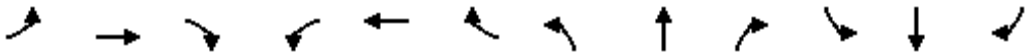
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	217	201	3	245	66	162	10	10	53	5	83
Future Volume (veh/h)	115	217	201	3	245	66	162	10	10	53	5	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	121	228	212	3	258	69	171	11	11	56	5	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	305	283	7	360	96	225	163	163	95	10	171
Arrive On Green	0.09	0.34	0.34	0.00	0.25	0.25	0.13	0.19	0.19	0.06	0.11	0.11
Sat Flow, veh/h	1688	892	829	1688	1422	380	1688	858	858	1688	87	1511
Grp Volume(v), veh/h	121	0	440	3	0	327	171	0	22	56	0	92
Grp Sat Flow(s),veh/h/ln	1688	0	1721	1688	0	1802	1688	0	1716	1688	0	1598
Q Serve(g_s), s	3.1	0.0	10.0	0.1	0.0	7.3	4.3	0.0	0.5	1.4	0.0	2.4
Cycle Q Clear(g_c), s	3.1	0.0	10.0	0.1	0.0	7.3	4.3	0.0	0.5	1.4	0.0	2.4
Prop In Lane	1.00		0.48	1.00		0.21	1.00		0.50	1.00		0.95
Lane Grp Cap(c), veh/h	157	0	588	7	0	456	225	0	326	95	0	181
V/C Ratio(X)	0.77	0.00	0.75	0.43	0.00	0.72	0.76	0.00	0.07	0.59	0.00	0.51
Avail Cap(c_a), veh/h	707	0	2046	210	0	1612	936	0	1263	440	0	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	0.0	12.9	21.9	0.0	15.1	18.5	0.0	14.7	20.3	0.0	18.4
Incr Delay (d2), s/veh	7.8	0.0	1.9	37.7	0.0	2.1	5.2	0.0	0.1	5.7	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.0	0.1	0.0	2.5	1.7	0.0	0.1	0.6	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	14.8	59.6	0.0	17.2	23.7	0.0	14.8	26.1	0.0	20.6
LnGrp LOS	C	A	B	E	A	B	C	A	B	C	A	C
Approach Vol, veh/h		561			330			193			148	
Approach Delay, s/veh		17.5			17.6			22.7			22.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	19.6	10.4	9.5	8.6	15.7	7.0	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	52.5	24.5	19.5	18.5	39.5	11.5	32.5
Max Q Clear Time (g_c+I1), s	2.1	12.0	6.3	4.4	5.1	9.3	3.4	2.5
Green Ext Time (p_c), s	0.0	2.9	0.4	0.3	0.2	1.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

APPENDIX 6.2: HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

This Page Intentionally Left Blank



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1214	23	4	756	25	6	1	7	15	1	70
Future Volume (vph)	241	1214	23	4	756	25	6	1	7	15	1	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	241	1214	23	4	756	25	6	1	7	15	1	70
Future Vol, veh/h	241	1214	23	4	756	25	6	1	7	15	1	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	254	1278	24	4	796	26	6	1	7	16	1	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	822	0	0	1302	0	0	2653	2628	1290	2619	2627	809
Stage 1	-	-	-	-	-	-	1798	1798	-	817	817	-
Stage 2	-	-	-	-	-	-	855	830	-	1802	1810	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	807	-	-	532	-	-	15	24	200	16	24	380
Stage 1	-	-	-	-	-	-	102	132	-	370	390	-
Stage 2	-	-	-	-	-	-	353	385	-	102	130	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	807	-	-	532	-	-	9	16	200	~ 11	16	380
Mov Cap-2 Maneuver	-	-	-	-	-	-	9	16	-	~ 11	16	-
Stage 1	-	-	-	-	-	-	70	90	-	253	387	-
Stage 2	-	-	-	-	-	-	282	382	-	67	89	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0.1	$ 330.6	175
HCM LOS			F	F

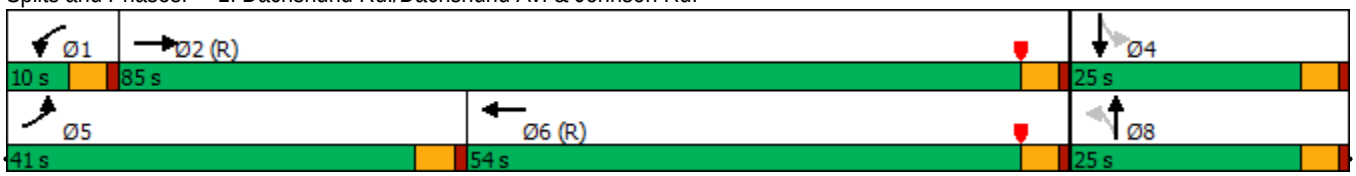
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	9	82	807	-	-	532	-	-	11	288
HCM Lane V/C Ratio	0.702	0.103	0.314	-	-	0.008	-	-	1.435	0.26
HCM Control Delay (s)	$ 699.6	53.9	11.5	-	-	11.8	-	-	$ 900.3	21.8
HCM Lane LOS	F	F	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.4	0.3	1.3	-	-	0	-	-	2.8	1

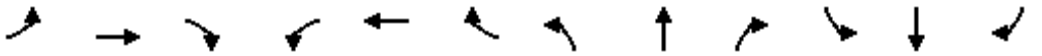
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1214	23	4	756	25	6	1	7	15	1	70
Future Volume (vph)	241	1214	23	4	756	25	6	1	7	15	1	70
Ideal Flow (vphpl)	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	41.0	85.0		10.0	54.0		25.0	25.0		25.0	25.0	
Total Split (%)	34.2%	70.8%		8.3%	45.0%		20.8%	20.8%		20.8%	20.8%	
Maximum Green (s)	36.5	80.5		5.5	49.5		20.5	20.5		20.5	20.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: Dachshund Rd./Dachshund Av. & Johnson Rd.

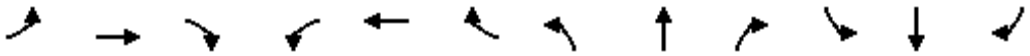




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	1214	23	4	756	25	6	1	7	15	1	70
Future Volume (veh/h)	241	1214	23	4	756	25	6	1	7	15	1	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1673	1772	1772	1673	1772	1772	1673	1772	1772	1673	1772	1772
Adj Flow Rate, veh/h	254	1278	24	4	796	26	6	1	7	16	1	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	2405	45	8	1805	59	209	32	227	268	3	251
Arrive On Green	0.35	1.00	1.00	0.01	0.54	0.54	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1594	3380	63	1594	3326	109	1178	190	1329	1248	20	1472
Grp Volume(v), veh/h	254	636	666	4	403	419	6	0	8	16	0	75
Grp Sat Flow(s),veh/h/ln	1594	1683	1760	1594	1683	1752	1178	0	1519	1248	0	1492
Q Serve(g_s), s	18.3	0.0	0.0	0.3	17.3	17.3	0.5	0.0	0.5	1.3	0.0	5.3
Cycle Q Clear(g_c), s	18.3	0.0	0.0	0.3	17.3	17.3	5.8	0.0	0.5	1.8	0.0	5.3
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	278	1198	1252	8	913	950	209	0	259	268	0	255
V/C Ratio(X)	0.91	0.53	0.53	0.48	0.44	0.44	0.03	0.00	0.03	0.06	0.00	0.29
Avail Cap(c_a), veh/h	485	1198	1252	73	913	950	209	0	259	268	0	255
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.36	0.36	0.36	1.00	1.00	1.00	1.00	0.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	38.2	0.0	0.0	59.5	16.5	16.5	46.0	0.0	41.5	42.2	0.0	43.4
Incr Delay (d2), s/veh	5.6	0.6	0.6	37.7	1.5	1.5	0.3	0.0	0.2	0.4	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.2	0.2	0.2	6.6	6.8	0.2	0.0	0.2	0.4	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	0.6	0.6	97.2	18.1	18.0	46.2	0.0	41.7	42.7	0.0	46.3
LnGrp LOS	D	A	A	F	B	B	D	A	D	D	A	D
Approach Vol, veh/h		1556			826			14			91	
Approach Delay, s/veh		7.7			18.4			43.6			45.7	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	89.9		25.0	25.4	69.6		25.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	80.5		20.5	36.5	49.5		20.5				
Max Q Clear Time (g_c+I1), s	2.3	2.0		7.3	20.3	19.3		7.8				
Green Ext Time (p_c), s	0.0	11.0		0.3	0.6	5.1		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			12.8									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	812	258	354	391	87	172	423	438	228	188	19
Future Volume (vph)	23	812	258	354	391	87	172	423	438	228	188	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	654.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	812	258	354	391	87	172	423	438	228	188	19
Future Vol, veh/h	23	812	258	354	391	87	172	423	438	228	188	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	855	272	373	412	92	181	445	461	240	198	20
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	1297.9	696.6	189	64.6
HCM LOS	F	F	F	F

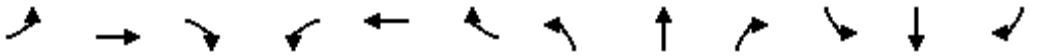
Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	48%	0%	100%	0%
Vol Thru, %	0%	100%	0%	74%	52%	0%	0%	91%
Vol Right, %	0%	0%	100%	24%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	423	438	1093	745	87	228	207
LT Vol	172	0	0	23	354	0	228	0
Through Vol	0	423	0	812	391	0	0	188
RT Vol	0	0	438	258	0	87	0	19
Lane Flow Rate	181	445	461	1151	784	92	240	218
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.562	1.319	1.277	3.801	2.619	0.282	0.806	0.698
Departure Headway (Hd)	21.07	20.511	19.729	14.869	17.067	16.01	19.299	18.641
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	174	183	189	265	220	226	190	196
Service Time	18.77	18.211	17.429	12.569	14.767	13.71	16.999	16.341
HCM Lane V/C Ratio	1.04	2.432	2.439	4.343	3.564	0.407	1.263	1.112
HCM Control Delay	47.9	226.6	208.1	1297.9	775	24.9	72.7	55.7
HCM Lane LOS	E	F	F	F	F	C	F	F
HCM 95th-tile Q	2.9	13.5	13	88.7	47.1	1.1	5.6	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	812	258	354	391	87	172	423	438	228	188	19
Future Volume (vph)	23	812	258	354	391	87	172	423	438	228	188	19
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		165	100		150	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						Free			8			
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		10.0	22.5	9.5	10.0	22.5	
Total Split (s)	10.4	45.0		31.4	66.0		20.0	22.6	31.4	21.0	23.6	
Total Split (%)	8.7%	37.5%		26.2%	55.0%		16.7%	18.8%	26.2%	17.5%	19.7%	
Maximum Green (s)	5.9	40.5		26.9	61.5		15.5	18.1	26.9	16.5	19.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	812	258	354	391	87	172	423	438	228	188	19
Future Volume (veh/h)	23	812	258	354	391	87	172	423	438	228	188	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	24	855	272	373	412	0	181	445	461	240	198	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	894	284	378	1914		203	536	592	232	547	55
Arrive On Green	0.02	0.34	0.34	0.45	1.00	0.00	0.24	0.30	0.30	0.14	0.17	0.17
Sat Flow, veh/h	1688	2650	842	1688	3554	1585	1688	3554	1569	1688	3259	326
Grp Volume(v), veh/h	24	573	554	373	412	0	181	445	461	240	107	111
Grp Sat Flow(s),veh/h/ln	1688	1777	1714	1688	1777	1585	1688	1777	1569	1688	1777	1808
Q Serve(g_s), s	1.7	37.8	38.0	26.2	0.0	0.0	12.4	14.0	18.1	16.5	6.4	6.5
Cycle Q Clear(g_c), s	1.7	37.8	38.0	26.2	0.0	0.0	12.4	14.0	18.1	16.5	6.4	6.5
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	39	600	579	378	1914		203	536	592	232	298	304
V/C Ratio(X)	0.62	0.96	0.96	0.99	0.22		0.89	0.83	0.78	1.03	0.36	0.37
Avail Cap(c_a), veh/h	83	600	579	378	1914		218	536	592	232	298	304
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.00	0.43	0.43	0.43	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	38.9	38.9	32.9	0.0	0.0	44.8	40.5	28.8	51.8	44.2	44.3
Incr Delay (d2), s/veh	15.1	27.3	28.3	39.4	0.2	0.0	16.9	4.9	2.9	68.3	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	20.2	19.7	11.7	0.1	0.0	5.3	5.3	10.6	11.1	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	66.1	67.2	72.3	0.2	0.0	61.7	45.3	31.7	120.1	44.9	45.0
LnGrp LOS	E	E	E	E	A		E	D	C	F	D	D
Approach Vol, veh/h		1151			785			1087			458	
Approach Delay, s/veh		66.8			34.5			42.3			84.3	
Approach LOS		E			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.4	45.0	19.0	24.6	7.3	69.1	21.0	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.9	40.5	15.5	19.1	5.9	61.5	16.5	18.1
Max Q Clear Time (g_c+I1), s	28.2	40.0	14.4	8.5	3.7	2.0	18.5	20.1
Green Ext Time (p_c), s	0.0	0.4	0.0	0.7	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.1
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	436	70	400	940	20	120
Future Volume (vph)	436	70	400	940	20	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	152.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	436	70	400	940	20	120
Future Vol, veh/h	436	70	400	940	20	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	459	74	421	989	21	126

