TECHNICAL MEMORANDUM

DATE: December 9, 2025
TO: Nicole Morse, T&B Planning, Inc.
FROM: Alex So, Urban Crossroads, Inc.
JOB NO: 16408-01 VMT Truck

SUBJECT: APPLE VALLEY 84 SUPPLEMENTAL VEHICLE MILES TRAVELED (VMT) ANALYSIS

Urban Crossroads, Inc. has completed the following Supplemental Vehicle Miles Traveled (VMT) Analysis for the Apple Valley 84 development (Project), which is located north of Stoddard Wells Road and south of Johnson Road in the Town of Apple Valley.

PROJECT OVERVIEW

The Project consists of the development of an industrial warehouse and distribution building totaling 1,381,412 square feet. A site plan for the proposed Project is shown in Attachment A.

SUPPLEMENTAL VMT EVALUATION

In an effort to fully disclose potential VMT impacts, this memorandum includes a supplemental VMT evaluation measuring project generated total VMT and total VMT per Service Population (VMT per SP). For purposes of this analysis, total VMT has been estimated from vehicle trip generation rates (see Attachment B) consistent with the Project's Bell Mountain Commerce Center Traffic Analysis (Urban Crossroads, September 2025), and average trip length for each vehicle type. Average trip length information has been obtained from the San Bernardino Traffic Analysis Model (SBTAM) for passenger cars and StreetLight™ Data's Truck Volume Metrics for medium heavy-duty trucks (MDT) (2 and 3 axle trucks) and heavy heavy-duty trucks (HDT) (4+ axle trucks). This supplemental assessment is intended to accompany the Bell Mountain Commerce Center VMT Analysis (Urban Crossroads, 2025), which followed the Town of Apple Valley adopted Resolution No. 2021-08 A Resolution of the City Council of the Town of Apple Valley, California, Adopting Thresholds of Significance for Vehicle Miles Traveled (VMT) Under the California Environmental Quality Act (CEQA) (May 11, 2021) (1) (VMT Guidelines) and only considers travel demand model-based truck travel lengths.

ABOUT STREETLIGHT DATA[1]

StreetLight gets its data from anonymous location information collected through smartphones, navigation apps, connected vehicles, and commercial fleets. These signals show where and when devices are moving, but they do not identify individual people. StreetLight processes billions of these

[1] StreetLight Insight Truck Volume Methodology and Validation (April 2025).

data points to figure out travel patterns, such as where trips start and end, the routes people take, and whether the travel is by car, truck, bike, or walking. To make sure the information is accurate, StreetLight compares its results to real traffic counts from sensors and state transportation records, then adjusts the data to match actual conditions. In simple terms, StreetLight turns anonymous signals from phones and vehicles into a clear picture of how people and goods move around, which planners can then use to understand traffic and transportation impacts.

Building on this general framework, StreetLight applies more detailed technical methods to estimate truck activity and validate its results. StreetLight Data's truck volume metrics are based on five linked machine learning models that estimate vehicle volume and trip length by vehicle class and total vehicles. StreetLight provides truck volume information from 2019 through 2025. To support volume estimates across different time periods, StreetLight applies the Monthly Average Daily Trip (MADT) to the days or parts of the day required for a particular analysis. In the scaling process, StreetLight factors the ratio between sample trip counts for particular hours and days and the trip counts for the entire month with the volume for corresponding hours, day type, and MADT for that zone.

