

APPENDIX B
FLORIN PERKINS DISTRIBUTION CENTER TRAFFIC IMPACT ANALYSIS



FLORIN PERKINS DISTRIBUTION CENTER TRAFFIC IMPACT ANALYSIS

DRAFT REPORT

APRIL 12, 2021

PREPARED FOR:

CITY OF SACRAMENTO



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Introduction

This transportation analysis addresses transportation and circulation conditions associated with a proposed development project along Florin Perkins Road in Sacramento, CA. The analysis focuses on the project's relationship to the City street system, including nearby intersections, the proposed driveways, and on-site circulation. The analysis also includes consideration of motorized vehicle traffic, specifically trucks, impacts on roadway capacity, and potential impacts to bicyclists and pedestrians. Additionally, a VMT analysis was conducted to assess if any mitigation is required and is provided in a supplemental document. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing Conditions (2021)
- Existing Plus Project

PROJECT DESCRIPTION

As illustrated in **Figure 1**, the 37-acre Florin Perkins Road Distribution Center is a proposed industrial development. The project site is located on the east side of Florin Perkins Road between Belvedere Avenue and 23rd Avenue, in the southeast part of Sacramento, CA. The site is in the Light Industrial zone (M-1(S)) and Light Industrial Solid Waste Overlay zone (M-1(S)-SWR). The proposed project builds a new 179,760 square feet building (fronting Florin Perkins Road) and expands an existing 112,000 square feet building by 79,328 square feet, resulting in a total of 259,088 square feet of newly developed area, as shown in **Figure 2**.

ENVIRONMENTAL SETTING

The roadway, transit, bicycle, and pedestrian transportation systems within the study area are described below.

ROADWAY SYSTEM

The roadway system near the proposed project is described below:

Florin Perkins Road is a north-south arterial located along the project site. To the north, the roadway intersects with Folsom Boulevard. To the south, Florin Perkins Road extends to Gerber Road. Florin Perkins Road mostly has two lanes in each direction separated with a two-way, left-turn lane (TWLTL).

Belvedere Avenue is an east-west minor collector, perpendicular to Florin Perkins Road, located approximately 650 feet north of the project site. To the west, the roadway intersects with Power Inn Road, and to the east Belvedere Avenue extends to Florin Perkins Road. This roadway is an undivided two-lane, two-way facility.

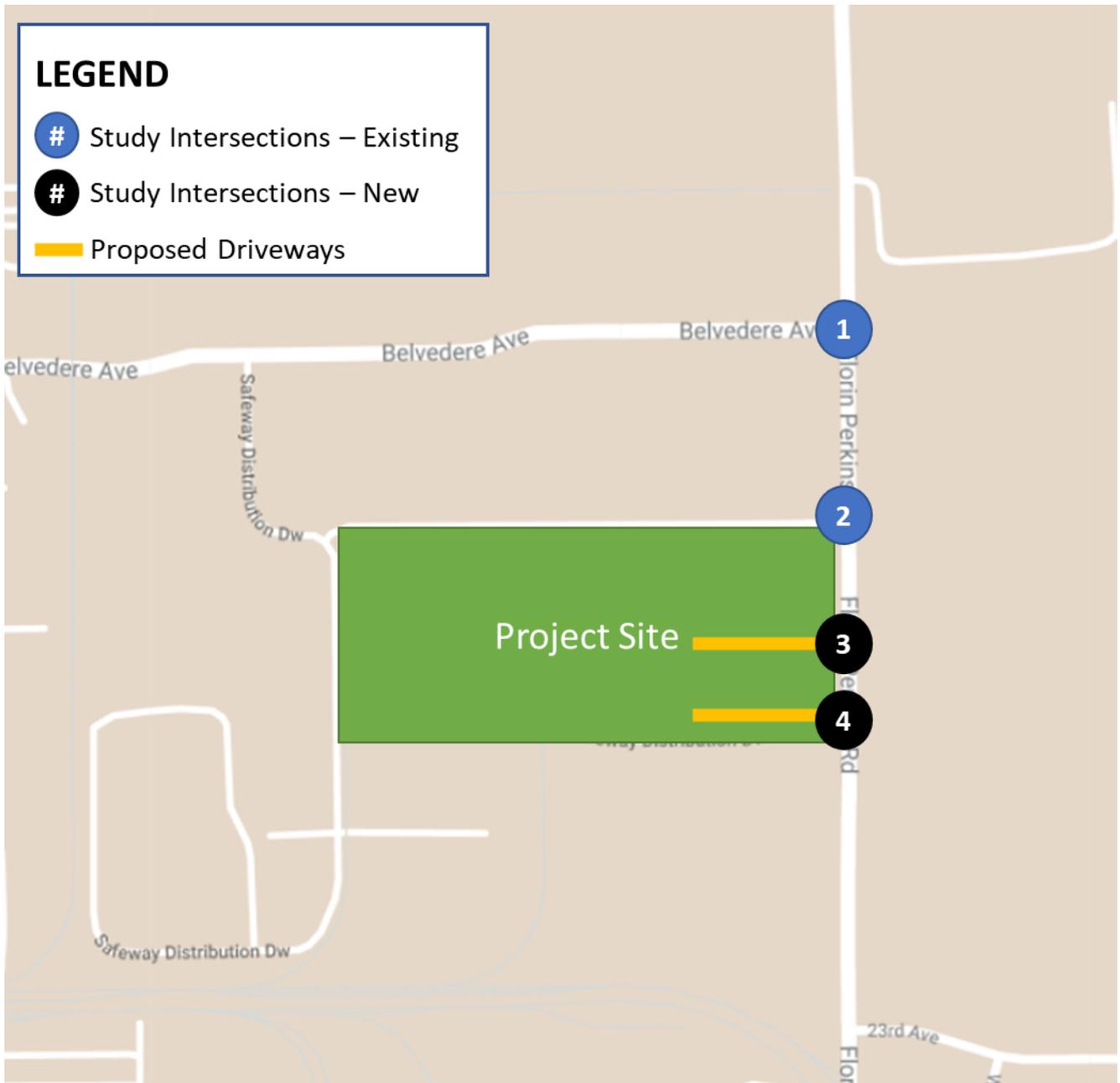
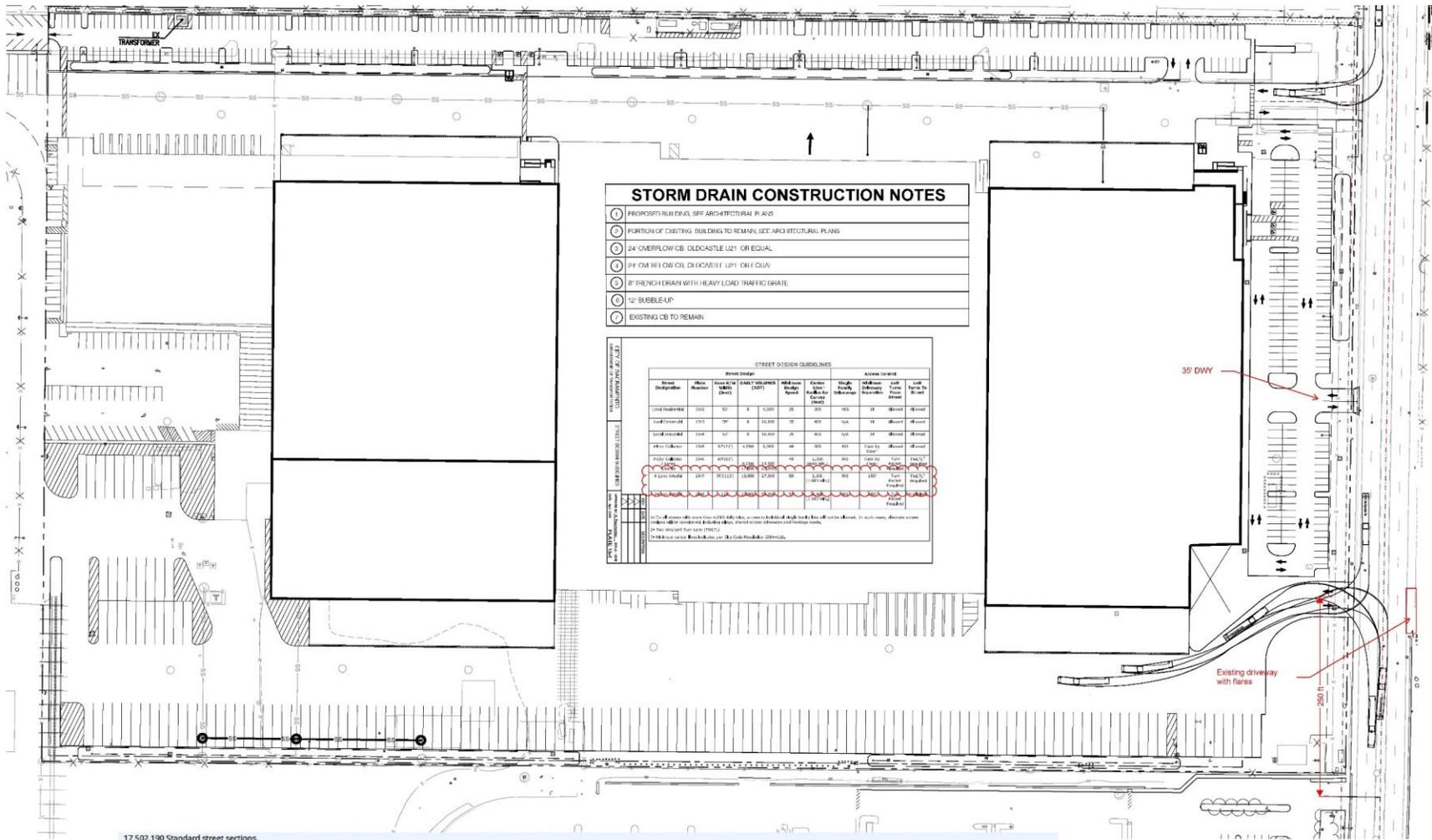


FIGURE 1. STUDY AREA



17.502.190 Standard street sections.

A. The right-of-way improvement standards applicable to the land dedicated pursuant to this chapter are as follows:

	Range of Average Daily Traffic	Sidewalk (feet)	Planter measured to face of curb (feet)	Curb Type ²	Parking Lane (feet)	Bike Lane (feet)	Travel Lanes (feet)	Median (feet)	Half Street (feet)	Total Right of Way Dedication (feet)
Local-Residential	0-4000	5	60"	Vertical	7	0	8	60"	26'	55
Local-Commercial	0-14000	8	60"	Vertical	7	0	11	60"	30'	68
Local-Industrial	0-14000	5	60"	Vertical	8	0	12	60"	31'	68
Collector Minor-No Parking	4000-7000	5	60"	Vertical	0	6	11	60"	28'	57
Collector Minor-With Parking	4000-7000	5	60"	Vertical	7	6	11	60"	28'	71
Collector Major-No Parking	7000-14000	5	60"	Vertical	0	6	11	12	34'	69
Collector Major-With Parking	7000-14000	5	60"	Vertical	7	6	11	12	41'	85
4 Lane Arterial-No Parking	14000-27000	6	60"	Vertical	0	6	11/1/2	12	49'	96
4 Lane Arterial-With Parking	14000-27000	6	60"	Vertical	7	6	11/1/2	12	56'	113
5 Lane Arterial	27000-48000	6	60"	Vertical	0	6	11/1/1/2	12	60'	121

² Rolled curb may be constructed at street corners and cul-de-sacs only with approval by the director of public works.

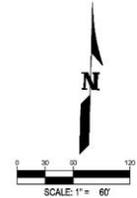


FIGURE 2. SITE PLAN

EXISTING PEDESTRIAN SYSTEM

The pedestrian system in the site vicinity consists of sidewalks along Florin Perkins Road on the west side and sidewalks on both sides of Belvedere Avenue.

EXISTING BICYCLE SYSTEM

Figure 3 illustrates the existing bicycle system in the site vicinity. According to this map, there are existing bike lanes along Florin Perkins Road. Also, bike routes are provided on Belvedere Avenue.