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1084	916	0	0	1410	0
Stage 1	916	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 240	330	-	-	484	-
Stage 1	~ 390	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 229	330	-	-	484	-
Mov Cap-2 Maneuver	~ 229	-	-	-	-	-
Stage 1	~ 390	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 599	0	1.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	239	484	-
HCM Lane V/C Ratio	-	-	2.229	0.043	-
HCM Control Delay (s)	-	-	$ 599	12.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	41.5	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	436	70	400	940	20	120
Future Volume (vph)	436	70	400	940	20	120
Ideal Flow (vphpl)	1800	1900	1900	1900	1800	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	92.0	92.0	28.0	92.0	28.0	28.0
Total Split (%)	76.7%	76.7%	23.3%	76.7%	23.3%	23.3%
Maximum Green (s)	87.5	87.5	23.5	87.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	Max	Max
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

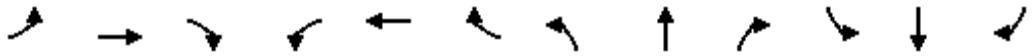
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	436	70	400	940	20	120
Future Volume (veh/h)	436	70	400	940	20	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1772	1870	1870	1870	1772	1870
Adj Flow Rate, veh/h	459	74	421	989	21	126
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1231	1156	696	1462	92	696
Arrive On Green	0.73	0.73	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1688	1585	3647	1565	361	3647
Grp Volume(v), veh/h	459	74	421	989	21	126
Grp Sat Flow(s),veh/h/ln	1688	1585	1777	1565	361	1777
Q Serve(g_s), s	12.1	1.6	13.0	15.5	6.8	3.5
Cycle Q Clear(g_c), s	12.1	1.6	13.0	15.5	19.7	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1231	1156	696	1462	92	696
V/C Ratio(X)	0.37	0.06	0.60	0.68	0.23	0.18
Avail Cap(c_a), veh/h	1231	1156	696	1462	92	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.0	4.6	44.0	0.9	53.0	40.2
Incr Delay (d2), s/veh	0.9	0.1	3.9	2.5	5.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.5	5.9	30.4	0.7	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.9	4.7	47.9	3.4	58.7	40.8
LnGrp LOS	A	A	D	A	E	D
Approach Vol, veh/h	533		1410			147
Approach Delay, s/veh	6.6		16.7			43.4
Approach LOS	A		B			D

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				28.0		92.0	28.0
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				23.5		87.5	23.5
Max Q Clear Time (g_c+I1), s				21.7		14.1	17.5
Green Ext Time (p_c), s				0.1		1.7	3.6

Intersection Summary			
HCM 6th Ctrl Delay		16.0	
HCM 6th LOS		B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	131	91	18	661	81	10	69	32	1304	2	36
Future Volume (vph)	15	131	91	18	661	81	10	69	32	1304	2	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2512.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	131	91	18	661	81	10	69	32	1304	2	36
Future Vol, veh/h	15	131	91	18	661	81	10	69	32	1304	2	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	142	99	20	718	88	11	75	35	1417	2	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	806	0	0	241	0	0	1047	1070	192	1081	1075	762
Stage 1	-	-	-	-	-	-	224	224	-	802	802	-
Stage 2	-	-	-	-	-	-	823	846	-	279	273	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	819	-	-	1326	-	-	206	221	850	~ 195	220	405
Stage 1	-	-	-	-	-	-	779	718	-	~ 378	396	-
Stage 2	-	-	-	-	-	-	368	378	-	~ 728	684	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	819	-	-	1326	-	-	178	210	850	~ 130	209	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	210	-	~ 130	209	-
Stage 1	-	-	-	-	-	-	761	701	-	~ 369	385	-
Stage 2	-	-	-	-	-	-	321	367	-	~ 609	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	29.8	$ 4584.9
HCM LOS			D	F

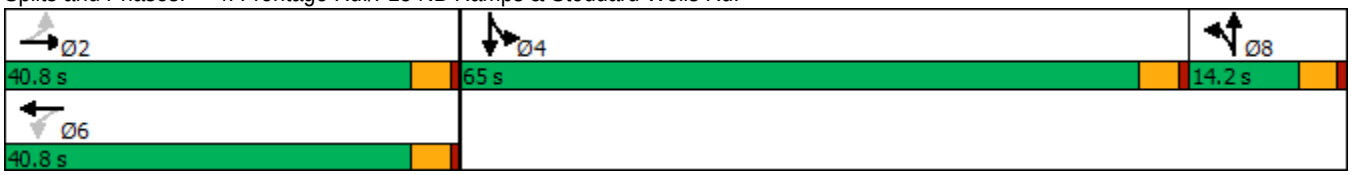
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	263	819	-	-	1326	-	-	132
HCM Lane V/C Ratio	0.459	0.02	-	-	0.015	-	-	11.051
HCM Control Delay (s)	29.8	9.5	0	-	7.8	0	-	$ 4584.9
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.3	0.1	-	-	0	-	-	169.1

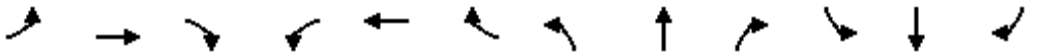
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	131	91	18	661	81	10	69	32	1304	2	36
Future Volume (vph)	15	131	91	18	661	81	10	69	32	1304	2	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										48%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	40.8	40.8		40.8	40.8		14.2	14.2		65.0	65.0	
Total Split (%)	34.0%	34.0%		34.0%	34.0%		11.8%	11.8%		54.2%	54.2%	
Maximum Green (s)	36.3	36.3		36.3	36.3		9.7	9.7		60.5	60.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 117.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





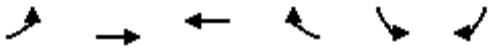
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	131	91	18	661	81	10	69	32	1304	2	36
Future Volume (veh/h)	15	131	91	18	661	81	10	69	32	1304	2	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	16	142	99	20	718	88	11	75	35	1455	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	360	287	45	828	100	143	101	47	1779	986	0
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.08	0.08	0.08	0.53	0.00	0.00
Sat Flow, veh/h	33	1331	1060	44	3058	370	1688	1198	559	3375	1870	0
Grp Volume(v), veh/h	117	0	140	438	0	388	11	0	110	1455	0	0
Grp Sat Flow(s),veh/h/ln	924	0	1500	1841	0	1631	1688	0	1758	1688	1870	0
Q Serve(g_s), s	1.2	0.0	8.6	11.7	0.0	26.1	0.7	0.0	7.0	41.1	0.0	0.0
Cycle Q Clear(g_c), s	27.3	0.0	8.6	26.1	0.0	26.1	0.7	0.0	7.0	41.1	0.0	0.0
Prop In Lane	0.14		0.71	0.05		0.23	1.00		0.32	1.00		0.00
Lane Grp Cap(c), veh/h	286	0	406	531	0	442	143	0	149	1779	986	0
V/C Ratio(X)	0.41	0.00	0.35	0.83	0.00	0.88	0.08	0.00	0.74	0.82	0.00	0.00
Avail Cap(c_a), veh/h	354	0	474	614	0	516	143	0	149	1779	986	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.6	0.0	33.7	39.9	0.0	40.0	48.4	0.0	51.3	22.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.5	8.0	0.0	14.1	1.1	0.0	27.9	4.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.1	12.5	0.0	11.7	0.3	0.0	4.2	16.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	34.2	47.9	0.0	54.2	49.5	0.0	79.2	26.9	0.0	0.0
LnGrp LOS	C	A	C	D	A	D	D	A	E	C	A	A
Approach Vol, veh/h		257			826			121			1455	
Approach Delay, s/veh		34.3			50.9			76.5			26.9	
Approach LOS		C			D			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.6		65.0		35.6		14.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		36.3		60.5		36.3		9.7				
Max Q Clear Time (g_c+I1), s		29.3		43.1		28.1		9.0				
Green Ext Time (p_c), s		0.7		6.3		3.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			37.3									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	40	85	617	202	8
Future Volume (vph)	33	40	85	617	202	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

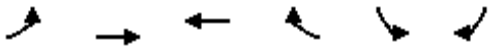
Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	40	85	617	202	8
Future Vol, veh/h	33	40	85	617	202	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	51	109	791	259	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	640	505
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1481	-	-	-	440	567
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	427	567
Mov Cap-2 Maneuver	-	-	-	-	427	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	26.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1481	-	-	-	431
HCM Lane V/C Ratio	0.029	-	-	-	0.625
HCM Control Delay (s)	7.5	0	-	-	26.3
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	4.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	40	85	617	202	8
Future Volume (vph)	33	40	85	617	202	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	40	85	617	202	8
Future Vol, veh/h	33	40	85	617	202	8
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	43	92	671	220	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	768	0	-	0	196	56
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	842	-	-	-	774	999
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	838	-	-	-	732	990
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	838	-	-	-	739
HCM Lane V/C Ratio	0.043	-	-	-	0.309
HCM Control Delay (s)	9.5	0.1	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	10	7	643	8	7
Future Volume (vph)	203	10	7	643	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	10	7	643	8	7
Future Vol, veh/h	203	10	7	643	8	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	12	9	784	10	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	430	401	0	0	793	0
Stage 1	401	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	582	649	-	-	828	-
Stage 1	676	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	575	649	-	-	828	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	578	828	-
HCM Lane V/C Ratio	-	-	0.449	0.012	-
HCM Control Delay (s)	-	-	16.2	9.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.3	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	10	7	643	8	7
Future Volume (vph)	203	10	7	643	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Confl. Peds. (#/hr)	5	5		5	5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

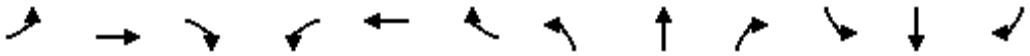
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	10	7	643	8	7
Future Vol, veh/h	203	10	7	643	8	7
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	12	9	784	10	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	48	19	0	0	798	0
Stage 1	14	-	-	-	-	-
Stage 2	34	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	962	1059	-	-	824	-
Stage 1	1009	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	941	1049	-	-	820	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	946	820	-
HCM Lane V/C Ratio	-	-	0.275	0.012	-
HCM Control Delay (s)	-	-	10.2	9.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	413	184	174	362	76	174	610	384	173	419	194
Future Volume (vph)	266	413	184	174	362	76	174	610	384	173	419	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		400	415		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		414			304			1385			2620	
Travel Time (s)		9.4			4.6			17.2			32.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	266	413	184	174	362	76	174	610	384	173	419	194
Future Vol, veh/h	266	413	184	174	362	76	174	610	384	173	419	194
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	400	415	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	306	475	211	200	416	87	200	701	441	199	482	223

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2565	2534	594	2436	2204	701	705	0	0	1142	0	0
Stage 1	992	992	-	1101	1101	-	-	-	-	-	-	-
Stage 2	1573	1542	-	1335	1103	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 17	~ 27	505	~ 22	~ 45	439	893	-	-	612	-	-
Stage 1	~ 296	~ 324	-	257	~ 288	-	-	-	-	-	-	-
Stage 2	~ 138	~ 177	-	~ 189	~ 287	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 14	505	-	~ 24	439	893	-	-	612	-	-
Mov Cap-2 Maneuver	-	~ 14	-	-	~ 24	-	-	-	-	-	-	-
Stage 1	~ 230	~ 219	-	~ 199	~ 223	-	-	-	-	-	-	-
Stage 2	-	~ 137	-	-	~ 194	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			1.5	3
HCM LOS	-	-		

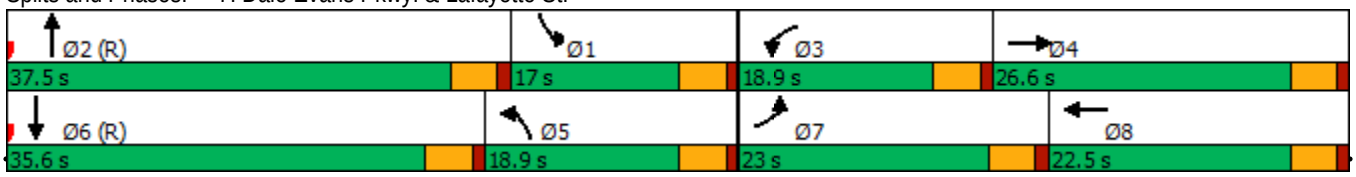
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	893	-	-	-	-	612	-	-
HCM Lane V/C Ratio	0.224	-	-	-	-	0.325	-	-
HCM Control Delay (s)	10.2	-	-	-	-	13.7	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	-	-	1.4	-	-

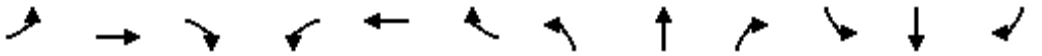
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	413	184	174	362	76	174	610	384	173	419	194
Future Volume (vph)	266	413	184	174	362	76	174	610	384	173	419	194
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		400	415		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		539			304			1385			2620	
Travel Time (s)		12.3			4.6			17.2			32.5	
Confl. Peds. (#/hr)				5		5			5	5		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	23.0	26.6		18.9	22.5		18.9	37.5		17.0	35.6	
Total Split (%)	23.0%	26.6%		18.9%	22.5%		18.9%	37.5%		17.0%	35.6%	
Maximum Green (s)	18.5	22.1		14.4	18.0		14.4	33.0		12.5	31.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Dale Evans Pkwy. & Lafayette St.

