

APPENDIX G

Village Specific Plan
Parking Plan

December 13, 2021

Prepared for

Town of Apple Valley
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MEMORANDUM

Date: December 13, 2021

To: Nicole Criste
Terra Nova Planning & Research, Inc.

From: James M. Daisa, TE
Robert Kilpatrick, PE, TE
David Evans and Associates, Inc.

RE: FINAL VILLAGE SPECIFIC PLAN PARKING PLAN

INTRODUCTION

This memorandum presents a Parking Plan (the “Plan”) for buildout conditions of the Village Specific Plan. The Plan evaluates the future parking demand for the mixed-use development envisioned for the Specific Plan area. Shared parking is a key characteristic of the development in the Specific Plan to create a more efficient use of limited space for parking, particularly in District 1, where parcels are narrow and deep making it challenging, if not infeasible, to provide the level of parking required under the Town’s current off-street parking standards.

The Specific Plan circulation system promotes a walkable and bikeable environment by allocating street right of way appropriately for multimodal facilities and safe crossings of wide streets currently perceived as barriers to any form of active transportation. The multimodal features integrated into the circulation plan support a policy of “park once and walk”.

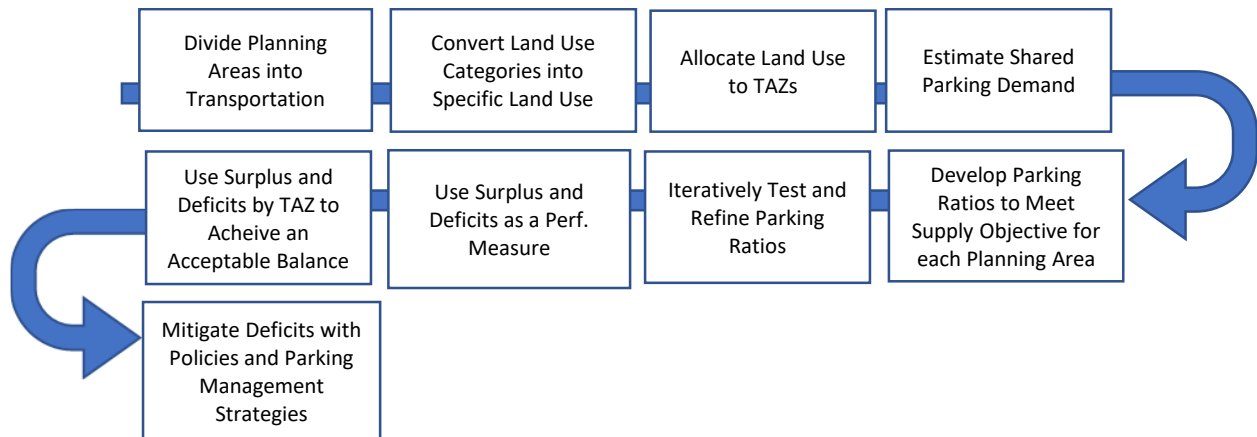
PARKING PLAN OBJECTIVES

The primary objectives of the Village Specific Plan Parking Plan are:

- Determine the amount of parking required to comfortably accommodate the demand generated by the mix of land uses within each District assuming a district-wide shared parking policy for all mixed-use buildings is in effect.
- Develop off-street parking standards for the Specific Plan that will accommodate the projected parking demand while minimizing the magnitude of the required parking in areas where the size and configuration of development parcels, if not assembled into larger blocks, make it very difficult and costly to meet current standards for minimum required parking. The standards proposed in the Plan reflect the different characteristics of the Districts.
- Identify general locations and amount of additional public parking in off-street lots to augment Districts showing parking deficits based on a shared parking supply and demand analysis.
- Define and recommend state of the practices parking management strategies that support and enhance parking efficiency in new development, maximize on and off-street parking resources, and promote the Specific Plan’s multimodal transportation system to link multiple trips in the Specific Plan area without driving to each destination.

OVERVIEW OF THE PLAN'S TECHNICAL ANALYSIS

The flowchart below summarizes the sequence of the technical analysis. At the heart of the process is a shared parking analysis that determines the level of parking efficiency that can be achieved by land uses with differing peaking characteristics. For example, restaurants can utilize office and industrial parking supply because restaurants peak in the evening when offices are closed. The land uses developed for the Village Specific Plan are complementary but not to a great extent. Shared parking between retail / services, restaurants, office, and industrial/Research & Development (R&D), can achieve about a ten percent reduction in the required parking supply, whereas highly complementary land uses can achieve a reduction of up to 25% or more. Residential land uses typically are not highly complementary uses because residential parking is often only available for the residents in secure parking garages and cannot be shared. However, residential guest parking can be shared with other uses, but is usually a relatively small reservoir of parking.



The process used to meet the objectives of the Plan.

Subdividing the Districts

A comprehensive parking supply and demand analysis is usually analyzed at the block level and with detailed information regarding the exact type, size, and location of existing and future land use. For evaluating the long-range conditions for a plan such as the Village Specific Plan, less detail is known about precise location and mix of land uses. Parking analyses of long-range plans work with larger areas, so the resolution of the supply and demand calculations is coarser, and the findings are more generalized and focused on “zones” instead of City blocks.

Figure 1 illustrates a subdivision scheme for the Specific Plan area. Districts have been divided into Traffic Analysis Zones (TAZs) ranging from a single zone for a smaller, isolated single use area such as District 5, to eight zones for the longer and more complex Village Core in District 1 which encompasses both sides of the SR 18 corridor.

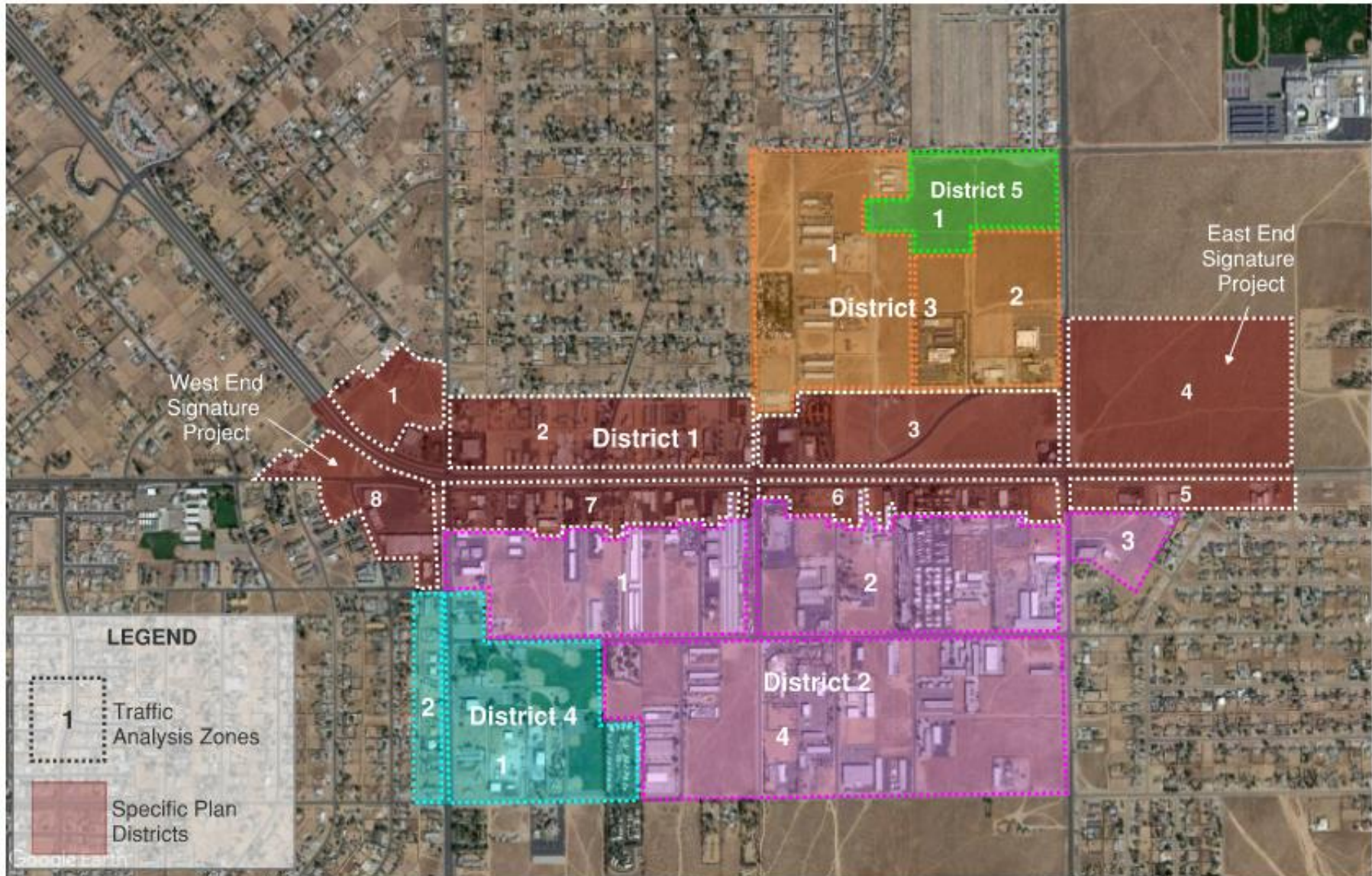


FIGURE 1
VILLAGE SPECIFIC PLAN
DISTRICTS AND ZONES FOR PARKING ANALYSIS

Converting Aggregate Land Use into Specific Types of Uses

Table 1 shows the development capacity of currently vacant and underutilized land and identifies the level of potential commercial and residential development the Specific Plan area can absorb when the Specific Plan area is built out. The projected land use is proposed as mixed-use with the non-residential land uses aggregated together as Commercial /Industrial /Office /Retail by District. This breakdown requires disaggregation and proportioning of the non-residential uses unto its constituent parts.

Table 2 illustrates the process of breaking down the aggregated land use into specific types of land uses found in mixed-use areas. The fraction of the total building floor area representing each type of land use was assumed based on observed land use splits in typical urbanized mixed-use places. In District 1, about half of the future land use in the Plan area is assumed as retail and services (45%) including restaurants and drinking establishments (5%) while the other half would develop as office (30%), and research and development, and hi-tech light manufacturing uses (20%). These assumptions were shared with the team's land use planers who agreed they were reasonable.

Allocating Buildout Land Use to Analysis Zones

Table 3 further divides the specific types of land uses into TAZs within each District. The allocation of land use to the zones is based on the proportion of each zone's area (square feet) out of the total area of the District. Breakdown percentages vary between District 1 and the other Districts that contain mixed-use commercial development. Districts 2 and 3 assume about half of the retail / service assumed in District 1 (20% compared to 45%) and twice as much industrial / R&D / hi-tech manufacturing (45% compared to 20%).

The different proportion of uses in Districts 2 through 5 reflects less intensive retail and service businesses and more buildings used for fabrication, workshop areas, and offices compared to District 1 which contains the more intensive retail and service-oriented uses along Highway 18. Districts 4 and 5 are exclusively residential.