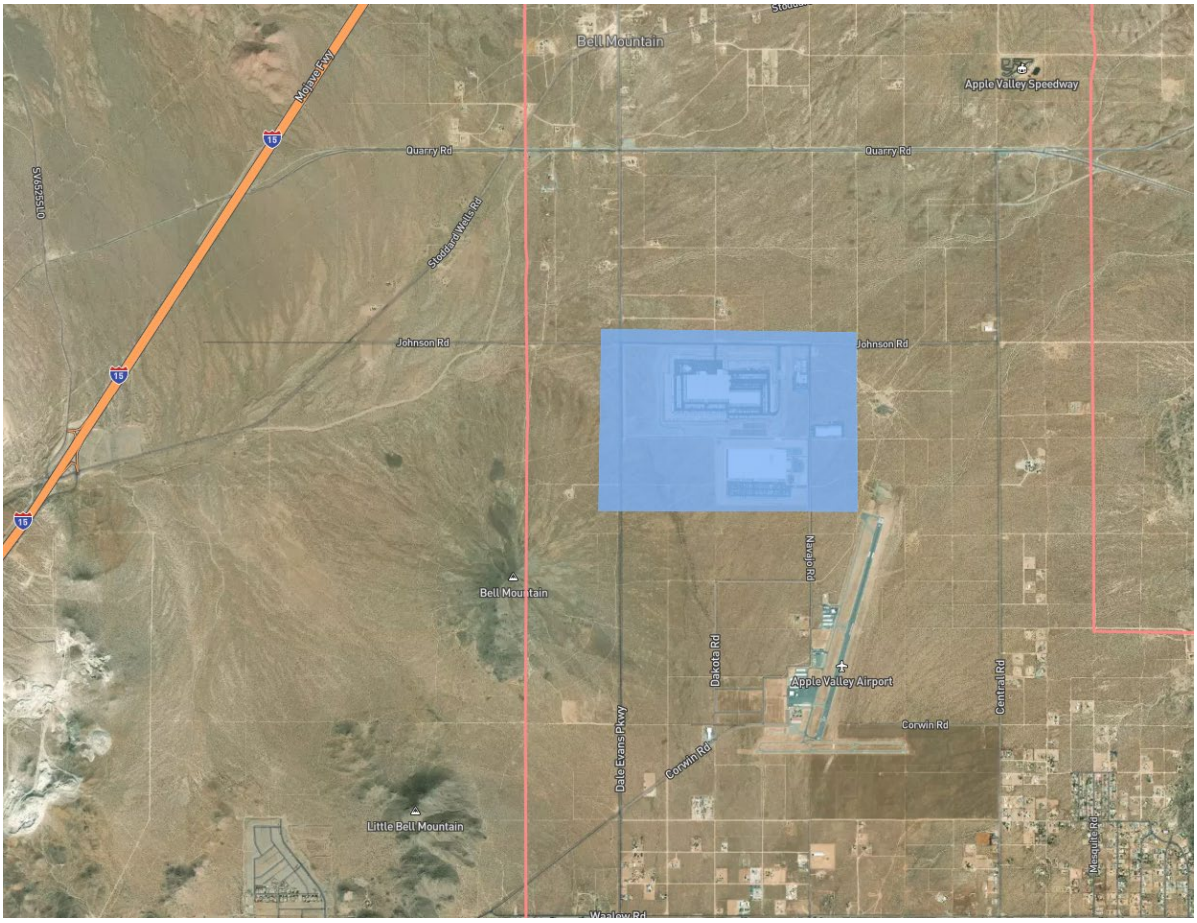
The estimated truck volume is compared to the actual volume reported by permanent traffic counters to validate the model results. The permanent counter data comes from the Federal Highway Administration (FHWA) Travel Monitoring Analysis System (TMAS) vehicle classification dataset, which includes traffic counts from more than 3,000 unique sites collected between September 2021 and September 2022. The StreetLight model produces Pearson correlation coefficients of 0.99, 0.92, and 0.97 for light, medium, and heavy duty vehicles, respectively, when comparing estimated and actual MADT. These results indicate that the StreetLight model is highly robust.

Survey Area

To ensure that the survey results reflect the operational characteristics of large-scale warehouse uses comparable to those proposed by the Project, it was necessary to identify a facility of similar size and function. The Walmart and Big Lots facilities in Apple Valley provide an appropriate reference location, as they represent modern, high-cube warehouse operations with multiple dock-high loading positions and truck circulation features consistent with large-scale logistics development. Although the Big Lots facility ceased operations near the end of 2024, the survey data was collected during 2021–2022 when the site was fully operational. Data from these facilities captures both truck activity and employee travel patterns characteristic of logistics-oriented warehouses, thereby offering a reliable and representative basis for evaluating the Project's trip generation and VMT impacts.

This area was chosen due to its proximity to the Project and anticipated operational similarities. The data for this survey includes information on Medium Heavy-Duty Trucks (MDT) and Heavy Heavy-Duty Trucks (HDT) that either originated, ended, or passed through the surveyed area during the most recent consecutive 12-month period available from StreetLight™ Data for truck travel volume metrics. Exhibit 1 shows the surveyed location.

EXHIBIT 1: SURVEYED LOCATION



TRUCK TRIP LENGTH

Utilizing the above parameters, average daily zone traffic[2] of MDT vs. HDT, average trip length by vehicle class, and distance bins[3] of per-trip length in miles was obtained from StreetLight Data (see Attachment C). Total average trip length for MDT and HDT was calculated by multiplying the disaggregated data's average trip length with its' respective percentage of total aggregated trucks (effectively calculating a weighted mean using percentages as weights) and then summing the amounts.