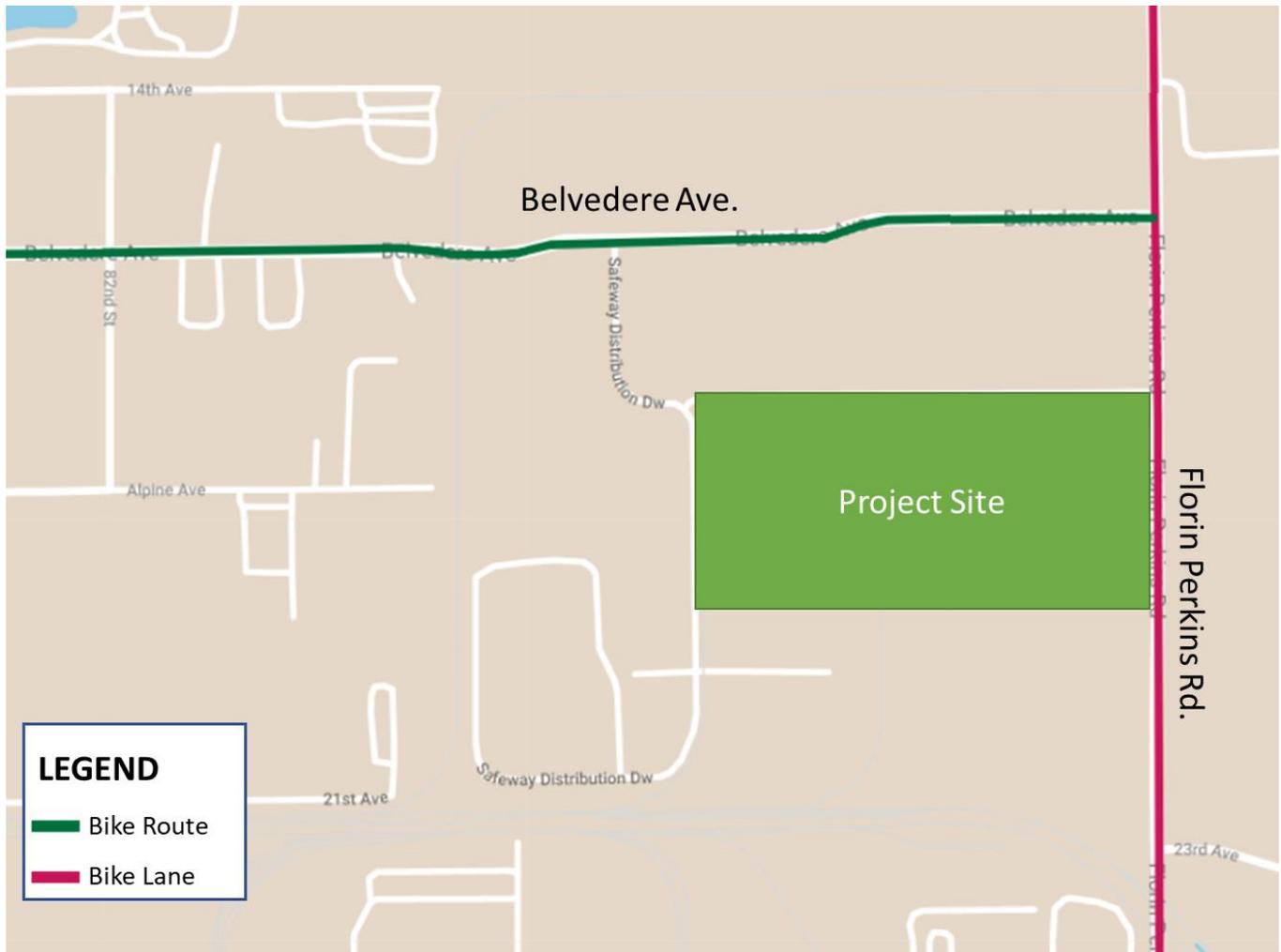


FIGURE 3. BIKEWAYS

Source: City of Sacramento Bikeway User Map, Bicycle Master Plan Updated September 2020

PLANNED PEDESTRIAN / BICYCLE SYSTEM

The most recent City of Sacramento Bikeway Map, amended in August 2018, identifies planned bicycle facilities in the project vicinity. Future bicycle facilities near the project include:

- A north-south off-street path west of the project side parallel to Florin Perkins Road from Folsom Boulevard to Fruitridge Road.
- An east-west off-street path along the existing railroad south of the project site from Power Inn Road to South Watt Avenue.
- Bike route connecting the planned east-west path to Florin Perkins Road.

TRANSIT SYSTEM

The area in the project vicinity is served by local SacRT bus service Route 60 as well as Peak-hour Bus Service Line 161, as illustrated in **Figure 4**. Bus Route 60 operates along Fruitridge Road and Power Inn Road further south of the project site. Peak-hour Bus Service Line 161 also operates along Florin Perkins Road and has a stop on Belvedere Avenue north of the project site.



FIGURE 4. REGIONAL TRANSIT MAP

Source: Sacramento Regional Transit Bus & Light Rail System Map

STUDY AREA

The following intersections are included in the study area and shown in **Figure 1**:

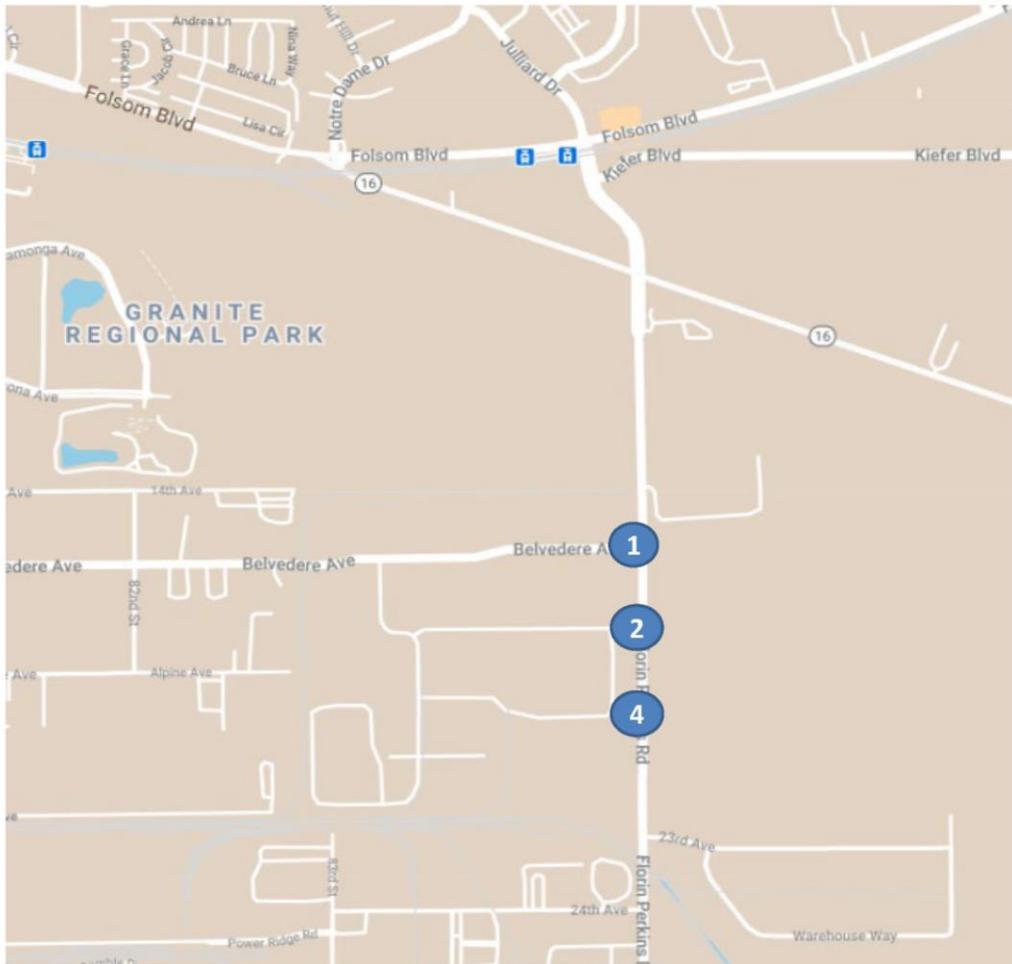
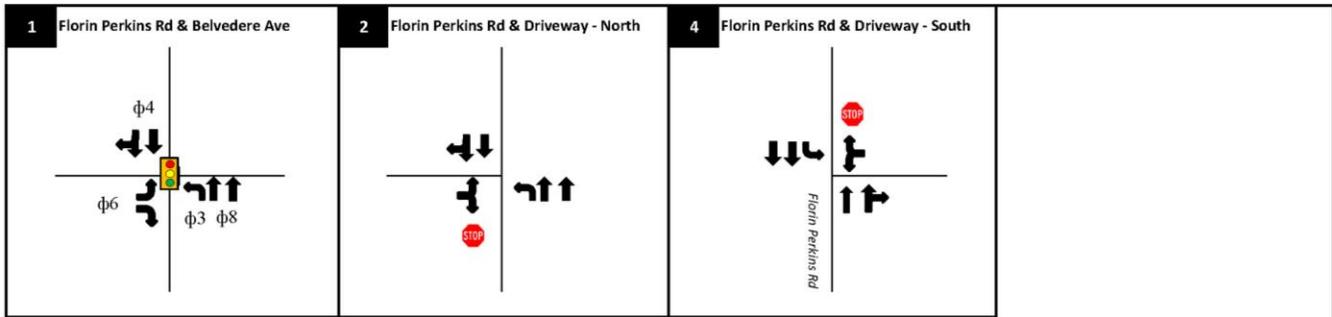
1. Florin Perkins Road & Belvedere Avenue
2. Florin Perkins Road & Project Driveway – North
3. Florin Perkins Road & Project Driveway – Center (New Intersection)
4. Florin Perkins Road & Project Driveway – South (Modified Existing Intersection)

EXISTING INTERSECTION GEOMETRY

Existing intersection geometry (number of approach lanes and traffic control) is illustrated in **Figure 5**.

DATA COLLECTION

Peak period intersection turning movement counts were conducted for the a.m. weekday peak period (7:00 to 9:00 a.m.) and the p.m. weekday peak period (4:00 to 6:00 p.m.) on Tuesday, February 23, 2021 and Tuesday, March 16, 2021. **Figure 6** illustrates the existing peak hour traffic volumes used in the analysis. Detailed traffic count data are included in **Appendix A**.



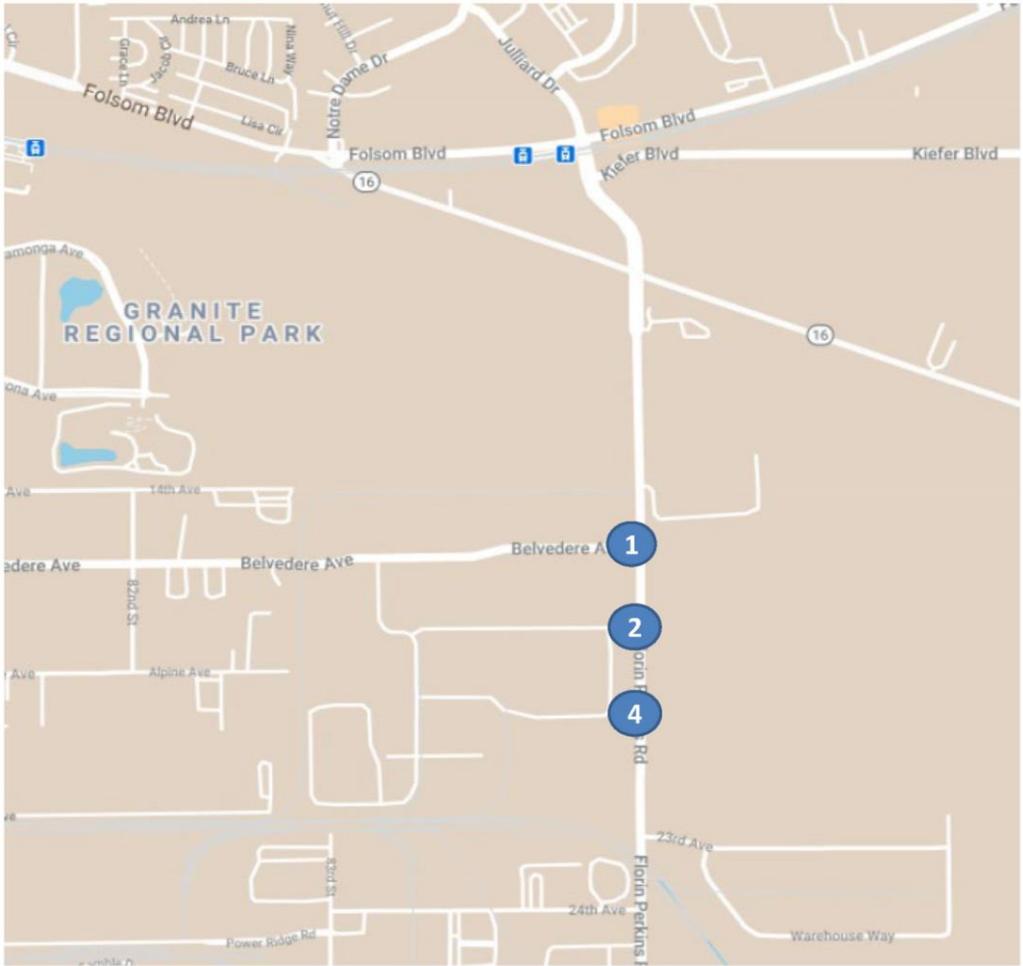
LEGEND	
xxx (xxx)	A.M. Peak (P.M. Peak)
	Traffic Signal
	Stop Control



**Lane Configuration and Traffic Signal Phasing
Florin Perkins Distribution Center TIA**

FIGURE 5. INTERSECTION LANE CONFIGURATION AND TRAFFIC SIGNAL PHASING

<p>1 Florin Perkins Rd & Belvedere Ave</p> <p>142 (113) 730 (554) Florin Perkins Rd</p> <p>57 (195) 70 (121) RT</p> <p>138 (75) 472 (765) RT</p>	<p>2 Florin Perkins Rd & Driveway - North</p> <p>15 (6) 785 (666) Florin Perkins Rd</p> <p>5 (13) 11 (14) RT</p> <p>8 (5) 606 (828) RT</p>	<p>4 Florin Perkins Rd & Driveway - South</p> <p>758 (741) 5 (3) Florin Perkins Rd</p> <p>0 (8) 0 (0) RT</p> <p>637 (1003) 0 (0) TH-RT</p>
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LEGEND

xxx (xxx) A.M. Peak (P.M. Peak)

Traffic Signal

Stop Control



Existing Intersection Turning Movement Count - AM and PM Peak Hours

FIGURE 6. EXISTING AM AND PM VOLUMES

REGULATORY SETTING

CITY OF SACRAMENTO

The Mobility Element of the Sacramento 2035 General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following level of service policy has been used in this study, as amended on January 23, 2018:

Policy M 1.2.2 Level of Service (LOS) Standard. The City shall implement a flexible context-sensitive Level of Service (LOS) standard and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1:

- A. Core Area (Central City Community Plan Area) - LOS F allowed
- B. Priority Investment Areas – LOS F allowed
- C. LOS E Roadways - LOS E is allowed for the following roadways because the expansion of the roadways would cause undesirable impacts or conflict with other community values.
 - 65th Street: Elvas Avenue to 14th Avenue
 - Arden Way: Royal Oaks Drive to I-80 Business
 - Broadway: Stockton Boulevard to 65th Street
 - College Town Drive: Hornet Drive to La Rivera Drive
 - El Camino Avenue: I-80 Business to Howe Avenue
 - Elder Creek Road: Stockton Boulevard to Florin Perkins Road
 - Elder Creek Road: South Watt Avenue to Hedge Avenue
 - Fruitridge Road: Franklin Boulevard to SR 99
 - Fruitridge Road: SR 99 to 44th Street
 - Howe Avenue: El Camino Avenue to Auburn Boulevard
 - Sutterville Road: Riverside Boulevard to Freeport Boulevard

LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of light rail stations.

