

ROXFORD STREET WAREHOUSES PROJECT TRANSPORTATION ASSESSMENT

City of Los Angeles

April 21, 2022



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

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April 21, 2022

prepared by

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Project No. 19377

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EXECUTIVE SUMMARY

The Project site is located west of Olden Street and north of Roxford Street, and it is addressed at 15825 Roxford Street within the Sylmar neighborhood in the City of Los Angeles. The project site is currently occupied with an industrial building with 253,762 square feet of light industrial use. Approximately 88,000 square feet of parking lot is leased as an off-site storage lot for a car dealership/sales. The proposed Project involves construction of two new industrial buildings with a total of 568,313 square feet of warehouse use and 55,516 square feet of office use ["Project"]. Building 1 consists of 407,341 square feet of warehouse use plus 45,388 square feet of office use. Building 2 consists of 160,972 square feet of warehouse use plus 10,128 square feet of office use. The project site will provide one access driveway on Roxford Street and two access driveways on Olden Street. The north driveway on Olden Street will serve truck traffic, and the south driveway on Olden Street will serve passenger cars. The driveway on Roxford Street will serve both truck and passenger car traffic.

Non-CEQA Findings

Pedestrian, Bicycle, and Transit Access Assessment

The proposed Project satisfies the City-established screening criteria for pedestrian, bicycle, and transit access; therefore, no further analysis or improvements are necessary.

Project Access and Circulation Evaluation

The proposed Project is forecast to generate a total of approximately negative 30 net PCE trips during the AM peak hour and 26 net PCE trips during the PM peak hour, with the consideration of the existing land use trip credit. Overall, the proposed Project will generate 125 AM peak hour PCE trips and 169 PM peak hour PCE trips, including the existing trip credit.

The proposed project is forecast to result in no additional operational deficiencies at the study intersections for the scenarios evaluated based on the City-established guidelines. The proposed project is forecast to result in no additional operational deficiencies at the study intersections for the scenarios evaluated based on the City-established guidelines. Since the intersection of I-5 Northbound Off-Ramp at Roxford Street [Intersection #2] is already operating at deficient Level of Service during Existing and Opening Year Without Project conditions and not caused by the project, no additional improvements are recommended. Furthermore, the I-5 Northbound Off-Ramp intersection is located in close proximity to the existing signalized intersection of Encinitas Avenue and Roxford Street where installing another traffic signal at the I-5 Northbound Off-Ramp would not be appropriate. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) is an existing traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street.

For the intersection of Olden Street/Telfair Avenue at Roxford Street [Intersection #4], it recommended that the eastbound and westbound signal phasing on Roxford Street be improved to protected left-turn phasing to address traffic concerns on Roxford Street raised by local residents. The eastbound and westbound protected left-turn phasing would facilitate safer turning movements for the project truck traffic making eastbound left turns to Olden Street/Telfair Avenue. Additional advanced warning signage such as "Signal Ahead" warning signs should be installed on Roxford Street approach the signalized intersection at Olden Street/Telfair Avenue [Intersection #4].

No queuing deficiencies are forecast to occur at the three freeway off-ramps locations for Opening Year (2024) With Project conditions. There appears to be adequate storage lengths on the off-ramps so that the I-5 freeway mainline traffic flow will not be impacted by off-ramp queues. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) is an existing

traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street or the I-5 freeway mainline traffic flow.

Project Construction

The proposed Project satisfies the City-established screening criteria for project construction analysis; therefore, no further analysis or corrective measures are necessary.

Residential Street Cut-Through

Based on the screening review and City-approved MOU, the proposed Project is not anticipated to substantially contribute to cut-through trips on residential streets; therefore, no further analysis or corrective measures are necessary.

1. INTRODUCTION

This section describes the purpose of this study and the project description. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering and planning.

PURPOSE AND OBJECTIVES

The purpose of this transportation assessment is to assess potential transportation impacts resulting from development of the proposed project both in the context of the California Environmental Quality Act (CEQA) and City of Los Angeles discretionary authority. This study has been prepared in consultation with the City of Los Angeles Transportation Department (LADOT) and in accordance with the City's Transportation Assessment Guidelines (July 2020) ["2020 LADOT Transportation Assessment Guidelines"]. Consultation with the LADOT is documented in the City-approved Transportation Assessment Memorandum of Understanding (MOU) included in Appendix B.

Based on the approved MOU that the Net Daily Vehicle Trips (DVT) is under 250 DVT threshold, which means that this project is not required to complete the CEQA analysis nor a traffic impact analysis for CEQA. This study will evaluate non-CEQA transportation analysis and corrective measures, if necessary, relating to pedestrian, bicycle, and transit access, project access and circulation, and project construction.

PROJECT DESCRIPTION

Project Case Number: 50250

Project Location

The Project site is located west of Olden Street and north of Roxford Street, and it is addressed at 15825 Roxford Street within the Sylmar neighborhood in the City of Los Angeles. The project site Assessor Identification Number (AIN) is 2604001001. The project site is located in City of Los Angeles Council District 7. Figure 1 shows the project location map and study intersections.

Existing Land Uses

The project site is currently occupied with an industrial building with 253,762 square feet of light industrial use. Approximately 88,000 square feet of parking lot is leased as an off-site storage lot for a car dealership/sales.

Proposed Uses

The proposed Project involves construction of two new industrial buildings with a total of 568,313 square feet of warehouse use and 55,516 square feet of office use. Building 1 consists of 407,341 square feet of warehouse use plus 45,388 square feet of office use. Building 2 consists of 160,972 square feet of warehouse use plus 10,128 square feet of office use. The project site will provide one access driveway on Roxford Street and two access driveways on Olden Street. The north driveway on Olden Street will serve truck traffic, and the south driveway on Olden Street will serve passenger cars. The driveway on Roxford Street will serve both truck and passenger car traffic. Figure 2 shows the proposed Project site plan.

Project Design Features

This analysis assumes the proposed Project shall construct all on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed Project in accordance with

applicable State/Federal engineering standards and to the satisfaction of the City of Los Angeles Department of Public Works, including provisions for sight distance as necessary.



Legend

- # Study Intersection
- # Project Driveway

Figure 1
Project Location Map

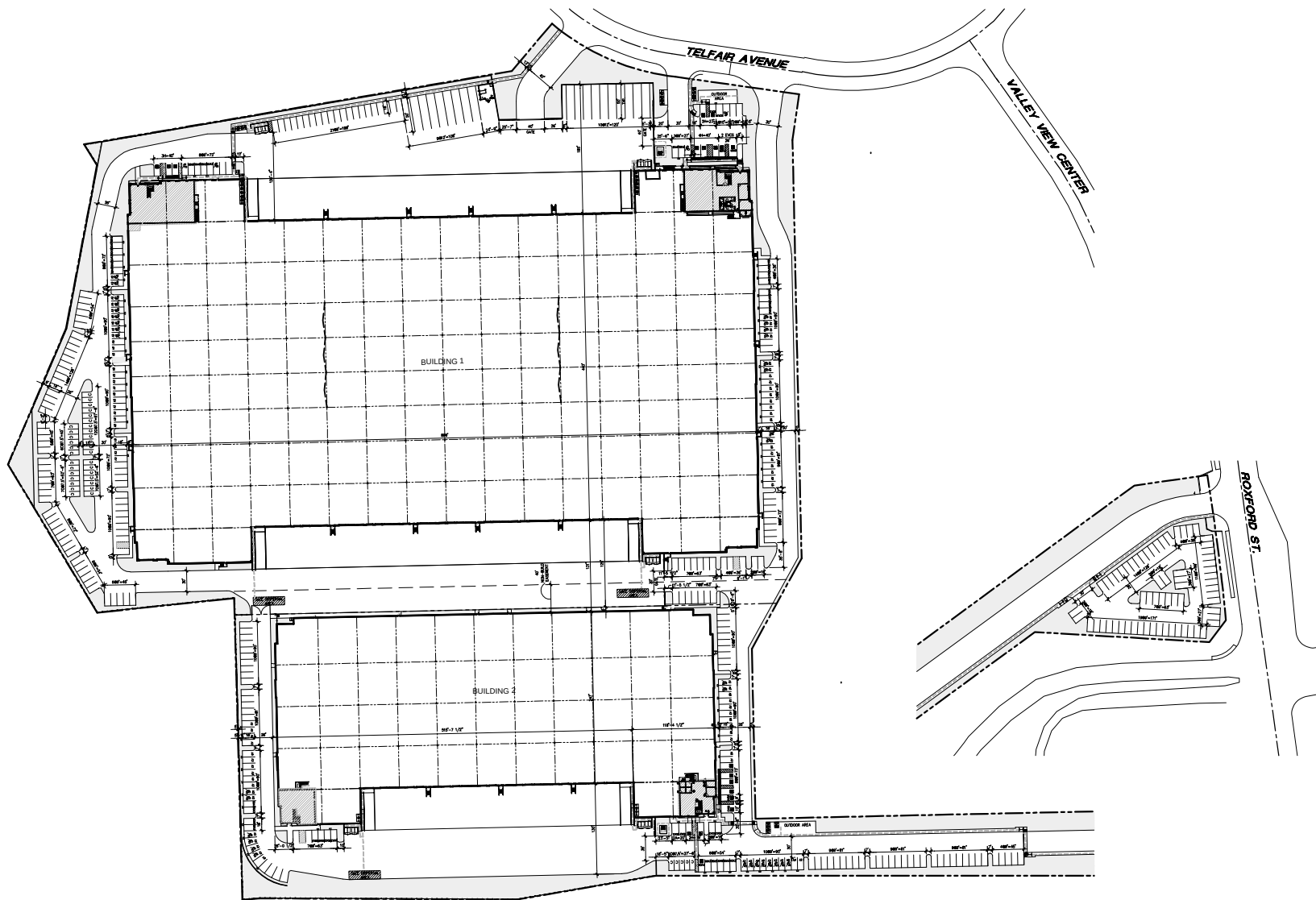


Figure 2
Site Plan

2. PROJECT CONTEXT

This section presents information on the locale and surroundings of the Project.