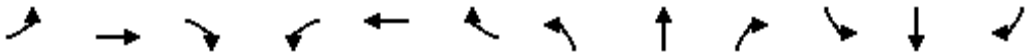




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	413	184	174	362	76	174	610	384	173	419	194
Future Volume (veh/h)	266	413	184	174	362	76	174	610	384	173	419	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	280	435	194	183	381	80	183	642	404	182	441	204
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	512	226	213	460	96	285	690	434	253	735	337
Arrive On Green	0.18	0.21	0.21	0.13	0.16	0.16	0.17	0.33	0.33	0.15	0.31	0.31
Sat Flow, veh/h	1688	2397	1059	1688	2924	607	1688	2090	1314	1688	2363	1083
Grp Volume(v), veh/h	280	321	308	183	230	231	183	546	500	182	331	314
Grp Sat Flow(s),veh/h/ln	1688	1777	1680	1688	1777	1754	1688	1777	1627	1688	1777	1669
Q Serve(g_s), s	16.3	17.4	17.6	10.6	12.5	12.8	10.1	29.7	29.7	10.3	15.7	16.0
Cycle Q Clear(g_c), s	16.3	17.4	17.6	10.6	12.5	12.8	10.1	29.7	29.7	10.3	15.7	16.0
Prop In Lane	1.00		0.63	1.00		0.35	1.00		0.81	1.00		0.65
Lane Grp Cap(c), veh/h	308	380	359	213	279	276	285	586	537	253	553	519
V/C Ratio(X)	0.91	0.85	0.86	0.86	0.82	0.84	0.64	0.93	0.93	0.72	0.60	0.61
Avail Cap(c_a), veh/h	312	393	371	243	320	316	285	586	537	253	553	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	40.0	37.7	37.8	42.8	40.8	40.9	38.7	32.4	32.4	40.5	29.2	29.2
Incr Delay (d2), s/veh	28.6	15.3	17.3	23.1	14.2	16.0	4.8	23.5	25.1	5.7	2.8	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	9.0	8.9	5.6	6.3	6.5	4.3	15.3	14.3	4.4	6.6	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	53.0	55.2	65.9	55.0	56.9	43.5	55.9	57.6	46.2	32.0	32.3
LnGrp LOS	E	D	E	E	E	E	D	E	E	D	C	C
Approach Vol, veh/h		909			644			1229			827	
Approach Delay, s/veh		58.6			58.8			54.8			35.2	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	37.5	17.1	25.9	21.4	35.6	22.8	20.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	33.0	14.4	22.1	14.4	31.1	18.5	18.0
Max Q Clear Time (g_c+I1), s	12.3	31.7	12.6	19.6	12.1	18.0	18.3	14.8
Green Ext Time (p_c), s	0.0	0.8	0.1	1.0	0.1	2.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	25	12	18	17	15	11	802	28	12	304	70
Future Volume (vph)	166	25	12	18	17	15	11	802	28	12	304	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	119.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	166	25	12	18	17	15	11	802	28	12	304	70
Future Vol, veh/h	166	25	12	18	17	15	11	802	28	12	304	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	175	26	13	19	18	16	12	844	29	13	320	74
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

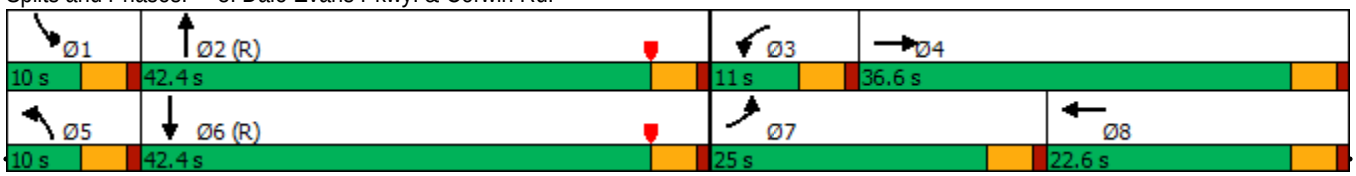
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16	12.2	196	20.6
HCM LOS	C	B	F	C

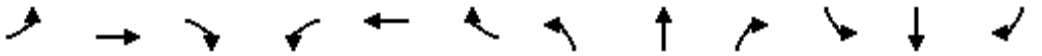
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	82%	36%	3%
Vol Thru, %	95%	12%	34%	79%
Vol Right, %	3%	6%	30%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	841	203	50	386
LT Vol	11	166	18	12
Through Vol	802	25	17	304
RT Vol	28	12	15	70
Lane Flow Rate	885	214	53	406
Geometry Grp	1	1	1	1
Degree of Util (X)	1.375	0.412	0.107	0.656
Departure Headway (Hd)	5.59	7.702	8.245	6.331
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	470	437	573
Service Time	3.626	5.702	6.245	4.331
HCM Lane V/C Ratio	1.351	0.455	0.121	0.709
HCM Control Delay	196	16	12.2	20.6
HCM Lane LOS	F	C	B	C
HCM 95th-tile Q	38.6	2	0.4	4.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	25	12	18	17	15	11	802	28	12	304	70
Future Volume (vph)	166	25	12	18	17	15	11	802	28	12	304	70
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	25.0	36.6		11.0	22.6		10.0	42.4		10.0	42.4	
Total Split (%)	25.0%	36.6%		11.0%	22.6%		10.0%	42.4%		10.0%	42.4%	
Maximum Green (s)	20.5	32.1		6.5	18.1		5.5	37.9		5.5	37.9	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Dale Evans Pkwy. & Corwin Rd.

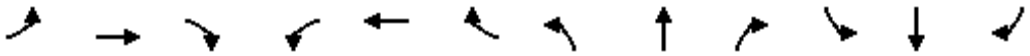




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	25	12	18	17	15	11	802	28	12	304	70
Future Volume (veh/h)	166	25	12	18	17	15	11	802	28	12	304	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	175	26	13	19	18	16	12	844	29	13	320	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	486	224	35	197	152	24	2025	70	26	1663	379
Arrive On Green	0.12	0.21	0.21	0.02	0.10	0.10	0.01	0.58	0.58	0.02	0.58	0.58
Sat Flow, veh/h	1688	2355	1088	1688	1898	1461	1688	3505	120	1688	2872	655
Grp Volume(v), veh/h	175	19	20	19	17	17	12	428	445	13	196	198
Grp Sat Flow(s),veh/h/ln	1688	1777	1665	1688	1777	1582	1688	1777	1848	1688	1777	1750
Q Serve(g_s), s	10.1	0.9	1.0	1.1	0.8	1.0	0.7	13.4	13.4	0.8	5.2	5.4
Cycle Q Clear(g_c), s	10.1	0.9	1.0	1.1	0.8	1.0	0.7	13.4	13.4	0.8	5.2	5.4
Prop In Lane	1.00		0.65	1.00		0.92	1.00		0.07	1.00		0.37
Lane Grp Cap(c), veh/h	208	367	344	35	184	164	24	1027	1068	26	1029	1013
V/C Ratio(X)	0.84	0.05	0.06	0.55	0.09	0.11	0.50	0.42	0.42	0.51	0.19	0.20
Avail Cap(c_a), veh/h	346	570	535	110	322	286	93	1027	1068	93	1029	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	31.8	31.9	48.5	40.5	40.6	48.9	11.7	11.7	48.9	10.0	10.0
Incr Delay (d2), s/veh	9.2	0.1	0.1	12.9	0.2	0.3	15.3	1.2	1.2	14.7	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.4	0.4	0.6	0.4	0.4	0.4	4.7	4.9	0.4	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	31.9	31.9	61.4	40.7	40.9	64.3	13.0	12.9	63.6	10.4	10.4
LnGrp LOS	D	C	C	E	D	D	E	B	B	E	B	B
Approach Vol, veh/h		214			53			885			407	
Approach Delay, s/veh		48.4			48.2			13.7			12.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	62.3	6.6	25.1	5.9	62.4	16.8	14.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	37.9	6.5	32.1	5.5	37.9	20.5	18.1
Max Q Clear Time (g_c+I1), s	2.8	15.4	3.1	3.0	2.7	7.4	12.1	3.0
Green Ext Time (p_c), s	0.0	4.7	0.0	0.1	0.0	2.0	0.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	183	114	29	175	30	131	112	68	50	42	89
Future Volume (vph)	64	183	114	29	175	30	131	112	68	50	42	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	26.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	64	183	114	29	175	30	131	112	68	50	42	89
Future Vol, veh/h	64	183	114	29	175	30	131	112	68	50	42	89
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	67	193	120	31	184	32	138	118	72	53	44	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	216	0	0	313	0	0	718	665	253	744	709	200
Stage 1	-	-	-	-	-	-	387	387	-	262	262	-
Stage 2	-	-	-	-	-	-	331	278	-	482	447	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1354	-	-	1247	-	-	344	381	786	331	359	841
Stage 1	-	-	-	-	-	-	637	610	-	743	691	-
Stage 2	-	-	-	-	-	-	682	680	-	565	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1354	-	-	1247	-	-	256	348	786	208	328	841
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	348	-	208	328	-
Stage 1	-	-	-	-	-	-	598	573	-	698	672	-
Stage 2	-	-	-	-	-	-	550	661	-	383	538	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	1	77.1	23.4
HCM LOS			F	C

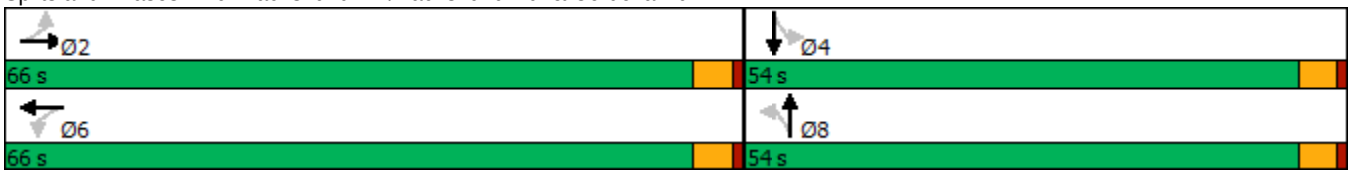
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	338	1354	-	-	1247	-	-	382
HCM Lane V/C Ratio	0.969	0.05	-	-	0.024	-	-	0.499
HCM Control Delay (s)	77.1	7.8	0	-	8	0	-	23.4
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	10.4	0.2	-	-	0.1	-	-	2.7