D. Other LOS F Roadways - LOS F is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.

- 47th Avenue: State Route 99 to Stockton Boulevard
- Arcade Boulevard: Marysville Boulevard to Roseville Road
- Carlson Drive: Maddison Avenue to H Street
- Duckhorn Drive: Arena Boulevard to San Juan Road
- El Camino Avenue: Grove Avenue to Del Paso Boulevard
- Elvas Avenue: J Street to Folsom Boulevard
- Elvas Avenue/56th Street: 52nd Street to H Street
- Florin Road: Havenside Drive to Interstate 5
- Florin Road: Freeport Boulevard to Franklin Boulevard
- Florin Road: Interstate 5 to Freeport Boulevard
- Folsom Boulevard: 47th Street to 65th Street
- Folsom Boulevard: Howe Avenue to Jackson Highway
- Folsom Boulevard: US 50 to Howe Avenue
- Freeport Boulevard: Sutterville Road (North) to Sutterville Road (South)
- Freeport Boulevard: 21st Street to Sutterville Road (North)
- Freeport Boulevard: Broadway to 21st Street
- Garden Highway: Truxel Road to Northgate Boulevard
- H Street: Alhambra Boulevard to 45th Street
- H Street 45th: Street to Carlson Drive
- Hornet Drive: US 50 Westbound On-ramp to Folsom Boulevard
- Howe Avenue: US 50 to Fair Oaks Boulevard
- Howe Avenue: US 50 to 14th Avenue
- Raley Boulevard: Bell Avenue to Interstate 80
- San Juan Road: Duckhorn Drive to Truxel Road
- South Watt Avenue: US 50 to Kiefer Boulevard
- West El Camino Avenue: Northgate Boulevard to Grove Avenue

E. If maintaining the above LOS standards would, in the City's judgment be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

LEVEL OF SERVICE AND QUEUE LENGTH ANALYSIS AND METHODOLOGY

The operation or performance of roadway facilities is commonly described in terms of LOS. LOS is a qualitative measure of effectiveness describing traffic operations based on such factors as speed, travel time, delay, and freedom to change lanes for all vehicles. Six levels are defined from LOS A, as the best-operating conditions, to LOS F, or the worst operating conditions. LOS E represents “at-capacity” operations. Study intersections were analyzed to determine their LOS based on the definitions presented in the Highway Capacity Manual 6th Edition (HCM 6) with average delay taken from the traffic simulation outputs. **Table 1** presents the LOS criteria for intersections in accordance with the HCM 6 methodology. In accordance with the City of Sacramento policy, at unsignalized intersection, the intersection LOS is used to determine conformity. Based upon the City’s level of service policy, LOS D was utilized as the appropriate criteria in all study analyses.

Queue length analysis was performed in SimTraffic 10. SimTraffic reports 95th percentile queue length in feet, which can be compared against the available storage length for the existing intersections or be used as a basis to determine the required storage length for the planned intersections as well as the spacing between the intersections. The turn storage lengths are measured for all existing intersection turn lanes from google earth and are summarized in **Table 3**.

TABLE 1. INTERSECTION LEVEL OF SERVICE

LEVEL OF SERVICE (LOS)	TOTAL DELAY PER VEHICLE (SECONDS)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80	> 50

Source: Highway Capacity Manual 6th Edition, Transportation Research Board.

RESULTS OF EXISTING CONDITION ANALYSIS

Existing condition intersection analysis results are summarized in **Table 2** and **Table 3** from SimTraffic analysis for each turning movement at three existing study intersections. It should be noted that the simulation results are based on five runs. **Appendix B** lists all the LOS results as well as all the queue results for the Existing condition.

TABLE 2. EXISTING INTERSECTION OPERATION ANALYSIS

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	DELAY (SEC)	LOS	DELAY (SEC)	LOS
1. FLORIN PERKINS RD & BELVEDERE AVE	8.1	A	8.6	A
2. FLORIN PERKINS RD & DRIVEWAY – NORTH	2.0 (11.1) ¹	A (B) ¹	1.6 (14.8) ¹	A (B) ¹
4. FLORIN PERKINS RD & DRIVEWAY – SOUTH	0.5 (0.0) ¹	A (A) ¹	0.6 (3.3) ¹	A (A) ¹

Notes: 1. Stop-controlled intersections – Average intersection delay and LOS followed by the worst approach delay and LOS in parentheses

TABLE 3. EXISTING QUEUE ANALYSIS FOR KEY MOVEMENTS AT STUDY INTERSECTIONS

INTERSECTION	TURNING MOVEMENT	STORAGE LENGTH (FT)	95 TH PERCENTILE QUEUE LENGTH (FT)	
			AM PEAK HOUR	PM PEAK HOUR
1. FLORIN PERKINS RD & BELVEDERE AVE	NBL	155	110	83
	EBL	150	87	116
2. FLORIN PERKINS RD & DRIVEWAY – NORTH	NBL	NA – TWLTL	25	13
4. FLORIN PERKINS RD & DRIVEWAY – SOUTH	SBL	NA – TWLTL	20	15

Source: DKS Associates, 2021

PROJECT TRAVEL CHARACTERISTICS

TRIP GENERATION

Vehicular trip generation estimates of the project are based upon information published by the Institute of Transportation Engineers (ITE). Specifically, the following source has been utilized:

- Trip Generation Manual 10th Edition, 2017

No adjustments for mode choice were made, as the mode choice near the site is predominately private automobile and truck use. As such, the primary focus of this analysis is to determine the total number of car and truck trips expected to be generated by this proposed use. Various manufacturing, industrial, and warehouse uses are permitted in the M-1S zone. Such uses could be accommodated within the proposed project.

Several representative permitted land uses are included in the ITE data:

- Code 110 – General Light Industrial
- Code 130 – Industrial Park
- Code 140 – Manufacturing
- Code 150 – Warehousing
- Code 154 – High-Cube Transload and Short-Term Storage
- Code 155 – High-Cube Fulfillment Center
- Code 156 – High-Cube Parcel Hub
- Code 157 – High-Cube Cold Storage

High-cube warehouse land uses were not investigated further given their very limited sample size. **Table 4** summarizes trip generation for the remaining land-use types.

TABLE 4. VEHICULAR TRIP GENERATION BY CLASSIFICATION

LAND USE	ITE CODE	SIZE (1,000 SQUARE FEET)	VEHICLE TRIPS GENERATED						
			Weekday	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
GENERAL LIGHT INDUSTRIAL	110		1,285	207	31	238	39	176	215
INDUSTRIAL PARK	130	259.1	873	92	14	106	22	82	104
MANUFACTURING	140		1,018	151	59	210	88	117	205
WAREHOUSING	150		451	37	20	57	15	47	62

Source: DKS Associates, 2021; ITE Trip generation Manual 10th Edition, 2017.

Reviewing the information presented in **Table 4**, it is recommended to use General Light Industrial as it produces the most conservative estimates of the daily, AM, and PM peak hour trips. The recommended trip generation estimates for the analysis are summarized in **Table 5**.

TABLE 5. RECOMMENDED TRIP GENERATION

LAND USE	ITE CODE	SIZE (1,000 SQUARE FEET)	VEHICLE TRIPS GENERATED						
			Weekday	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
GENERAL LIGHT INDUSTRIAL	110	259.1	1,285	207	31	238	39	176	215

TRIP DISTRIBUTION

The distribution of trips associated with the proposed project was derived from the observation of travel patterns near the site, the possible catchment area of the inbound and outbound trips, the proportion of trucks in traffic, and the distribution of traffic between the project’s driveways. Accordingly, the following assumptions were made:

- Based on a review of truck trip generation for light industrial uses, it was assumed that 30% of inbound and outbound traffic during the AM peak hour and 20% of the inbound and outbound traffic during the PM peak hour is composed of trucks.¹
- Under current conditions, on-site gates on the west side of the project site limit the vehicle entries to entrances on Belvedere Avenue and Florin Perkins Road. As the proposed project removes barriers for internal site circulation, it was assumed that the majority of the traffic (i.e., 90%), for both AM and PM peak hours, use the front entrances from Florin Perkins Road and 10% use the rear entrance from Belvedere Avenue.

¹ Fontana Truck Trip Generation Study, City of Fontana, August 2003.

- All trucks will use either the north or the south driveway. Other non-truck vehicles have the option to use either the north or the center driveway.
- Based on the planned number of parking spots for non-truck vehicles, it was assumed that 65% of the non-truck vehicles use the north driveway and 35% use the center driveway. For truck traffic, it was assumed that 40% use the north driveway and 60% use the south driveway.
- Inbound and outbound truck and non-truck trips at each driveway were distributed based on the existing turning movement count pattern at the north driveway. Notably, it was observed that in the morning more vehicles exit the development towards the south than the vehicles exit to the north. In the afternoon, however, there is more balance between the vehicles exiting towards the north and the south.

Trip distribution varies by time of day and direction of travel. **Figure 7** and **Figure 8** show the project trip distributions for AM and PM peak hours, respectively.