EXISTING STREET SYSTEM

Regional access for the Project site is primarily provided by Interstate 5 in close proximity to the Project site and by Interstate 210 approximately 1.5 miles north of the Project Site. Key north-south roadways providing local circulation include San Fernando Road, Encinitas Avenue, Telefair Avenue and Olden Street. Key east-west roadway providing local circulation include Roxford Street. Figure 3 illustrates the existing study area lane geometry and intersection traffic controls based on a field survey.

San Fernando Road is designated as an Avenue I (100-foot right-of-way) roadway in the City of Los Angeles Mobility Plan 2035. San Fernando Road north of Roxford Street is classified as Tier 2 Bicycle Lane in the City of Los Angeles bicycle lane network. San Fernando Road is currently a four-lane roadway with a painted two-way left-turn median lane generally trending in a north-south direction in the project vicinity. The eastbound direction drops to one lane between the project driveway and El Dorado Avenue. The existing pavement width is approximately 66 feet. North of Roxford Street, sidewalks are provided on west side of the roadway. South of Roxford Street, sidewalks are provided on both sides of the roadway. On-street parking is generally restricted on north side of the roadway. The posted speed limit is 45 miles per hour. There are no bicycle lanes on San Fernando Road in the Project vicinity.

Encinitas Avenue is designated as an Avenue II (86-foot right-of-way) roadway in the City of Los Angeles Mobility Plan 2035. Encinitas Avenue is currently a three-lane roadway (one southbound lane and two northbound lanes) with a painted two-way left-turn median lane generally trending in a north-south direction in the project vicinity. The existing pavement width is approximately 64 feet. Sidewalks are provided on both sides of the roadway. On-street parking is generally permitted on the both sides of the roadway. There is no posted speed limit. There are no bicycle lanes on Encinitas Avenue in the Project vicinity.

Telefair Avenue/Olden Street are designed as a Collector Street (66-foot right-of-way) in the City of Los Angeles Mobility Plan 2035. Telefair Avenue and Olden Street are currently a two-lane undivided roadway generally trending in a north-south direction in the project vicinity. The existing pavement width is approximately 44 feet. Sidewalks are provided on the both sides of the roadway. On-street parking is generally restricted on both sides of the roadway. There is no posted speed limit or bicycle lanes on Telefair Avenue and Olden Street in the Project vicinity.

Roxford Street is designated as an Avenue I (100-foot right-of-way) roadway in the City of Los Angeles Mobility Plan 2035. Roxford Street is classified as Tier 2 Bicycle Lane in the City of Los Angeles bicycle lane network. Mateo Street is currently a four-lane roadway with a painted two-way left-turn median lane generally trending in an east-west direction in the project vicinity. The existing pavement width is approximately 62 feet. Sidewalks are provided on north side of the roadway. On-street parking is generally permitted on both sides of the roadway. The posted speed limit is 35 miles per hour. There is no bicycle lanes on Roxford Street in the Project vicinity.

EXISTING ROADWAY VOLUMES

Existing peak hour intersection volumes are based upon AM and PM peak period intersection turning movement counts obtained in October 2021 during typical weekday conditions. The AM peak period was counted between 7:00 AM and 10:00 AM and the PM peak period was counted between 3:00 PM and 6:00 PM in accordance with LADOT standards. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods

have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

Due to abnormal travel patterns associated with the COVID-19 pandemic, the peak hour intersection volumes collected in October 2021 have been adjusted to estimate pre-pandemic conditions. Appendix D contains adjustment factor calculations for converting new January 2021 counts to “pre-lockdown” February 2020 conditions. I-5 freeway mainline volumes near the study area from the California Department of Transportation Performance Measurement System (PeMS) database for February 2020 were compared to post-lockdown June 2021. As shown in Appendix D, the adjustment factors to convert October 2021 counts to pre-lockdown February 2020 base volumes are 1.113 for the AM peak hour and 1.196 for the PM peak hour. To provide a conservative analysis, the highest of three values for each peak hour for the combined travel directions was selected as the appropriate adjustment factor for this analysis. This methodology was developed in consultation with LADOT staff for other similar projects.

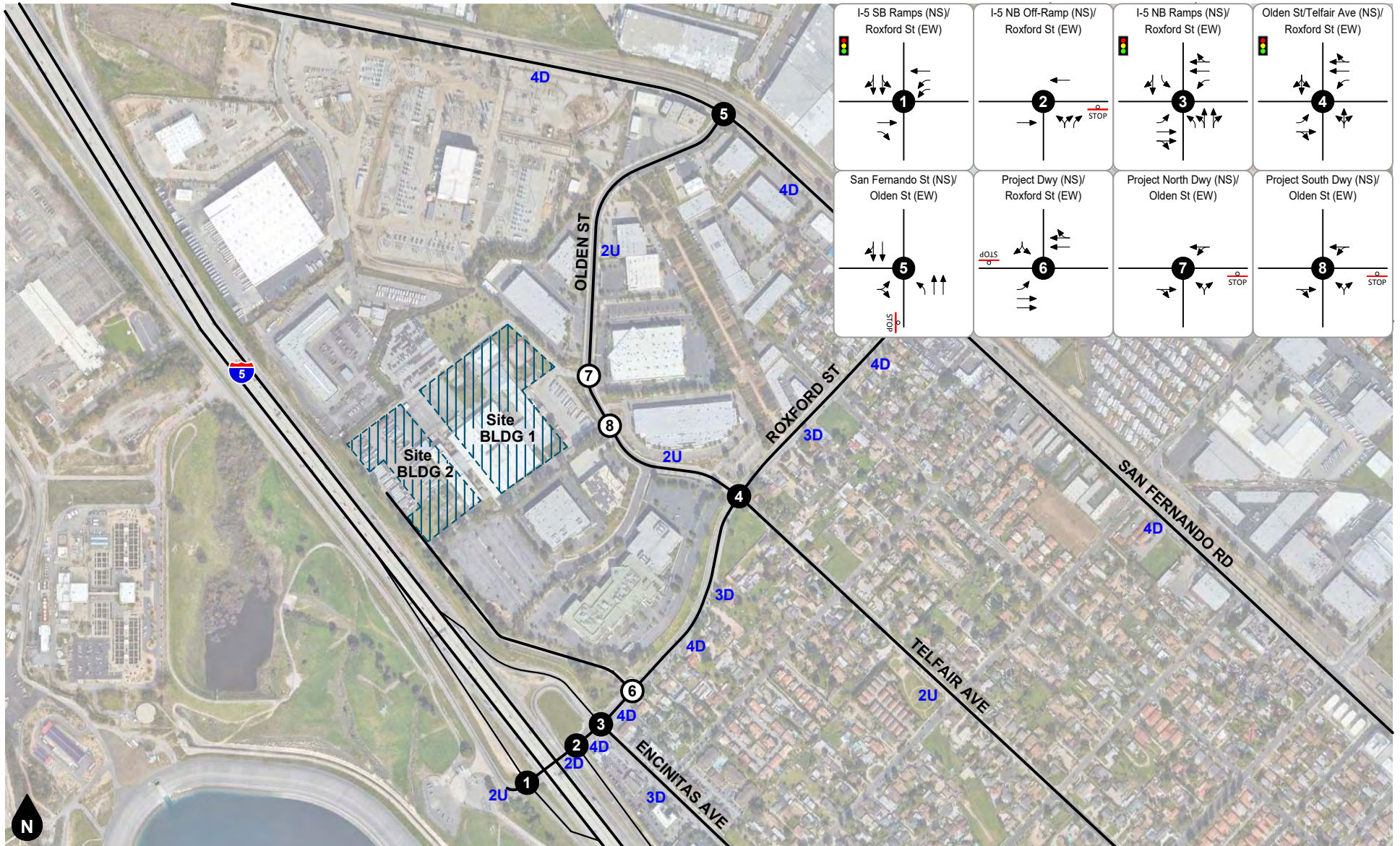
Figure 4 and Figure 5 show existing (year 2021) AM and PM peak hour intersection turning movement volumes.

PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

Figure 6 shows existing pedestrian and bicycle facilities in the project vicinity. As shown on Figure 6, pedestrian sidewalks are currently provided along the project frontage on Telefair Avenue/Olden Street and Roxford Street. Marked crosswalks are provided on three legs of the nearby signalized intersection of Encinitas Avenue and Roxford Street (Study Intersection #3) and on all four legs of the nearby signalized intersection of Telefair Avenue and Roxford Street (Study Intersection #4). The existing pedestrian facilities appear to be in adequate condition. There are currently no bicycle facilities along Telefair Avenue/Olden Street and Roxford Street in the Project vicinity.

Figure 7 shows a map of potential pedestrian destinations within 1,320 feet of the Project site.

Table 1 and Figure 8 show existing transit services in the Project vicinity. As shown on Figure 8, the Project vicinity is served by Los Angeles Metro Bus Route 690 along San Fernando Road south Roxford Street and along Roxford Street east of San Fernando Avenue. The Antelope Valley Metrolink train service runs along San Fernando Avenue, and the nearest train stop is the Sylmar/San Fernando Station located approximately 2 miles south of the project site.