Table 1: Village Specific Plan Existing and Proposed Commercial and Residential Land Uses

Planning Area/Current Land Use Designation	Developed Acres			Vacant Acres	Total Acreage	Dwelling Units				Commercial/Services/Retail SF			
	Developed Acres	Underut. Acres	Total Developed Acres			Existing Units	Underut. Potential New Units [1]	Vacant Potential Units [2]	Total Units w/ Underut. Redeveloped [4]	Existing SF	Underut. New SF [1]	Vacant Potential SF [3]	Total SF w/ Underut. Redeveloped [4]
District 1 Village Core													
Commercial/Industrial/Office/Retail	51.85	12.23	64.07	106.57	170.64	0	[1]	[1]	---	543,437	[1]	[1]	---
Residential	7.80	2.63	10.42	1.01	11.43	46	[1]	[1]	---	0	[1]	[1]	---
Mobile Home Park 5	0	1.47	1.47	0	1.47	17	[1]	[1]	---	0	[1]	[1]	---
District 1 Subtotal:	51.85	16.33	75.97	107.58	183.55	63	42	180	259	543,437	310,038	2,147,072	2,907,393
District 2 Village Services South													
Commercial/Industrial/Office/Retail	81.90	11.76	93.66	91.42	185.08	0	0	0	0	927,800	256,195	1,991,144	3,092,170
Residential	0.83	4.65	5.48	0	5.48	13	0	0	1	0	101,311	0	101,311
Public	13.05	0	13.05	0	13.05	0	0	0	0	101,733	0	0	101,733
Mobile Home Park 5	0	7.37	7.37	0	7.37	76	0	0	0	0	160,455	0	160,455
District 2 Subtotal:	95.78	23.78	119.56	91.42	210.98	89	0	0	1	1,029,533	517,961	1,991,144	3,455,669
District 3 Village Services North													
Commercial/Industrial/Office/Retail	20.76	7.06	27.82	48.31	76.13	0	0	0	0	140,786	153,713	1,052,200	1,331,108
Public	8.11	0	8.11	0	8.11	0	0	0	0	40,302	0	0	40,302
Mobile Home Park 5	0	4.00	4.00	0	4.00	41	0	0	0	0	87,109	0	87,109
District 3 Subtotal:	28.87	11.06	39.93	48.31	88.24	41	0	0	0	181,088	240,822	1,052,200	1,458,519
District 4 Residential and Recreation													
Commercial/Industrial/Office/Retail	5.58	0.00	5.58	0	5.58	0	0	0	0	25,651	0	0	25,651
Residential	7.76	2.51	10.28	2.98	13.25	57	50	60	152	0	0	0	0
Public, Park, etc	26.76	0	26.76	0	26.76	0	0	0	0	43,671	0	0	43,671
Mobile Home Park 5	0	4.69	4.69	0	4.69	39	94	0	94	0	0	0	0
District 4 Subtotal:	40.10	7.20	47.30	2.98	50.28	96	144	60	246	69,322	0	0	69,322
District 5 Residential													
Residential	0	0	0	23.28	23.28	0	0	466		0	0	0	0
District 5 Subtotal:	0	0	0	23.28	23.28	0	0	466	466	0	0	0	0
Land Use Total Acreage:	216.60	58.36	282.76	273.57	556.33	---	---	---	---	---	---	---	---
Street ROW Total Acreage:	94.82	0	94.82	0	94.82	---	---	---	---	---	---	---	---
Grand Total	311.42	58.36	377.58	273.57	651.15	289	186	706	972	1,823,380	1,068,821	5,190,416	8,082,618

Footnotes:

Estimate based on a combination of sources, including Google Earth, ESRI, Riverside County Assessor, and City housing data.

Note: Potential uses for vacant and/or underutilized acres assumes District 1 is mixed use residential and commercial/services (see footnote 1), Districts 2 and 3 are all commercial/services uses, and Districts 4 and 5 are all residential uses.

[1] For District 1, assumes the west end signature project (Franklin, 5 parcels, approx. 8.38 acres categorized as "underutilized") will develop 25% residential (2.095 acres = 42 DUs at 20 units / acre) and 75% commercial (6.285 acres = 136,887 SF based on 0.5 FAR), the east end signature project (30 acres, all vacant lands) will develop 30% residential (9 acres = 180 DUs based on 20 units / acre) and 70% commercial (21 acres = 457,380 SF based on 0.5 FAR), and remaining underutilized acreage will develop as commercial. Combined, the west and east end signature projects are 11.09 acres residential and 27.29 acres commercial. It was assumed that 2.095 acres was subtracted from the total underutilized acreage and applied to residential units, and the remaining underutilized acreage (16.33 - 2.095 = 14.235 acres) would be applied to commercial. For the 30 acre east end project, 9 acres was subtracted from the total vacant acreage of 107.58 and applied to residential, and the remaining acreage of 98.58 (107.58 - 9 = 98.58) is assumed commercial.

[2] Future residential development potential assumes maximum density of 20 DU/AC.

[3] Commercial development potential: estimate assumes existing development has occurred at maximum allowed Floor Area Ratio (FAR) of 0.5. (acres x 43,560 sf x 50%).

[4] Underutilized acres currently have either commercial/retail/service SF or residential units on site. Redevelopment of underutilized sites assumes all existing SF/units would be removed from that site. For the scenarios where underutilized acres are redeveloped, the total SF or residential units is the sum of existing + underutilized. + vacant - existing underutilized. SF/units.

[5] Existing mobile home parks are planned to be redeveloped as either commercial space of multi-family units. No new mobile home parks are proposed.

Table 2: Village Specific Plan Buildout Land Uses (Derivation of Land Use Types from Aggregated Projections)

District / Land Use	Existing Land Uses		Existing Uses Removed By Redevelopment		Buildout (100%)		Growth (Existing to Buildout)		
	Size	Units	Size	Units	Size	Units	Size	Units	
District 1									
Mixed-Use Commercial/Industrial/Office/Retail		543,437	Sq. Ft.	93,155	Sq. Ft.	2,907,393	Sq. Ft.	2,363,956	Sq. Ft.
Land Use Breakdown [1]									
West End Signature Development (Commercial)						136,887	Sq. Ft.		
East End Signature Development (Commercial)						457,380	Sq. Ft.		
Commercial (Minus Signature Developments)						2,313,126	Sq. Ft.	2,313,126	
Retail / Services	45%							1,040,907	
Restaurant / Drinking Establishments	5%							115,656	
Office	30%							693,938	
Industrial / R&D / High Tech Manuf	20%							462,625	
Total Non-Residential	100%							2,313,126	Sq. Ft.
West End Signature Development (Residential)						136,887		42	
East End Signature Development (Residential)						457,380		180	
Residential (Remaining Area)		63	DUs	17	DUs	259	DUs	196	DUs
District 2									
Mixed-Use Commercial/Industrial/Office/Retail		927,800	Sq. Ft.	82,969	Sq. Ft.	3,455,669	Sq. Ft.	2,527,869	Sq. Ft.
Land Use Breakdown									
Retail / Services	20%							505,574	
Restaurant / Drinking Establishments	5%							126,393	
Office	30%							758,361	
Industrial / R&D / High Tech Manuf	45%							1,137,541	
Total Non-Residential	100%							2,527,869	Sq. Ft.
Residential (Remaining Area)		89	DUs	12	DUs	89	DUs	0	DUs
District 3									
Mixed-Use Commercial/Industrial/Office/Retail		181,088		15,591		1,458,519		1,277,431	Sq. Ft.
Land Use Breakdown									
Retail / Services	20%							255,486	
Restaurant / Drinking Establishments	5%							63,872	
Office	30%							383,229	
Industrial / R&D / High Tech Manuf	45%							574,844	
Total Non-Residential	100%							1,277,431	Sq. Ft.
Residential		41	DUs	0	DUs	0	DUs	-	DUs
District 4									
Mixed-Use Commercial/Industrial/Office/Retail		69,322	Sq. Ft.			69,322	Sq. Ft.	0	Sq. Ft.
Residential		96	DUs	15	DUs	246	DUs	150	DUs
District 5									
Residential		-				466	DUs	466	DUs

Source of land use data: Apple Valley Village Specific Plan Existing and Proposed Land Uses. Terra Nova Planning & Research, Inc.. June 2, 2021.

[1] Conversion of aggregate mixed-use land projections into specific types of land uses for estimating trip generation.

DEVELOPMENT OF PARKING RATIOS

Parking ratios are the number of parking spaces per unit of development such as 1,000's of square feet or dwelling units. Parking ratios adopted by municipalities in their zoning code are the development standards representing the minimum required parking for a given type and size of development. Before we develop parking ratios for the Specific Plan area that reflect shared parking it is important to understand the Town's current parking requirements. Chapter 9.72 of the Town's Development Code (Off-Street Parking and Loading Regulations) contains the current parking standards for the land uses being analyzed in this Plan. The Town's standards for the land uses proposed in the Specific Plan are summarized in **Table 4**.

Table 4: Town of Apple Valley's Minimum Parking Regulations

Land Use	Minimum Parking Requirements
Shopping Centers (retail / service)	
1. 25,000 to 500,000 SF of GFA	1 space per 250 SF of GFA (4 spaces per KSF)
2. 500,000 to 1,000,000 SF of GFA	1 space per 275 SF of GFA (3.63 spaces per KSF)
3. Over 1,000,000 SF of GFA	1 space per 300 SF of GFA (3.33 spaces per KSF)
There are additional requirements for shopping centers that contain special uses such as movie theaters or when restaurant or office floor area exceeds a threshold percentage of the center's total floor area.	
Restaurants, Bars and Nightclubs	
With on-site consumption of food and beverages	For customer areas: <ul style="list-style-type: none"> • 1 space per 3 seats where there are fixed seats: or • 1 space per 45 SF of customer area (22.2 spaces per KSF) plus 1 space per 200 SF of noncustomer area
General Office	
1. General Offices	1 space per 300 SF of GFA with a minimum of 4 spaces (3.33 spaces per KSF)
Industrial Uses	
1. Electronic, computer, aerospace, business machine or other "high-tech" manufacturing uses	3 spaces per 1,000 SF of GFA for office area that exceeds 25%, provide 1 space per 200 SF in excess of 25%
Multifamily Residential	
a. Studios	1 covered space per unit and 1 open space per unit
b. One and two bedrooms or more bedrooms	2 enclosed spaces per unit and 0.50 uncovered guest spaces per unit
c. Three or more bedrooms	2 enclosed spaces per unit, one uncovered space per unit and 0.50 uncovered guest spaces per unit

The Town's parking standards are consistent with other municipality parking codes. The Town uses very common and moderately conservative parking ratios for the land use categories of shopping center (3.33 to 4 per KSF), general office (3.33 spaces per KFS), and industrial (3 spaces per KSF). When applied to Districts 1 and 2 the Town's code would require 12,830 parking spaces in District 1 and 10,396 spaces in District 2, a grand total of 23,226 parking spaces, as shown in **Table 5**.

Table 5: Village Specific Plan Minimum Parking Requirements by TAZ for Districts 1 and 2 - Based on the Town of Apple Valley's Current Parking Standards

Land Use	District 1 TAZs (See Figure 1 for Map of TAZs)											
	1		2		3		5		6		7	
	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking
District 1 TAZs 1, 2, 3, 5, 6, and 7												
Retail / Services	114,500	458	270,636	1,083	301,863	1,207	104,091	416	135,318	541	114,500	458
Restaurant / Drinking Establishments	12,722	247	30,071	585	33,540	652	11,566	225	15,035	292	12,722	247
Office	76,333	252	180,424	595	201,242	664	69,394	229	90,212	298	76,333	252
Industrial / R&D / High Tech Manuf	50,889	153	120,283	361	134,161	402	46,263	139	60,141	180	50,889	153
Residential / Residential Guest Parking	0	0	0	0	0	0	0	0	0	0	0	0
Total Parking Spaces		1,110		2,624		2,926		1,009		1,312		1,110
East End Signature Development (TAZ 4)												
Retail / Services											205,821	823
Restaurant / Drinking Establishments											22,869	445
Office											137,214	453
Industrial / R&D / High Tech Manuf											91,476	302
Residential / Residential Guest Parking											180	90.0
Total Parking Spaces												2,113
West End Signature Development (TAZ 8)												
Retail / Services											61,599	246
Restaurant / Drinking Establishments											6,844	133
Office											41,066	136
Industrial / R&D / High Tech Manuf											27,377	90
Residential / Residential Guest Parking											42	21.0
Total Parking Spaces												626
Grand Total District 1 Required Parking								-				12,830
Land Use	District 2 TAZs											
	1		2		3		4					
	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking	Size	Req. Min. Parking
Retail / Services					96,059	384	136,505	546	20,223	81	252,787	1,011
Restaurant / Drinking Establishments					24,015	467	34,126	664	5,056	98	63,197	1,229
Office					144,089	475	204,757	676	30,334	100	379,180	1,251
Industrial / R&D / High Tech Manuf					216,133	648	307,136	921	45,502	137	568,770	1,706
Residential / Residential Guest Parking					0	0	0	0	0	0	0	0
Total Parking Spaces						1,975		2,807		416		5,198
Grand Total District 2 Required Parking												10,396

Table 6 shows the minimum required parking required for the land uses in Districts 3, 4, and 5. The Town's code would require 5,253 parking spaces in the mixed-use District 3, and 375 and 1,165 spaces respectively in the two exclusive residential Districts 4 and 5. Under current standards, the total parking in all five Districts at buildout of the Specific Plan would be just over 30,000 spaces.