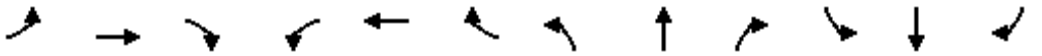
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	183	114	29	175	30	131	112	68	50	42	89
Future Volume (vph)	64	183	114	29	175	30	131	112	68	50	42	89
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	66.0	66.0		66.0	66.0		54.0	54.0		54.0	54.0	
Total Split (%)	55.0%	55.0%		55.0%	55.0%		45.0%	45.0%		45.0%	45.0%	
Maximum Green (s)	61.5	61.5		61.5	61.5		49.5	49.5		49.5	49.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 31.2
Natural Cycle: 45
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	183	114	29	175	30	131	112	68	50	42	89
Future Volume (veh/h)	64	183	114	29	175	30	131	112	68	50	42	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	67	193	120	31	184	32	138	118	72	53	44	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	349	217	464	503	87	588	344	210	550	168	359
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1099	1075	669	1006	1550	270	1178	1084	661	1124	528	1128
Grp Volume(v), veh/h	67	0	313	31	0	216	138	0	190	53	0	138
Grp Sat Flow(s),veh/h/ln	1099	0	1744	1006	0	1819	1178	0	1745	1124	0	1657
Q Serve(g_s), s	1.3	0.0	3.7	0.7	0.0	2.3	2.5	0.0	2.1	1.0	0.0	1.6
Cycle Q Clear(g_c), s	3.5	0.0	3.7	4.4	0.0	2.3	4.0	0.0	2.1	3.0	0.0	1.6
Prop In Lane	1.00		0.38	1.00		0.15	1.00		0.38	1.00		0.68
Lane Grp Cap(c), veh/h	543	0	566	464	0	590	588	0	555	550	0	526
V/C Ratio(X)	0.12	0.00	0.55	0.07	0.00	0.37	0.23	0.00	0.34	0.10	0.00	0.26
Avail Cap(c_a), veh/h	2872	0	4264	2598	0	4448	2532	0	3434	2405	0	3260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	0.0	7.0	8.8	0.0	6.5	7.9	0.0	6.6	7.7	0.0	6.4
Incr Delay (d2), s/veh	0.1	0.0	0.8	0.1	0.0	0.4	0.2	0.0	0.4	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	0.1	0.0	0.3	0.3	0.0	0.3	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	0.0	7.8	8.9	0.0	6.9	8.1	0.0	6.9	7.8	0.0	6.6
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		380			247			328			191	
Approach Delay, s/veh		7.9			7.1			7.4			7.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.7		12.5		12.7		12.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		61.5		49.5		61.5		49.5				
Max Q Clear Time (g_c+I1), s		5.7		5.0		6.4		6.0				
Green Ext Time (p_c), s		2.2		1.0		1.4		1.6				

Intersection Summary												
HCM 6th Ctrl Delay			7.4									
HCM 6th LOS			A									

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	1	0	26	1	0
Future Volume (vph)	8	1	0	26	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	335		269			195
Travel Time (s)	7.6		4.1			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	1	0	26	1	0
Future Vol, veh/h	8	1	0	26	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	0	28	1	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	16	14	0	0	28	0
Stage 1	14	-	-	-	-	-
Stage 2	2	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1002	1066	-	-	1585	-
Stage 1	1009	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1001	1066	-	-	1585	-
Mov Cap-2 Maneuver	1001	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	7.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1008	1585	-
HCM Lane V/C Ratio	-	-	0.01	0.001	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	1	26	27	1	8
Future Volume (vph)	8	1	26	27	1	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	313		1795			269
Travel Time (s)	7.1		27.2			4.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	1	26	27	1	8
Future Vol, veh/h	8	1	26	27	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	28	29	1	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	54	43	0	0	57	0
Stage 1	43	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	954	1027	-	-	1547	-
Stage 1	979	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	953	1027	-	-	1547	-
Mov Cap-2 Maneuver	953	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	961	1547	-
HCM Lane V/C Ratio	-	-	0.01	0.001	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	1	137	38	1	162
Future Volume (vph)	11	1	137	38	1	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	333		257			1795
Travel Time (s)	7.6		3.9			27.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	1	137	38	1	162
Future Vol, veh/h	11	1	137	38	1	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	1	149	41	1	176

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	348	170	0	0	190	0
Stage 1	170	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	649	874	-	-	1384	-
Stage 1	860	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	874	-	-	1384	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	662	1384	-
HCM Lane V/C Ratio	-	-	0.02	0.001	-
HCM Control Delay (s)	-	-	10.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	1	175	26	1	173
Future Volume (vph)	8	1	175	26	1	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	340		316			257
Travel Time (s)	7.7		4.8			3.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

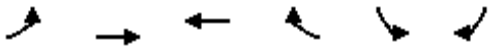
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	1	175	26	1	173
Future Vol, veh/h	8	1	175	26	1	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	190	28	1	188

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	394	204	0	0	218	0
Stage 1	204	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	611	837	-	-	1352	-
Stage 1	830	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	610	837	-	-	1352	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	841	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	629	1352	-
HCM Lane V/C Ratio	-	-	0.016	0.001	-
HCM Control Delay (s)	-	-	10.8	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	143	96	1	1	13
Future Volume (vph)	43	143	96	1	1	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		1189	461		387	
Travel Time (s)		18.0	7.0		8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

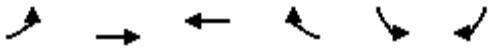
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	143	96	1	1	13
Future Vol, veh/h	43	143	96	1	1	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	155	104	1	1	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	354	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1486	-	-	-	644	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1486	-	-	-	621	949
Mov Cap-2 Maneuver	-	-	-	-	621	-
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1486	-	-	-	914
HCM Lane V/C Ratio	0.031	-	-	-	0.017
HCM Control Delay (s)	7.5	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	109	87	1	1	10
Future Volume (vph)	35	109	87	1	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		461	686		374	
Travel Time (s)		7.0	10.4		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

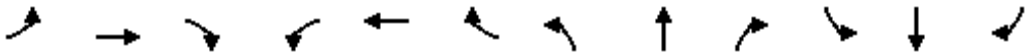
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	109	87	1	1	10
Future Vol, veh/h	35	109	87	1	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	118	95	1	1	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	96	0	-	0	290	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1498	-	-	-	701	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	839	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	682	960
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	839	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	926
HCM Lane V/C Ratio	0.025	-	-	-	0.013
HCM Control Delay (s)	7.5	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	937	165	30	1121	17	158	1	28	29	1	267
Future Volume (vph)	112	937	165	30	1121	17	158	1	28	29	1	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	33.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	937	165	30	1121	17	158	1	28	29	1	267
Future Vol, veh/h	112	937	165	30	1121	17	158	1	28	29	1	267
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	118	986	174	32	1180	18	166	1	29	31	1	281

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1198	0	0	1160	0	0	2703	2571	1073	2577	2649	1189
Stage 1	-	-	-	-	-	-	1309	1309	-	1253	1253	-
Stage 2	-	-	-	-	-	-	1394	1262	-	1324	1396	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	583	-	-	602	-	-	~ 14	26	268	~ 17	23	~ 229
Stage 1	-	-	-	-	-	-	196	229	-	211	244	-
Stage 2	-	-	-	-	-	-	175	241	-	192	208	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	583	-	-	602	-	-	-	20	268	~ 12	17	~ 229
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	20	-	~ 12	17	-
Stage 1	-	-	-	-	-	-	~ 156	183	-	168	231	-
Stage 2	-	-	-	-	-	-	-	228	-	136	166	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.3		$ 313.8
HCM LOS			-	F

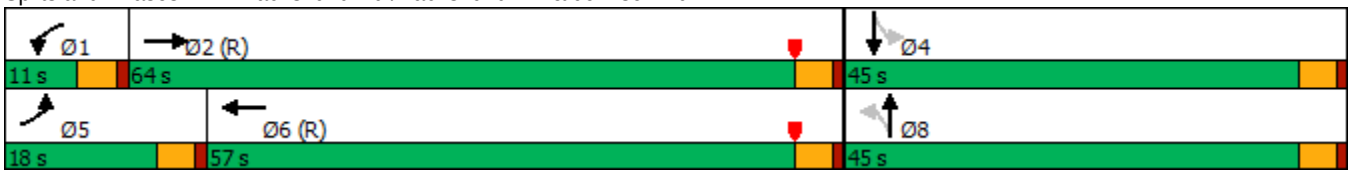
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	188	583	-	-	602	-	-	12	219
HCM Lane V/C Ratio	-	0.162	0.202	-	-	0.052	-	-	2.544	1.288
HCM Control Delay (s)	-	27.8	12.7	-	-	11.3	-	-	$ 1333.6	203.5
HCM Lane LOS	-	D	B	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	-	0.6	0.8	-	-	0.2	-	-	4.7	15

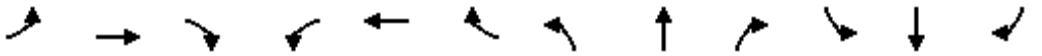
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	937	165	30	1121	17	158	1	28	29	1	267
Future Volume (vph)	112	937	165	30	1121	17	158	1	28	29	1	267
Ideal Flow (vphpl)	1800	1900	1900	1700	1900	1900	1700	1900	1900	1700	1900	1900
Storage Length (ft)	150		0	150		0	150		100	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		2660			1835			433			2650	
Travel Time (s)		40.3			27.8			9.8			60.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	22.5		10.0	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	18.0	64.0		11.0	57.0		45.0	45.0		45.0	45.0	
Total Split (%)	15.0%	53.3%		9.2%	47.5%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	13.5	59.5		6.5	52.5		40.5	40.5		40.5	40.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		5			5		5	5		5	5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 65.1 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: Dachshund Rd./Dachshund Av. & Johnson Rd.

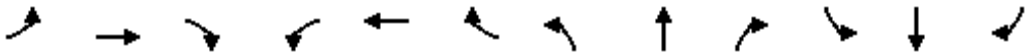




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	937	165	30	1121	17	158	1	28	29	1	267
Future Volume (veh/h)	112	937	165	30	1121	17	158	1	28	29	1	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1673	1870	1870	1673	1870	1870	1673	1870	1870
Adj Flow Rate, veh/h	118	986	174	32	1180	18	166	1	29	31	1	281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	1578	278	44	1666	25	251	18	520	461	2	533
Arrive On Green	0.03	0.17	0.17	0.03	0.46	0.46	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1688	3019	532	1594	3583	55	982	53	1540	1234	6	1580
Grp Volume(v), veh/h	118	580	580	32	585	613	166	0	30	31	0	282
Grp Sat Flow(s),veh/h/ln	1688	1777	1775	1594	1777	1861	982	0	1593	1234	0	1586
Q Serve(g_s), s	8.3	36.3	36.4	2.4	31.5	31.5	19.7	0.0	1.5	2.1	0.0	17.2
Cycle Q Clear(g_c), s	8.3	36.3	36.4	2.4	31.5	31.5	36.9	0.0	1.5	3.6	0.0	17.2
Prop In Lane	1.00		0.30	1.00		0.03	1.00		0.97	1.00		1.00
Lane Grp Cap(c), veh/h	144	929	928	44	826	865	251	0	538	461	0	535
V/C Ratio(X)	0.82	0.62	0.63	0.73	0.71	0.71	0.66	0.00	0.06	0.07	0.00	0.53
Avail Cap(c_a), veh/h	190	929	928	86	826	865	251	0	538	461	0	535
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	1.00	1.00	1.00	1.00	0.00	1.00	0.60	0.00	0.60
Uniform Delay (d), s/veh	57.4	38.7	38.8	57.9	25.6	25.6	46.9	0.0	26.8	28.1	0.0	32.0
Incr Delay (d2), s/veh	10.0	1.5	1.5	21.0	5.1	4.9	13.0	0.0	0.2	0.2	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	17.6	17.6	1.2	13.6	14.2	5.7	0.0	0.6	0.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	40.3	40.3	79.0	30.7	30.5	59.9	0.0	27.0	28.2	0.0	34.3
LnGrp LOS	E	D	D	E	C	C	E	A	C	C	A	C
Approach Vol, veh/h		1278			1230			196			313	
Approach Delay, s/veh		42.8			31.9			54.8			33.7	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	67.2		45.0	14.7	60.3		45.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	59.5		40.5	13.5	52.5		40.5				
Max Q Clear Time (g_c+I1), s	4.4	38.4		19.2	10.3	33.5		38.9				
Green Ext Time (p_c), s	0.0	7.4		1.9	0.1	7.2		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	622	305	460	878	208	204	273	461	131	511	35
Future Volume (vph)	18	622	305	460	878	208	204	273	461	131	511	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		165	100		0	325		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		7616			2660			2620			1074	
Travel Time (s)		115.4			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	917.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	622	305	460	878	208	204	273	461	131	511	35
Future Vol, veh/h	18	622	305	460	878	208	204	273	461	131	511	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	655	321	484	924	219	215	287	485	138	538	37
Number of Lanes	0	1	0	0	1	1	1	1	1	1	1	0