- Legend**
- Traffic Signal
 - Stop Sign
 - #D** #-Lane Divided Roadway
 - #U** #-Lane Undivided Roadway
 - Existing Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls

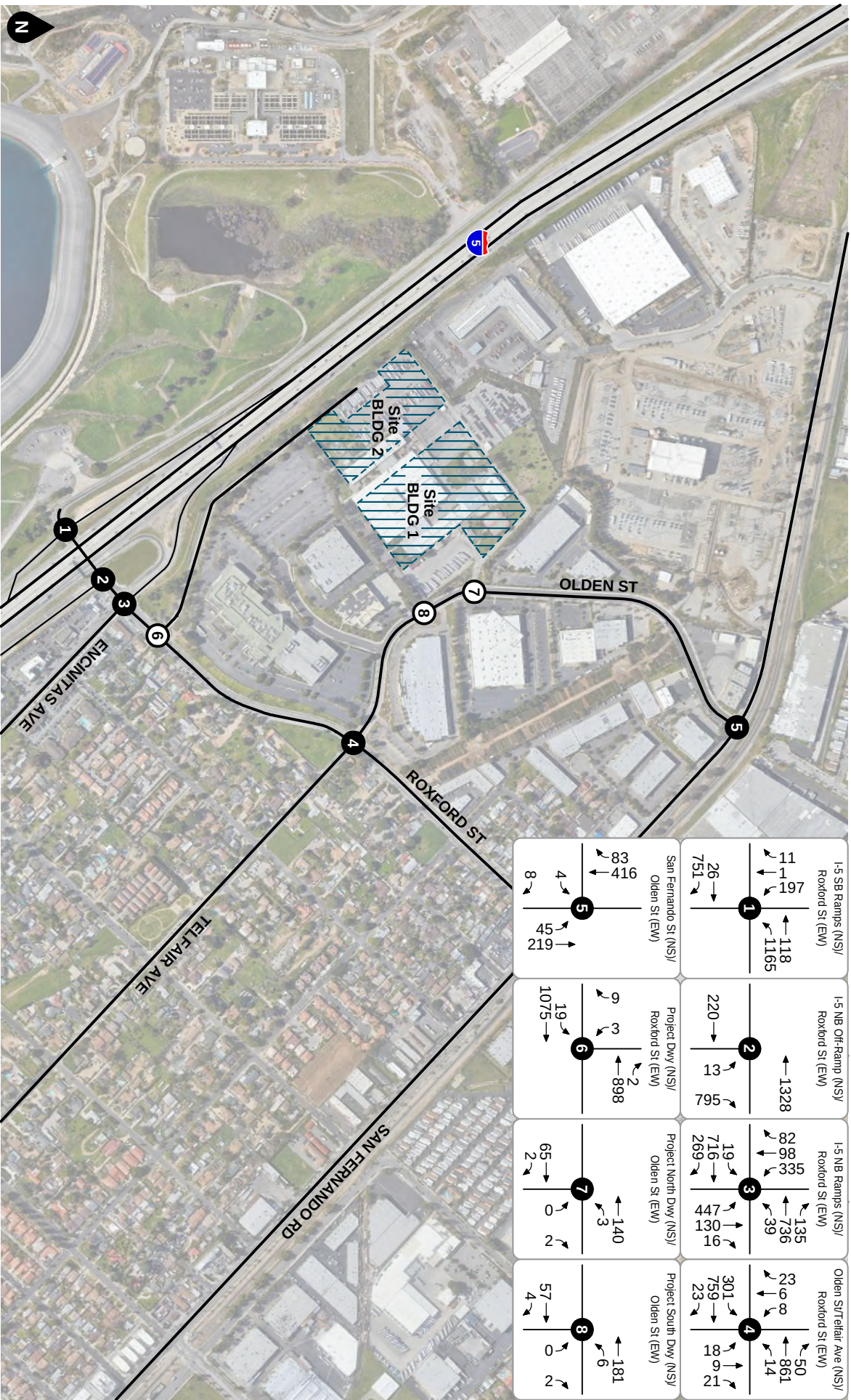


Figure 4
Existing AM Peak Hour Intersection Turning Movement Volumes

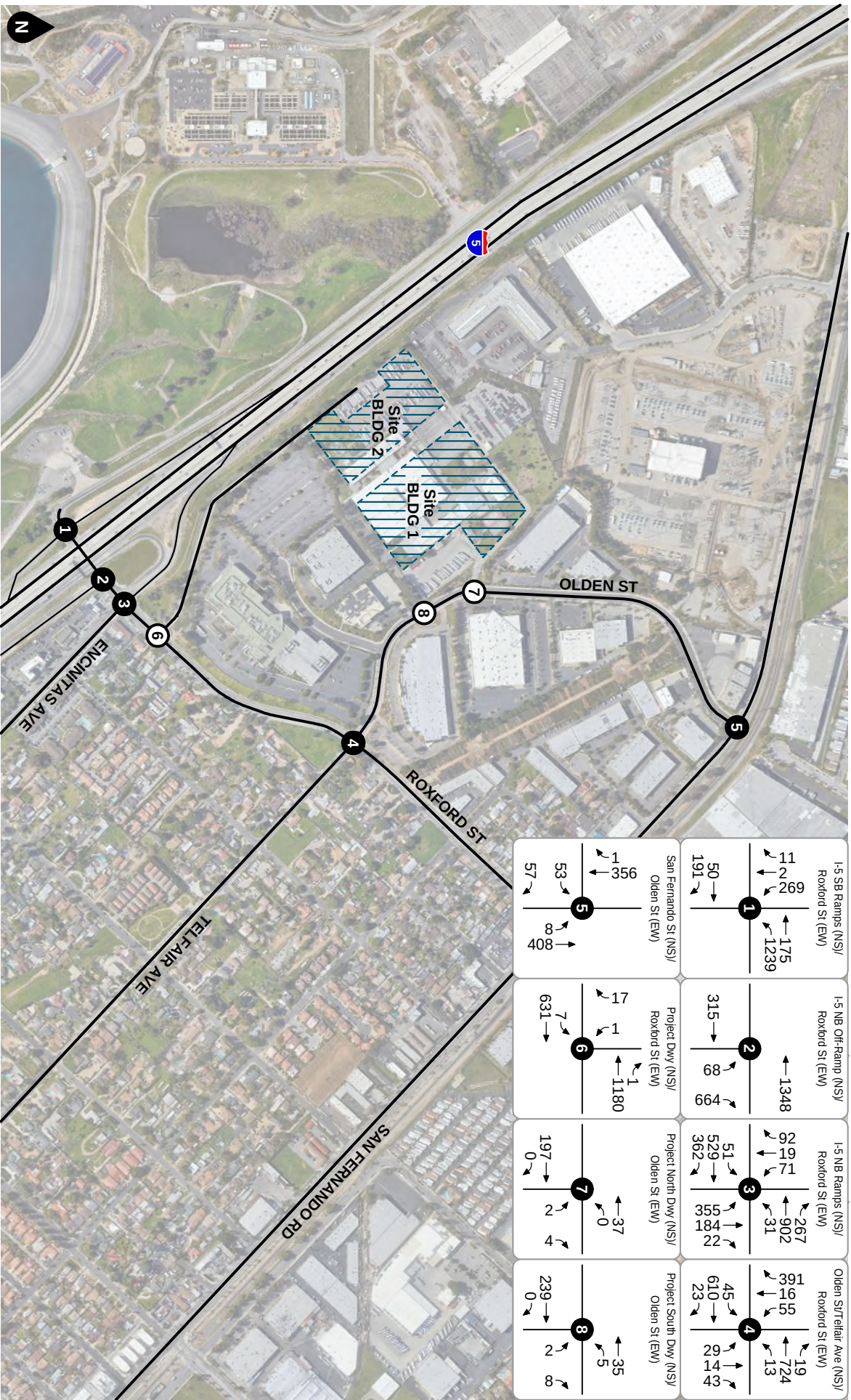


Figure 5
Existing PM Peak Hour Intersection Turning Movement Volumes

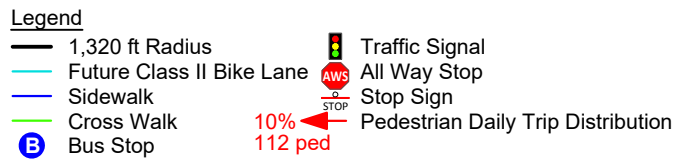
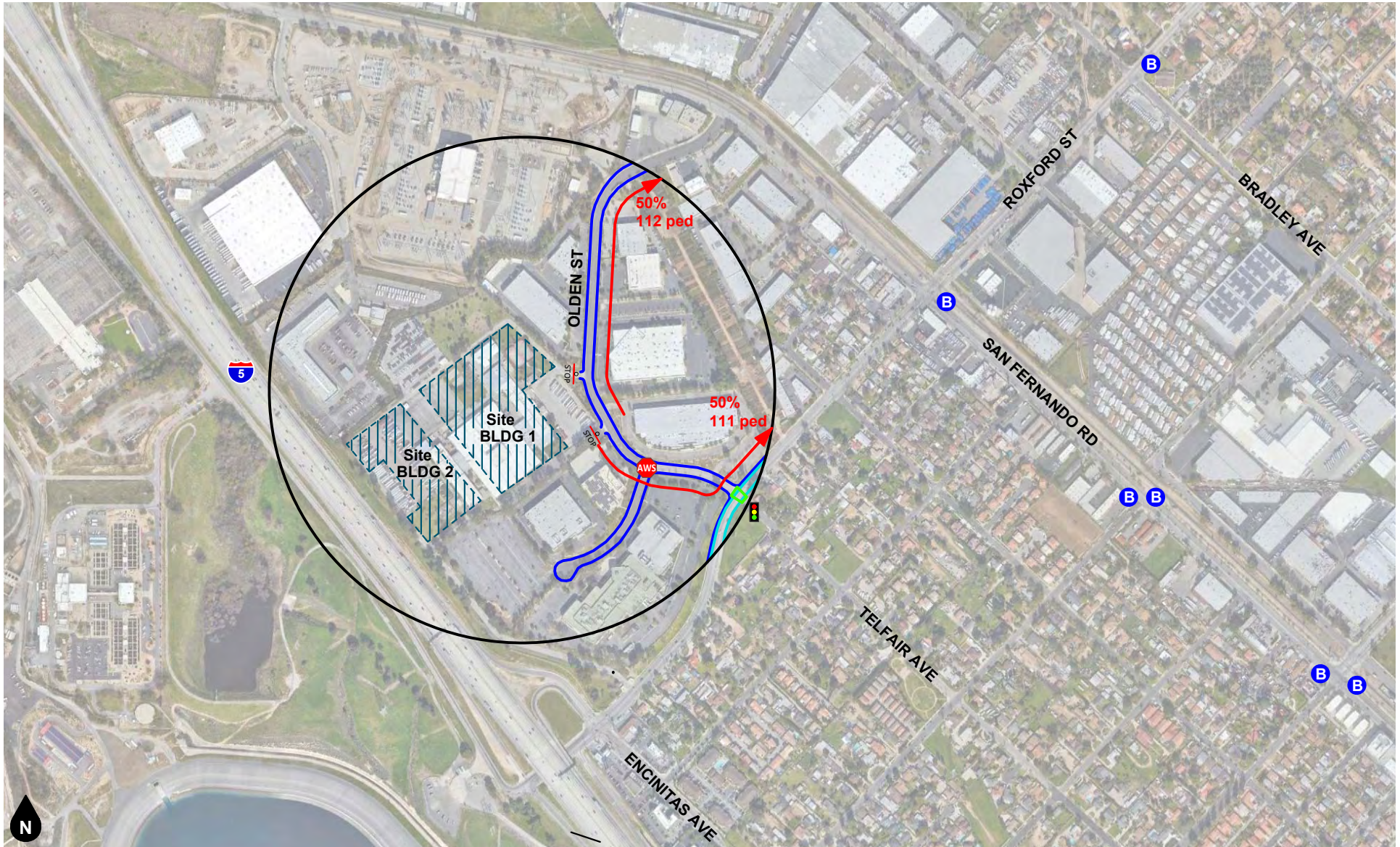
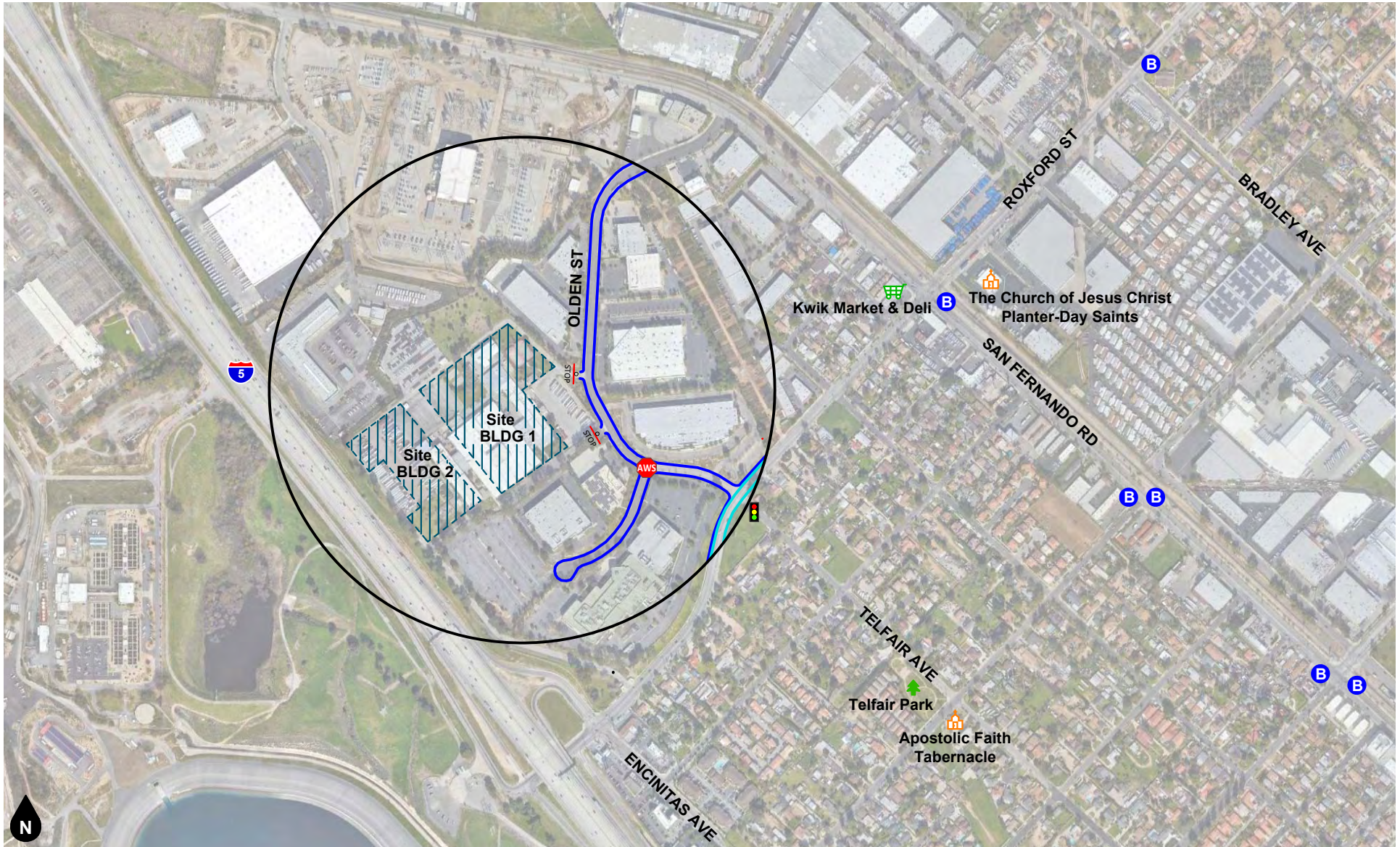


Figure 6
Existing Pedestrian and Bicycle Facilities



Legend

- 1,320 ft Radius
- B Bus Stop
- Food Markets
- Parks
- Churches
- Pedestrian Routes
- Future Class II Bike Lane
- Traffic Signal
- AWS All Way Stop
- STOP Stop Sign

Figure 7
Potential Pedestrian Destinations

Table 1
Existing Transit Service Descriptions

Provider/Route	Mode	Service Type	Description	Direction ¹	Hours of Service (Monday-Friday) ²	Peak Period Headways (Minutes) ³	
						AM	PM
LA Metro 690	Bus	Local	Start: Sylmar (Sylmar Metrolink Station) End: Tujunga (Summitrose/Tinker)	EB	5:26 AM – 11:06 PM	26	26
				WB	5:20 AM – 11:09 PM	26	26

Notes:

- (1) EB = Eastbound; WB = Westbound
- (2) Based on nearest timepoint shown on route schedule.
- (3) Based on number of stops within the 3-hour peak period (7-10 AM and 3-6 PM) at the nearest timepoint shown on the route schedule.



Figure 8
Existing Transit Service

Source: L.A. Metro