Proposed Village Specific Plan Parking Ratios

One of the objectives of this parking plan is to minimize the parking requirements for the properties in District 1 to keep development costs down and to make redevelopment of some properties feasible at all. On small parcels, or parcels with unusual configurations such as narrow and deep into the block, it can be challenging to provide the required parking. spaces.

Table 6: Village Specific Plan Minimum Parking Requirements by TAZ for Districts 3, 4, and 5- Based on the Town of Apple Valley's Current Parking Standards

Land Use	District 3 TAZs			
	1		2	
	Size	Req. Min. Parking	Size	Req. Min. Parking
Retail / Services	166,066	664	89,420	358
Restaurant / Drinking Establishments	41,517	807	22,355	435
Office	249,099	822	134,130	443
Industrial / R&D / High Tech Manuf	373,649	1,121	201,195	604
Residential / Residential Guest Parking	0	0	0	0
Total Parking Spaces		3,415		1,839
Grand Total District 3 Required Parking				5,253

Land Use	District 4 TAZs			
	1		2	
	Size	Req. Min. Parking	Size	Req. Min. Parking
Retail / Services	0	0	0	0
Restaurant / Drinking Establishments	0	0	0	0
Office	0	0	0	0
Industrial / R&D / High Tech Manuf	0	0	0	0
Residential / Residential Guest Parking	21	53	129	323
Total Parking Spaces		53		323
Grand Total District 4 Required Parking				375

Land Use	District 5 TAZ	
	1	
	Size	Req. Min. Parking
Retail / Services	0	0
Restaurant / Drinking Establishments	0	0
Office	0	0
Industrial / R&D / High Tech Manuf	0	0
Residential / Residential Guest Parking	466	1,165
Total Parking Spaces		1,165
Grand Total District 5 Required Parking		1,165

The alternative is constructing a subterranean garage or an above ground structure with the development wrapping the garage or built on top. Either way it is costly to provide structured parking. In 2020 and 2021 the cost to construct an above ground parking structure is about \$14,000 to \$30,000 per parking space. The alternative is constructing a subterranean garage or an above ground structure with the development wrapping the garage or built on top. Either way it is costly to provide structured parking. The other Districts do not appear to have the same constraints as the properties in District 1.

Therefore, the objective for the other Districts is to provide enough spaces to meet the demand with shared parking plus a 10 to 15% buffer of vacant spaces to minimize parkers having to constantly circulate in search of a vacant parking space. **Table 7** presents the proposed Specific Plan parking ratios and describes the parking supply objective for each District.

Table 7: Proposed Specific Plan Parking Ratios

District 1	Spaces / KSF or DU	Parking Supply Objective
Retail / Services	2.50	The objective of the parking ratios for District 1 is to substantially lower parking requirements as a cost incentive to develop or redevelop. On-site parking deficits maybe offset by an increase in angled parking on the SR-18 frontage roads, strategically placed public parking lots, and surplus parking in adjacent Districts. Residential ratios allow for one space per unit and guest parking at 0.25 per unit is incorporated into the pool of shared parking.
Restaurant / Drinking Establishments	4.00	
Office	1.50	
Industrial / R&D / High Tech Manufacturing	1.50	
Residential / Residential Guest Parking	1.25	
District 2	Spaces / KSF or DU	Parking Supply Objective
Retail / Services	3.30	District 2 should support its own parking demand and maintain a moderate surplus of parking in the zones north of Powhattan Road to support District 1 deficits. Retail and office parking ratios are similar to current Town standards, but the ratio for restaurant / drinking establishments is substantially lower and the ratio for industrial uses is half of the Town's current standard. There is no residential in District 2.
Restaurant / Drinking Establishments	3.30	
Office	3.00	
Industrial / R&D / High Tech Manufacturing	1.50	
Residential / Residential Guest Parking	Not Applicable	
District 3, 4 and 5	Spaces / KSF or DU	Parking Supply Objective
Retail / Services	4.00	The mixed-use commercial land use in District 3 should support its own demand and maintain a small surplus of parking to support deficits in District 1. Districts 4 and 5 are exclusively residential and may export parking demand from residents and guests due to its ratio of one and a half spaces per unit for residents and 0.2 spaces per unit for guests. Residential parking strategies such as "unbundling" parking from the dwelling unit or providing "flex" parking spaces are ways to balance the supply between zero vehicle households and households with more than one vehicle. See section on Parking Management Strategies.
Restaurant / Drinking Establishments	8.00	
Office	3.00	
Industrial / R&D / High Tech Manufacturing	1.50	
Residential / Residential Guest Parking	1.70	

Table 8 shows the Specific Plan land use and corresponding parking supply for Districts 1 and 2 using the proposed parking ratios in **Table 7**. Based on the proposed ratios and the desired objective for District 1 the sum of the parking supply for each of the eight analysis zones equals 6,298 spaces while District 2 is calculated to need about 6,067 spaces for a grand total of 12,365 parking spaces. This is about half of the 23,226 spaces required using the Town's parking standards. Recall that the parking supply objective for District 1 is to substantially lower the parking supply to incentivize development on properties where it is difficult (or very costly) to meet parking requirements.

Table 8: Village Specific Plan Parking Requirements by TAZ for Districts 1 and 2 Based on Proposed Specific Plan Parking Standards

Land Use	District 1 Traffic Analysis Zones (TAZs) (See Figure 1 for Map of TAZs)											
	1		2		3		5		6		7	
	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking
District 1 TAZs 1, 2, 3, 5, 6, and 7												
Retail / Services	114,500	286	270,636	677	301,863	755	104,091	260	135,318	338	114,500	286
Restaurant / Drinking Establishments	12,722	51	30,071	120	33,540	134	11,566	46	15,035	60	12,722	51
Office	76,333	114	180,424	271	201,242	302	69,394	104	90,212	135	76,333	114
Industrial / R&D / High Tech Manuf	50,889	64	120,283	180	134,161	201	46,263	69	60,141	90	50,889	76
Residential / Residential Guest Parking	0		0	-	0	-	0	-	0	-	0	-
Total Parking Spaces		515		1,248		1,392		480		624		528
East End Signature Development (TAZ 4)												
Retail / Services											205,821	515
Restaurant / Drinking Establishments											22,869	91
Office											137,214	206
Industrial / R&D / High Tech Manuf											91,476	137
Residential / Residential Guest Parking											180	225
Total Parking Spaces												1,174
West End Signature Development (TAZ 8)												
Retail / Services											61,599	154
Restaurant / Drinking Establishments											6,844	27
Office											41,066	62
Industrial / R&D / High Tech Manuf											27,377	41
Residential / Residential Guest Parking											42	53
Total Parking Spaces												337
Grand Total District 1 Required Parking												6,298
Land Use	District 2 TAZs											
	1		2		3		4					
	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking	Size	Reqd. Parking				
Retail / Services	96,059	317	136,505	450	20,223	67	252,787	834				
Restaurant / Drinking Establishments	24,015	79	24,015	79	24,015	79	24,015	79				
Office	144,089	432	204,757	614	30,334	91	379,180	1,138				
Industrial / R&D / High Tech Manuf	216,133	324	307,136	461	45,502	68	568,770	853				
Residential / Residential Guest Parking	0	0	0	0	0	0	0	0				
Total Parking Spaces		1,153		1,605		305		2,904				
Grand Total District 2 Required Parking								5,967				

Table 9 shows the resulting parking supply in Districts 3, 4, and 5 based on the proposed parking ratios in **Table 7**. The total parking supply in these three Districts equals 4,592 parking spaces. Combining all Districts, the on-site parking supply is about 16,900 spaces. Part of this substantial lowering of required parking is a result of shared parking, alternative modes of travel, internal capture of trips at mixed-use sites, and the smaller ratios developed for the Specific Plan area.

Table 9: Village Specific Plan Parking Requirements by TAZ for Districts 3, 4, and 5 Based on Proposed Specific Plan Parking Standards

Land Use					District 3 TAZs			
					1		2	
					Size	Reqd. Parking	Size	Reqd. Parking
Retail / Services					166,066	664	89,420	358
Restaurant / Drinking Establishments					41,517	332	22,355	179
Office					249,099	747	134,130	402
Industrial / R&D / High Tech Manuf					373,649	560	201,195	302
Residential / Residential Guest Parking					-	-	-	-
Total Parking Spaces						2,304		1,241
Grand Total District 3 Required Parking								3,545

Land Use					District 4 TAZs			
					1		2	
					Size	Reqd. Parking	Size	Reqd. Parking
Retail / Services					-	0	-	0
Restaurant / Drinking Establishments					-	0	-	0
Office					-	0	-	0
Industrial / R&D / High Tech Manuf					-	0	-	0
Residential / Residential Guest Parking					21	36	129	219
Total Parking Spaces						36		219
Resident Parking (1.5 spaces per dwelling unit) [1]						32		194
Guest Parking (0.2 spaces per dwelling unit)						4		26
Grand Total District 4 Required Parking								255

Notes:
[1] Resident parking at 1.5 spaces per dwelling unit is assumed reserved for residents and is not part of the shared parking reservoir. The guest parking at 0.2 spaces per dwelling unit is included in the shared parking reservoir.

Land Use					District 5 TAZ		
						Size	Reqd. Parking
Retail / Services					-	0	
Restaurant / Drinking Establishments					-	0	
Office					-	0	
Industrial / R&D / High Tech Manuf					-	0	
Residential / Residential Guest Parking					466	792	
Total Parking Spaces						792	
Resident Parking (1.5 spaces per dwelling unit) [1]						699	
Guest Parking (0.2 spaces per dwelling unit)						93	
Grand Total District 5 Required Parking						792	

Notes:
[1] Resident parking at 1.5 spaces per dwelling unit is assumed reserved for residents and is not part of the shared parking reservoir. The guest parking at 0.2 spaces per dwelling unit is included in the shared parking reservoir.

SHARED PARKING ANALYSIS

Assumptions

The shared parking analysis was conducted using the methodology published in the second edition of *Shared Parking* by the Urban Land Institute (ULI) and the International Council of Shopping Centers (ICSC) in 2005. Below are key assumptions, sources of input data, and model parameters used in developing the shared parking demand estimates used in this Plan.

Parking demand ratios—are used by the model to estimate parking demand for the selected land uses. The ratios are in the form of the “highest number of parked vehicles at a given time of day per 1,000 square feet of floor area” for a specific land use. Conservatively, the model in this analysis used demand ratios representing the 85th percentile of the data used to derive the ratios. The source of these ratios is *Parking Generation*, 3rd Edition, Institute of Transportation Engineers. 2005.

Day of week / seasonal—the parking demand ratios represent a non-December weekday.

Time of day factors—is a distribution curve identifying the percentage of the peak parking demand for each hour of the day. The distribution curve varies by land use. The model was initially populated with distribution curves developed from ULI data and published in *Shared Parking*, 2nd Edition. However, the Institute of Transportation Engineers collects time of day data and publishes it in *Parking Generation*, 3rd Edition. The model used in this analysis used a combination of ULI and ITE time of day data.

Mode split and captive market—user input to the model includes a mode split factor which affects the overall parking demand by defining trips made by vehicle, or by another means such as transit, bicycle, or walking. Different analysis zones are assumed to have different mode splits with District 1 having the highest share of non-automobile travel with up to 20% in combination of transit, bicycle, and walking. The other Districts are assumed to have mode splits totaling about 8% non-automobile travel. Captive market or “internalization” reflects people making multiple trips within a mixed-use area without having to use a vehicle. The highest captive rate used in this analysis is 15% in District 1 and the lowest is 0% in Districts 4 and 5.

Shared Parking Analysis Findings

Table 10 presents the results of the shared parking analysis. For comparison, the second column in Table 6 shows the parking demand for buildout of the Specific Plan without shared parking—parking demand was estimated for each land use at its unique peak time and summed together resulting in an artificially high demand and the construction of more parking than is really needed.