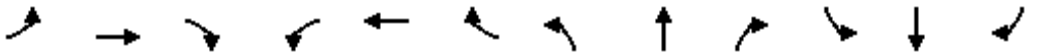
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	1114.2	1482	172.8	384.2
HCM LOS	F	F	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	2%	34%	0%	100%	0%
Vol Thru, %	0%	100%	0%	66%	66%	0%	0%	94%
Vol Right, %	0%	0%	100%	32%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	273	461	945	1338	208	131	546
LT Vol	204	0	0	18	460	0	131	0
Through Vol	0	273	0	622	878	0	0	511
RT Vol	0	0	461	305	0	208	0	35
Lane Flow Rate	215	287	485	995	1408	219	138	575
Geometry Grp	6	6	6	6	6	6	6	6
Degree of Util (X)	0.687	0.879	1.39	3.385	4.693	0.677	0.481	1.92
Departure Headway (Hd)	24.341	23.787	23.01	16.006	17.863	16.876	18.034	17.402
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	150	155	165	239	225	217	201	213
Service Time	22.041	21.487	20.71	13.706	15.563	14.576	15.734	15.102
HCM Lane V/C Ratio	1.433	1.852	2.939	4.163	6.258	1.009	0.687	2.7
HCM Control Delay	68.4	100	262.1	1114.2	1704.8	49	36.4	467.7
HCM Lane LOS	F	F	F	F	F	E	E	F
HCM 95th-tile Q	3.9	6	13.6	71.1	96.7	4.2	2.4	28.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	622	305	460	878	208	204	273	461	131	511	35
Future Volume (vph)	18	622	305	460	878	208	204	273	461	131	511	35
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		165	100		150	325		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		6652			2660			2620			1074	
Travel Time (s)		100.8			40.3			32.5			13.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						Free			8			
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		20.0	22.5	9.5	20.0	22.5	
Total Split (s)	10.1	38.6		37.4	65.9		20.0	23.0	37.4	21.0	24.0	
Total Split (%)	8.4%	32.2%		31.2%	54.9%		16.7%	19.2%	31.2%	17.5%	20.0%	
Maximum Green (s)	5.6	34.1		32.9	61.4		15.5	18.5	32.9	16.5	19.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Dale Evans Pkwy. & Johnson Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	622	305	460	878	208	204	273	461	131	511	35
Future Volume (veh/h)	18	622	305	460	878	208	204	273	461	131	511	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	19	655	321	484	924	0	215	287	485	138	538	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	657	322	463	1915		218	548	679	232	548	38
Arrive On Green	0.02	0.28	0.28	0.55	1.00	0.00	0.13	0.15	0.15	0.14	0.16	0.16
Sat Flow, veh/h	1688	2311	1132	1688	3554	1585	1688	3554	1585	1688	3374	232
Grp Volume(v), veh/h	19	504	472	484	924	0	215	287	485	138	283	292
Grp Sat Flow(s),veh/h/ln	1688	1777	1667	1688	1777	1585	1688	1777	1585	1688	1777	1829
Q Serve(g_s), s	1.3	34.0	34.0	32.9	0.0	0.0	15.3	8.9	17.0	9.2	19.0	19.1
Cycle Q Clear(g_c), s	1.3	34.0	34.0	32.9	0.0	0.0	15.3	8.9	17.0	9.2	19.0	19.1
Prop In Lane	1.00		0.68	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	33	505	474	463	1915		218	548	679	232	289	297
V/C Ratio(X)	0.58	1.00	1.00	1.05	0.48		0.99	0.52	0.71	0.59	0.98	0.98
Avail Cap(c_a), veh/h	79	505	474	463	1915		218	548	679	232	289	297
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.3	42.9	42.9	27.1	0.0	0.0	52.1	46.7	11.6	48.6	50.1	50.1
Incr Delay (d2), s/veh	14.9	39.4	40.7	44.8	0.5	0.0	46.8	0.6	2.5	4.1	47.2	47.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	19.8	18.7	13.9	0.1	0.0	9.0	3.8	5.2	4.0	11.8	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	82.3	83.6	71.9	0.5	0.0	98.9	47.3	14.1	52.7	97.2	97.5
LnGrp LOS	E	F	F	F	A		F	D	B	D	F	F
Approach Vol, veh/h		995			1408			987			713	
Approach Delay, s/veh		82.8			25.1			42.2			88.7	
Approach LOS		F			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.4	38.6	20.0	24.0	6.8	69.2	21.0	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.9	34.1	15.5	19.5	5.6	61.4	16.5	18.5
Max Q Clear Time (g_c+I1), s	34.9	36.0	17.3	21.1	3.3	2.0	11.2	19.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.3	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1055	98	239	728	95	403
Future Volume (vph)	1055	98	239	728	95	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	45		45			45
Link Distance (ft)	7616		549			661
Travel Time (s)	115.4		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1319.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1055	98	239	728	95	403
Future Vol, veh/h	1055	98	239	728	95	403
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1111	103	252	766	100	424

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1259	635	0	0	1018	0
Stage 1	635	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 188	478	-	-	682	-
Stage 1	~ 528	-	-	-	-	-
Stage 2	~ 534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 152	478	-	-	682	-
Mov Cap-2 Maneuver	~ 152	-	-	-	-	-
Stage 1	~ 528	-	-	-	-	-
Stage 2	~ 431	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 2995.2	0	2.1
HCM LOS	F		

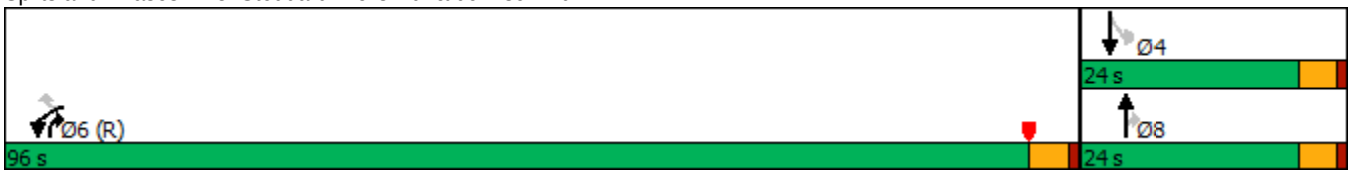
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	161	682	-
HCM Lane V/C Ratio	-	-	7.538	0.147	-
HCM Control Delay (s)	-	-	$ 2995.2	11.2	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	135	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1055	98	239	728	95	403
Future Volume (vph)	1055	98	239	728	95	403
Ideal Flow (vphpl)	1800	1900	1900	1900	1800	1900
Storage Length (ft)	150	0		150	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				90	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		45			45
Link Distance (ft)	964		549			661
Travel Time (s)	14.6		8.3			10.0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	Perm	NA	pm+ov	Perm	NA
Protected Phases	6		8	6		4
Permitted Phases		6		8	4	
Detector Phase	6	6	8	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.5	9.5	22.5	9.5	14.5	14.5
Total Split (s)	96.0	96.0	24.0	96.0	24.0	24.0
Total Split (%)	80.0%	80.0%	20.0%	80.0%	20.0%	20.0%
Maximum Green (s)	91.5	91.5	19.5	91.5	19.5	19.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	C-Max	None	None
Walk Time (s)			7.0			
Flash Dont Walk (s)			11.0			
Pedestrian Calls (#/hr)			5			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:WBL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Stoddard Wells Rd. & Johnson Rd.



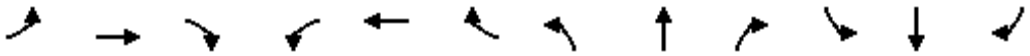
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1055	98	239	728	95	403
Future Volume (veh/h)	1055	98	239	728	95	403
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1772	1870	1870	1870	1772	1870
Adj Flow Rate, veh/h	1111	103	252	766	100	424
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1287	1209	577	1466	112	577
Arrive On Green	0.76	0.76	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1688	1585	3647	1585	525	3647
Grp Volume(v), veh/h	1111	103	252	766	100	424
Grp Sat Flow(s),veh/h/ln	1688	1585	1777	1585	525	1777
Q Serve(g_s), s	54.9	2.0	7.7	8.4	11.8	13.6
Cycle Q Clear(g_c), s	54.9	2.0	7.7	8.4	19.5	13.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1287	1209	577	1466	112	577
V/C Ratio(X)	0.86	0.09	0.44	0.52	0.90	0.73
Avail Cap(c_a), veh/h	1287	1209	577	1466	112	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	3.6	45.3	0.7	56.9	47.8
Incr Delay (d2), s/veh	7.8	0.1	2.4	1.3	53.7	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.5	3.5	23.3	4.6	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	3.8	47.7	2.0	110.7	52.6
LnGrp LOS	B	A	D	A	F	D
Approach Vol, veh/h	1214		1018			524
Approach Delay, s/veh	16.6		13.3			63.7
Approach LOS	B		B			E

Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				24.0		96.0	24.0
Change Period (Y+Rc), s				4.5		4.5	4.5
Max Green Setting (Gmax), s				19.5		91.5	19.5
Max Q Clear Time (g_c+I1), s				21.5		56.9	10.4
Green Ext Time (p_c), s				0.0		5.9	3.3

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	145	77	34	1391	115	3	77	33	970	2	37
Future Volume (vph)	10	145	77	34	1391	115	3	77	33	970	2	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	28.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	145	77	34	1391	115	3	77	33	970	2	37
Future Vol, veh/h	10	145	77	34	1391	115	3	77	33	970	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	158	84	37	1512	125	3	84	36	1054	2	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1637	0	0	242	0	0	1892	1933	200	1931	1913	1575
Stage 1	-	-	-	-	-	-	222	222	-	1649	1649	-
Stage 2	-	-	-	-	-	-	1670	1711	-	282	264	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	396	-	-	1324	-	-	53	~ 66	841	~ 50	68	135
Stage 1	-	-	-	-	-	-	780	720	-	~ 125	156	-
Stage 2	-	-	-	-	-	-	121	146	-	~ 725	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	396	-	-	1324	-	-	25	~ 41	841	-	42	135
Mov Cap-2 Maneuver	-	-	-	-	-	-	25	~ 41	-	-	42	-
Stage 1	-	-	-	-	-	-	755	697	-	~ 121	99	-
Stage 2	-	-	-	-	-	-	53	93	-	~ 591	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	$ 725.8	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	396	-	-	1324	-	-	-
HCM Lane V/C Ratio	2.233	0.027	-	-	0.028	-	-	-
HCM Control Delay (s)	$ 725.8	14.3	0	-	7.8	0	-	-
HCM Lane LOS	F	B	A	-	A	A	-	-
HCM 95th %tile Q(veh)	12.2	0.1	-	-	0.1	-	-	-

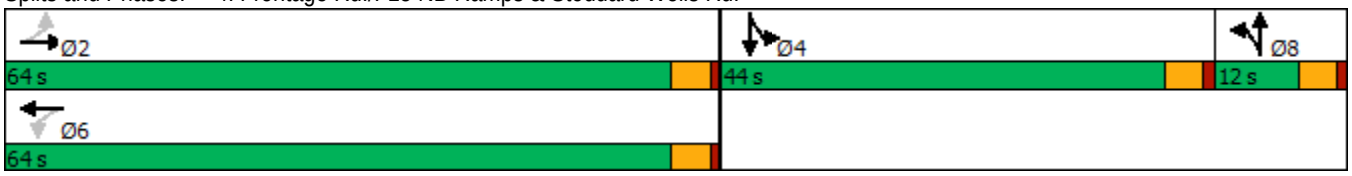
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

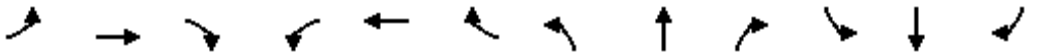
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	145	77	34	1391	115	3	77	33	970	2	37
Future Volume (vph)	10	145	77	34	1391	115	3	77	33	970	2	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		889			1144			979			330	
Travel Time (s)		13.5			17.3			22.3			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										48%		
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2			6								
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	14.5	14.5		14.5	14.5		9.5	9.5		9.5	9.5	
Total Split (s)	64.0	64.0		64.0	64.0		12.0	12.0		44.0	44.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%		10.0%	10.0%		36.7%	36.7%	
Maximum Green (s)	59.5	59.5		59.5	59.5		7.5	7.5		39.5	39.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Frontage Rd./I-15 NB Ramps & Stoddard Wells Rd.