GENERAL PLAN CONTEXT

Figure 9 shows City of Los Angeles General Plan Circulation System in the vicinity of the Project site. Figure 10 through Figure 16 illustrate the Project site location in relation to network concept maps for the following modal priorities as established by the City of Los Angeles Mobility Plan 2035:

- Transit Enhanced Network shows a network of streets prioritized for transit (Figure 10).
- Neighborhood Enhanced Network shows a network of streets prioritized for walking, biking, and slower moving transportation modes (Figure 11).
- Bicycle Enhanced Network shows a network of streets prioritized for bicycle movement and consists of bicycle paths, Tier 1/protected bicycle lanes, and segments from the Neighborhood Enhanced Network (Figure 12).
- Bicycle Lane Network map shows the bicycle lane network consisting of Tier 2 and Tier 3 bicycle lanes (Figure 13).
- Vehicle Enhanced Network shows a network of streets prioritized for vehicular movement (Figure 14).
- Pedestrian Enhanced Districts shows targeted areas on arterial streets that are prioritized for pedestrian safety enhancements (Figure 15).
- Goods Movement concept map shows existing freight movement facilities, including major intermodal terminals (Figure 16).

Figure 17 shows the City of Los Angeles High Injury Network in the project vicinity. As shown on Figure 17, the Project site is located on High Injury Network roadway of East 6th Street.