Table 10: Summary of Shared Parking Analysis by District and Zones

District / Zone	Peak Parking Demand (WO Shared Parking - For Comparison Only)	Peak Parking Demand ¹ (With Shared Parking)	On-Site Parking Supply (Specific Plan Parking ² Standards)	Site Parking Surplus / Deficit	Available On-Street Parking (Excludes SR-18 Angled Parking)	All Roundabouts (Alternative 1)			All Traffic Signals (Alternative 2)		
						Future SR-18 Angled Parking ³	Total Parking Supply ⁴	Net Parking Surplus / Deficit ⁵	Future SR-18 Angled Parking ³	Total Parking Supply ⁴	Net Parking Surplus / Deficit ⁵
District 1 - Zone 1	632	582	515	(67)	3		518	(64)		518	(64)
District 1 - Zone 2	1,495	1,376	1,248	(128)	12	66	1,326	(50)	101	1,361	(15)
District 1 - Zone 3	1,666	1,533	1,392	(141)	6	26	1,424	(109)	33	1,431	(102)
District 1 - Zone 4	District 4 (The East End Signature Project) is Entirely Self-Parked and Excluded from the Shared Parking Analysis										
District 1 - Zone 5	576	530	480	(50)	0		480	(50)		480	(50)
District 1 - Zone 6	747	688	624	(64)	9	70	703	15	96	729	41
District 1 - Zone 7	632	582	528	(54)	11	65	604	22	89	628	46
District 1 - Zone 8	District 8 (The West End Signature Project) is Entirely Self-Parked and Excluded from the Shared Parking Analysis										
District 2 - Zone 1	1,151	1,049	1,153	104	52		1,205	156		1,205	156
District 2 - Zone 2	1,637	1,491	1,638	147	46		1,684	193		1,684	193
District 2 - Zone 3	243	221	243	22	2		245	24		245	24
District 2 - Zone 4	3,032	2,763	3,033	270	15		3,048	285		3,048	285
Subtotal Districts 1-2:	11,811	10,815	10,854	39	156	227	11,237	422	319	11,329	514
District 3 - Zone 1	2445	2130	2304	174	0		2,304	174	0	2304	174
District 3 - Zone 2	1318	1148	1241	93	0		1,241	93	0	1241	93
District 4 - Zone 1 ⁶	6	6	4	(2)	0		4	(2)	0	4	(2)
District 4 - Zone 2 ⁶	38	38	26	(12)	0		26	(12)	0	26	(12)
District 5 - Zone 1 ⁶	136	136	93	(43)	0		93	(43)	0	93	(43)
Subtotal Districts 3-5:	3,943	3,458	3,668	210	-	-	3,668	210	-	3,668	210
TOTAL ALL Districts	15,754	14,273	14,522	249	156	227	14,905	632	319	14,997	724

Notes:

1. Peak parking demand represents the total number of parking spaces required to meet peak parking accumulation with an effective parking supply. The effective parking supply allows a small cushion of spaces (10%) over the peak parking accumulation to provide for operation fluctuations, misparked vehicles, vehicle maneuvers, and vacancies created by reserving spaces for specific users, such as disabled parking. The cushion reduces the need to search the entire system for the last few parking spaces, thus reducing patron frustration and excessive circulation. The 85th percentile of observed peak hour accumulations is employed by the Urban Land Institute and the Institute of Transportation Engineers for determining the parking ratios used in this analysis.
2. Refer to the section of the report describing the parking standards developed for the Specific Plan area.
3. The number of angled parking spaces resulting from the reconstruction of SR-18 (under either the all roundabouts or all traffic signals alternatives) has been estimated from preliminary concepts. Because the number of angled on-street parking spaces vary between the two alternatives, an analysis of both are included in this table. This analysis assumes 40% of the new angled spaces are utilized by existing land uses remaining through buildout of the Specific Plan. The spaces listed in this column represent 60% of the physical spaces in each alternative.
4. Total parking supply is the sum of on-site and available on-street parking within the TAZ.
5. Total parking supply minus peak shared parking demand.
6. The demand and supply indicated for the residential-only TAZs in Districts 4 and 5 represent the residential guest component of parking. The demand for resident parking is assumed met with reserved and secure parking for residents and both resident demand and supply have been subtracted from the shared parking demand and supply values presented in the table.

Interestingly, the without shared parking and with shared parking demand estimates are not that far apart. Shared parking with the mix of land use assumed under buildout of the Specific Plan results in a about a 9 percent reduction in demand. The peak parking demand (with shared parking) in the third column generates the need for some 14,300 parking spaces. The demand is met with the on-site parking supply (fourth column) but only in the totals. As shown in the fifth column (Site Parking Surplus / Deficit) at the TAZ level the ramifications of the parking supply objectives are clearly seen. The six TAZs in District 1 (excluding the zones containing the two signature projects which are assumed to be entirely self-parked) all show parking supply deficits consistent with the objective to reduce parking requirements in this District. The average deficit at the TAZ level in District 1 is 84 spaces totaling to a 504-space deficit.

In all Districts there is a net surplus of 249 on-site parking spaces in the peak period. In Districts 1 and 2, there is a net surplus of 39 on-site spaces. A net deficit was expected in these Districts when combined since the strategy is to lower parking requirements in District 1 but the exclusion of TAZs 4 and 8 for the signature projects results in a small surplus.

There are several ways to address the deficit in District 1, the first way is the use of on-street parking within the analysis zone. The 6th column in **Table 10** assesses “available” on-street parking spaces on streets in District 1 excluding new angled parking on the reconfigured SR-18 frontage roads estimated at 382 and 531 spaces corridorwide for Alternative (All Roundabouts) and Alternative 2 (All Signals) respectively.

Accounting for utilization of street parking within District 1 (it is assumed the future on-street parking is utilized 40% by existing uses at buildout of the Specific Plan so 60% is available for Plan land uses) about 227 and 319 spaces in Alternatives 1 and 2 respectively would be available to augment on-site parking in District 1. The column in **Table 10** labeled “Total Parking Supply” under both alternatives is the sum of on-site and on-street parking and the column labeled “Net Parking Surplus / Deficit” under each alternative show whether the TAZ has parking to spare (surplus) or needs parking (deficit). The use of on-street parking reduces the deficit in Districts 1 and 2 by 2% and 3% in Alternative 1 and 2 respectively.

With available on-street parking, in Districts 1 and 2, the TAZs have a net surplus of 422 and 514 parking spaces and the entire Specific Plan area has a net surplus of 632 and 724 parking spaces under Alternatives 1 and 2 respectively. However, this overall net surplus does not necessarily offset TAZs with deficits in practicality. Surplus parking may be too distant from deficit areas to be of practical use. Therefore, another off-setting strategy should be employed—strategically located public parking lots.

Off Street Public Parking Strategy

The provision of public parking surface lots in areas with on-site parking deficits is a generally good strategy for active and vibrant downtowns and main street districts such as the Highway 18 corridor. Parking deficits occur in

District 1 due to the lower parking requirements to incentivize development. Deficits do not result in all TAZs after on-street parking is considered. The deficits are primarily in the TAZs north of Highway 18 and one TAZ at the eastern end of the corridor south of Highway 18.

The resolution of the parking analysis by TAZ is not high enough to pinpoint a location for public parking, but it is high enough to identify a general area for public parking. **Figure 2** identifies the TAZs with parking deficits and identifies the areas where public parking lots should be considered:

- Location 1: Approximately 150 to 200 spaces in surface lot(s) generally serving the land uses in TAZs 1, 2, and possibly 7. The parking should be located north of Highway 18 and have a good pedestrian connection to the crossings at Highway 18 and Navajo Road and Highway 18 and Yucca Loma Road.
- Location 2: Approximately 150 to 200 spaces in surface lot(s) at the eastern edge of the Specific Plan area and serving the deficit primarily in TAZ 3 but may also supplement TAZ 5 which is showing a deficit. The parking should be located north of Highway 18 and have a good pedestrian connection to the crossings at Highway 18 / Central Road.

The off-street public parking lots may be a single large parcel or be comprised of several smaller lots distributed throughout the areas with parking deficits. Smaller lots may be acquired from larger development projects as a condition of approval and one way of obtaining land for public use. If multiple smaller lots are used, it would be best to brand the parking and develop a parking wayfinding system to direct people to public parking.

Additional Off Street Public Parking

Although the TAZs in District 1 south of Highway 18 are not showing parking deficits, it is prudent to consider one or two additional public parking lots located south of Highway 18. Two potential areas for public parking lots are identified in **Figure 2**. One potential siting of approximately 50-100 spaces is in District 2 just south of its boundary with District 1's TAZ 7. This location is strategic in that it is near several potentially intensely developed zones, is located near the important crossings at Highway 18 and Navajo Road and is accessible to a potential mid-block pedestrian connection to Highway 18 with some form of non-intersection crossing of Highway 18 (either a beaconed at-grade crossing or a pedestrian overcrossing) as identified in the Circulation Plan.

The second siting area to consider straddles the division between TAZ 6 and TAZ 7 in District 1 and TAZ 1 and 2 in District 2. This is a strategic location for approximately 150-200 spaces in that it is centrally situated within the Specific Plan area amidst potentially intensely developed mixed-uses and in proximity to the controlled Highway 18 and Quinnault Road crossing (via roundabout or traffic signal). Again, public parking lots in these secondary locations may be in a single large facility or distributed throughout the area in smaller lots. If possible, property acquired in one of these key areas should be of the size and of uniform configuration (typically rectangular or square) for the future construction of a multi-level parking structure.

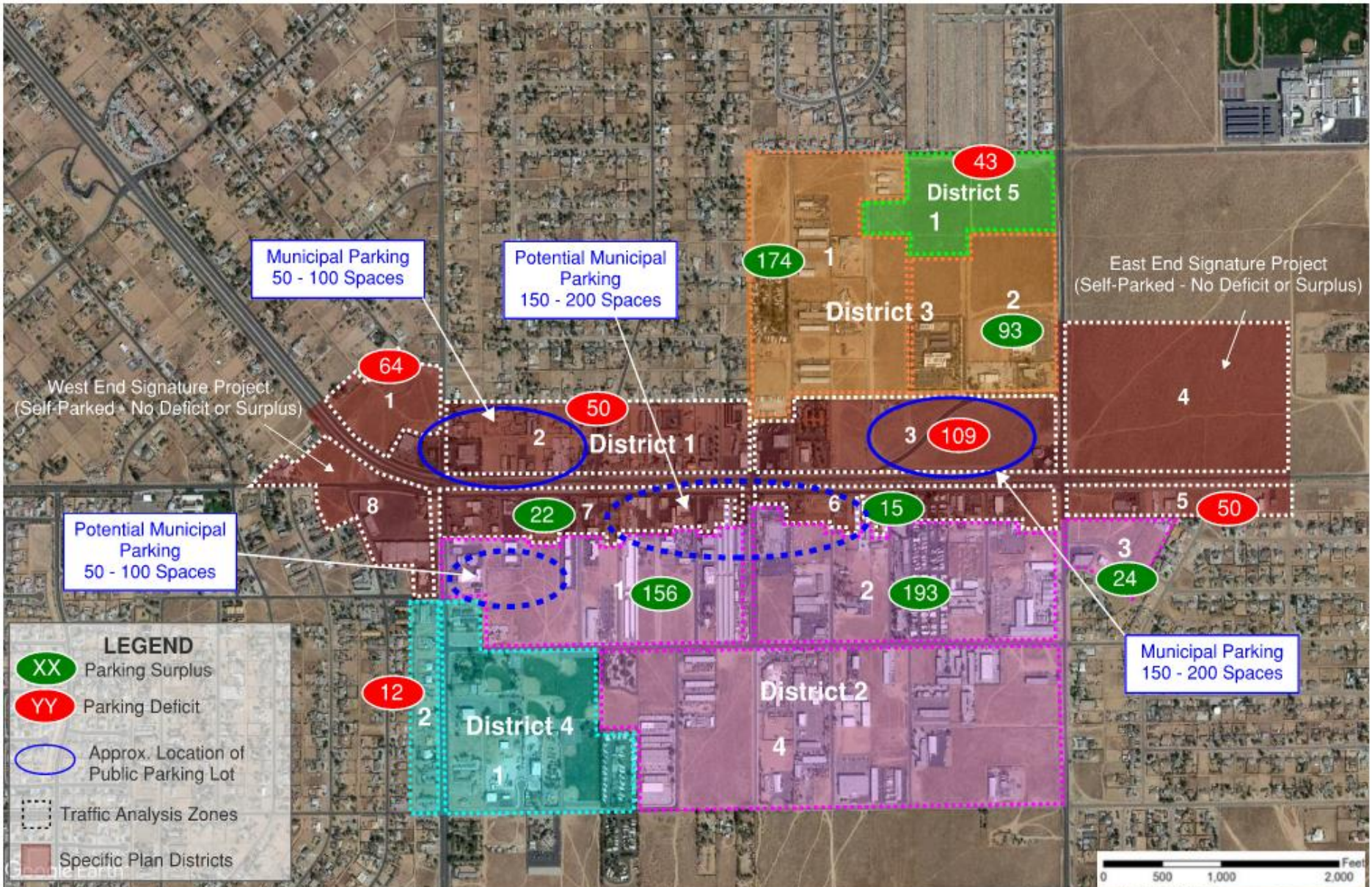


FIGURE 2
VILLAGE SPECIFIC PLAN
PARKING SURPLUS / DEFICIT BY ZONE

PARKING MANAGEMENT STRATEGIES

Many suburban municipalities are reconsidering their parking policies and standards based on national parking best practices designed to encourage alternative modes of transportation such as transit, bicycling and walking. Parking management strategies should only be adopted if they have a good probability of being successful in the local context it will be applied and be compatible with the values, behaviors, and desires of the community.