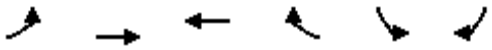
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	145	77	34	1391	115	3	77	33	970	2	37
Future Volume (veh/h)	10	145	77	34	1391	115	3	77	33	970	2	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	11	158	84	37	1512	125	3	84	36	1093	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	947	509	57	1577	129	105	78	33	1111	616	0
Arrive On Green	0.50	0.50	0.50	0.99	0.99	0.99	0.06	0.06	0.06	0.43	0.00	0.00
Sat Flow, veh/h	74	1910	1026	52	3180	260	1688	1242	532	3375	1870	0
Grp Volume(v), veh/h	129	0	124	879	0	795	3	0	120	1093	0	0
Grp Sat Flow(s),veh/h/ln	1493	0	1517	1837	0	1655	1688	0	1775	1688	1870	0
Q Serve(g_s), s	0.0	0.0	5.4	0.0	0.0	12.2	0.2	0.0	7.5	38.4	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	5.4	7.8	0.0	12.2	0.2	0.0	7.5	38.4	0.0	0.0
Prop In Lane	0.09		0.68	0.04		0.16	1.00		0.30	1.00		0.00
Lane Grp Cap(c), veh/h	773	0	752	942	0	821	105	0	111	1111	616	0
V/C Ratio(X)	0.17	0.00	0.17	0.93	0.00	0.97	0.03	0.00	1.08	0.98	0.00	0.00
Avail Cap(c_a), veh/h	773	0	752	942	0	821	105	0	111	1111	616	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.30	1.30	1.30
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.4	0.0	16.6	0.3	0.0	0.3	52.8	0.0	56.3	34.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.5	17.0	0.0	24.7	0.1	0.0	109.2	23.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.9	4.6	0.0	5.8	0.1	0.0	6.7	18.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	17.1	17.3	0.0	25.0	52.9	0.0	165.5	57.1	0.0	0.0
LnGrp LOS	B	A	B	B	A	C	D	A	F	E	A	A
Approach Vol, veh/h		253			1674			123			1093	
Approach Delay, s/veh		17.0			20.9			162.7			57.1	
Approach LOS		B			C			F			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	64.0	44.0	64.0	12.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	59.5	39.5	59.5	7.5
Max Q Clear Time (g_c+I1), s	7.4	40.4	14.2	9.5
Green Ext Time (p_c), s	1.7	0.0	17.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	38.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	55	68	1362	177	12
Future Volume (vph)	25	55	68	1362	177	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	0	25
Storage Lanes	0			0	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	42.5

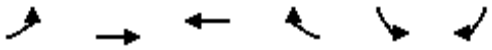
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	68	1362	177	12
Future Vol, veh/h	25	55	68	1362	177	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	85	105	2095	272	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	1314	1153
Stage 1	-	-	-	-	1153	-
Stage 2	-	-	-	-	161	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1486	-	-	-	~ 174	240
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1486	-	-	-	~ 169	240
Mov Cap-2 Maneuver	-	-	-	-	~ 169	-
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	$ 381.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1486	-	-	-	172
HCM Lane V/C Ratio	0.026	-	-	-	1.691
HCM Control Delay (s)	7.5	0	-	-	$ 381.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	20.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	55	68	1362	177	12
Future Volume (vph)	25	55	68	1362	177	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	25
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1552	889		1482	
Travel Time (s)		23.5	13.5		22.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	68	1362	177	12
Future Vol, veh/h	25	55	68	1362	177	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	60	74	1480	192	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1554	0	-	0	158	37
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	422	-	-	-	818	1027
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	930	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	422	-	-	-	764	1027
Mov Cap-2 Maneuver	-	-	-	-	764	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	422	-	-	-	777
HCM Lane V/C Ratio	0.064	-	-	-	0.264
HCM Control Delay (s)	14.1	0.2	-	-	11.3
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	183	6	6	1381	6	6
Future Volume (vph)	183	6	6	1381	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	23.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	183	6	6	1381	6	6
Future Vol, veh/h	183	6	6	1381	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	9	9	2125	9	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1099	1072	0	0	2134	0
Stage 1	1072	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 235	268	-	-	254	-
Stage 1	329	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 227	268	-	-	254	-
Mov Cap-2 Maneuver	~ 227	-	-	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	196.3	0	9.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	228	254	-
HCM Lane V/C Ratio	-	-	1.275	0.036	-
HCM Control Delay (s)	-	-	196.3	19.7	0
HCM Lane LOS	-	-	F	C	A
HCM 95th %tile Q(veh)	-	-	15.1	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	183	6	6	1381	6	6
Future Volume (vph)	183	6	6	1381	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	0	
Storage Lanes	1	0		1	0	
Taper Length (ft)	90				90	
Link Speed (mph)	30		45			45
Link Distance (ft)	263		1482			525
Travel Time (s)	6.0		22.5			8.0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

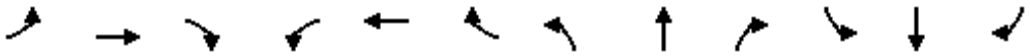
Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	183	6	6	1381	6	6
Future Vol, veh/h	183	6	6	1381	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	9	9	2125	9	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	36	9	0	0	2134	0
Stage 1	9	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	977	1073	-	-	254	-
Stage 1	1014	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	942	1073	-	-	254	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	960	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	9.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	946	254	-
HCM Lane V/C Ratio	-	-	0.307	0.036	-
HCM Control Delay (s)	-	-	10.5	19.7	0
HCM Lane LOS	-	-	B	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	263	124	216	436	243	241	397	302	161	847	206
Future Volume (vph)	223	263	124	216	436	243	241	397	302	161	847	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		400	415		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		414			304			1385			2620	
Travel Time (s)		9.4			4.6			17.2			32.5	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	223	263	124	216	436	243	241	397	302	161	847	206
Future Vol, veh/h	223	263	124	216	436	243	241	397	302	161	847	206
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	400	415	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	293	346	163	284	574	320	317	522	397	212	1114	271

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3476	3227	1250	3084	2965	522	1385	0	0	919	0	0
Stage 1	1674	1674	-	1156	1156	-	-	-	-	-	-	-
Stage 2	1802	1553	-	1928	1809	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 4	~ 10	211	~ 7	~ 14	555	494	-	-	743	-	-
Stage 1	~ 121	~ 152	-	~ 239	~ 271	-	-	-	-	-	-	-
Stage 2	~ 102	~ 174	-	~ 86	~ 130	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 3	211	-	~ 4	555	494	-	-	743	-	-
Mov Cap-2 Maneuver	-	~ 3	-	-	~ 4	-	-	-	-	-	-	-
Stage 1	~ 43	~ 109	-	~ 86	~ 97	-	-	-	-	-	-	-
Stage 2	-	~ 62	-	-	~ 93	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			6.3	1.6
HCM LOS	-	-		

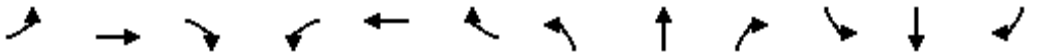
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	494	-	-	-	-	743	-	-
HCM Lane V/C Ratio	0.642	-	-	-	-	0.285	-	-
HCM Control Delay (s)	24.4	-	-	-	-	11.8	-	-
HCM Lane LOS	C	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	4.5	-	-	-	-	1.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	263	124	216	436	243	241	397	302	161	847	206
Future Volume (vph)	223	263	124	216	436	243	241	397	302	161	847	206
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		400	415		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			45			55			55	
Link Distance (ft)		539			304			1385			2620	
Travel Time (s)		12.3			4.6			17.2			32.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	18.6	23.8		18.8	24.0		19.7	35.1		22.3	37.7	
Total Split (%)	18.6%	23.8%		18.8%	24.0%		19.7%	35.1%		22.3%	37.7%	
Maximum Green (s)	14.1	19.3		14.3	19.5		15.2	30.6		17.8	33.2	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	

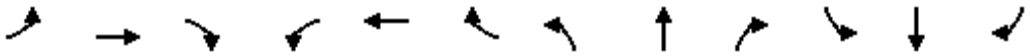
Splits and Phases: 7: Dale Evans Pkwy. & Lafayette St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	263	124	216	436	243	241	397	302	161	847	206
Future Volume (veh/h)	223	263	124	216	436	243	241	397	302	161	847	206
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	235	277	131	227	459	256	254	418	318	169	892	217
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	456	210	241	430	238	257	706	533	199	941	229
Arrive On Green	0.14	0.19	0.19	0.14	0.19	0.19	0.30	0.73	0.73	0.18	0.50	0.50
Sat Flow, veh/h	1688	2363	1088	1688	2205	1222	1688	1929	1456	1688	2834	689
Grp Volume(v), veh/h	235	206	202	227	369	346	254	385	351	169	559	550
Grp Sat Flow(s),veh/h/ln	1688	1777	1675	1688	1777	1650	1688	1777	1608	1688	1777	1746
Q Serve(g_s), s	13.9	10.6	11.0	13.3	19.5	19.5	15.0	10.2	10.4	9.7	29.9	30.0
Cycle Q Clear(g_c), s	13.9	10.6	11.0	13.3	19.5	19.5	15.0	10.2	10.4	9.7	29.9	30.0
Prop In Lane	1.00		0.65	1.00		0.74	1.00		0.91	1.00		0.39
Lane Grp Cap(c), veh/h	238	343	323	241	346	322	257	650	589	199	590	580
V/C Ratio(X)	0.99	0.60	0.62	0.94	1.07	1.07	0.99	0.59	0.60	0.85	0.95	0.95
Avail Cap(c_a), veh/h	238	343	323	241	346	322	257	650	589	300	590	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.50	1.50	1.50
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	42.9	36.8	37.0	42.4	40.2	40.3	34.7	9.9	9.9	40.3	24.3	24.3
Incr Delay (d2), s/veh	54.7	2.9	3.7	41.8	66.8	71.4	53.3	3.9	4.4	1.4	4.2	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	4.8	4.8	8.1	14.5	13.9	8.4	3.1	2.9	3.6	9.1	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.6	39.8	40.7	84.2	107.0	111.6	88.1	13.8	14.3	41.7	28.5	28.6
LnGrp LOS	F	D	D	F	F	F	F	B	B	D	C	C
Approach Vol, veh/h		643			942			990			1278	
Approach Delay, s/veh		61.2			103.2			33.0			30.3	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	41.1	18.8	23.8	19.7	37.7	18.6	24.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.8	30.6	14.3	19.3	15.2	33.2	14.1	19.5
Max Q Clear Time (g_c+I1), s	11.7	12.4	15.3	13.0	17.0	32.0	15.9	21.5
Green Ext Time (p_c), s	0.2	3.8	0.0	1.3	0.0	0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.0
HCM 6th LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	18	15	28	30	13	9	556	25	14	743	188
Future Volume (vph)	97	18	15	28	30	13	9	556	25	14	743	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	173.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	97	18	15	28	30	13	9	556	25	14	743	188
Future Vol, veh/h	97	18	15	28	30	13	9	556	25	14	743	188
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	102	19	16	29	32	14	9	585	26	15	782	198
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

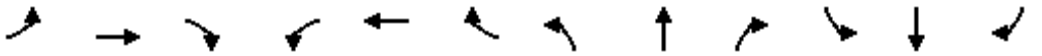
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.8	13.5	59.8	277.9
HCM LOS	B	B	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	75%	39%	1%
Vol Thru, %	94%	14%	42%	79%
Vol Right, %	4%	12%	18%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	590	130	71	945
LT Vol	9	97	28	14
Through Vol	556	18	30	743
RT Vol	25	15	13	188
Lane Flow Rate	621	137	75	995
Geometry Grp	1	1	1	1
Degree of Util (X)	0.986	0.284	0.159	1.565
Departure Headway (Hd)	6.423	8.498	8.81	5.663
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	571	426	410	647
Service Time	4.423	6.498	6.81	3.708
HCM Lane V/C Ratio	1.088	0.322	0.183	1.538
HCM Control Delay	59.8	14.8	13.5	277.9
HCM Lane LOS	F	B	B	F
HCM 95th-tile Q	13.9	1.2	0.6	51.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	18	15	28	30	13	9	556	25	14	743	188
Future Volume (vph)	97	18	15	28	30	13	9	556	25	14	743	188
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		1375			1304			1135			747	
Travel Time (s)		17.0			16.2			14.1			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	19.0	30.0		12.0	23.0		10.0	48.0		10.0	48.0	
Total Split (%)	19.0%	30.0%		12.0%	23.0%		10.0%	48.0%		10.0%	48.0%	
Maximum Green (s)	14.5	25.5		7.5	18.5		5.5	43.5		5.5	43.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			5			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