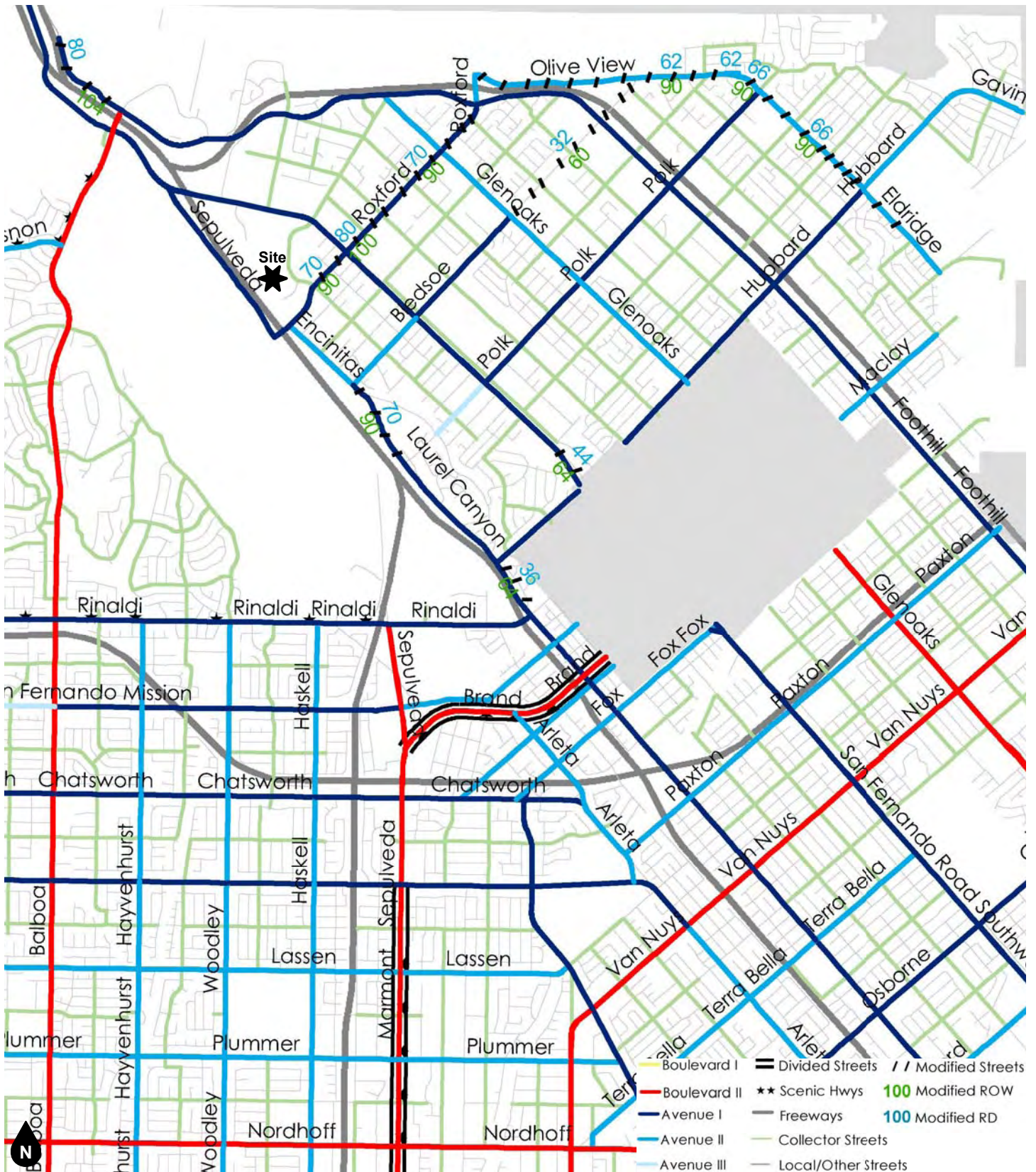


Figure 9
City of Los Angeles General Plan Circulation System

Source: City of Los Angeles, Mobility Plan 2035

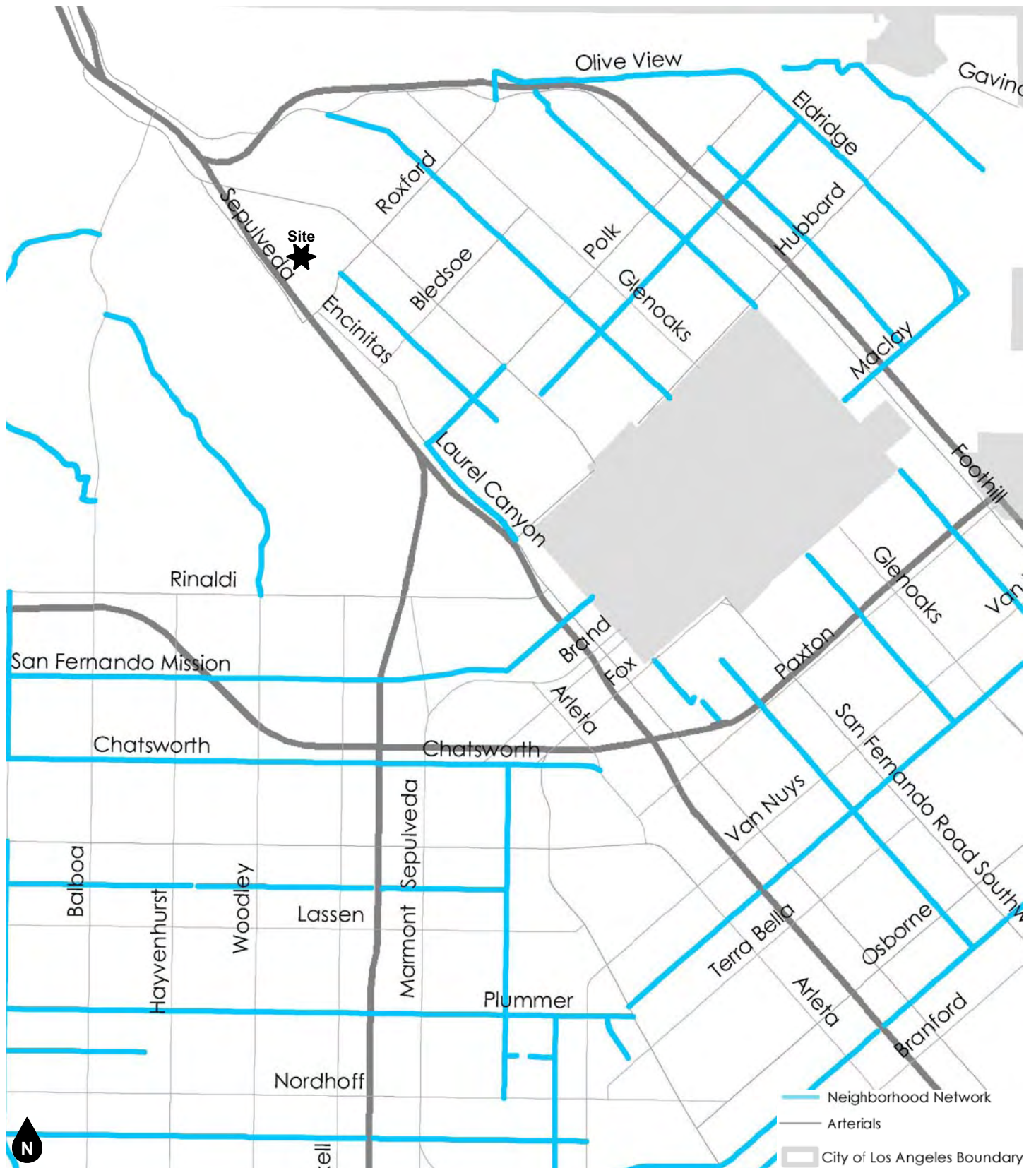


Figure 11
City of Los Angeles General Plan Neighborhood Enhanced Network

Source: City of Los Angeles, Mobility Plan 2035

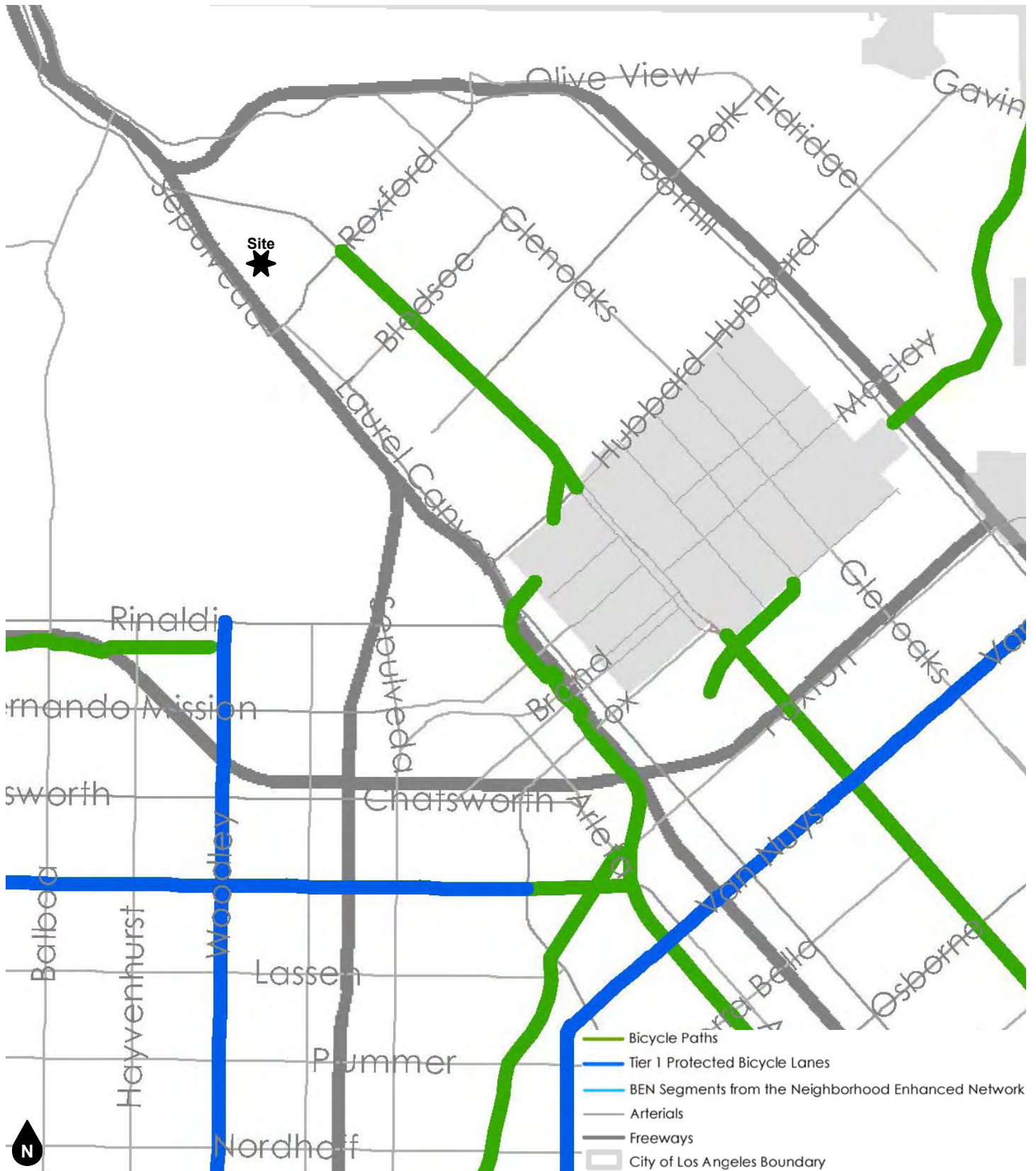


Figure 12
City of Los Angeles General Plan Bicycle Enhanced Network

Source: City of Los Angeles, Mobility Plan 2035