Parking management strategies are not “one size fits all”—some strategies are intended for major urban / central city contexts and have little application in smaller town centers like the Village Specific Plan area. Regardless, many parking management strategies are scalable or have the flexibility to modify the strategy to work optimally in any type of setting.

This section contains several parking management strategies or techniques that can work well in the Village Specific Plan area either in the near-term or introduced gradually over time as the area grows and intensifies.

Parking Operations

On Street Parking Time Restrictions

On street parking spaces can be the most valuable property in town depending on where they are located. Within the Specific Plan area, the most valuable parking spaces will be located on the Highway 18 frontage roads and north-south connecting streets within 1-2 blocks of Highway 18. These spaces need to be managed if they are to be effective in supporting lower parking requirements in District 1.

Managing these spaces means restricting (and enforcing) their use to some extent. In areas where retail, service, restaurants, and cultural attractions are located or concentrated, the street parking closest to the destinations should have time limitations to promote turnover of the spaces. Longer term street parking can be located further from the concentrated mixed-use areas.

Parking Requirements / Standards

Traditionally, off street parking requirements are standards established by cities that require a *minimum* amount of parking for each individual land use in proportion to its size. Most parking standards are based on what neighboring municipalities are using or based on national standards typically determined from decades old data on the demand for free parking in a suburban land use pattern and without other travel modes available.

Reduced Parking Requirements

Off-street parking requirements in local municipal codes directly affect parking supply, parking pricing possibilities, urban design, and development feasibility. Reducing the parking requirements in District 1 is recommended as a policy in the Specific Plan specific to address development feasibility and to promote new and redevelopment. Reducing the requirements, to a lesser extent, should also be feasible in the other Districts as well.

Shared Parking

Shared parking can help resolve issues of development feasibility due to the cost of providing the minimally required parking. The concept of shared parking is to use the same parking spaces for two or more different land uses that have peak demands at different times. Allowing for shared parking in the planning stage of development can substantially reduce parking supply requirements if the development has (or will have) the appropriate mix of complementary land uses. Shared parking can reduce the amount of land devoted to parking and, consequently, improve opportunities for mixed use, creative site planning and landscaping.

Reduced parking requirements in the Specific Plan area is predicated on the Town adopting a policy requiring that future mixed-use development in the Specific Plan area have shared parking at a minimum for the different uses within the development, but over time parking should be generally shared throughout certain Districts for all users.

Parking Pricing

On-street Parking Pricing

As the Specific Plan area, and particularly District 1, starts to develop the Town may want to consider phasing in on-street parking pricing in key areas. On-street parking pricing is an important tool for maintaining turnover of street parking and for helping always keep some parking spaces available. If the on-street parking is free or the price is too low, demand for these spaces will exceed supply, resulting in a shortage of parking spaces where it is important to have a supply of available and convenient short-term parking to serve retail and service uses fronting the street. This type of pricing is one component of a comprehensive parking management system coordinating on and off-street public parking (and potentially private facilities) facilities to prioritize parking spaces for specific users.

Unbundled Parking

Historically, parking at commercial buildings and high-density multifamily residential buildings bundled or absorbed the cost into tenant leases, hiding the true cost of parking. Unbundling parking from the cost of rent will help people to understand the economic cost of parking and providing tenants with the

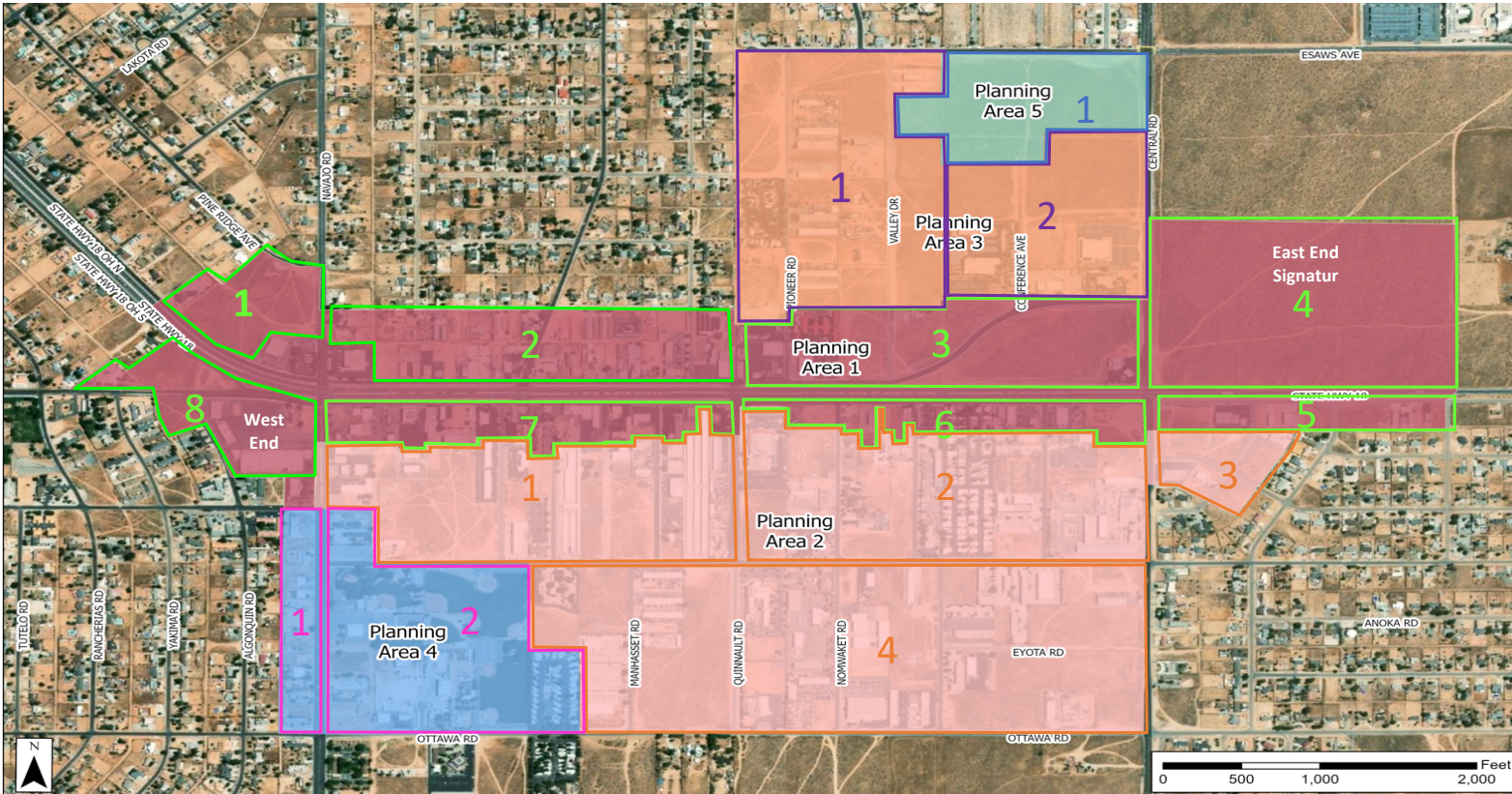
opportunity to opt out of parking and make alternative travel decisions. Typically, unbundled parking spaces are available for lease by the tenants. If unleased by tenants the parking space may become a “flex” space reserved for various functions such as renting the space for temporary parking needs or for carpool or vanpool parking, or the space can become part of the shared parking pool especially if the building charges for parking.

Unbundling parking might help to lower rents for commercial tenants with low demand for parking or for residential tenants that don’t own vehicles, but lowering rent is not the intended function of unbundling. Unbundled parking provides a foundation for additional parking pricing policies that may be implemented in the future.

APPENDIX

Shared Parking Model Input and Output Worksheets

**Town of Apple Valley Village Specific Plan Parking Analysis
Traffic Analysis Zone (TAZ) Map**



Planning Area 1 - TAZ 1

Description	ITE Code	Existing	Future	Units
Retail / Services	820		114,500	SF
Restaurant	931		12,722	SF
Office	701		76,333	SF
Industrial / R&D / Hi Tech Manuf	110		50,889	SF
MF Residential (Guest)	221		0	Dus

Planning Area 1 - TAZ 2

Description	ITE Code	Existing	Future	Units
Retail / Services	820		270,636	SF
Restaurant	931		30,071	SF
Office	701		180,424	SF
Industrial / R&D / Hi Tech Manuf	110		120,283	SF
MF Residential (Guest)	221		0	Dus

Planning Area 1 - TAZ 3

Description	ITE Code	Existing	Future	Units
Retail / Services	820		301,863	SF
Restaurant	931		33,540	SF
Office	701		201,242	SF
Industrial / R&D / Hi Tech	110		134,161	SF
MF Residential (Guest)	221		0	Dus

Planning Area 1 - TAZ 4

Description	ITE Code	Existing	Future	Units
Retail / Services	150		205,821	SF
Restaurant	151		22,869	SF
Office	210		137,214	SF
Industrial / R&D / Hi Tech	221		91,476	SF
MF Residential (Guest)	224		180	Dus

Planning Area 2 - TAZ 5

Description	ITE Code	Existing	Future	Units
Retail / Services	820		104,091	SF
Restaurant	931		11,566	SF
Office	701		69,394	SF
Industrial / R&D / Hi Tech Manuf	110		46,263	SF
MF Residential (Guest)	221		0	Dus

Planning Area 1 - TAZ 6

Description	ITE Code	Existing	Future	Units
Retail / Services	820		135,318	SF
Restaurant	931		15,035	SF
Office	701		90,212	SF
Industrial / R&D / Hi Tech Manuf	110		60,141	SF
MF Residential (Guest)	221		0	Dus

Planning Area 1 - TAZ 7

Description	ITE Code	Existing	Future	Units
Retail / Services	820		114,500	s.f.
Restaurant	931		12,722	SF
Office	701		76,333	d.u.
Industrial / R&D / Hi Tech	110		50,889	d.u.
MF Residential (Guest)	221		0	d.u.