TABLE 1: AVERAGE TRIP LENGTH BY VEHICLE TYPE

	MDT Avg Trip Length	MDT % of Total	HDT Avg Trip Length	HDT % of Total	Weighted Average Trip Length
Apple Valley	47.2	75.3%	105.8	24.7%	62.1

[2] Average daily zone traffic was then used to calculate % of total aggregated trucks for each disaggregate.
[3] Distance bins were defaulted to: 0-1, 1-2, 2-5, 5-10, 10-20, 20-30, 30-40, 40-50, 50-60, 60-70, 70-80, 80-90, 90-100, and 100+ in miles.

Based on traffic monitoring data collected for the most recent 12-month period of complete data available from StreetLight Data, the average trip length of MD and HD trucks has been calculated 62.1 miles.

PROJECT VMT ESTIMATES

Table 3 presents an estimation of total VMT for the Project, which utilizes vehicle trip generation rates consistent with the Project's traffic study multiplied by the average trip length for each vehicle type.

TABLE 3: PROJECT VMT

Vehicle Type	Vehicle Trips	Vehicle Trip Length	VMT
Automobile	2,240	15.4	34,496
Total Truck	558	62.1	34,652
Total	2,798	-	69,148

Table 4 presents the calculation of the efficiency metric total VMT per SP, which is the product of total VMT generated by the Project divided by its SP (employment). Table 3 identifies a comparison between the Project's total VMT per SP to the City's adopted impact threshold. As specified in the Town of Apple Valley's VMT Guidelines **if the baseline project generated VMT per SP exceeds the Town of Apple Valley General Plan Buildout VMT per SP, it would result in a significant impact.** As calculated from SBTAM the Town of Apple Valley average VMT per service population as 35.7[4].

TABLE 4: VMT PER SP

	Project
SP	1,156
Total VMT	69,148
VMT per SP	59.8
Threshold	35.7
VMT Exceeds Threshold	Yes

As presented in Table 4, using the VMT calculation methodology previously described, the Project is forecast to generate total VMT per SP of 59.8, which would exceed the City's VMT impact threshold and result in a significant VMT impact.

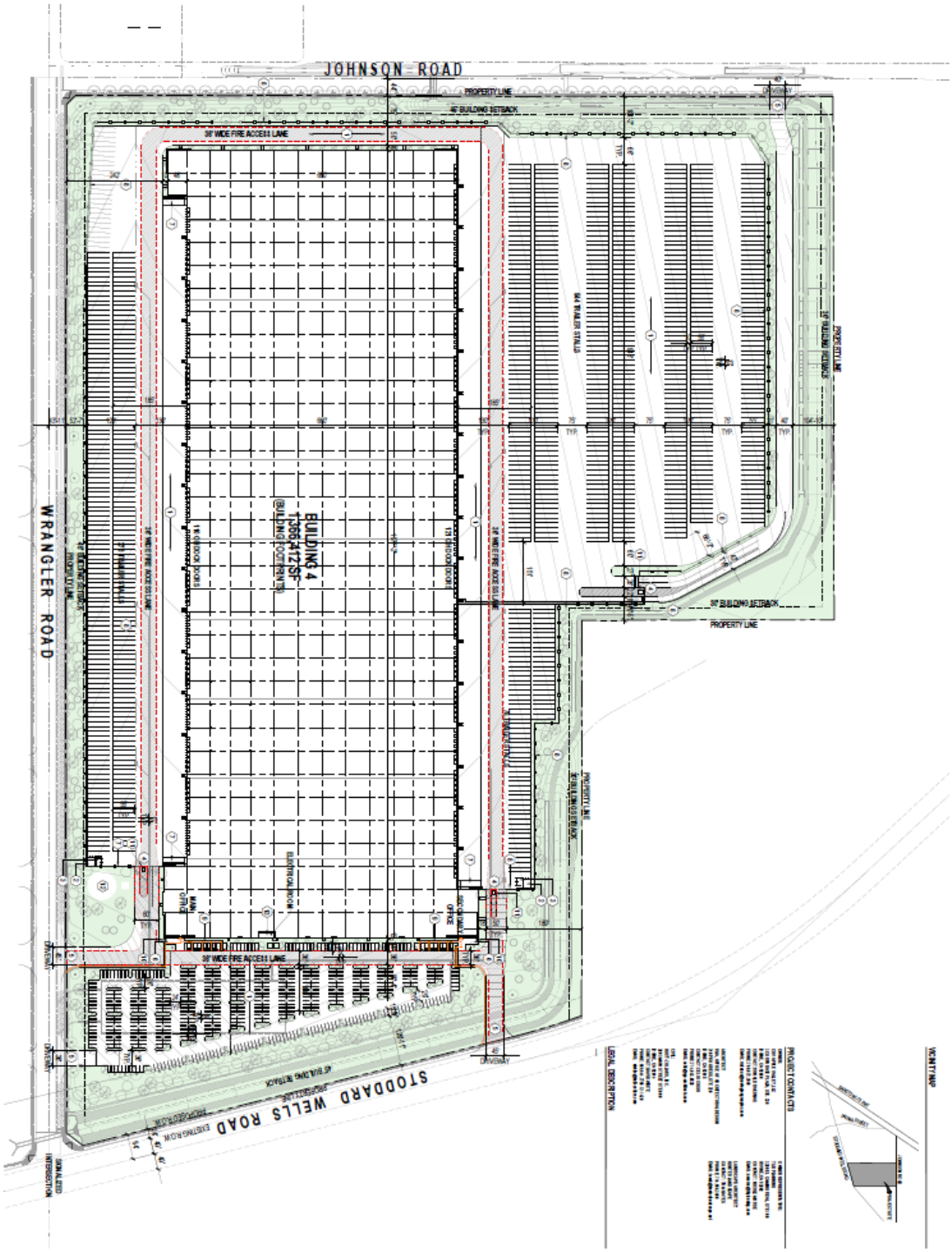
If you have any questions, please contact me directly at aso@urbanxroads.com.