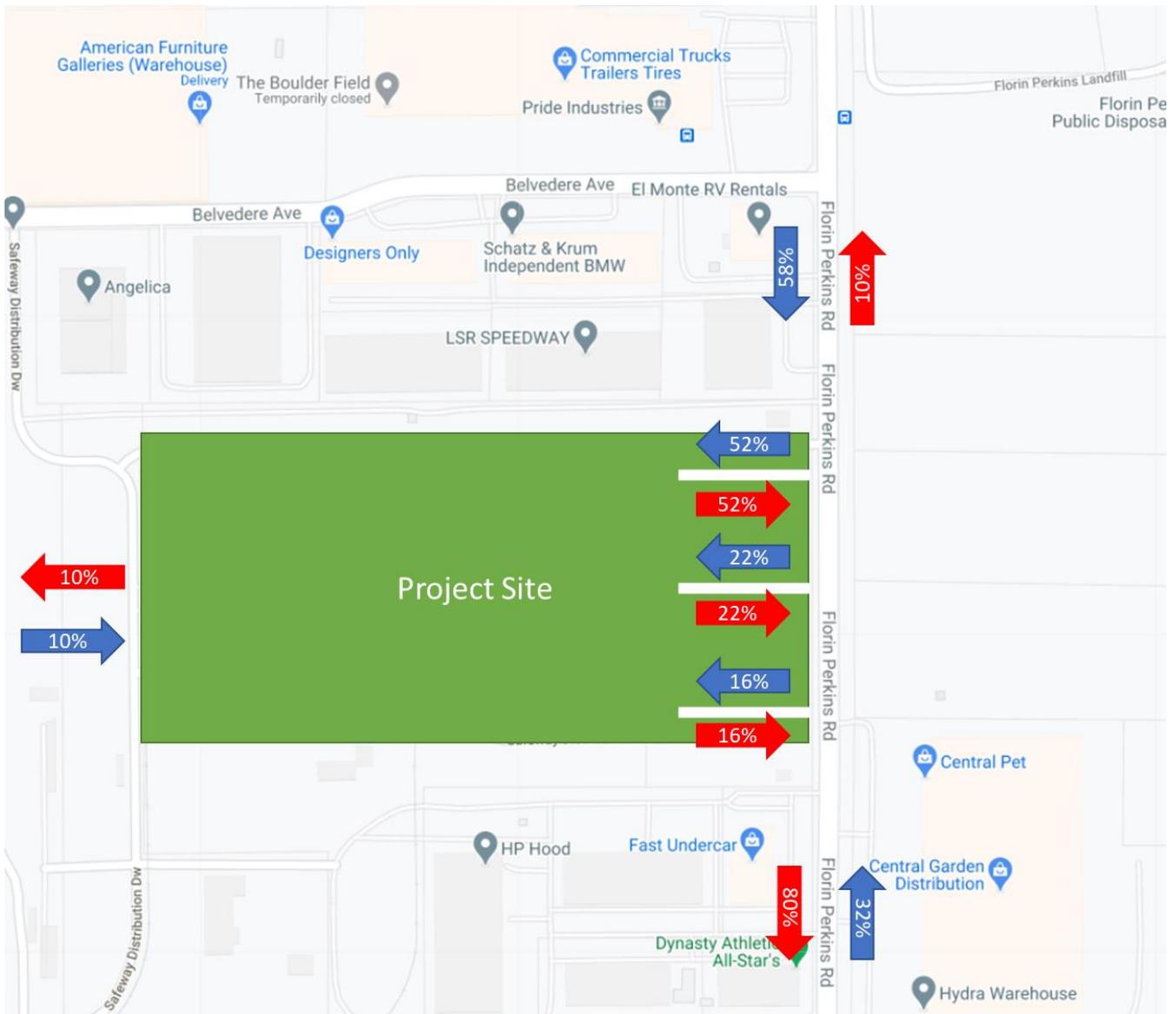


FIGURE 7. PROJECT TRIP DISTRIBUTION – AM PEAK HOUR

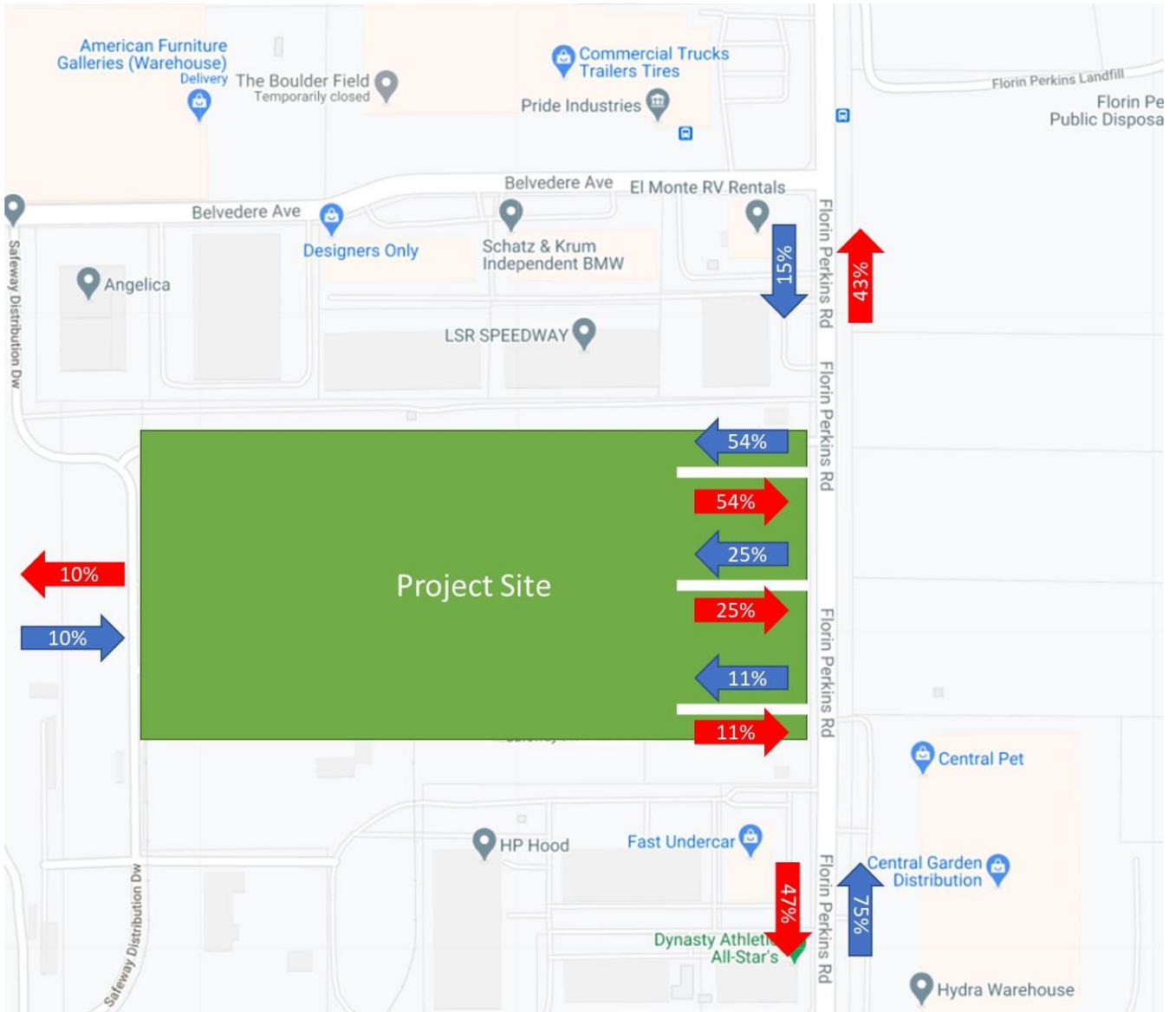


FIGURE 8. PROJECT TRIP DISTRIBUTION – PM PEAK HOUR

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, thresholds of significance adopted by the governing jurisdictions in applicable general plans and previous environmental documents, and professional judgment, a significant impact would occur if the proposed project would:

INTERSECTIONS – CITY OF SACRAMENTO

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project-generated traffic increases the average vehicle delay by 5 seconds or more.
- Note: General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:
 - LOS D is accepted for the intersections along Florin Perkins Road.

TRANSIT

- Adversely affect public transit operations,
- Fail to adequately provide access to transit.

BICYCLE FACILITIES

- Adversely affect existing or planned bicycle facilities,
- Fail to adequately provide for access by bicycle.

PEDESTRIAN CIRCULATION

- Adversely affect existing or planned pedestrian facilities,
- Fail to adequately provide for access by pedestrians.

CONSTRUCTION-RELATED TRAFFIC IMPACTS

- Degrade an intersection or roadway to an unacceptable level,
- Cause inconveniences to motorists due to prolonged road closures, or
- Result in an increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

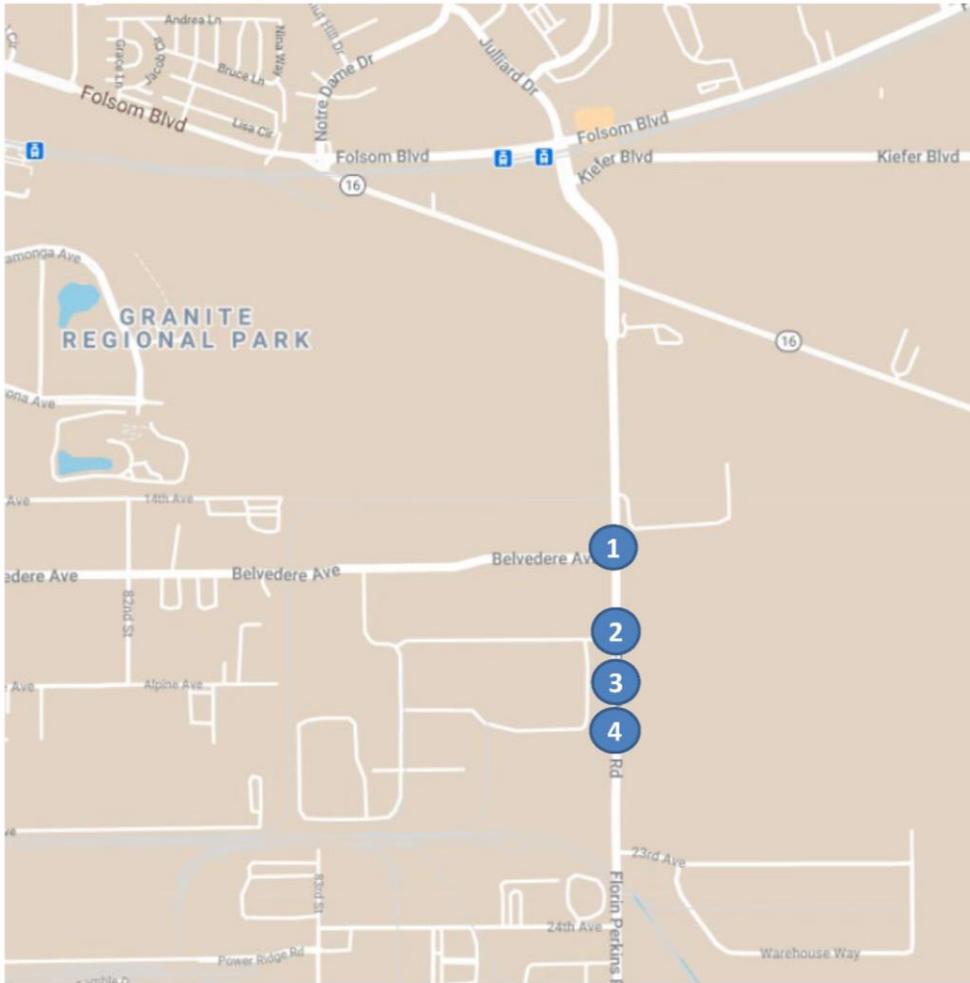
Figure 9 illustrates the intersection turning movement counts for the Existing Plus Project condition. **Table 6** shows that during the AM and PM peak hours, none of the queues extended beyond the available storage. **Appendix C** lists all the intersection control delays results (from which the LOS was calculated) as well as the queue results for Existing and Existing Plus Project conditions.

TABLE 6. EXISTING PLUS PROJECT QUEUE ANALYSIS FOR KEY MOVEMENTS AT STUDY INTERSECTIONS

INTERSECTION	TURNING MOVEMENT	STORAGE LENGTH (FT)	95 TH PERCENTILE QUEUE LENGTH (FT)	
			AM PEAK HOUR	PM PEAK HOUR
1. FLORIN PERKINS RD & BELVEDERE AVE	NBL	155	107	85
	EBL	150	83	125
2. FLORIN PERKINS RD & DRIVEWAY – NORTH	NBL	NA - TWLTL	64	34
3. FLORIN PERKINS RD & DRIVEWAY – CENTER	NBL	NA - TWLTL	31	22
4. FLORIN PERKINS RD & DRIVEWAY – SOUTH	NBL	NA - TWLTL	41	45
	SBL	NA - TWLTL	11	30

Source: DKS Associates, 2021

1	2	3	4
<p>Florin Perkins Rd & Belvedere Ave</p> <p>152 (115) 854 (561) RT/TH Florin Perkins Rd 58 (203) 70 (121) LT 138 (75) 475 (841) LTH RT</p>	<p>Florin Perkins Rd & Driveway - North</p> <p>76 (4) 848 (675) RT/TH Florin Perkins Rd 3 (53) 20 (59) LT 43 (21) 611 (863) LTH STOP RT</p>	<p>Florin Perkins Rd & Driveway - Center</p> <p>31 (0) 837 (734) RT/TH Florin Perkins Rd 0 (24) 8 (26) LT 20 (12) 654 (860) LTH STOP RT</p>	<p>Florin Perkins Rd & Driveway - South</p> <p>27 (4) 780 (817) RT/TH 5 (3) STOP RT (8) TH (0) LT (0) 5 (12) 0 (0) 8 (12) LTH RT STOP 12 (11) 646 (1030) LTH RT 0 (0)</p>



LEGEND	
xxx (xxx)	A.M. Peak (P.M. Peak)
	Traffic Signal
	Stop Control



Existing Plus Project Intersection Turning Movement Count - AM and PM Peak Hours

FIGURE 9. PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUME

IMPACTS AND MITIGATION MEASURES

Impact 1:

The proposed project would increase traffic volume and delay at most of the study area intersections under the existing plus project scenario. Based on the analysis below, the impact is less than significant.

As summarized in **Table 7**, the project would slightly increase the average delay at study intersections due to increasing traffic volumes at these intersections. This increased traffic will subsequently lead to longer queues for some movements, as shown in **Table 6**. The resultant operating conditions result in LOS values that are still at an acceptable level for the Florin Perkins Road corridor (LOS D or better).

TABLE 7. EXISTING AND EXISTING PLUS PROJECT INTERSECTION ANALYSIS

INTERSECTION	EXISTING				EXISTING PLUS PROJECT			
	A.M. PEAK HOUR		P.M. PEAK HOUR		A.M. PEAK HOUR		P.M. PEAK HOUR	
	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS
1. FLORIN PERKINS RD & BELVEDERE AVE	8.1	A	8.6	A	8.5	A	8.6	A
2. FLORIN PERKINS RD & DRIVEWAY – NORTH	2.0 (11.1) ¹	A (B) ¹	1.6 (14.8) ¹	A (B) ¹	2.5 (9.1) ¹	A (A) ¹	3.4 (27.4) ¹	A (D) ¹
3. FLORIN PERKINS RD & DRIVEWAY – CENTER	Not an Existing Intersection				0.7 (4.4) ¹	A (A) ¹	0.6 (11.9) ¹	A (B) ¹
3. FLORIN PERKINS RD & DRIVEWAY – SOUTH	0.5 (0.0) ¹	A (A) ¹	0.6 (3.3) ¹	A (A) ¹	0.7 (12.7) ¹	A (B) ¹	0.9 (20.1) ¹	A (C) ¹

Notes: 1. Stop-controlled intersections – Average intersection delay and LOS followed by the worst approach delay and LOS in parentheses

Source: DKS Associates, 2021.

Mitigation Measure 1:

None required.

Impact 2:

The proposed project could cause potentially significant impacts to transit. Based on the summary below, the impact is less than significant.

The proposed project would not adversely affect public transit operations. The project would not modify or impede any existing or planned transit facilities/routes.

Mitigation Measure 2:

None required.

Impact 3:

The proposed project could cause potentially significant impacts on pedestrian facilities. Based on the summary below, the impact is less than significant.

The proposed project would not adversely affect existing or planned pedestrian facilities. Sidewalks exist along the project frontage on Florin Perkins Road.

Mitigation Measure 3:

None required.

Impact 4:

The proposed project could cause potentially significant impacts on bicycle facilities. Based on the summary below, the impact is less than significant.

The proposed project would not adversely affect existing or planned bicycle facilities. Specifically, the project will not preclude the implementation of the proposed off-street trails in the vicinity of the project.

Mitigation Measure 4:

None required.

Impact 5:

The proposed project could cause potentially significant impacts due to construction-related activities. Based on the analysis below, the impact is less than significant.

The City Code (City Code 12.20.030) requires that a construction traffic control plan be prepared and approved prior to the beginning of project construction, to the satisfaction of the City Traffic Engineer and subject to review by all affected agencies. All work performed during construction must conform to the conditions and requirements of the approved plan. The plan shall ensure that safe and efficient movement of traffic through the construction work zone(s) is maintained. At a minimum, the plan shall include the following:

- Time and day of street closures
- Proper advance warning and posted signage regarding street closures
- Provision of driveway access plan to ensure safe vehicular, pedestrian, and bicycle movements
- Safe and efficient access routes for emergency vehicles
- Provisions for pedestrian safety
- Use of manual traffic control when necessary
- Number of anticipated truck trips, and time of day of arrival and departure of trucks
- Provision of a truck circulation pattern and staging area with a limitation on the number of trucks that can be waiting and any limitations on the size and type of trucks appropriate for the surrounding transportation network
- The plan must be available at the site for inspection by the City representative during all work. With the implementation of the traffic control plan, local roadways and freeway facilities will

continue to operate at acceptable operating conditions and the impact of the project would be less than significant.

Mitigation Measure 5:

None required.

TRAFFIC SIGNAL WARRANT

Each of the three unsignalized study area intersections was evaluated to determine if traffic signals are warranted. Based upon the California Manual on Uniform Traffic Control Devices (CAMUTCD) Warrant 3 (peak hour), traffic signals are not warranted at any of the currently unsignalized intersections. Warrant analysis details are included in **Appendix D**.