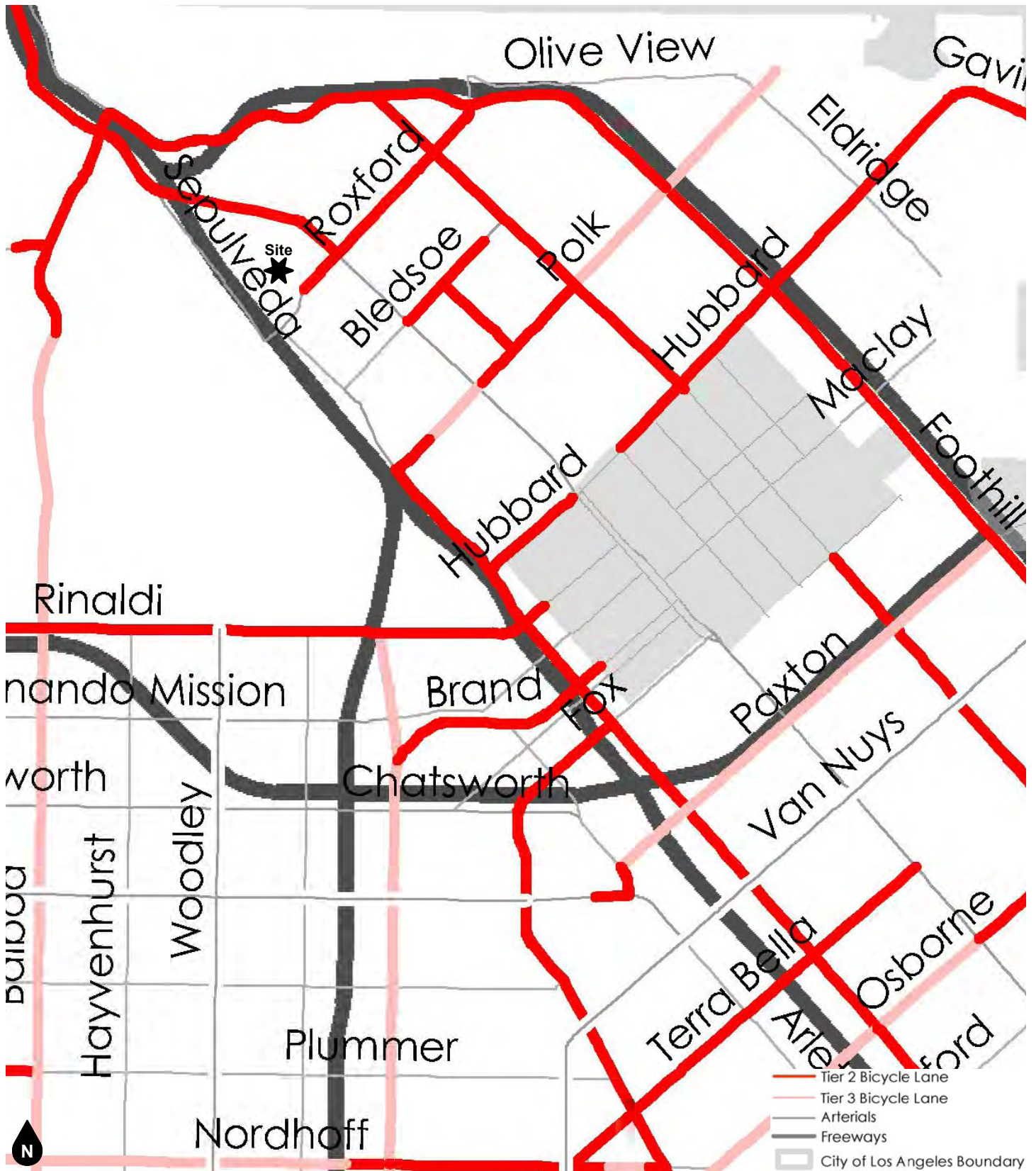


Figure 13
City of Los Angeles General Plan Bicycle Lane Network

Source: City of Los Angeles, Mobility Plan 2035

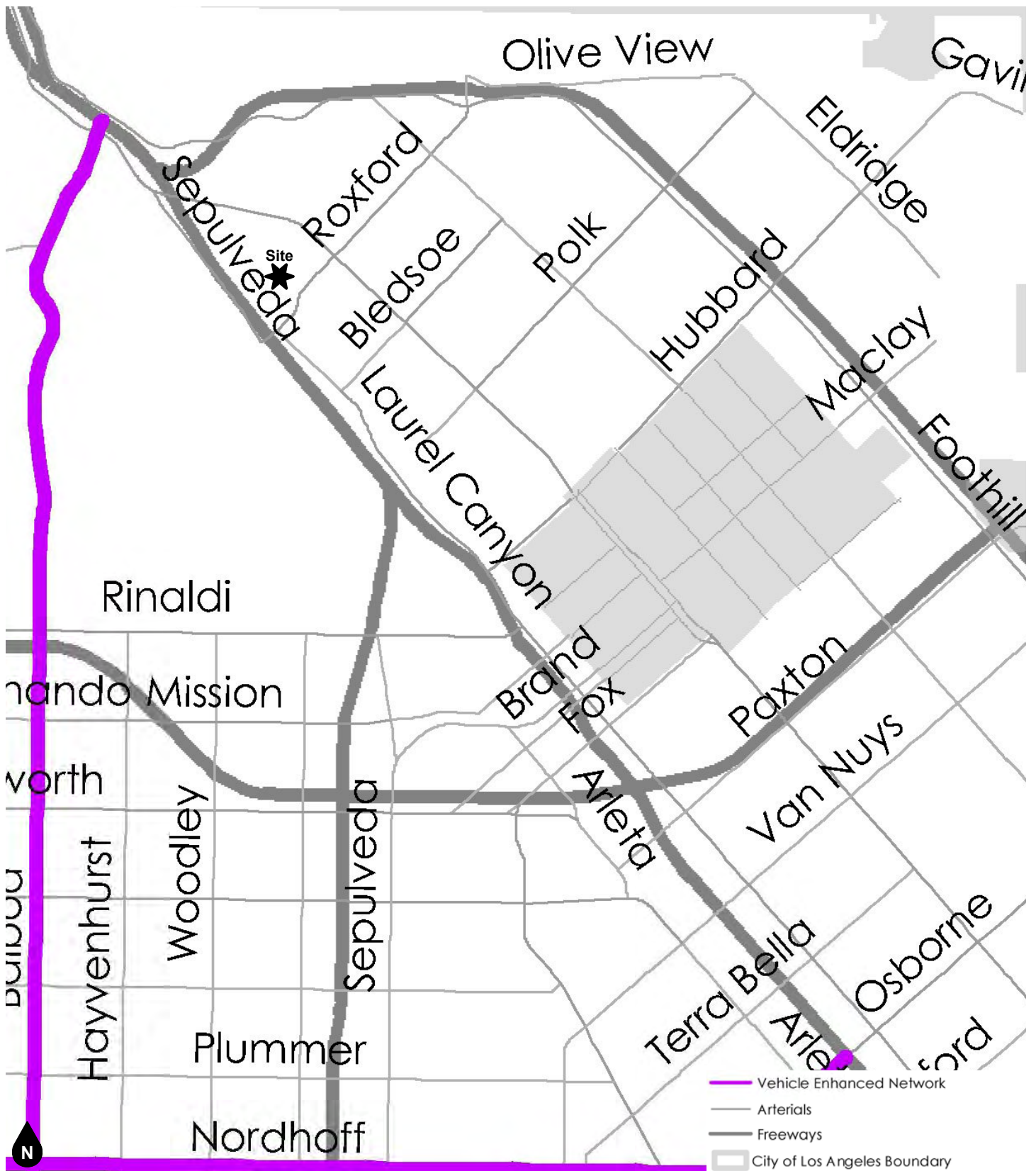


Figure 14
City of Los Angeles General Plan Vehicle Enhanced Network

Source: City of Los Angeles, Mobility Plan 2035

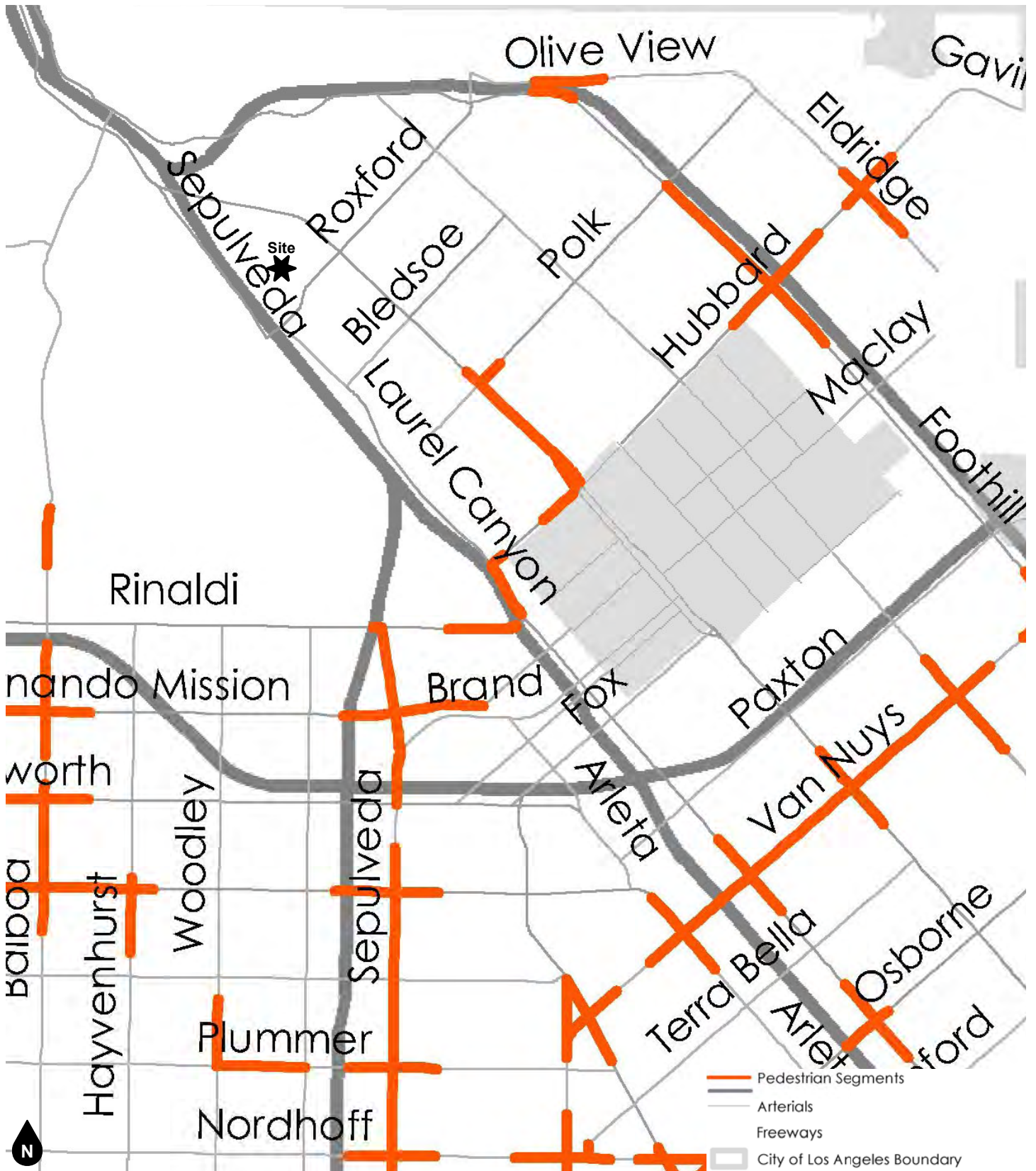


Figure 15
City of Los Angeles General Plan Pedestrian Enhanced Districts

Source: City of Los Angeles, Mobility Plan 2035

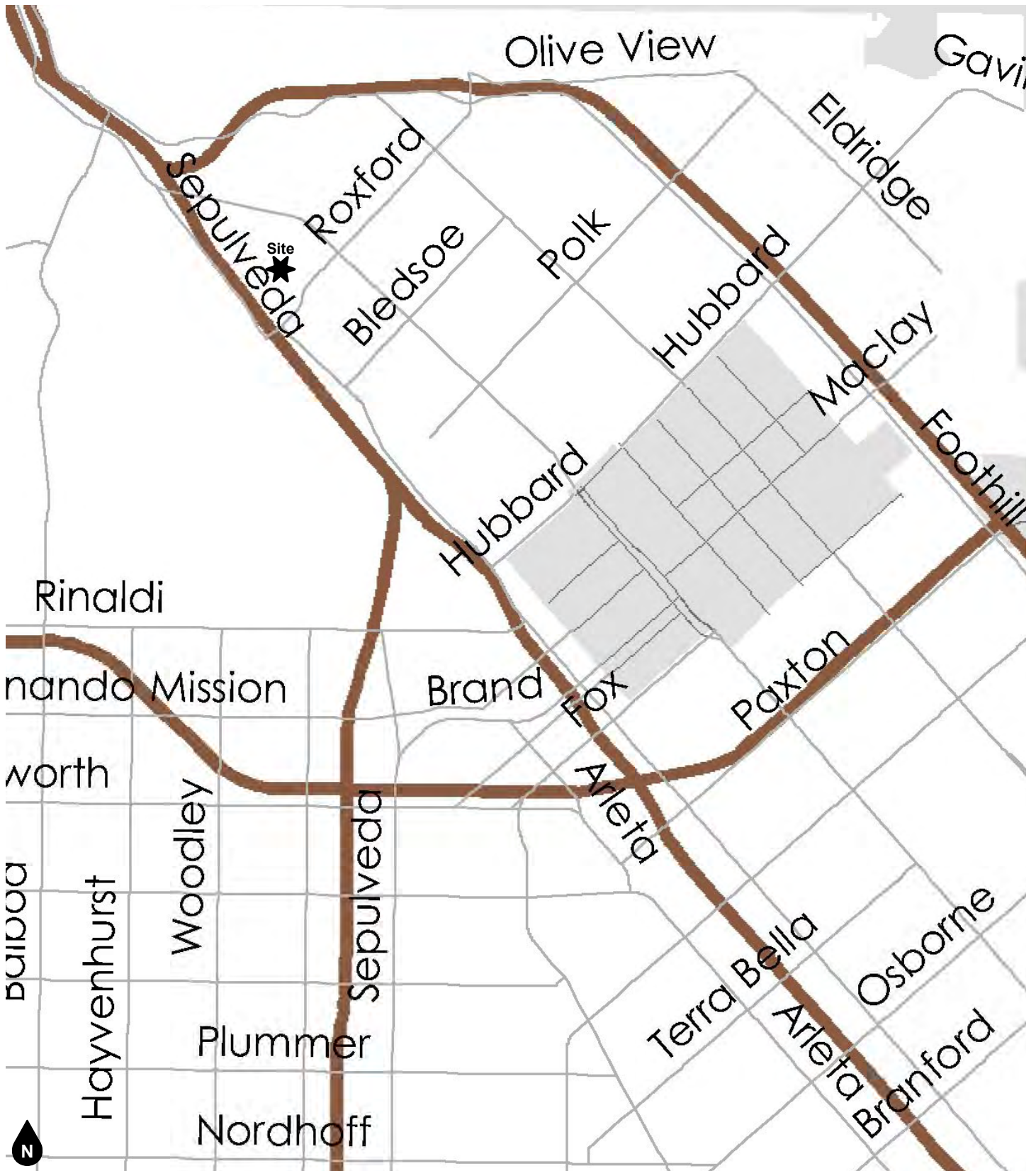