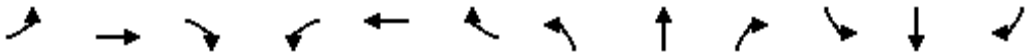
Splits and Phases: 8: Dale Evans Pkwy. & Corwin Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	18	15	28	30	13	9	556	25	14	743	188
Future Volume (veh/h)	97	18	15	28	30	13	9	556	25	14	743	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	102	19	16	29	32	14	9	585	26	15	782	198
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	279	207	47	234	96	19	2190	97	29	1791	454
Arrive On Green	0.08	0.14	0.14	0.03	0.10	0.10	0.01	0.63	0.63	0.02	0.64	0.64
Sat Flow, veh/h	1688	1944	1444	1688	2459	1007	1688	3466	154	1688	2808	711
Grp Volume(v), veh/h	102	17	18	29	23	23	9	300	311	15	495	485
Grp Sat Flow(s),veh/h/ln	1688	1777	1611	1688	1777	1689	1688	1777	1843	1688	1777	1742
Q Serve(g_s), s	5.9	0.8	1.0	1.7	1.2	1.3	0.5	7.5	7.5	0.9	14.0	14.0
Cycle Q Clear(g_c), s	5.9	0.8	1.0	1.7	1.2	1.3	0.5	7.5	7.5	0.9	14.0	14.0
Prop In Lane	1.00		0.90	1.00		0.60	1.00		0.08	1.00		0.41
Lane Grp Cap(c), veh/h	128	255	231	47	169	161	19	1123	1164	29	1133	1112
V/C Ratio(X)	0.80	0.07	0.08	0.62	0.13	0.15	0.48	0.27	0.27	0.52	0.44	0.44
Avail Cap(c_a), veh/h	245	453	411	127	329	312	93	1123	1164	93	1133	1112
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	37.0	37.1	48.1	41.5	41.5	49.2	8.1	8.2	48.7	9.1	9.1
Incr Delay (d2), s/veh	10.8	0.1	0.1	12.7	0.4	0.4	18.0	0.6	0.6	13.9	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	0.4	0.8	0.5	0.5	0.3	2.4	2.5	0.5	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	37.2	37.2	60.8	41.8	41.9	67.2	8.7	8.7	62.6	10.3	10.3
LnGrp LOS	E	D	D	E	D	D	E	A	A	E	B	B
Approach Vol, veh/h		137			75			620			995	
Approach Delay, s/veh		51.4			49.2			9.6			11.1	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	67.7	7.3	18.8	5.6	68.3	12.1	14.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	43.5	7.5	25.5	5.5	43.5	14.5	18.5
Max Q Clear Time (g_c+I1), s	2.9	9.5	3.7	3.0	2.5	16.0	7.9	3.3
Green Ext Time (p_c), s	0.0	3.3	0.0	0.1	0.0	5.9	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	224	201	81	264	66	162	61	40	53	138	95
Future Volume (vph)	120	224	201	81	264	66	162	61	40	53	138	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2874.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	120	224	201	81	264	66	162	61	40	53	138	95
Future Vol, veh/h	120	224	201	81	264	66	162	61	40	53	138	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	126	236	212	85	278	69	171	64	42	56	145	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	347	0	0	448	0	0	1199	1111	342	1130	1183	313
Stage 1	-	-	-	-	-	-	594	594	-	483	483	-
Stage 2	-	-	-	-	-	-	605	517	-	647	700	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1212	-	-	1112	-	-	~ 162	209	701	181	189	727
Stage 1	-	-	-	-	-	-	491	493	-	565	553	-
Stage 2	-	-	-	-	-	-	485	534	-	460	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1212	-	-	1112	-	-	~ 5	162	701	99	146	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 5	162	-	99	146	-
Stage 1	-	-	-	-	-	-	421	423	-	484	500	-
Stage 2	-	-	-	-	-	-	268	483	-	314	378	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	1.7	$ 16027.4	$ 379.7
HCM LOS			F	F

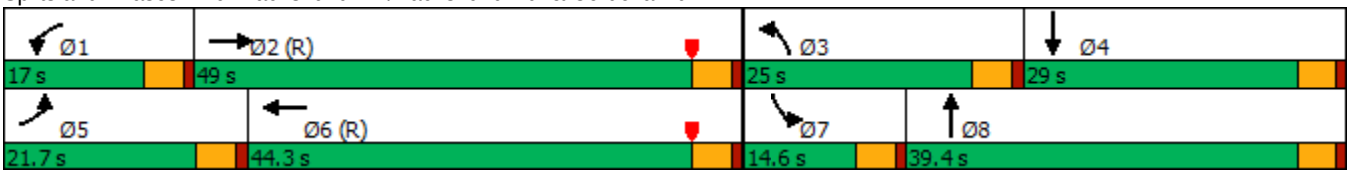
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	8	1212	-	-	1112	-	-	178
HCM Lane V/C Ratio	34.605	0.104	-	-	0.077	-	-	1.691
HCM Control Delay (s)	$ 16027.4	8.3	0	-	8.5	0	-	$ 379.7
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	36.5	0.3	-	-	0.2	-	-	20.8

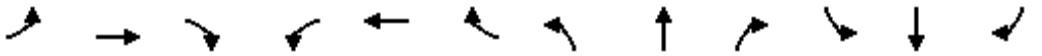
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	224	201	81	264	66	162	61	40	53	138	95
Future Volume (vph)	120	224	201	81	264	66	162	61	40	53	138	95
Ideal Flow (vphpl)	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Storage Length (ft)	150		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		787			1189			2650			316	
Travel Time (s)		11.9			18.0			40.2			4.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	21.7	49.0		17.0	44.3		25.0	39.4		14.6	29.0	
Total Split (%)	18.1%	40.8%		14.2%	36.9%		20.8%	32.8%		12.2%	24.2%	
Maximum Green (s)	17.2	44.5		12.5	39.8		20.5	34.9		10.1	24.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		5			5			0			5	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	224	201	81	264	66	162	61	40	53	138	95
Future Volume (veh/h)	120	224	201	81	264	66	162	61	40	53	138	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1772	1870	1870	1772	1870	1870	1772	1870	1870	1772	1870	1870
Adj Flow Rate, veh/h	126	236	212	85	278	69	171	64	42	56	145	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	463	416	106	699	174	198	247	162	71	164	113
Arrive On Green	0.09	0.51	0.51	0.06	0.48	0.48	0.12	0.23	0.23	0.04	0.16	0.16
Sat Flow, veh/h	1688	908	816	1688	1447	359	1688	1054	692	1688	1031	711
Grp Volume(v), veh/h	126	0	448	85	0	347	171	0	106	56	0	245
Grp Sat Flow(s),veh/h/ln	1688	0	1724	1688	0	1806	1688	0	1746	1688	0	1742
Q Serve(g_s), s	8.8	0.0	20.6	6.0	0.0	14.8	11.9	0.0	5.9	3.9	0.0	16.5
Cycle Q Clear(g_c), s	8.8	0.0	20.6	6.0	0.0	14.8	11.9	0.0	5.9	3.9	0.0	16.5
Prop In Lane	1.00		0.47	1.00		0.20	1.00		0.40	1.00		0.41
Lane Grp Cap(c), veh/h	152	0	879	106	0	873	198	0	410	71	0	277
V/C Ratio(X)	0.83	0.00	0.51	0.80	0.00	0.40	0.86	0.00	0.26	0.79	0.00	0.88
Avail Cap(c_a), veh/h	242	0	879	176	0	873	288	0	508	142	0	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.80	0.00	0.80	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.7	0.0	19.4	55.5	0.0	19.8	52.0	0.0	37.4	56.9	0.0	49.3
Incr Delay (d2), s/veh	12.5	0.0	2.1	12.9	0.0	1.4	13.5	0.0	0.3	17.3	0.0	18.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	8.2	2.9	0.0	6.2	5.7	0.0	2.5	2.0	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	0.0	21.6	68.3	0.0	21.2	65.4	0.0	37.7	74.2	0.0	67.9
LnGrp LOS	E	A	C	E	A	C	E	A	D	E	A	E
Approach Vol, veh/h		574			432			277			301	
Approach Delay, s/veh		31.3			30.5			54.8			69.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	65.7	18.6	23.6	15.3	62.5	9.5	32.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	44.5	20.5	24.5	17.2	39.8	10.1	34.9
Max Q Clear Time (g_c+I1), s	8.0	22.6	13.9	18.5	10.8	16.8	5.9	7.9
Green Ext Time (p_c), s	0.1	2.6	0.2	0.6	0.1	1.9	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	42.4
HCM 6th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	1	0	13	1	0
Future Volume (vph)	32	1	0	13	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	335		269			195
Travel Time (s)	7.6		4.1			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	1	0	13	1	0
Future Vol, veh/h	32	1	0	13	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	1	0	14	1	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	9	7	0	0	14	0
Stage 1	7	-	-	-	-	-
Stage 2	2	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1011	1075	-	-	1604	-
Stage 1	1016	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1010	1075	-	-	1604	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1012	1604	-
HCM Lane V/C Ratio	-	-	0.035	0.001	-
HCM Control Delay (s)	-	-	8.7	7.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	1	13	13	1	32
Future Volume (vph)	33	1	13	13	1	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	313		1795			269
Travel Time (s)	7.1		27.2			4.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	1	13	13	1	32
Future Vol, veh/h	33	1	13	13	1	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	1	14	14	1	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	58	21	0	0	28	0
Stage 1	21	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	949	1056	-	-	1585	-
Stage 1	1002	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	948	1056	-	-	1585	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	951	1585	-
HCM Lane V/C Ratio	-	-	0.039	0.001	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	1	206	18	1	213
Future Volume (vph)	46	1	206	18	1	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	333		257			1795
Travel Time (s)	7.6		3.9			27.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	1	206	18	1	213
Future Vol, veh/h	46	1	206	18	1	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	1	224	20	1	232

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	468	234	0	0	244	0
Stage 1	234	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	553	805	-	-	1322	-
Stage 1	805	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	552	805	-	-	1322	-
Mov Cap-2 Maneuver	552	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	556	1322	-
HCM Lane V/C Ratio	-	-	0.092	0.001	-
HCM Control Delay (s)	-	-	12.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	1	224	13	1	259
Future Volume (vph)	32	1	224	13	1	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		45			45
Link Distance (ft)	340		316			257
Travel Time (s)	7.7		4.8			3.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

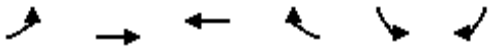
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	1	224	13	1	259
Future Vol, veh/h	32	1	224	13	1	259
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	1	243	14	1	282

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	534	250	0	0	257	0
Stage 1	250	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	507	789	-	-	1308	-
Stage 1	792	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	506	789	-	-	1308	-
Mov Cap-2 Maneuver	506	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1308	-
HCM Lane V/C Ratio	-	-	0.07	0.001	-
HCM Control Delay (s)	-	-	12.6	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	115	149	1	1	53
Future Volume (vph)	20	115	149	1	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		1189	461		387	
Travel Time (s)		18.0	7.0		8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

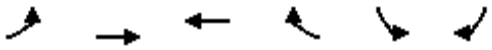
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	115	149	1	1	53
Future Vol, veh/h	20	115	149	1	1	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	125	162	1	1	58

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	163	0	-	0	332	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	169	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1416	-	-	-	663	882
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1416	-	-	-	652	882
Mov Cap-2 Maneuver	-	-	-	-	652	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	861	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1416	-	-	-	876
HCM Lane V/C Ratio	0.015	-	-	-	0.067
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	99	107	1	1	43
Future Volume (vph)	17	99	107	1	1	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		45	45		30	
Link Distance (ft)		461	686		374	
Travel Time (s)		7.0	10.4		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	99	107	1	1	43
Future Vol, veh/h	17	99	107	1	1	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	108	116	1	1	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	117	0	-	0	261	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	144	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1471	-	-	-	728	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1471	-	-	-	719	935
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	883	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1471	-	-	-	929
HCM Lane V/C Ratio	0.013	-	-	-	0.051
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

APPENDIX 6.3: HORIZON YEAR (2040) TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

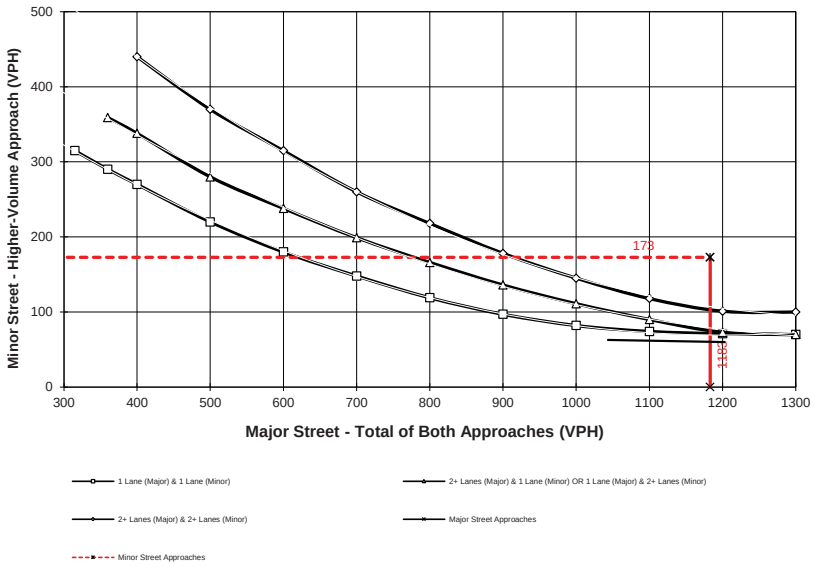
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2040NP AM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **1,183**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **173**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