DRIVEWAY SPACING AND LOCATION

Driveway spacing between each pair of successive driveways was evaluated to ensure enough room is provided without any conflict between movements. Below is a summary of this analysis for each segment between driveways:

- The segment between the north driveway and the center driveway is measured around 350 feet, which can fit four 75-ft trucks. The queue analysis of the northbound left turn from Florin Perkins Road into the north driveway shows that during the AM peak hour a 95% queue length of 64 feet exists while this queue in the PM peak hour drops to 34 feet. These numbers show that there is no conflict between this movement and the center driveway south of this intersection.
- The segment between the center driveway and the south driveway is measured around 300 feet, which can fit four 75-ft trucks. The queue analysis based on the traffic simulation shows that, during AM peak hour, there is a 31-foot, 95% queue length for the northbound left-turn traffic towards the project's center driveway and an 11-foot, 95% queue length for the southbound left-turn traffic towards the development across the street. During the PM peak hour, these numbers drop to 22 feet and 30 feet, respectively. This analysis demonstrates no queue interference at this segment and that there is enough spacing between the project's center driveway and the south driveway to accommodate the projected traffic.
- The segment between the south driveway and the existing driveway just south of the development is measured around 250 feet, which can fit three 75-ft trucks. The queue analysis based on the simulations shows that during AM peak hour, there is a 41-foot, 95% queue length for the northbound left-turn traffic towards the project's south driveway. This queue length slightly increases to 45 feet during PM peak hour. Given the planned spacing, no potential interference with the existing driveway south of the development is anticipated.

Figure 10 and **Figure 11** show the extents of the AM and PM peak hours queue along Florin Perkins Road, respectively.

DRIVEWAY THROAT LENGTHS

The “throat length” of a driveway is defined as the distance from the outer edge of the traveled way of the intersecting roadway to the first point along the driveway at which there are conflicting vehicular traffic movements. Conflicting movements include turning vehicles and vehicles entering/exiting parking stalls. Adequate throat length is critical to ensure that queued exiting vehicles do not interfere with/block entering vehicles, resulting in entering queues extending onto city sidewalks and/or streets.

The project proposes two new driveways on the west side of Florin Perkins Road. Trucks will access the development via the north and south driveways. Autos are expected to use the north and center driveways. Existing traffic volumes and queuing on Florin Perkins Road are such that vehicles exiting the proposed project will not experience significant delays. A minimum throat length of 75 feet is recommended at the north and south driveways to allow for the potential size of trucks accessing the site. As truck traffic is limited to the north and south driveways, a minimum throat length of 25 feet to accommodate the queuing of one passenger vehicle is acceptable at the center driveway. Based upon the site plan, these proposed lengths can be accommodated and, therefore, this recommendation is satisfied.

BICYCLE ACCESS

Bicycle access is available via Florin Perkins Road and future off-street facilities in the city's bikeway master plan in the vicinity of the project south further to the south. The project would not interfere with existing or planned bicycle facilities.

PEDESTRIAN ACCESS

Pedestrian sidewalks are provided on the west side of Florin Perkins Road. The project would not interfere with existing pedestrian facilities.

TRUCK ACCESS

It is understood that heavy vehicle access to the site will be via the north and south driveways. As the site plan is developed, the applicant shall show using vehicle turning templates that design vehicles can be safely and efficiently accommodated at this driveway entrance without infringing on adjacent lanes.

CONCLUSION

The proposed project results in no significant impacts. Additionally, the project as designed allows for safe and efficient circulation and access for all modes. It should be noted that this conclusion excludes any potential impact caused by the increased VMT in the area, which will be addressed in a separate deliverable.

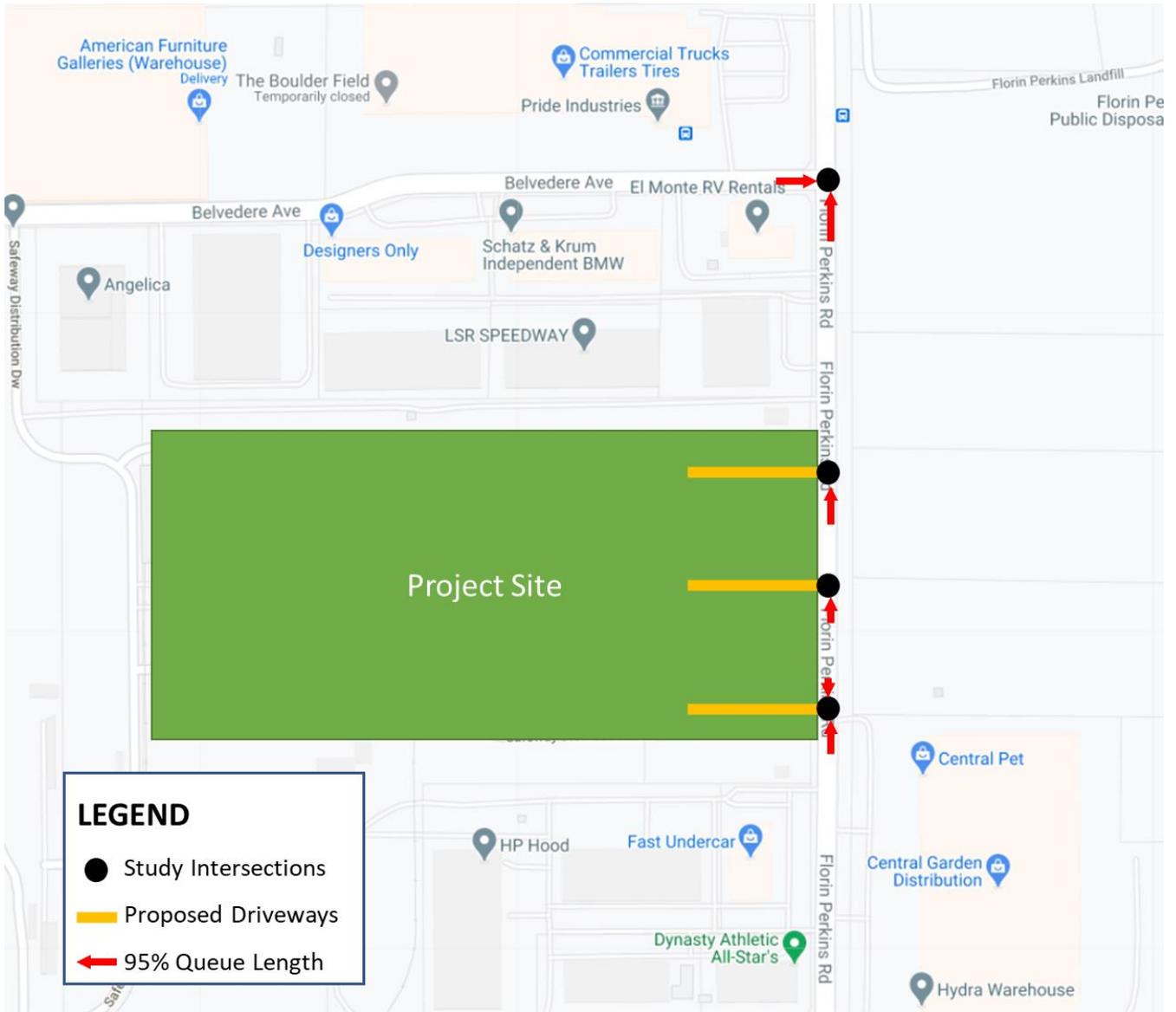


FIGURE 10. SCHEMATIC QUEUE EXTENTS ALONG FLORIN PERKINS ROAD – AM PEAK HOUR

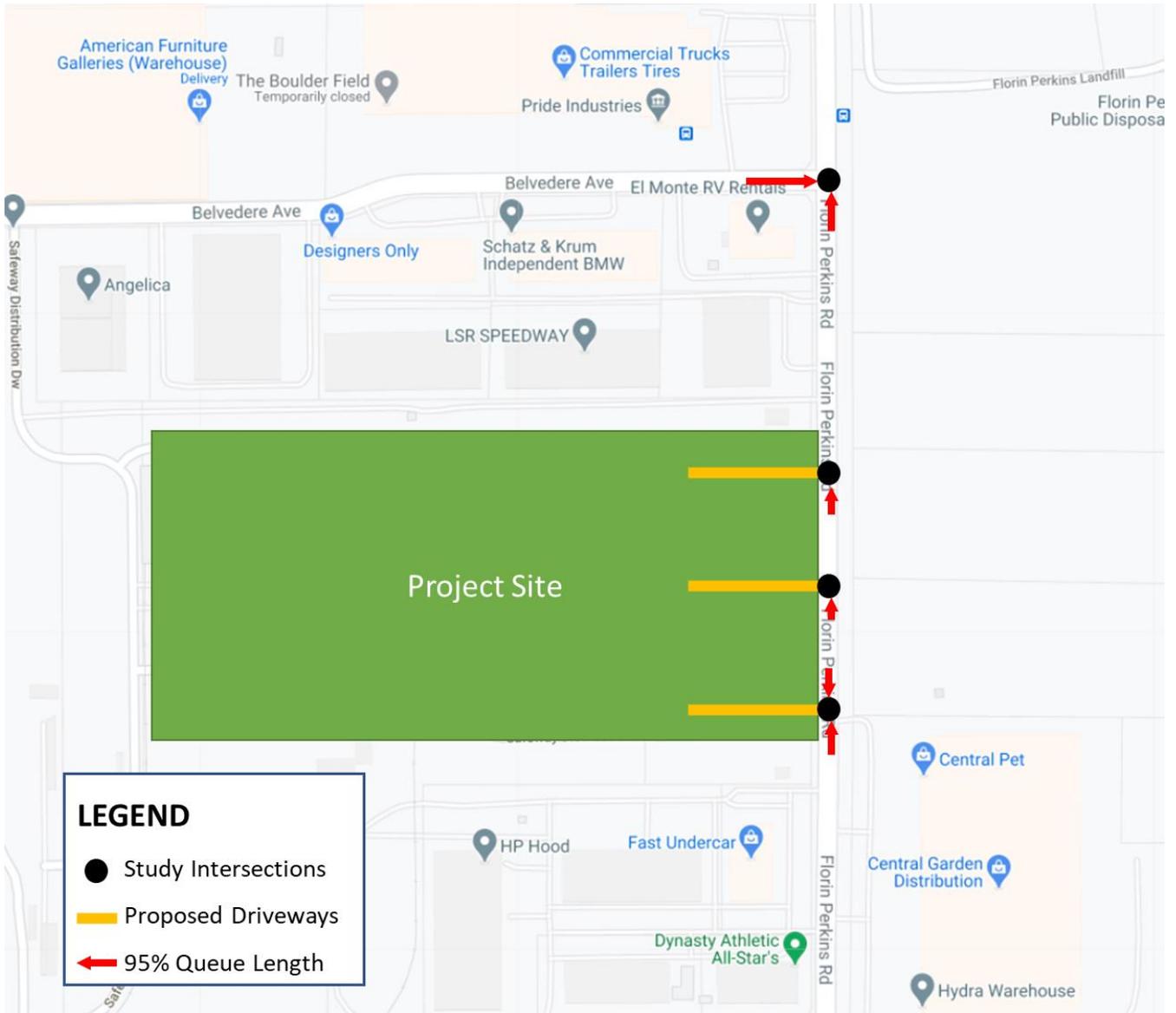


FIGURE 11. SCHEMATIC QUEUE EXTENTS ALONG FLORIN PERKINS ROAD – PM PEAK HOUR

APPENDIX

APPENDIX A:

Traffic Count Data

All Traffic Data Services

1 FLORIN PERKINS RD & BELVEDERE AVE AM
 Tuesday, February 23, 2021

Peak Hour
 07:00 AM - 08:00 AM
 Peak 15-Minutes
 07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

Time	BELVEDERE AVE					BELVEDERE AVE					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
7:00 AM	0	8	0	13	0	0	0	0	0	0	0	27	115	0	0	0	0	172	35	0	370	1,609
7:15 AM	0	13	0	16	0	0	0	0	0	0	0	25	116	0	0	0	0	159	34	0	363	1,576
7:30 AM	0	16	0	17	0	0	0	0	0	0	0	44	120	0	0	0	0	192	34	0	423	1,532
7:45 AM	0	20	0	24	0	0	0	0	0	0	0	42	121	0	0	0	0	207	39	0	453	1,431
8:00 AM	0	15	0	20	0	0	0	0	0	0	0	24	114	0	0	0	0	140	24	0	337	1,276
8:15 AM	0	28	0	19	0	0	0	0	0	0	0	22	105	0	0	0	0	124	21	0	319	0
8:30 AM	0	20	0	25	0	0	0	0	0	0	0	22	120	0	0	0	0	120	15	0	322	0
8:45 AM	0	13	0	19	0	0	0	0	0	0	0	21	111	0	0	0	0	114	20	0	298	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	2	0	3	0	0	0	0	0	0	0	3	41	0	0	0	0	42	1	0	92
Lights	0	45	0	57	0	0	0	0	0	0	0	123	358	0	0	0	0	661	133	0	1,377
Mediums	0	10	0	10	0	0	0	0	0	0	0	12	73	0	0	0	0	27	8	0	140
Total	0	57	0	70	0	0	0	0	0	0	0	138	472	0	0	0	0	730	142	0	1,609
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			19.7%					0.0%					21.1%					8.9%			14.4%
Heavy Vehicle Percentage	0.0%	21.1%	0.0%	18.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%	24.2%	0.0%	0.0%	0.0%	0.0%	9.5%	6.3%	0.0%	14.4%
Peak Hour Factor (PHF)			0.91					0.00					0.93					0.89			0.89
Peak Hour Factor (PHF)	0.00	0.74	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.98	0.00	0.00	0.00	0.00	0.88	0.91	0.00	0.89

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	7	0	0	19
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	13	1	0	25
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	1	9	0	0	0	0	12	0	0	23
7:45 AM	0	0	0	3	0	0	0	0	0	0	0	1	11	0	0	0	0	10	0	0	25
8:00 AM	0	0	0	2	0	0	0	0	0	0	0	1	9	0	0	0	0	11	1	0	24
8:15 AM	0	1	0	2	0	0	0	0	0	0	0	1	20	0	0	0	0	13	0	0	37
8:30 AM	0	4	0	2	0	0	0	0	0	0	0	1	6	0	0	0	0	9	0	0	22
8:45 AM	0	0	0	2	0	0	0	0	0	0	0	2	13	0	0	0	0	5	1	0	23