Planning Area 1 - TAZ 8

Description	ITE Code	Existing	Future	Units
Retail / Services	820		61,599	SF
Restaurant	931		6,844	SF
Office	701		41,066	SF
Industrial / R&D / Hi Tech	110		27,377	SF
MF Residential (Guest)	221		42	Dus

Planning Area 2 - TAZ 1

Description	ITE Code	Existing	Future	Units
Retail / Services	820		96,059	SF
Restaurant / Drinking Establishments	931		24,015	SF
Office	701		144,089	SF
Industrial / R&D / High Tech Manuf	110		216,133	SF
Residential	221		0	Dus

Planning Area 2 - TAZ 2

Description	ITE Code	Existing	Future	Units
Retail / Services	820		136,505	SF
Restaurant	931		34,126	SF
Office	701		204,757	SF
Industrial / R&D / Hi Tech Manuf	110		307,136	SF
MF Residential (Guest)	221		0	Dus

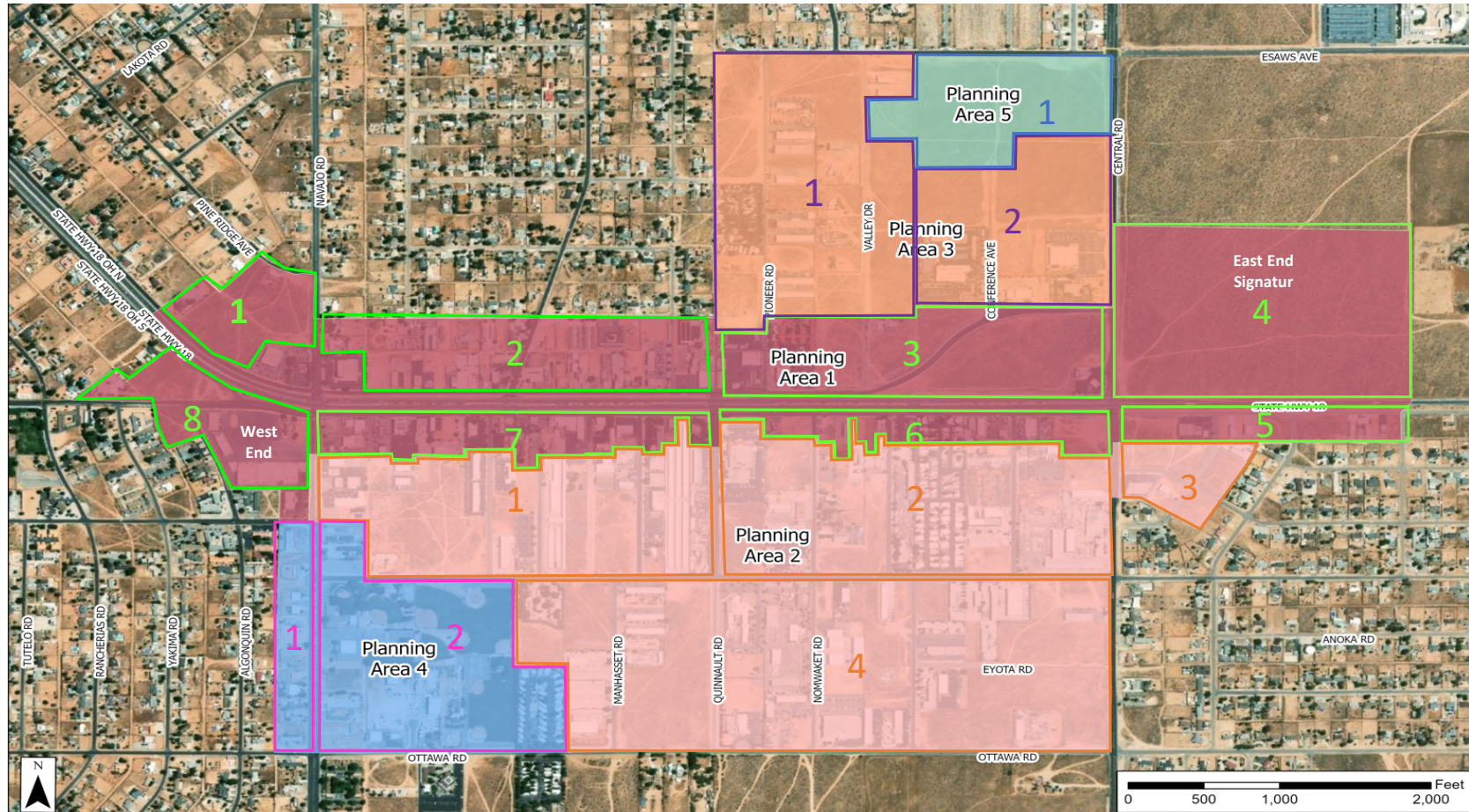
Planning Area 2 - TAZ 3

Description	ITE Code	Existing	Future	Units
Retail / Services	820		20,223	SF
Restaurant	931		5,056	SF
Office	701		30,334	SF
Industrial / R&D / Hi Tech	110		45,502	SF
MF Residential (Guest)	221		0	Dus

Planning Area 2 - TAZ 4

Description	ITE Code	Existing	Future	Units
Retail / Services	820		252,787	SF
Restaurant	931		63,197	SF
Office	701		379,180	SF
Industrial / R&D / Hi Tech	110		568,770	SF
MF Residential (Guest)	221		0	Dus

Town of Apple Valley Village Specific Plan Parking Analysis Traffic Analysis Zone (TAZ) Map



Planning Area 3 - TAZ 1				
Description	ITE Code	Existing	Future	Units
Retail / Services	820		166,066	SF
Restaurant	931		41,517	SF
Office	701		249,099	SF
Industrial / R&D / Hi Tech Manuf	110		373,649	SF
MF Residential (Guest)	221		0	Dus

Planning Area 3 - TAZ 2				
Description	ITE Code	Existing	Future	Units
Retail / Services	820		89,420	SF
Restaurant	931		22,355	SF
Office	701		134,130	SF
Industrial / R&D / Hi Tech Manuf	110		201,195	SF
MF Residential (Guest)	221		0	Dus

Planning Area 4 - TAZ 1				
Description	ITE Code	Existing	Future	Units
Retail / Services	820			SF
Restaurant	931			SF
Office	701			SF
Industrial / R&D / Hi Tech	110			SF
MF Residential (Guest)	221		21	Dus

Planning Area 4 - TAZ 2				
Description	ITE Code	Existing	Future	Units
Retail / Services	150			SF
Restaurant	151			SF
Office	210			SF
Industrial / R&D / Hi Tech	221			SF
MF Residential (Guest)	224		129	Dus

Planning Area 5 - TAZ 1				
Description	ITE Code	Existing	Future	Units
Retail / Services	820			SF
Restaurant	931			SF
Office	701			SF
Industrial / R&D / Hi Tech Manuf	110			SF
MF Residential (Guest)	221		466	Dus

Planning Area 5 - TAZ 2				
Description	ITE Code	Existing	Future	Units
Retail / Services	820			SF
Restaurant	931			SF
Office	701			SF
Industrial / R&D / Hi Tech Manuf	110			SF
MF Residential (Guest)	221			Dus

Planning Area 5 - TAZ 3				
Description	ITE Code	Existing	Future	Units
Retail / Services	820			s.f.
Restaurant	931			s.f.
Office	701			d.u.
Industrial / R&D / Hi Tech	110			d.u.
MF Residential (Guest)	221			d.u.

Planning Area 5 - TAZ 4				
Description	ITE Code	Existing	Future	Units
Retail / Services	820			SF
Restaurant	931			SF
Office	701			SF
Industrial / R&D / Hi Tech	110			SF
MF Residential (Guest)	221			Dus

Parking Accumulation Model - Zonal Summary Sheet

Planning Area 1 - TAZ 1

Development Summary

Retail / Services	114,500	SF
Restaurant	12,722	SF
Office	76,333	SF
Industrial / R&D / Hi Tech Manuf	50,889	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8.0%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	0
Surface Lots	0
On-Street Parking	0
Total Number of Spaces	0

Planning Area 1 - TAZ 5

Development Summary

Retail / Services	104,091	SF
Restaurant	11,566	SF
Office	69,394	SF
Industrial / R&D / Hi Tech Manuf	46,263	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 2 - TAZ 1

Development Summary

Retail / Services	96,059	SF
Restaurant	24,015	SF
Office	144,089	SF
Industrial / R&D / Hi Tech Manuf	216,133	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 2

Development Summary

Retail / Services	270,636	SF
Restaurant	30,071	SF
Office	180,424	SF
Industrial / R&D / Hi Tech Manuf	120,283	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 6

Development Summary

Retail / Services	135,318	SF
Restaurant	15,035	SF
Office	90,212	SF
Industrial / R&D / Hi Tech Manuf	60,141	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 2 - TAZ 2

Development Summary

Retail / Services	136,505	SF
Restaurant	34,126	SF
Office	204,757	SF
Industrial / R&D / Hi Tech Manuf	307,136	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 3

Development Summary

Retail / Services	301,863	SF
Restaurant	33,540	SF
Office	201,242	SF
Industrial / R&D / Hi Tech Manuf	134,161	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 7

Development Summary

Retail / Services	114,500	SF
Restaurant	12,722	SF
Office	76,333	SF
Industrial / R&D / Hi Tech Manuf	50,889	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 2 - TAZ 3

Development Summary

Retail / Services	20,223	SF
Restaurant	5,056	SF
Office	30,334	SF
Industrial / R&D / Hi Tech Manuf	45,502	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 4

Development Summary

Retail / Services	206,821	SF
Restaurant	22,869	SF
Office	137,214	SF
Industrial / R&D / Hi Tech Manuf	91,476	SF
MF Residential (Guest)	180	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 1 - TAZ 8

Development Summary

Retail / Services	61,599	SF
Restaurant	6,844	SF
Office	41,066	SF
Industrial / R&D / Hi Tech Manuf	27,377	SF
MF Residential (Guest)	42	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Planning Area 2 - TAZ 4

Development Summary

Retail / Services	252,787	SF
Restaurant	63,197	SF
Office	379,180	SF
Industrial / R&D / Hi Tech Manuf	568,770	SF
MF Residential (Guest)	0	Dus

Alternative Modes

Transit Usage	8%
Bicycle Usage	6%
Walking Trips	6%

Assume Shared Use Parking? (Y/N)

Y

Parking Supply Information

Parking Decks	
Surface Lots	
On-Street Parking	
Total Number of Spaces	

Peak Parking Accumulation - All Zones

1. Development Program Summary

Retail / Services	0	SF	Retail / Services	0	SF
Restaurant	0	SF	Restaurant	0	SF
Office	0	SF	Office	0	SF
Industrial / R&D / Hi Tech Manuf	0	SF	Industrial / R&D / Hi Tech Manuf	0	SF
MF Residential (Guest)	0	Dus	MF Residential (Guest)	0	Dus
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
Grove Retail	0	s.f.	Grove Retail	0	s.f.
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

2. Peak Parking Accumulation Factors

Retail / Services	3.44	per 1,000 GFA	Retail / Services	3.44	per 1,000 GFA
Restaurant	17.40	per 1,000 GFA	Restaurant	17.40	per 1,000 GFA
Office	3.45	per 1,000 GFA	Office	3.45	per 1,000 GFA
Industrial / R&D / Hi Tech Manuf	1.85	per 1,000 GFA	Industrial / R&D / Hi Tech Manuf	1.85	per 1,000 GFA
MF Residential (Guest)	1.48	Per DU	MF Residential (Guest)	1.48	Per DU
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per seat	0	0.00	per seat
0	0.00	per seat	0	0.00	per seat
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
Grove Retail	0.00	per 1,000 GFA	Grove Retail	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA
0	0.00	per 1,000 GFA	0	0.00	per 1,000 GFA

3. Alternative Travel Modes

Transit Usage	8%	Transit Usage	8%
Bicycle Usage	6%	Bicycle Usage	6%
Walking Trips	6%	Walking Trips	6%
Internalization	0	Internalization	0

4. Peak Parking Accumulation (Single Use Methodology)

Zone L			Zone M		
Retail / Services	0	spaces	Retail / Services	0	spaces
Restaurant	0	spaces	Restaurant	0	spaces
Office	0	spaces	Office	0	spaces
Industrial / R&D / Hi Tech Manuf	0	spaces	Industrial / R&D / Hi Tech Manuf	0	spaces
MF Residential (Guest)	0	spaces	MF Residential (Guest)	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
Grove Retail	0	spaces	Grove Retail	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
0	0	spaces	0	0	spaces
Total	0	spaces	Total	0	spaces