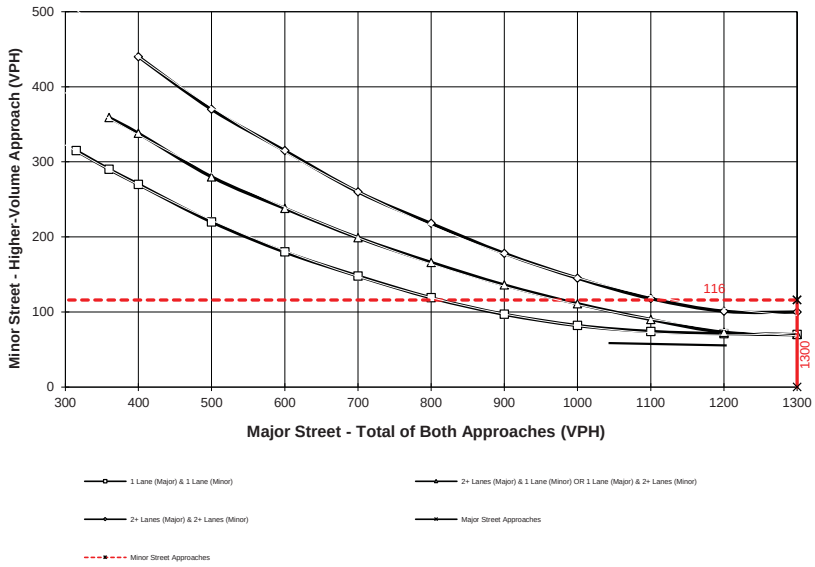
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2040NP PM PEAK HOUR WARRANTS**

Major Street Name = **Dale Evans Pkwy.** Total of Both Approaches (VPH) = **1,451**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Corwin Rd.** High Volume Approach (VPH) = **116**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #8

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

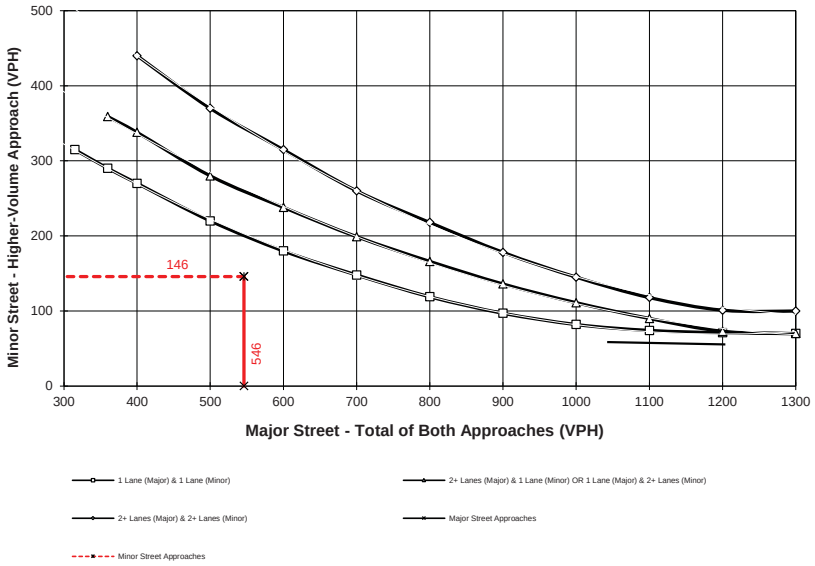
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2040NP AM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **546**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **146**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

California MUTCD 2016 Edition
(FHWA's MUTCD 2009, as amended for use in California)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

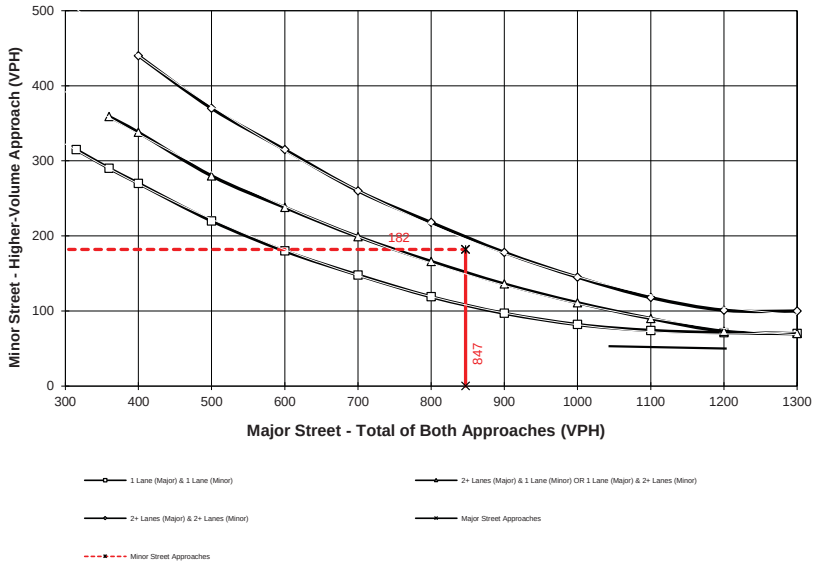
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **2040NP PM PEAK HOUR WARRANTS**

Major Street Name = **Cordova Rd.** Total of Both Approaches (VPH) = **847**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Dachshund Av.** High Volume Approach (VPH) = **182**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Intersection ID: #9

F:\UXRjobs_15100-15500_15500\15504\02_LOS\Warrants\04 - 2040NP\009R_PM.xls\Fig 4C-4 (Rural Peak)

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	2040NP
				CALC JC	DATE 11/10/22
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Cordova Rd.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dachshund Av.**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **9,702** vpd Minor Street Future ADT = **2,346** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied: XX Not Satisfied:

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **9,702**	1 **2,346**	8,000	5,600 *	2,400	1,680 *
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied: XX Not Satisfied:

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **9,702**	1 **2,346**	12,000	8,400 *	1,200	850 *
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied: XX Not Satisfied:

No one condition satisfied, but following conditions fulfilled 80% of more …..

A	B	2 CONDITIONS 80%	2 CONDITIONS 80%
100%	100%		

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	2040WP
				CALC JC	DATE 11/10/22
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Cordova Rd.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dachshund Av.**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **10,896** vpd Minor Street Future ADT = **4,316** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied: XX Not Satisfied

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **10,896**	*1* **4,316**	8,000	5,600 *	2,400	1,680 *
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied: XX Not Satisfied

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **10,896**	*1* **4,316**	12,000	8,400 *	1,200	850 *
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied: XX Not Satisfied

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 100% **B** 100%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	**2040WP**
				CALC JC	DATE 11/10/22
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Dachshund Av.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 1**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **299** vpd Minor Street Future ADT = **299** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements ADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **299** / *1* **299**	8,000	5,600	2,400	1,680
2 + / *1*	9,600	6,720	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **299** / *1* **299**	12,000	8,400	1,200	850
2 + / *1*	14,400	10,080	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 5% **B** 4%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS		2040WP
				CALC	JC	DATE	11/10/22
Jurisdiction:	Town of Apple Valley			CHK		DATE	
Major Street:	Dachshund Av.				Critical Approach Speed (Major)		45 mph
Minor Street:	Dwy. 2				Critical Approach Speed (Minor)		35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **914** vpd Minor Street Future ADT = **316** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements ADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **914**	*1* **316**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **914**	*1* **316**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 16% **B** 11%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS	2040WP
				CALC JC	DATE 11/10/22
Jurisdiction: **Town of Apple Valley**				CHK	DATE
Major Street: **Dachshund Av.**				Critical Approach Speed (Major)	45 mph
Minor Street: **Dwy. 3**				Critical Approach Speed (Minor)	35 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **5,607** vpd Minor Street Future ADT = **441** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Minimum Requirements ADT			
Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1 **5,607**	*1* **441**	8,000	5,600 *	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **5,607**	*1* **441**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 26% **B** 52%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM				
				TRAFFIC CONDITIONS		**2040WP**	
				CALC	JC	DATE	11/10/22
Jurisdiction:	**Town of Apple Valley**			CHK		DATE	
Major Street:	**Dachshund Av.**			Critical Approach Speed (Major)		45	mph
Minor Street:	**Dwy. 4**			Critical Approach Speed (Minor)		35	mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **6,347** vpd Minor Street Future ADT = **299** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements ADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **6,347**	1 **299**	8,000	5,600 *	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **6,347**	1 **299**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** 18% **B** 35%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS		2040WP
				CALC	JC	DATE	11/10/22
Jurisdiction:	Town of Apple Valley			CHK		DATE	
Major Street:	Cordova Rd.				Critical Approach Speed (Major)		45 mph
Minor Street:	Dwy. 5				Critical Approach Speed (Minor)		35 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,751** vpd Minor Street Future ADT = **505** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements ADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **3,751**	1 **505**	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **3,751**	1 **505**	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 30% B 37%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM				
				TRAFFIC CONDITIONS		**2040WP**	
				CALC	JC	DATE	11/10/22
Jurisdiction:	**Town of Apple Valley**			CHK		DATE	
Major Street:	**Cordova Rd.**			Critical Approach Speed (Major)		45	mph
Minor Street:	**Dwy. 6**			Critical Approach Speed (Minor)		35	mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,871** vpd Minor Street Future ADT = **399** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements ADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **2,871**	*1* **399**	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **2,871**	*1* **399**	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 24% B 28%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 6.4: HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

This Page Intentionally Left Blank

Intersection: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	56	102	51	70	137	101	51	49
Average Queue (ft)	36	67	30	49	83	61	26	35
95th Queue (ft)	62	118	71	84	170	127	60	56
Link Distance (ft)		753		1131		2570		248
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150		150		150		150	
Storage Blk Time (%)		0			1	0		
Queuing Penalty (veh)		0			2	1		

Intersection: 10: Dachshund Rd. & Dwy. 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	8
95th Queue (ft)	31
Link Distance (ft)	307
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Dachshund Rd. & Dwy. 2

Movement	WB
Directions Served	LR
Maximum Queue (ft)	24
Average Queue (ft)	6
95th Queue (ft)	26
Link Distance (ft)	285
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Dachshund Rd. & Dwy. 3

Movement	WB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	10
95th Queue (ft)	34
Link Distance (ft)	305
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dachshund Rd. & Dwy. 4

Movement	WB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	306
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Cordova Rd. & Dwy. 5

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	29	24
Average Queue (ft)	7	10
95th Queue (ft)	31	33
Link Distance (ft)	1131	352
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Cordova Rd. & Dwy. 6

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	24	24
Average Queue (ft)	5	10
95th Queue (ft)	23	34
Link Distance (ft)	405	345
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1076

Intersection: 8: Dale Evans Pkwy. & Corwin Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	97	17	22	10	45	19	6	65	14	12	106	97
Average Queue (ft)	54	7	8	2	16	10	1	27	4	2	56	35
95th Queue (ft)	114	22	25	11	46	24	9	70	18	15	130	103
Link Distance (ft)		1284	1284		1212	1212		1044	1044		656	656
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			150			150			150		
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 9: Dachshund Av./Dachshund Rd. & Cordova Rd.

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	157	283	166	234	159	108	127	247
Average Queue (ft)	92	171	90	131	130	54	76	175
95th Queue (ft)	167	307	188	260	183	115	155	265
Link Distance (ft)		753		1131		2570		248
Upstream Blk Time (%)							0	2
Queuing Penalty (veh)							0	8
Storage Bay Dist (ft)	150		150		150		150	
Storage Blk Time (%)	0	11	0	8	10	0		14
Queuing Penalty (veh)	1	14	0	7	10	0		8

Intersection: 10: Dachshund Rd. & Dwy. 1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	37
Average Queue (ft)	21
95th Queue (ft)	48
Link Distance (ft)	307
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Dachshund Rd. & Dwy. 2

Movement	WB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	29
95th Queue (ft)	61
Link Distance (ft)	285
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Dachshund Rd. & Dwy. 3

Movement	WB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	29
95th Queue (ft)	57
Link Distance (ft)	305
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dachshund Rd. & Dwy. 4

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	47	62
Average Queue (ft)	27	12
95th Queue (ft)	61	67
Link Distance (ft)	306	201
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Cordova Rd. & Dwy. 5

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	15	35
Average Queue (ft)	3	28
95th Queue (ft)	18	45
Link Distance (ft)	1131	352
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Cordova Rd. & Dwy. 6

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	37
Average Queue (ft)	3	27
95th Queue (ft)	17	48
Link Distance (ft)	405	345
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1436