Figure 16
City of Los Angeles General Plan Goods Movement

Source: City of Los Angeles, Mobility Plan 2035

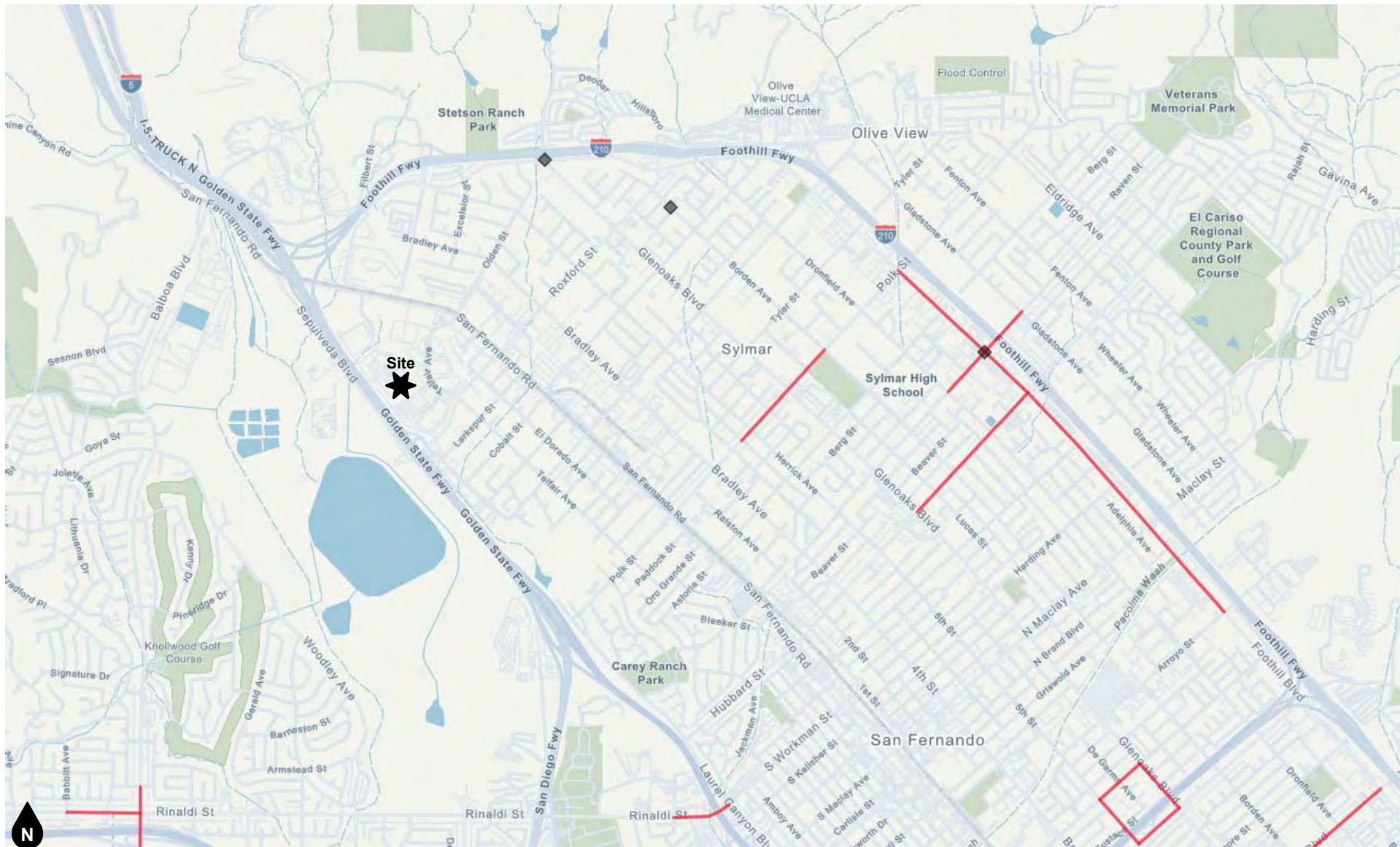


Figure 17
City of Los Angeles High Injury Network

Source: City of Los Angeles

RELATED PROJECTS

Figure 18 shows the location of related development projects in the study area and Table 2 shows the corresponding trip generation forecasts based on data from the City of Los Angeles Case Logging and Tracking System (CLATS).