5. Peak Parking Accumulation (Shared Use Parking Methodology)

Zone L		Zone M	
Parking Demand (Total Spaces)	0	Parking Demand (Total Spaces)	0

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

A. Time of Day Distribution

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)
6:00 a.m.	1%	0%	3%	3%	100%
7:00 a.m.	5%	0%	30%	30%	90%
8:00 a.m.	16%	0%	75%	75%	85%
9:00 a.m.	62%	0%	95%	95%	80%
10:00 a.m.	64%	15%	100%	100%	75%
11:00 a.m.	91%	40%	100%	100%	70%
12:00 noon	87%	75%	90%	90%	65%
1:00 p.m.	84%	75%	90%	90%	70%
2:00 p.m.	100%	65%	100%	100%	70%
3:00 p.m.	95%	40%	100%	100%	70%
4:00 p.m.	85%	50%	90%	90%	75%
5:00 p.m.	91%	75%	50%	50%	85%
6:00 p.m.	96%	95%	25%	25%	90%
7:00 p.m.	95%	100%	10%	10%	97%
8:00 p.m.	70%	100%	7%	7%	98%
9:00 p.m.	50%	100%	3%	3%	99%
10:00 p.m.	30%	95%	1%	1%	100%
11:00 p.m.	10%	75%	0%	0%	100%
12:00 mid	0%	25%	0%	0%	100%

B. Hourly Parking Demand (Planning Area 1 - TAZ 1)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	3	0	5	2	0	10
7:00 a.m.	13	0	51	18	0	82
8:00 a.m.	41	0	128	46	0	215
9:00 a.m.	159	0	162	58	0	379
10:00 a.m.	164	22	171	61	0	418
11:00 a.m.	233	58	171	61	0	523
12:00 noon	223	108	154	55	0	540
1:00 p.m.	215	108	154	55	0	532
2:00 p.m.	256	94	171	61	0	582
3:00 p.m.	243	58	171	61	0	533
4:00 p.m.	218	72	154	55	0	499
5:00 p.m.	233	108	86	31	0	458
6:00 p.m.	246	137	43	15	0	441
7:00 p.m.	243	144	17	6	0	410
8:00 p.m.	179	144	12	4	0	339
9:00 p.m.	128	144	5	2	0	279
10:00 p.m.	77	137	2	1	0	217
11:00 p.m.	26	108	0	0	0	134
12:00 mid	0	36	0	0	0	36

C. Hourly Parking Demand (Planning Area 1 - TAZ 2)

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	6	0	12	4	0	22
7:00 a.m.	30	0	122	44	0	196
8:00 a.m.	97	0	304	109	0	510
9:00 a.m.	375	0	385	138	0	898
10:00 a.m.	387	51	405	145	0	988
11:00 a.m.	551	136	405	145	0	1,237
12:00 noon	526	255	365	131	0	1,277
1:00 p.m.	508	255	365	131	0	1,259
2:00 p.m.	605	221	405	145	0	1,376
3:00 p.m.	575	136	405	145	0	1,261
4:00 p.m.	514	170	365	131	0	1,180
5:00 p.m.	551	255	203	73	0	1,082
6:00 p.m.	581	323	101	36	0	1,041
7:00 p.m.	575	340	41	15	0	971
8:00 p.m.	424	340	28	10	0	802
9:00 p.m.	303	340	12	4	0	659
10:00 p.m.	182	323	4	1	0	510
11:00 p.m.	61	255	0	0	0	316
12:00 mid	0	85	0	0	0	85

D. Hourly Parking Demand (Planning Area 1- TAZ 3)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	7	0	14	5	0	26
7:00 a.m.	34	0	135	48	0	217
8:00 a.m.	108	0	338	121	0	567
9:00 a.m.	419	0	428	153	0	1,000
10:00 a.m.	432	57	451	161	0	1,101
11:00 a.m.	614	152	451	161	0	1,378
12:00 noon	587	284	406	145	0	1,422
1:00 p.m.	567	284	406	145	0	1,402
2:00 p.m.	675	246	451	161	0	1,533
3:00 p.m.	641	152	451	161	0	1,405
4:00 p.m.	574	190	406	145	0	1,315
5:00 p.m.	614	284	226	81	0	1,205
6:00 p.m.	648	360	113	40	0	1,161
7:00 p.m.	641	379	45	16	0	1,081
8:00 p.m.	473	379	32	11	0	895
9:00 p.m.	338	379	14	5	0	736
10:00 p.m.	203	360	5	2	0	570
11:00 p.m.	68	284	0	0	0	352
12:00 mid	0	95	0	0	0	95

E. Hourly Parking Demand (Planning Area 1- TAZ 4)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	5	0	9	3	263	17
7:00 a.m.	23	0	92	33	237	148

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

8:00 a.m.	74	0	231	83	224	388
9:00 a.m.	285	0	293	105	210	683
10:00 a.m.	294	39	308	110	197	751
11:00 a.m.	419	104	308	110	184	941
12:00 noon	400	194	277	99	171	970
1:00 p.m.	386	194	277	99	184	956
2:00 p.m.	460	168	308	110	184	1,046
3:00 p.m.	437	104	308	110	184	959
4:00 p.m.	391	130	277	99	197	897
5:00 p.m.	419	194	154	55	224	822
6:00 p.m.	442	246	77	28	237	793
7:00 p.m.	437	259	31	11	255	738
8:00 p.m.	322	259	22	8	258	611
9:00 p.m.	230	259	9	3	260	501
10:00 p.m.	138	246	3	1	263	388
11:00 p.m.	46	194	0	0	263	240
12:00 mid	0	65	0	0	263	65

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

F. Hourly Parking Demand (Planning Area 1- TAZ 5)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	2	0	5	2	0	9
7:00 a.m.	12	0	47	17	0	76
8:00 a.m.	37	0	117	42	0	196
9:00 a.m.	144	0	148	53	0	345
10:00 a.m.	149	20	156	56	0	381
11:00 a.m.	212	52	156	56	0	476
12:00 noon	203	98	140	50	0	491
1:00 p.m.	196	98	140	50	0	484
2:00 p.m.	233	85	156	56	0	530
3:00 p.m.	221	52	156	56	0	485
4:00 p.m.	198	66	140	50	0	454
5:00 p.m.	212	98	78	28	0	416
6:00 p.m.	224	124	39	14	0	401
7:00 p.m.	221	131	16	6	0	374
8:00 p.m.	163	131	11	4	0	309
9:00 p.m.	117	131	5	2	0	255
10:00 p.m.	70	124	2	1	0	197
11:00 p.m.	23	98	0	0	0	121
12:00 mid	0	33	0	0	0	33

G. Hourly Parking Demand ((Planning Area 1- TAZ 6)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	3	0	6	2	0	11
7:00 a.m.	15	0	61	22	0	98
8:00 a.m.	48	0	152	54	0	254
9:00 a.m.	188	0	192	68	0	448
10:00 a.m.	194	26	202	72	0	494
11:00 a.m.	276	68	202	72	0	618
12:00 noon	264	128	182	65	0	639
1:00 p.m.	255	128	182	65	0	630
2:00 p.m.	303	111	202	72	0	688
3:00 p.m.	288	68	202	72	0	630
4:00 p.m.	258	85	182	65	0	590
5:00 p.m.	276	128	101	36	0	541
6:00 p.m.	291	162	51	18	0	522
7:00 p.m.	288	170	20	7	0	485
8:00 p.m.	212	170	14	5	0	401
9:00 p.m.	152	170	6	2	0	330
10:00 p.m.	91	162	2	1	0	256
11:00 p.m.	30	128	0	0	0	158
12:00 mid	0	43	0	0	0	43

H. Hourly Parking Demand (Planning Area 1- TAZ 7)

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	3	0	5	2	0	10
7:00 a.m.	13	0	51	18	0	82
8:00 a.m.	41	0	128	46	0	215
9:00 a.m.	159	0	162	58	0	379
10:00 a.m.	164	22	171	61	0	418
11:00 a.m.	233	58	171	61	0	523
12:00 noon	223	108	154	55	0	540
1:00 p.m.	215	108	154	55	0	532
2:00 p.m.	256	94	171	61	0	582
3:00 p.m.	243	58	171	61	0	533
4:00 p.m.	218	72	154	55	0	499
5:00 p.m.	233	108	86	31	0	458
6:00 p.m.	246	137	43	15	0	441
7:00 p.m.	243	144	17	6	0	410
8:00 p.m.	179	144	12	4	0	339
9:00 p.m.	128	144	5	2	0	279
10:00 p.m.	77	137	2	1	0	217
11:00 p.m.	26	108	0	0	0	134
12:00 mid	0	36	0	0	0	36

I. Hourly Parking Demand (Planning Area 1- TAZ 8)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	1	0	3	1	61	5
7:00 a.m.	7	0	28	10	55	45
8:00 a.m.	22	0	69	25	52	116
9:00 a.m.	86	0	87	31	49	204
10:00 a.m.	88	12	92	33	46	225
11:00 a.m.	126	31	92	33	43	282
12:00 noon	120	58	83	30	40	291
1:00 p.m.	116	58	83	30	43	287
2:00 p.m.	138	50	92	33	43	313
3:00 p.m.	131	31	92	33	43	287
4:00 p.m.	117	39	83	30	46	269
5:00 p.m.	126	58	46	17	52	247
6:00 p.m.	132	73	23	8	55	236
7:00 p.m.	131	77	9	3	59	220
8:00 p.m.	97	77	6	2	60	182
9:00 p.m.	69	77	3	1	60	150
10:00 p.m.	41	73	1	0	61	115
11:00 p.m.	14	58	0	0	61	72
12:00 mid	0	19	0	0	61	19

J. Hourly Parking Demand (Planning Area 2- TAZ 1)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	2	0	10	8	0	20

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

7:00 a.m.	12	0	104	84	0	200
8:00 a.m.	37	0	261	210	0	508
9:00 a.m.	143	0	331	266	0	740
10:00 a.m.	148	44	348	280	0	820
11:00 a.m.	210	117	348	280	0	955
12:00 noon	201	219	313	252	0	985
1:00 p.m.	194	219	313	252	0	978
2:00 p.m.	231	190	348	280	0	1,049
3:00 p.m.	219	117	348	280	0	964
4:00 p.m.	196	146	313	252	0	907
5:00 p.m.	210	219	174	140	0	743
6:00 p.m.	222	277	87	70	0	656
7:00 p.m.	219	292	35	28	0	574
8:00 p.m.	162	292	24	20	0	498
9:00 p.m.	116	292	10	8	0	426
10:00 p.m.	69	277	3	3	0	352
11:00 p.m.	23	219	0	0	0	242
12:00 mid	0	73	0	0	0	73

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

K. Hourly Parking Demand (Planning Area 2- TAZ 2)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	3	0	15	12	0	30
7:00 a.m.	16	0	148	119	0	283
8:00 a.m.	53	0	371	299	0	723
9:00 a.m.	204	0	469	378	0	1,051
10:00 a.m.	211	62	494	398	0	1,165
11:00 a.m.	299	166	494	398	0	1,357
12:00 noon	286	312	445	358	0	1,401
1:00 p.m.	276	312	445	358	0	1,391
2:00 p.m.	329	270	494	398	0	1,491
3:00 p.m.	313	166	494	398	0	1,371
4:00 p.m.	280	208	445	358	0	1,291
5:00 p.m.	299	312	247	199	0	1,057
6:00 p.m.	316	395	124	100	0	935
7:00 p.m.	313	416	49	40	0	818
8:00 p.m.	230	416	35	28	0	709
9:00 p.m.	165	416	15	12	0	608
10:00 p.m.	99	395	5	4	0	503
11:00 p.m.	33	312	0	0	0	345
12:00 mid	0	104	0	0	0	104