All Traffic Data Services

1 FLORIN PERKINS RD & BELVEDERE AVE PM
 Tuesday, February 23, 2021

Peak Hour
 04:00 PM - 05:00 PM
 Peak 15-Minutes
 04:00 PM - 04:15 PM

Traffic Counts - All Vehicles

Time	BELVEDERE AVE					BELVEDERE AVE					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
4:00 PM	0	63	0	41	0	0	0	0	0	0	0	24	213	0	0	0	0	169	33	0	543	1,823
4:15 PM	0	48	0	32	0	0	0	0	0	0	0	9	182	0	0	0	0	136	30	0	437	1,710
4:30 PM	0	44	0	25	0	0	0	0	0	0	0	24	216	0	0	0	0	119	30	0	458	1,623
4:45 PM	0	40	0	23	0	0	0	0	0	0	0	18	154	0	0	0	0	130	20	0	385	1,491
5:00 PM	0	30	0	41	0	0	0	0	0	0	0	21	194	0	0	0	0	120	24	0	430	1,343
5:15 PM	0	29	0	31	0	0	0	0	0	0	0	19	146	0	0	0	0	114	11	0	350	0
5:30 PM	0	23	0	36	0	0	0	0	0	0	0	14	119	0	0	0	0	120	14	0	326	0
5:45 PM	0	11	0	20	0	0	0	0	0	0	0	9	85	0	0	0	0	92	20	0	237	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	0	0	1	0	0	0	0	0	0	0	2	23	0	0	0	0	28	2	0	56
Lights	0	193	0	107	0	0	0	0	0	0	0	70	733	0	0	0	0	480	101	0	1,684
Mediums	0	2	0	13	0	0	0	0	0	0	0	3	9	0	0	0	0	46	10	0	83
Total	0	195	0	121	0	0	0	0	0	0	0	75	765	0	0	0	0	554	113	0	1,823
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			5.1%					0.0%					4.4%					12.9%			7.6%
Heavy Vehicle Percentage	0.0%	1.0%	0.0%	11.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	4.2%	0.0%	0.0%	0.0%	0.0%	13.4%	10.6%	0.0%	7.6%
Peak Hour Factor (PHF)			0.76					0.00					0.88					0.83			0.84
Peak Hour Factor (PHF)	0.00	0.77	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.89	0.00	0.00	0.00	0.00	0.82	0.86	0.00	0.84

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	8	0	0	15
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	1	5	0	0	0	0	2	1	0	10
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	8	0	0	13
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	10	1	0	18
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	6	0	0	11
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	4	0	0	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	7	0	0	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	5	0	0	12

All Traffic Data Services

2 FLORIN PERKINS RD & NORTH DRIVEWAY AM
 Tuesday, February 23, 2021

Peak Hour
 07:00 AM - 08:00 AM
 Peak 15-Minutes
 07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

Time	NORTH DRIVEWAY					NORTH DRIVEWAY					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
7:00 AM	0	0	0	8	0	0	0	0	0	0	0	1	143	0	0	0	0	176	6	0	334	1,430
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	1	140	0	0	0	0	176	2	0	321	1,393
7:30 AM	0	2	0	0	0	0	0	0	0	0	1	3	161	0	0	0	0	207	2	0	376	1,348
7:45 AM	0	2	0	2	0	0	0	0	0	0	0	2	162	0	0	0	0	226	5	0	399	1,262
8:00 AM	0	2	0	1	0	0	0	0	0	0	0	1	136	0	0	0	0	154	3	0	297	1,134
8:15 AM	0	1	0	3	0	0	0	0	0	0	0	1	125	0	0	0	0	142	4	0	276	0
8:30 AM	0	6	0	2	0	0	0	0	0	0	0	2	138	0	0	0	0	135	7	0	290	0
8:45 AM	0	2	0	3	0	0	0	0	0	0	0	1	129	0	0	0	0	128	8	0	271	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	5	0	7	0	0	0	0	0	0	0	2	39	0	0	0	0	38	7	0	98
Lights	0	0	0	2	0	0	0	0	0	0	0	5	482	0	0	0	0	710	8	0	1,207
Mediums	0	0	0	2	0	0	0	0	0	0	1	0	85	0	0	0	0	37	0	0	125
Total	0	5	0	11	0	0	0	0	0	0	1	7	606	0	0	0	0	785	15	0	1,430
Bicycles on Crosswalk			2					0					0					0			2
Heavy Vehicle Percentage			87.5%					0.0%					20.7%					10.3%			15.6%
Heavy Vehicle Percentage	0.0%	100.0%	0.0%	81.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	28.6%	20.5%	0.0%	0.0%	0.0%	0.0%	9.6%	46.7%	0.0%	15.6%
Peak Hour Factor (PHF)			0.63					0.00					0.93					0.87			0.90
Peak Hour Factor (PHF)	0.00	0.46	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.58	0.94	0.00	0.00	0.00	0.00	0.87	0.69	0.00	0.90

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
7:00 AM	0	0	0	5	0	0	0	0	0	0	0	0	12	0	0	0	0	5	2	0	24
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	9	0	0	0	0	11	2	0	24
7:30 AM	0	2	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	11	1	0	23
7:45 AM	0	2	0	1	0	0	0	0	0	0	0	1	10	0	0	0	0	11	2	0	27
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	13	1	0	24
8:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	20	0	0	0	0	12	2	0	36
8:30 AM	0	4	0	1	0	0	0	0	0	0	0	2	5	0	0	0	0	7	3	0	22
8:45 AM	0	2	0	3	0	0	0	0	0	0	0	0	12	0	0	0	0	3	5	0	25

All Traffic Data Services

2 FLORIN PERKINS RD & NORTH DRIVEWAY PM
 Tuesday, February 23, 2021

Peak Hour
 04:00 PM - 05:00 PM
 Peak 15-Minutes
 04:00 PM - 04:15 PM

Traffic Counts - All Vehicles

Time	NORTH DRIVEWAY					NORTH DRIVEWAY					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
4:00 PM	0	4	0	5	0	0	0	0	0	0	0	2	234	0	0	0	0	205	0	0	450	1,532
4:15 PM	0	5	0	3	0	0	0	0	0	0	0	0	184	0	0	0	0	170	3	0	365	1,470
4:30 PM	0	2	0	4	0	0	0	0	0	0	1	0	238	0	0	0	0	142	1	0	388	1,418
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	2	172	0	0	0	0	149	2	0	329	1,318
5:00 PM	0	1	0	4	0	0	0	0	0	0	0	3	215	0	0	0	0	164	1	0	388	1,194
5:15 PM	0	1	0	2	0	0	0	0	0	0	0	0	164	0	0	0	0	146	0	0	313	0
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	1	132	0	0	0	0	151	2	0	288	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	91	0	0	0	0	112	0	0	205	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	4	0	4	0	0	0	0	0	0	0	1	21	0	0	0	0	24	5	0	59
Lights	0	9	0	10	0	0	0	0	0	0	1	3	795	0	0	0	0	584	0	0	1,402
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	58	1	0	71
Total	0	13	0	14	0	0	0	0	0	0	1	4	828	0	0	0	0	666	6	0	1,532
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			29.6%					0.0%					4.1%					13.1%			8.5%
Heavy Vehicle Percentage	0.0%	30.8%	0.0%	28.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	4.0%	0.0%	0.0%	0.0%	0.0%	12.3%	100.0%	0.0%	8.5%
Peak Hour Factor (PHF)			0.75					0.00					0.87					0.82			0.85
Peak Hour Factor (PHF)	0.00	0.65	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.50	0.87	0.00	0.00	0.00	0.00	0.81	0.58	0.00	0.85

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
4:00 PM	0	1	0	3	0	0	0	0	0	0	0	0	6	0	0	0	0	7	0	0	17
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	2	0	9
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	14
4:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	7	0	0	0	0	8	2	0	19
5:00 PM	0	0	0	2	0	0	0	0	0	0	0	1	4	0	0	0	0	4	1	0	12
5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	6	0	0	10
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	5	1	0	10
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	5	0	0	11

All Traffic Data Services

1 FLORIN PERKINS RD & SOUTH DRIVEWAY AM
 Tuesday, March 16, 2021

Peak Hour
 07:00 AM - 08:00 AM
 Peak 15-Minutes
 07:45 AM - 08:00 AM

Traffic Counts - All Vehicles

Time	SOUTH DRIVEWAY					SOUTH DRIVEWAY					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	154	0	0	0	1	172	0	0	327	1,400
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	134	0	0	0	0	156	0	0	290	1,376
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	0	1	180	0	0	361	1,377
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	169	0	0	0	3	250	0	0	422	1,273
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	126	0	0	0	3	173	0	0	303	1,112
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	141	1	0	0	0	149	0	0	291	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	115	0	0	0	0	142	0	0	257	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	130	0	0	0	0	131	0	0	261	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	51	0	0	0	2	33	0	0	86
Lights	0	0	0	0	0	0	0	0	0	0	0	0	483	0	0	0	2	683	0	0	1,168
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	103	0	0	0	1	42	0	0	146
Total	0	0	0	0	0	0	0	0	0	0	0	0	637	0	0	0	5	758	0	0	1,400
Bicycles on Crosswalk			0					4					0					0			4
Heavy Vehicle Percentage			0.0%					0.0%					24.2%					10.2%			16.6%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.2%	0.0%	0.0%	0.0%	60.0%	9.9%	0.0%	0.0%	16.6%
Peak Hour Factor (PHF)			0.00					0.25					0.88					0.76			0.83
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.88	0.25	0.00	0.00	0.58	0.76	0.00	0.00	0.83

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	9	0	0	15
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	3	0	0	17
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	1	11	0	0	24
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	1	10	0	0	30
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	14	0	0	29
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	10	0	0	25
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	8	0	0	20
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	10	0	0	26

All Traffic Data Services

1 FLORIN PERKINS RD & SOUTH DRIVEWAY PM
 Tuesday, March 16, 2021

Peak Hour
 04:00 PM - 05:00 PM
 Peak 15-Minutes
 04:00 PM - 04:15 PM

Traffic Counts - All Vehicles

Time	SOUTH DRIVEWAY					SOUTH DRIVEWAY					FLORIN PERKINS RD					FLORIN PERKINS RD					Total	Rolling Hour		
	Eastbound					Westbound					Northbound					Southbound								
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR				
4:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	278	0	0	0	0	1	197	0	0	478	1,755
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	247	0	0	0	0	1	186	0	0	435	1,690
4:30 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	280	0	0	0	0	1	194	0	0	478	1,558
4:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	198	0	0	0	0	0	164	0	0	364	1,375
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	233	0	0	0	0	1	179	0	0	413	1,262
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	139	0	0	0	0	0	163	0	0	303	0
5:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	150	0	0	0	0	1	142	0	0	295	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	131	0	0	0	0	0	120	0	0	251	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	2	45	0	0	68
Lights	0	0	0	0	0	0	0	0	8	0	0	0	958	0	0	0	1	623	0	0	1,590
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	73	0	0	97
Total	0	0	0	0	0	0	0	0	8	0	0	0	1,003	0	0	0	3	741	0	0	1,755
Bicycles on Crosswalk	0					0					0					0					0
Heavy Vehicle Percentage	0.0%					0.0%					4.5%					16.1%					9.4%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	66.7%	15.9%	0.0%	0.0%	9.4%
Peak Hour Factor (PHF)	0.00					0.67					0.90					0.94					0.92
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.67	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.75	0.94	0.00	0.00	0.92

Traffic Counts by Vehicle Type

Time	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks																					
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	14	0	0	20
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	13	0	0	20
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	7	0	0	14
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	11	0	0	14
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	8	0	0	16
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	2	0	0	9
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	4	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0	6

APPENDIX B:

SimTraffic Reports – Existing

1: Florin Perkins Rd & Belvedere Ave Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	2.0	0.0	0.2	0.3
Total Del/Veh (s)	11.8	6.0	9.1	8.1

2: Florin Perkins Rd & Driveway - North Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.1	0.4	3.0	2.0

4: Florin Perkins Rd Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.1
Total Del/Veh (s)	0.4	0.6	0.5

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	10.8

Intersection: 1: Florin Perkins Rd & Belvedere Ave

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	108	73	126	94	82	205	181
Average Queue (ft)	42	35	63	26	27	104	74
95th Queue (ft)	87	65	110	66	70	176	143
Link Distance (ft)		469		576	576	583	583
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155				
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

Intersection: 2: Florin Perkins Rd & Driveway - North

Movement	EB	NB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	85	54	4
Average Queue (ft)	27	4	0
95th Queue (ft)	75	25	3
Link Distance (ft)	353		576
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Florin Perkins Rd

Movement	SB
Directions Served	L
Maximum Queue (ft)	51
Average Queue (ft)	3
95th Queue (ft)	20
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

1: Florin Perkins Rd & Belvedere Ave Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	2.5	0.0	0.2	0.5
Total Del/Veh (s)	11.8	6.9	9.3	8.6

2: Florin Perkins Rd & Driveway - North Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	14.8	0.5	2.9	1.6

4: Florin Perkins Rd Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.1
Total Del/Veh (s)	3.3	0.6	0.6	0.6

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	10.5

Intersection: 1: Florin Perkins Rd & Belvedere Ave

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	134	80	94	126	123	178	154
Average Queue (ft)	70	41	45	55	60	94	61
95th Queue (ft)	116	70	83	96	109	154	118
Link Distance (ft)		469		576	576	583	583
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155				
Storage Blk Time (%)	0			0			
Queuing Penalty (veh)	0			0			

Intersection: 2: Florin Perkins Rd & Driveway - North

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	74	25
Average Queue (ft)	25	2
95th Queue (ft)	65	13
Link Distance (ft)	353	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Florin Perkins Rd