[4] As calculated from SBTAM.

REFERENCES

1. **Town of Apple Valley.** *Resolution of the City Council of the Town of Apple Valley, California, Adopting Thresholds of Significance for Vehicle Miles Traveled (VMT) Under the California Environmental Quality Act.* May 2021.

ATTACHMENT A:
PROJECT SITE PLAN



ATTACHMENT B:
PROJECT TRIP GENERATION

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicles:									
General Light Industrial	138.141	TSF							
Passenger Cars:			58	7	65	9	58	67	462
2-axle Trucks:			0	0	0	0	0	0	6
3-axle Trucks:			0	0	0	0	0	0	8
4+-axle Trucks:			1	0	1	0	0	0	22
Total Truck Trips (Actual Vehicles):			1	0	1	0	0	0	36
Total Trips (Actual Vehicles)[2]			59	7	66	9	58	67	498
High-Cube Cold Storage	207.212	TSF							
Passenger Cars:			12	4	16	7	9	16	296
2-axle Trucks:			1	2	3	1	1	2	58
3-axle Trucks:			0	0	0	0	0	0	18
4+-axle Trucks:			1	2	3	2	2	4	90
Total Truck Trips (Actual Vehicles):			2	4	6	3	3	6	166
Total Trips (Actual Vehicles)[2]			14	8	22	10	12	22	462
High-Cube Fulfillment (Non-Sort)	1,036.059	TSF							
Passenger Cars:			83	21	104	54	81	135	1,482
2-axle Trucks:			2	1	3	1	1	2	60
3-axle Trucks:			2	2	4	1	1	2	74
4+-axle Trucks:			6	7	13	3	3	6	222
Total Truck Trips (Actual Vehicles):			10	10	20	5	5	10	356
Total Trips (Actual Vehicles)[2]			93	31	124	59	86	145	1,838
Passenger Cars			153	32	185	70	148	218	2,240
Trucks			13	14	27	8	8	16	558
Total Trips (Actual Vehicles)[2]			**166**	**46**	**212**	**78**	**156**	**234**	**2,798**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

ATTACHMENT C
STREETLIGHT DATA OUTPUT

Intersection Type	Zone ID	Zone Name	Zone Is Pass-Through	Zone Direction (degrees)	Zone is Bi-Direction	Day Type	Day Part	Average Daily Zone Traffic (StL Volume)	Avg Travel Time (sec)	Avg All Travel Time (sec)	Avg Trip Length (mi)
Trip Pass-Through	1	Apple Valley	yes	N/A	no	1: Weekday (M-Th)	0: All Day (12am-12am)	375	3641	3846	47.2
Trip Pass-Through	1	Apple Valley	yes	N/A	no	1: Weekday (M-Th)	0: All Day (12am-12am)	123	8972	9621	105.8