L. Hourly Parking Demand (Planning Area 2- TAZ 3)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	0	0	2	2	0	4
7:00 a.m.	2	0	22	18	0	42
8:00 a.m.	8	0	55	44	0	107
9:00 a.m.	30	0	69	56	0	155
10:00 a.m.	31	9	73	59	0	172
11:00 a.m.	45	25	73	59	0	202
12:00 noon	43	47	66	53	0	209
1:00 p.m.	41	47	66	53	0	207
2:00 p.m.	49	40	73	59	0	221
3:00 p.m.	47	25	73	59	0	204
4:00 p.m.	42	31	66	53	0	192
5:00 p.m.	45	47	37	30	0	159
6:00 p.m.	47	59	18	15	0	139
7:00 p.m.	47	62	7	6	0	122
8:00 p.m.	34	62	5	4	0	105
9:00 p.m.	25	62	2	2	0	91
10:00 p.m.	15	59	1	1	0	76
11:00 p.m.	5	47	0	0	0	52
12:00 mid	0	16	0	0	0	16

M. Hourly Parking Demand (Planning Area 2- TAZ 4)

HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI METHODOLOGY

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	6	0	27	22	0	55
7:00 a.m.	30	0	275	221	0	526
8:00 a.m.	97	0	687	553	0	1,337
9:00 a.m.	378	0	870	700	0	1,948
10:00 a.m.	390	116	916	737	0	2,159
11:00 a.m.	554	308	916	737	0	2,515
12:00 noon	530	578	824	663	0	2,595
1:00 p.m.	512	578	824	663	0	2,577
2:00 p.m.	609	501	916	737	0	2,763
3:00 p.m.	579	308	916	737	0	2,540
4:00 p.m.	518	385	824	663	0	2,390
5:00 p.m.	554	578	458	369	0	1,959
6:00 p.m.	585	732	229	184	0	1,730
7:00 p.m.	579	770	92	74	0	1,515
8:00 p.m.	426	770	64	52	0	1,312
9:00 p.m.	305	770	27	22	0	1,124
10:00 p.m.	183	732	9	7	0	931
11:00 p.m.	61	578	0	0	0	639
12:00 mid	0	193	0	0	0	193

**HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI
METHODOLOGY**

A. Time of Day Distribution

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)
6:00 a.m.	1%	0%	3%	3%	100%
7:00 a.m.	5%	0%	30%	30%	90%
8:00 a.m.	15%	0%	75%	75%	85%
9:00 a.m.	35%	0%	95%	95%	80%
10:00 a.m.	65%	15%	100%	100%	75%
11:00 a.m.	85%	40%	100%	100%	70%
12:00 noon	85%	75%	90%	90%	65%
1:00 p.m.	80%	75%	90%	90%	70%
2:00 p.m.	80%	65%	100%	100%	70%
3:00 p.m.	80%	40%	100%	100%	70%
4:00 p.m.	90%	50%	90%	90%	75%
5:00 p.m.	100%	75%	50%	50%	85%
6:00 p.m.	100%	95%	25%	25%	90%
7:00 p.m.	80%	100%	10%	10%	97%
8:00 p.m.	70%	100%	7%	7%	98%
9:00 p.m.	50%	100%	3%	3%	99%
10:00 p.m.	30%	95%	1%	1%	100%
11:00 p.m.	10%	75%	0%	0%	100%
12:00 mid	0%	25%	0%	0%	100%

B. Hourly Parking Demand (Planning Area 3 - TAZ 1)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	5	0	22	18	0	45
7:00 a.m.	25	0	222	178	0	425
8:00 a.m.	74	0	554	446	0	1,074
9:00 a.m.	172	0	702	564	0	1,438
10:00 a.m.	319	93	739	594	0	1,745
11:00 a.m.	417	248	739	594	0	1,998
12:00 noon	417	466	665	535	0	2,083
1:00 p.m.	393	466	665	535	0	2,059
2:00 p.m.	393	404	739	594	0	2,130
3:00 p.m.	393	248	739	594	0	1,974
4:00 p.m.	442	311	665	535	0	1,953
5:00 p.m.	491	466	370	297	0	1,624
6:00 p.m.	491	590	185	149	0	1,415
7:00 p.m.	393	621	74	59	0	1,147
8:00 p.m.	344	621	52	42	0	1,059
9:00 p.m.	246	621	22	18	0	907
10:00 p.m.	147	590	7	6	0	750
11:00 p.m.	49	466	0	0	0	515
12:00 mid	0	155	0	0	0	155

C. Hourly Parking Demand (Planning Area 3 - TAZ 2)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	3	0	12	10	0	25
7:00 a.m.	13	0	119	96	0	228
8:00 a.m.	40	0	299	240	0	579
9:00 a.m.	93	0	378	304	0	775
10:00 a.m.	172	50	398	320	0	940
11:00 a.m.	225	134	398	320	0	1,077
12:00 noon	225	251	358	288	0	1,122
1:00 p.m.	212	251	358	288	0	1,109
2:00 p.m.	212	218	398	320	0	1,148
3:00 p.m.	212	134	398	320	0	1,064
4:00 p.m.	239	168	358	288	0	1,053
5:00 p.m.	265	251	199	160	0	875
6:00 p.m.	265	318	100	80	0	763
7:00 p.m.	212	335	40	32	0	619
8:00 p.m.	186	335	28	22	0	571
9:00 p.m.	133	335	12	10	0	490
10:00 p.m.	80	318	4	3	0	405
11:00 p.m.	27	251	0	0	0	278
12:00 mid	0	84	0	0	0	84

D. Hourly Parking Demand (Planning Area 4 - TAZ 1)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	0	0	0	0	31	31
7:00 a.m.	0	0	0	0	28	28
8:00 a.m.	0	0	0	0	26	26
9:00 a.m.	0	0	0	0	25	25
10:00 a.m.	0	0	0	0	23	23
11:00 a.m.	0	0	0	0	22	22
12:00 noon	0	0	0	0	20	20
1:00 p.m.	0	0	0	0	22	22
2:00 p.m.	0	0	0	0	22	22
3:00 p.m.	0	0	0	0	22	22
4:00 p.m.	0	0	0	0	23	23
5:00 p.m.	0	0	0	0	26	26
6:00 p.m.	0	0	0	0	28	28
7:00 p.m.	0	0	0	0	30	30
8:00 p.m.	0	0	0	0	30	30
9:00 p.m.	0	0	0	0	31	31
10:00 p.m.	0	0	0	0	31	31
11:00 p.m.	0	0	0	0	31	31
12:00 mid	0	0	0	0	31	31

**HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI
METHODOLOGY**

E. Hourly Parking Demand (Planning Area 4 - TAZ 2)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	0	0	0	0	188	188
7:00 a.m.	0	0	0	0	169	169
8:00 a.m.	0	0	0	0	160	160
9:00 a.m.	0	0	0	0	150	150
10:00 a.m.	0	0	0	0	141	141
11:00 a.m.	0	0	0	0	132	132
12:00 noon	0	0	0	0	122	122
1:00 p.m.	0	0	0	0	132	132
2:00 p.m.	0	0	0	0	132	132
3:00 p.m.	0	0	0	0	132	132
4:00 p.m.	0	0	0	0	141	141
5:00 p.m.	0	0	0	0	160	160
6:00 p.m.	0	0	0	0	169	169
7:00 p.m.	0	0	0	0	182	182
8:00 p.m.	0	0	0	0	184	184
9:00 p.m.	0	0	0	0	186	186
10:00 p.m.	0	0	0	0	188	188
11:00 p.m.	0	0	0	0	188	188
12:00 mid	0	0	0	0	188	188

**HOURLY TIME-OF-DAY FACTORS FOR SHARED USE PARKING - ULI
METHODOLOGY**

F. Hourly Parking Demand (Planning Area 5 - TAZ 1)

Time of Day	Retail / Services	Restaurant	Office	Industrial / R&D / Hi Tech Manuf	MF Residential (Guest)	Total
6:00 a.m.	0	0	0	0	680	680
7:00 a.m.	0	0	0	0	612	612
8:00 a.m.	0	0	0	0	578	578
9:00 a.m.	0	0	0	0	544	544
10:00 a.m.	0	0	0	0	510	510
11:00 a.m.	0	0	0	0	476	476
12:00 noon	0	0	0	0	442	442
1:00 p.m.	0	0	0	0	476	476
2:00 p.m.	0	0	0	0	476	476
3:00 p.m.	0	0	0	0	476	476
4:00 p.m.	0	0	0	0	510	510
5:00 p.m.	0	0	0	0	578	578
6:00 p.m.	0	0	0	0	612	612
7:00 p.m.	0	0	0	0	660	660
8:00 p.m.	0	0	0	0	666	666
9:00 p.m.	0	0	0	0	673	673
10:00 p.m.	0	0	0	0	680	680
11:00 p.m.	0	0	0	0	680	680
12:00 mid	0	0	0	0	680	680

Shared Use Parking Calculations - Study Area Summary Statistics

Time of Day	Total Occupied Spaces												Total
	PA 1 TAZ 1	PA 1 TAZ 2	PA 1 TAZ 3	PA 1 TAZ 4	PA 1 TAZ 5	PA 1 TAZ 6	PA 1 TAZ 7	PA 1 TAZ 8	PA 2 TAZ 1	PA 2 TAZ 2	PA 2 TAZ 3	PA 2 TAZ 4	
6:00 AM	10	22	26	280	9	11	10	66	20	30	4	55	543
7:00 AM	82	196	217	385	76	98	82	100	200	283	42	526	2,287
8:00 AM	215	510	567	612	196	254	215	168	508	723	107	1,337	5,412
9:00 AM	379	898	1,000	893	345	448	379	253	740	1,051	155	1,948	8,489
10:00 AM	418	988	1,101	948	381	494	418	271	820	1,165	172	2,159	9,335
11:00 AM	523	1,237	1,378	1,125	476	618	523	325	955	1,357	202	2,515	11,234
12:00 PM	540	1,277	1,422	1,141	491	639	540	331	985	1,401	209	2,595	11,571
1:00 PM	532	1,259	1,402	1,140	484	630	532	330	978	1,391	207	2,577	11,462
2:00 PM	582	1,376	1,533	1,230	530	688	582	356	1,049	1,491	221	2,763	12,401
3:00 PM	533	1,261	1,405	1,143	485	630	533	330	964	1,371	204	2,540	11,399
4:00 PM	499	1,180	1,315	1,094	454	590	499	315	907	1,291	192	2,390	10,726
5:00 PM	458	1,082	1,205	1,046	416	541	458	299	743	1,057	159	1,959	9,423
6:00 PM	441	1,041	1,161	1,030	401	522	441	291	656	935	139	1,730	8,788
7:00 PM	410	971	1,081	993	374	485	410	279	574	818	122	1,515	8,032
8:00 PM	339	802	895	869	309	401	339	242	498	709	105	1,312	6,820
9:00 PM	279	659	736	761	255	330	279	210	426	608	91	1,124	5,758
10:00 PM	217	510	570	651	197	256	217	176	352	503	76	931	4,656
11:00 PM	134	316	352	503	121	158	134	133	242	345	52	639	3,129
12:00 AM	36	85	95	328	33	43	36	80	73	104	16	193	1,122
													12,401
													2:00 PM

Shared Use Parking Calculations - Study Area Summary Statistics

Time of Day	Planning	Planning	Planning	Planning	Planning	Total
	Area 3 - TAZ	Area 3 - TAZ	Area 4 - TAZ	Area 4 - TAZ	Area 5 - TAZ	
	1	2	1	2	1	
6:00 AM	45	25	31	188	680	0
7:00 AM	425	228	28	169	612	1,462
8:00 AM	1,074	579	26	160	578	2,417
9:00 AM	1,438	775	25	150	544	2,932
10:00 AM	1,745	940	23	141	510	3,359
11:00 AM	1,998	1,077	22	132	476	3,705
12:00 PM	2,083	1,122	20	122	442	3,789
1:00 PM	2,059	1,109	22	132	476	3,798
2:00 PM	2,130	1,148	22	132	476	3,908
3:00 PM	1,974	1,064	22	132	476	3,668
4:00 PM	1,953	1,053	23	141	510	3,680
5:00 PM	1,624	875	26	160	578	3,263
6:00 PM	1,415	763	28	169	612	2,987
7:00 PM	1,147	619	30	182	660	2,638
8:00 PM	1,059	571	30	184	666	2,510
9:00 PM	907	490	31	186	673	2,287
10:00 PM	750	405	31	188	680	2,054
11:00 PM	515	278	31	188	680	1,692
12:00 AM	155	84	31	188	680	1,138

3,908

2:00 PM