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	31	26
Average Queue (ft)	7	2
95th Queue (ft)	28	15
Link Distance (ft)	331	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

APPENDIX C:

SimTraffic Reports – Existing Plus Project

1: Florin Perkins Rd & Belvedere Ave Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	1.9	0.0	0.2	0.3
Total Del/Veh (s)	13.2	6.5	9.2	8.5

2: Florin Perkins Rd & Driveway - North Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.1	0.9	3.5	2.5

3: Florin Perkins Rd & Driveway - Center Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.4	0.6	0.7	0.7

4: Florin Perkins Rd & Driveway - South Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.0	0.1
Total Del/Veh (s)	12.7	0.6	0.6	0.7

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	11.7

Intersection: 1: Florin Perkins Rd & Belvedere Ave

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	103	80	131	94	115	196	209
Average Queue (ft)	42	34	63	35	32	100	91
95th Queue (ft)	83	66	107	78	86	166	167
Link Distance (ft)		469		576	576	583	583
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155				
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

Intersection: 2: Florin Perkins Rd & Driveway - North

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	81	84	9
Average Queue (ft)	21	24	0
95th Queue (ft)	64	64	4
Link Distance (ft)	353		576
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		1	

Intersection: 3: Florin Perkins Rd & Driveway - Center

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	31	30	4
Average Queue (ft)	9	10	0
95th Queue (ft)	31	31	3
Link Distance (ft)	469		235
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Florin Perkins Rd & Driveway - South

Movement	EB	NB	SB	SB
Directions Served	LTR	L	L	TR
Maximum Queue (ft)	72	63	26	8
Average Queue (ft)	18	8	1	0
95th Queue (ft)	61	41	11	6
Link Distance (ft)	440			330
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100	100	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1

1: Florin Perkins Rd & Belvedere Ave Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	2.5	0.0	0.2	0.5
Total Del/Veh (s)	12.4	6.5	9.6	8.6

2: Florin Perkins Rd & Driveway - North Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	27.4	0.5	3.0	3.4

3: Florin Perkins Rd & Driveway - Center Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.9	0.4	0.4	0.6

4: Florin Perkins Rd & Driveway - South Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.1
Total Del/Veh (s)	20.1	4.6	0.7	0.6	0.9

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	11.8

Intersection: 1: Florin Perkins Rd & Belvedere Ave

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	154	129	102	110	116	204	166
Average Queue (ft)	73	47	42	52	57	96	61
95th Queue (ft)	125	89	85	91	99	163	121
Link Distance (ft)		469		576	576	583	583
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155				
Storage Blk Time (%)	0			0			
Queuing Penalty (veh)	0			0			

Intersection: 2: Florin Perkins Rd & Driveway - North

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	195	47
Average Queue (ft)	69	10
95th Queue (ft)	149	34
Link Distance (ft)	353	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Florin Perkins Rd & Driveway - Center

Movement	EB	NB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	54	33	4
Average Queue (ft)	26	5	0
95th Queue (ft)	53	22	3
Link Distance (ft)	469		235
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Florin Perkins Rd & Driveway - South

Movement	EB	WB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	L	T	TR
Maximum Queue (ft)	104	31	69	64	12	13
Average Queue (ft)	39	9	10	4	1	1
95th Queue (ft)	95	32	45	30	7	8
Link Distance (ft)	440	332			330	330
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100	100		
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		

Network Summary

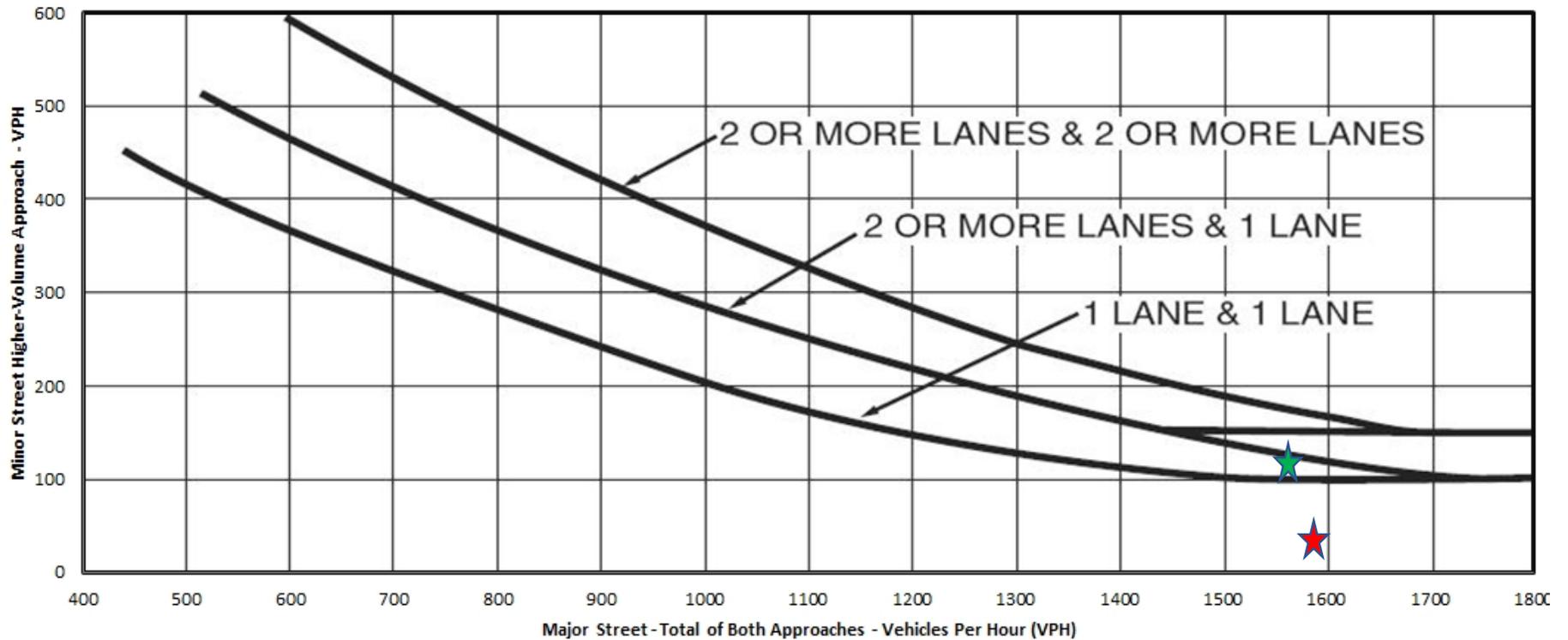
Network wide Queuing Penalty: 1

APPENDIX D:

Signal Warrant Analysis

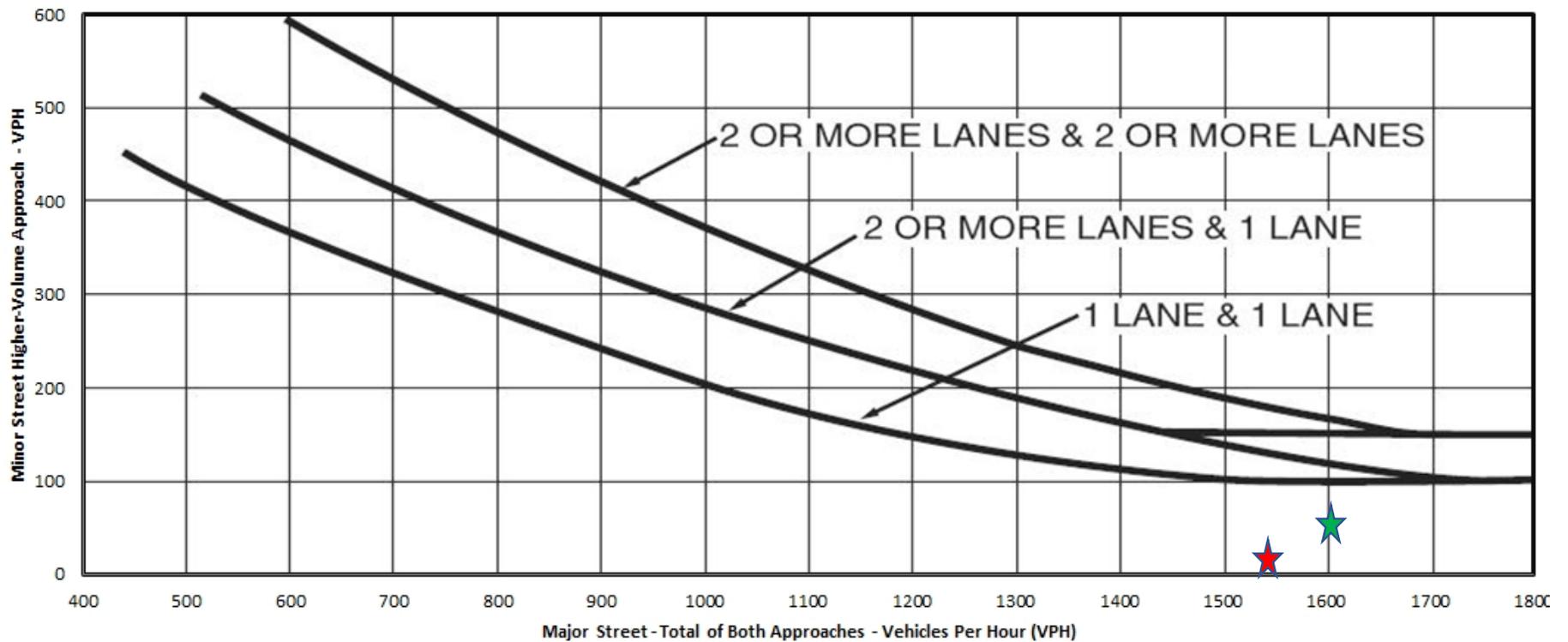
Intersection Number	2	
Intersection:	Florin Perkins Rd & North Driveway	
Scenario:	Existing Plus Project	
Peak Hour:	AM	PM
Major Street Volume (Both Directions):	1,578	1,563
Minor Street Volume (Higher Approach):	23	112
Major Street Lanes:	2	2
Minor Street Lanes:	1	1
Warrant Met?	No	No

MUTCD Figure 4C-3. Warrant 3, Peak Hour



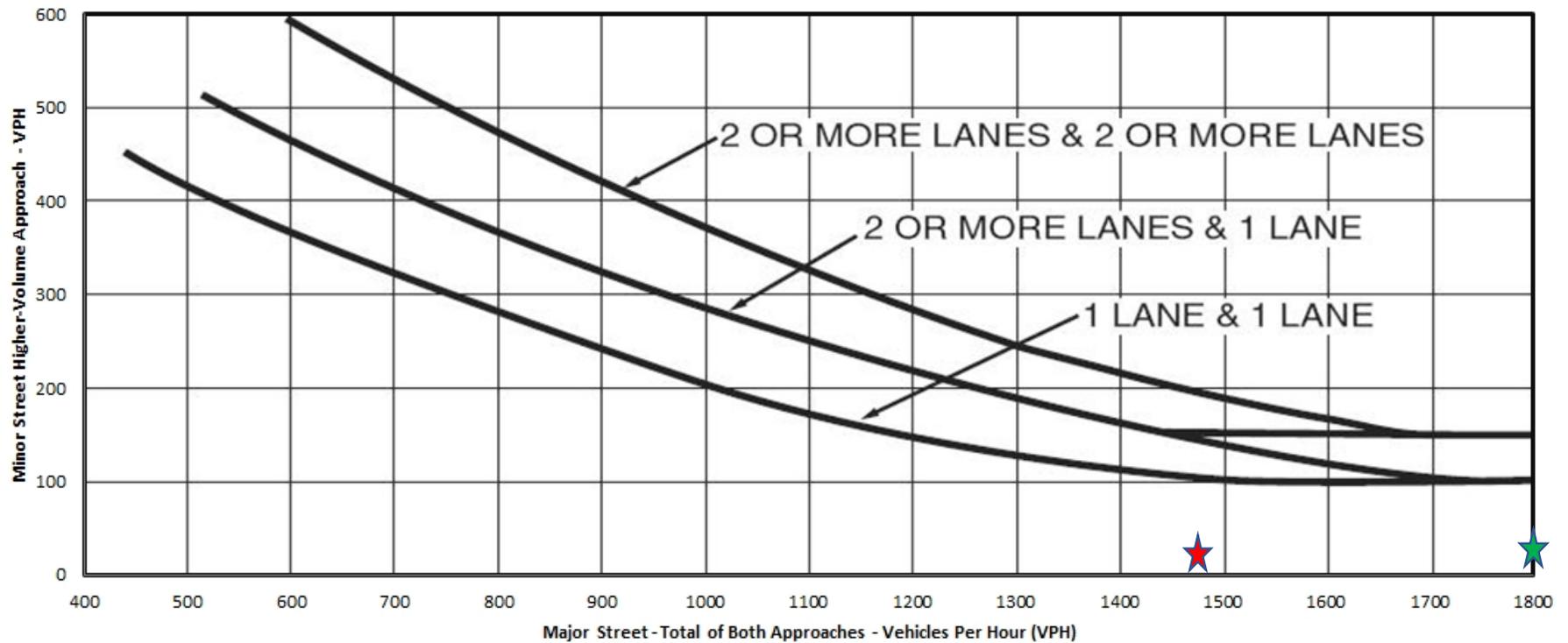
Intersection Number	3	
Intersection:	Florin Perkins Rd & Center Driveway	
Scenario:	Existing Plus Project	
Peak Hour:	AM	PM
Major Street Volume (Both Directions):	1,542	1,606
Minor Street Volume (Higher Approach):	8	50
Major Street Lanes:	2	2
Minor Street Lanes:	1	1
Warrant Met?	No	No

MUTCD Figure 4C-3. Warrant 3, Peak Hour



Intersection Number	4	
Intersection:	Florin Perkins Rd & South Driveway	
Scenario:	Existing Plus Project	
Peak Hour:	AM	PM
Major Street Volume (Both Directions):	1,470	1,865
Minor Street Volume (Higher Approach):	13	24
Major Street Lanes:	2	2
Minor Street Lanes:	1	1
Warrant Met?	No	No

MUTCD Figure 4C-3. Warrant 3, Peak Hour



APPENDIX E:

Fontana Truck Trip Generation Study

Truck Trip Generation Study



**City of Fontana
County of San Bernardino
State of California**

August 2003

TRUCK TRIP GENERATION STUDY

CITY OFFICIALS

Honorable Mark Nuaimi, Mayor
Honorable Janice Rutherford, Mayor Pro Tem
Honorable John B. Roberts, Council Member
Honorable Josie Gonzales, Council Member
Honorable Acquanetta Warren, Council Member
Kenneth R. Hunt, City Manager



PROJECT MANAGERS

Raymond Bragg, Director of Redevelopment & Special Projects
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Traffic Counts by

Counts Unlimited
Barbara Sackett, President



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5. SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS





SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS

Classification: Light Warehouse

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	3.713*X	Marginal	Marginal	1.659*X	Marginal	4156.615*.991^X	35.874*X	Marginal	Marginal
AM Street									
Total Vehicles	0.273*X	n.a.	n.a.	0.122*X	Marginal	Marginal	2.637*X	Marginal	Marginal
Trucks	0.051*X	-0.041+10.328	15.349*0.989^X	0.023*X	Marginal	n.a.	0.497*X	Marginal	Marginal
PM Street									
Total Vehicles	0.201*X	n.a.	n.a.	0.090*X	n.a.	n.a.	1.946*X	n.a.	n.a.
Trucks	0.047*X	n.a.	Marginal	0.021*X	0.051*X-7.461	0.463*1.010^X	0.454*X	n.a.	n.a.
AM Site									
Total Vehicles	0.327*X	n.a.	n.a.	0.146*X	n.a.	n.a.	3.156*X	Marginal	Marginal
Trucks	0.065*X	n.a.	Marginal	0.029*X	n.a.	n.a.	0.627*X	Marginal	Marginal
PM Site									
Total Vehicles	0.282*X	0.221*X+6.813	13.375*1.007^X	0.126*X	n.a.	n.a.	2.726*X	Marginal	Marginal
Trucks	0.074*X	n.a.	n.a.	0.033*X	n.a.	n.a.	0.713*X	Marginal	Marginal

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Heavy Warehouse

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	4.657*X	n.a.	n.a.	3.547*x	n.a.	n.a.	69.959*X	n.a.	n.a.
AM Street									
Total Vehicles	0.091*X	Marginal	n.a.	0.070*X	0.032*X+21.235	Marginal	1.373*X	0.589*X+22.708	Marginal
Trucks	0.034*X	0.021*X+6.025	8.090*1.001^X	0.026*X	0.016*X+5.638	7.929*1.001^X	0.518*X	0.301*X+6.291	8.220*1.017^X
PM Street									
Total Vehicles	0.095*X	0.054*X+17.889	22.051*1.001^X	0.073*X	0.042*X+17.592	Marginal	1.433*X	0.771*X+19.178	Marginal
Trucks	0.034*X	Marginal	n.a.	0.026*X	0.023*X+1.584	Marginal	0.509*X	0.419*X+2.609	Marginal
AM Site									
Total Vehicles	0.309*X	0.268*X+17.625	50.347*1.002^X	0.235*X	0.215*X+11.213	48.177*1.001^X	4.637*X	3.951*X+19.862	50.856*1.025^X
Trucks	0.040*X	n.a.	n.a.	0.030*X	n.a.	n.a.	0.596*X	n.a.	n.a.
PM Site									
Total Vehicles	0.417*X	0.390*X+11.980	Marginal	0.318*X	0.323*X-2.803	49.975*1.002^X	6.268*X	5.902*X+10.616	50.560*1.030^X
Trucks	0.044*X	0.021*X+9.850	Marginal	0.033*X	0.016*X+10.004	Marginal	0.656*X	0.291*X+10.585	Marginal

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Light Industrial

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	8.046*X	9.322*X-55.491	64.160X1.035^X	11.744*X	Marginal	n.a.	37.313*X	35.607*X+16.007	87.895*1.132^X
AM Street									
Total Vehicles	0.466*X	Marginal	Marginal	0.679*X	n.a.	n.a.	2.159*X	n.a.	Marginal
Trucks	0.184*X	n.a.	n.a.	0.268*X	n.a.	n.a.	0.853*X	n.a.	n.a.
PM Street									
Total Vehicles	0.299*X	Marginal	Marginal	0.436*X	0.193*X+7.240	8.152*1.013^X	1.386*X	Marginal	6.258*1.070^X
Trucks	0.069*X	0.093*X-1.026	0.570*1.034^X	0.101*X	0.056*X+1.323	Marginal	0.320*X	0.329*X-.090	0.835*1.122^X
AM Site									
Total Vehicles	0.787*X	1.004*X-9.410	7.306*1.032^X	1.149*X	0.615*X+15.911	Marginal	3.651*X	3.729*X-0.725	9.947*1.119^X
Trucks	0.224*X	n.a.	n.a.	0.327*X	Marginal	15.086*0.977^X	1.039*X	n.a.	n.a.
PM Site									
Total Vehicles	1.069*X	1.224*X-6.744	12.310*1.028^X	1.560*X	0.742*X+24.373	26.078*1.015^X	4.957*X	4.345*X-5.749	16.771*1.098^X
Trucks	0.201*X	n.a.	n.a.	0.294*X	n.a.	n.a.	0.933*X	n.a.	n.a.

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Heavy Industrial

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	3.787*X	n.a.	n.a.	7.541*X	n.a.	n.a.	71.607*X	n.a.	n.a.
AM Street									
Total Vehicles	0.237*X	n.a.	n.a.	0.473*X	n.a.	n.a.	4.490*X	n.a.	n.a.
Trucks	0.105*X	n.a.	n.a.	0.209*X	n.a.	n.a.	1.985*X	n.a.	n.a.
PM Street									
Total Vehicles	0.158*X	Marginal	Marginal	0.315*X	Marginal	n.a.	2.993*X	Marginal	n.a.
Trucks	0.058*X	n.a.	n.a.	0.116*X	n.a.	n.a.	1.100*X	n.a.	n.a.
AM Site									
Total Vehicles	0.352*X	0.177*X+27.122	28.109*1.003^X	0.701*X	n.a.	n.a.	6.659*X	n.a.	n.a.
Trucks	0.095*X	n.a.	n.a.	0.190*X	n.a.	n.a.	1.802*X	n.a.	n.a.
PM Site									
Total Vehicles	0.278*X	0.059*X+33.809	33.793*1.001^X	0.553*X	Marginal	Marginal	5.254*X	n.a.	n.a.
Trucks	0.126*X	n.a.	n.a.	0.251*X	n.a.	n.a.	2.382*X	n.a.	n.a.

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Industrial Park

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	2.485*X	1.638*X+156.726	188.297*1.004^X	1.236*X	Marginal	Marginal	24.805*X	n.a.	Marginal
AM Street									
Total Vehicles	0.191*X	Marginal	Marginal	0.095*X	n.a.	n.a.	1.902*X	n.a.	n.a.
Trucks	0.078*X	Marginal	Marginal	0.039*X	n.a.	n.a.	0.782*X	n.a.	n.a.
PM Street			Marginal						
Total Vehicles	0.193*X	Marginal	Marginal	0.096*X	n.a.	n.a.	1.929*X	n.a.	n.a.
Trucks	0.097*X	Marginal	Marginal	0.048*X	n.a.	n.a.	0.971*X	n.a.	n.a.
AM Site									
Total Vehicles	0.265*X	Marginal	Marginal	0.132*X	n.a.	n.a.	2.644*X	n.a.	n.a.
Trucks	0.053*X	n.a.	n.a.	0.026*X	n.a.	n.a.	0.526*X	n.a.	n.a.
PM Site									
Total Vehicles	0.382*X	0.397*X-2.740	16.146*1.007^X	0.190*X	n.a.	n.a.	3.818*X	n.a.	n.a.
Trucks	0.120*X	Marginal	Marginal	0.060*X	n.a.	n.a.	1.201*X	n.a.	n.a.

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Truck Sales and Leasing

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	10.380*X	10.161*X+14.571	44.902*1.035^X	23.517*X	Marginal	Marginal	129.691*X	136.639X-36.982	36.432*1.590^X
AM Street									
Total Vehicles	0.605*X	0.638*X-2.148	0.927*1.047^X	1.371*X	1.208*X+4.795	Marginal	7.562*X	Marginal	0.764*1.830^X
Trucks	0.056*X	0.063X-0.410	n.a.	0.128*X	Marginal	n.a.	0.705*X	0.839*X-0.717	n.a.
PM Street									
Total Vehicles	0.556*X	0.551*X+0.336	2.806*1.032^X	1.261*X	1.018*X+7.110	Marginal	6.952*X	Marginal	2.492*1.524^X
Trucks	0.098*X	Marginal	1.819*1.017^X	0.221*X	Marginal	Marginal	1.221*X	Marginal	1.672*1.247^X
AM Site									
Total Vehicles	0.883*X	0.871*X+0.836	2.890*1.038^X	2.002*X	1.597*X+11.883	Marginal	11.038*X	Marginal	2.453*1.635^X
Trucks	0.308*X	Marginal	3.103*1.024^X	0.698*X	Marginal	Marginal	3.852*X	n.a.	2.793*1.367^X
PM Site									
Total Vehicles	0.823*X	0.656*X+11.133	12.591*1.019^X	1.865*X	1.160*X+20.711	Marginal	10.287*X	Marginal	11.783*1.285^X
Trucks	0.297*X	Marginal	4.732*1.018^X	0.673*X	0.530*X+4.190	5.839*1.034^X	3.711*X	n.a.	Marginal

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Used Truck Sales

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	20.874*X	n.a.	n.a.	20.039*X	20.671-17.428	137.430*1.033^X	67.996*X	94.942*X-219.206	102.271*1.159^X
AM Street									
Total Vehicles	1.179*X	n.a.	n.a.	1.132*X	0.932*X+5.537	10.979*1.027^X	3.841*X	4.233*X-3.183	8.786*1.124^X
Trucks	0.358*X	n.a.	n.a.	0.344*X	0.387*X-1.172	n.a.	1.168*X	1.753X-4.759	n.a.
PM Street									
Total Vehicles	1.481*X	n.a.	n.a.	1.422*X	1.122*X+8.283	13.124*1.028^X	4.825*X	5.024*X-1.622	Marginal
Trucks	0.226*X	n.a.	n.a.	0.217*X	Marginal	n.a.	0.738*X	Marginal	n.a.
AM Site									
Total Vehicles	1.764*X	n.a.	n.a.	1.694*X	1.155*X+14.876	22.051*1.020^X	5.747*X	5.323*X+3.450	18.125*1.097^X
Trucks	0.594*X	n.a.	n.a.	0.571*X	0.503*X+1.855	n.a.	1.936*X	2.309X-3.030	n.a.
PM Site									
Total Vehicles	1.575*X	n.a.	n.a.	1.513*X	.973*X+14.899	Marginal	5.132*X	4.617*X+4.193	Marginal
Trucks	0.481*X	n.a.	n.a.	0.462*X	.396*X+1.812	Marginal	1.567*X	1.847X-2.272	Marginal

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Truck Terminals

Period	NO. OF EMPLOYEES			GROSS BUILDING AREA (KSF)			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily									
Total Vehicles	3.428*X	1.844*X+480.332	Marginal	16.857*X	Marginal	n.a.	42.582*X	27.391*X+370.843	Marginal
AM Street									
Total Vehicles	0.104*X	n.a.	n.a.	0.511*X	n.a.	n.a.	1.290*X	n.a.	n.a.
Trucks	0.047*X	n.a.	n.a.	0.231*X	n.a.	n.a.	0.584*X	n.a.	n.a.
PM Street									
Total Vehicles	0.122*X	Marginal	Marginal	0.600*X	n.a.	n.a.	1.516*X	Marginal	Marginal
Trucks	0.062*X	Marginal	Marginal	0.304*X	n.a.	n.a.	0.768*X	0.408*X+8.790	Marginal
AM Site									
Total Vehicles	0.157*X	Marginal	n.a.	0.770*X	n.a.	n.a.	1.946*X	n.a.	n.a.
Trucks	0.059*X	n.a.	Marginal	0.288*X	Marginal	Marginal	0.727*X	n.a.	n.a.
PM Site									
Total Vehicles	0.176*X	n.a.	n.a.	0.864*X	n.a.	n.a.	2.181*X	Marginal	n.a.
Trucks	0.091*X	n.a.	n.a.	0.446*X	n.a.	n.a.	1.126*X	n.a.	n.a.

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.



SUMMARY OF RECOMMENDED TRIP GENERATION RATES AND EQUATIONS (Cont'd)

Classification: Truck Stops

Period	NO. OF FUELING POSITIONS			ACRES		
	Weighted Average Trips	Linear Regression	Logarithmic Regression	Weighted Average Trips	Linear Regression	Logarithmic Regression
Daily						
Total Vehicles	34.565*X	n.a.	n.a.	319.730*X	n.a.	n.a.
AM Street						
Total Vehicles	2.257*X	n.a.	n.a.	20.875*X	n.a.	n.a.
Trucks	1.189*X	n.a.	n.a.	11.000*X	n.a.	n.a.
PM Street						
Total Vehicles	8.216*X	n.a.	n.a.	76.000*X	n.a.	n.a.
Trucks	4.811*X	n.a.	n.a.	44.500*X	n.a.	n.a.
AM Site						
Total Vehicles	2.324*X	n.a.	n.a.	21.500*X	n.a.	n.a.
Trucks	1.878*X	n.a.	n.a.	17.375*X	n.a.	n.a.
PM Site						
Total Vehicles	9.500*X	n.a.	n.a.	87.875*X	n.a.	n.a.
Trucks	5.000*X	n.a.	n.a.	46.250*X	n.a.	n.a.

Note: All symbols are per Microsoft Excel (+, -, *, and ^) add, subtract, multiply and raise to a power. "X" is the independent variable.