Figure 19 and Figure 20 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by related projects. To account for future traffic associated with planned development projects in the area, the trips generated by related projects are added to existing volumes for analysis of future conditions as presented in later in this report.

Table 2
Related Projects Trip Generation

Trip Generation Rates									
Land Use	Source ¹	Land Use Variable ²	AM Peak Hour			PM Peak Hour			Daily Rate
			% In	% Out	Rate	% In	% Out	Rate	
General Light Industrial	ITE 110	TSF	88%	12%	0.74	14%	86%	0.65	4.87
Amusement Park	ITE 480	AC	88%	12%	0.21	61%	39%	3.95	53.41

Trips Generated									
Project Title	Source	Quantity	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Voit Development - Olden St Manufacturing ³	CLATS	85,000 TSF	69	9	78	11	73	84	593
		106,631 TSF	86	12	98	12	92	104	743
		Subtotal	155	21	176	23	165	188	1,336
Light Industrial	ITE 110	TSF	0	0	0	0	0	0	0
Lakeside Park ³	CLATS	9 CRT	145	38	183	155	160	315	685
		ITE 480	0	0	0	1	1	2	125
		Subtotal	145	38	183	156	161	317	810
Sylmar FlyAway, Industrial, Recreational	CLATS	225,000 TSF	164	44	208	62	158	220	1,568
		10,000 AC	15	4	19	16	41	57	895
		1290 AC	87	23	110	30	78	108	1,739
		Subtotal	266	71	337	108	277	385	4,202
Total Trips Generated			566	130	696	287	603	890	6,348

Notes:

1. ITE = Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021); ### = Land Use Code.
All rates based on General Urban/Suburban setting unless otherwise noted.
2. TSF = Thousand Square Feet; CRT = Court; AC = Acre
3. Source: City of Los Angeles Case Logging and Tracking System (CLATS) October 2021.

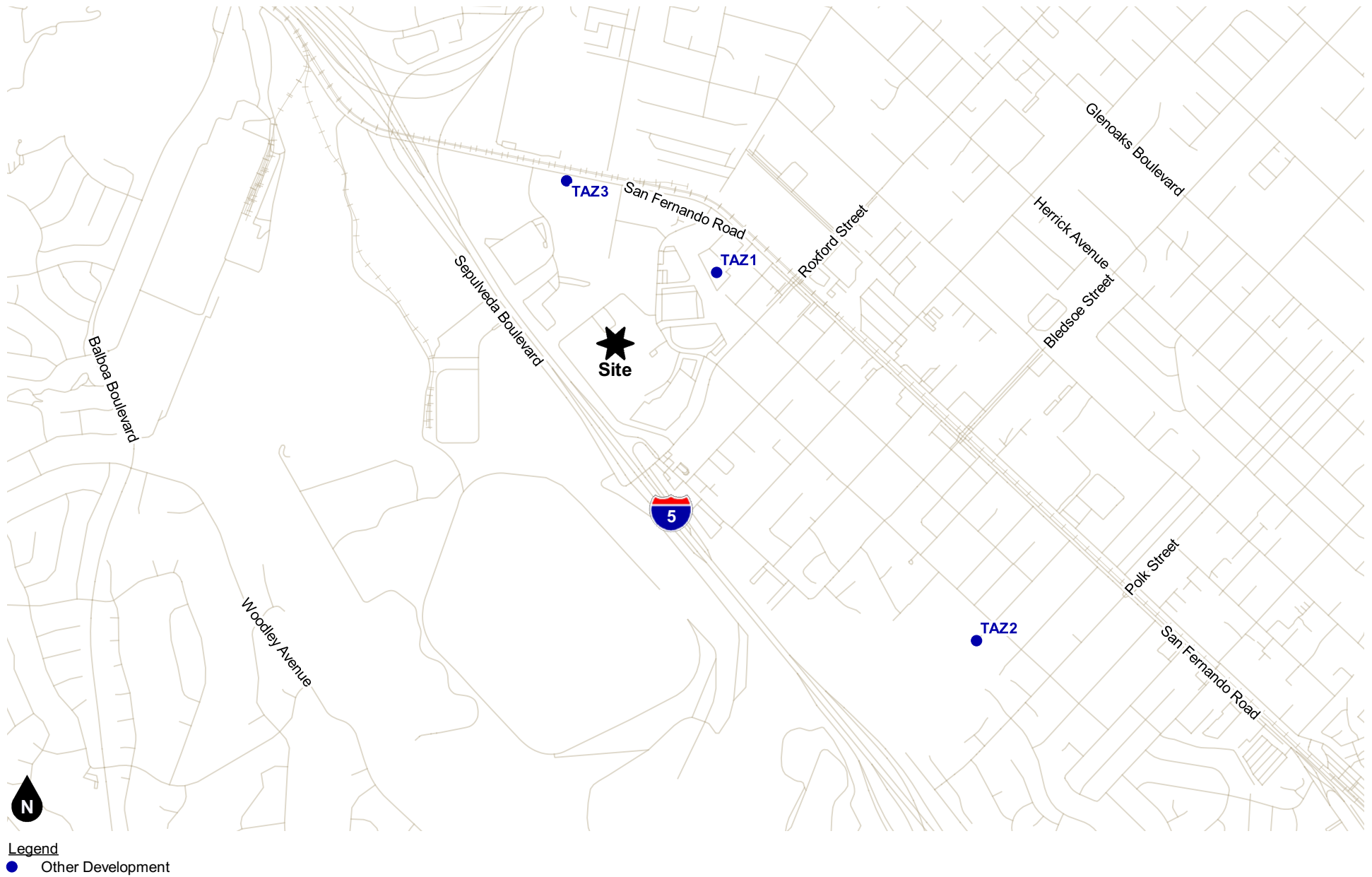
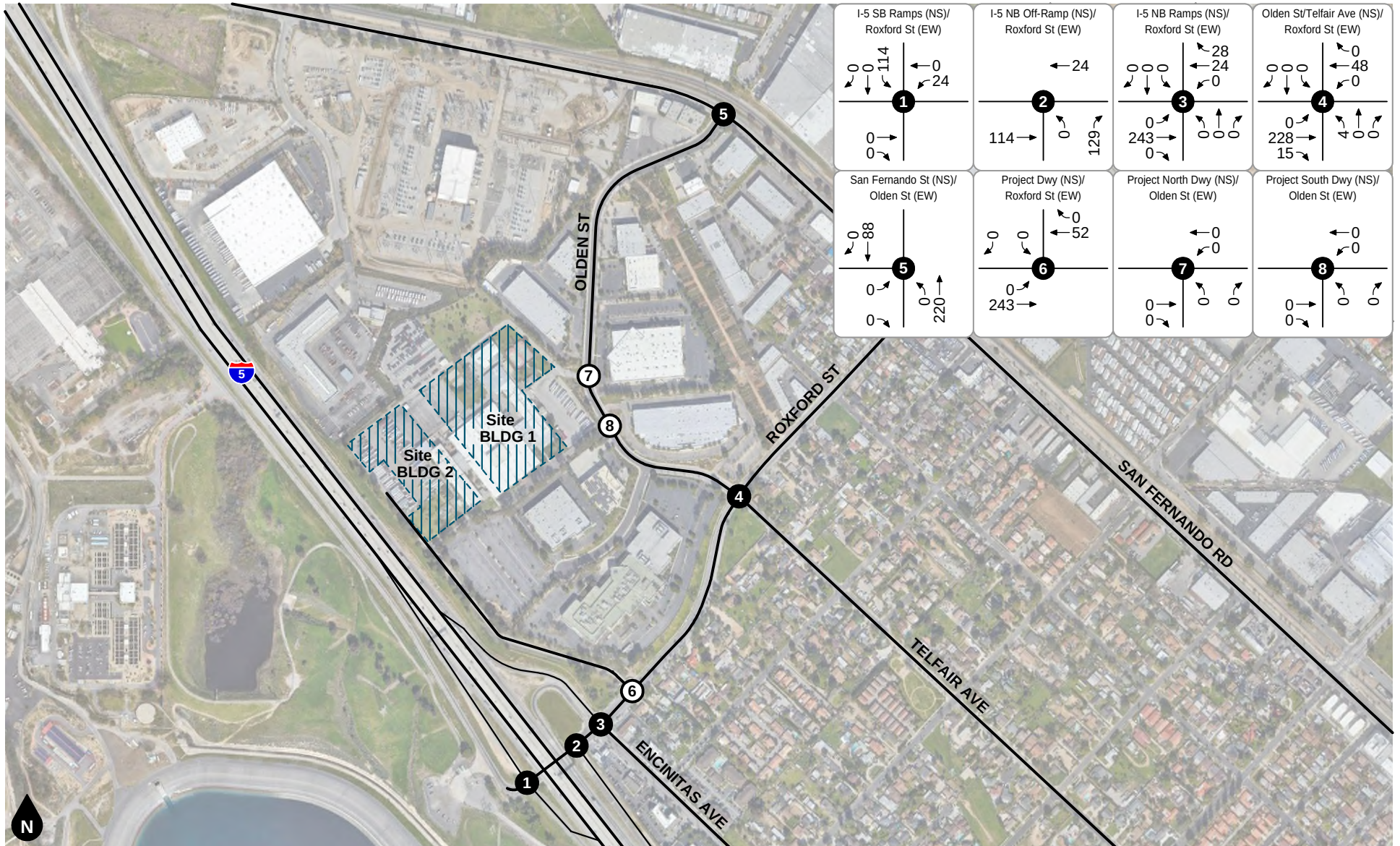


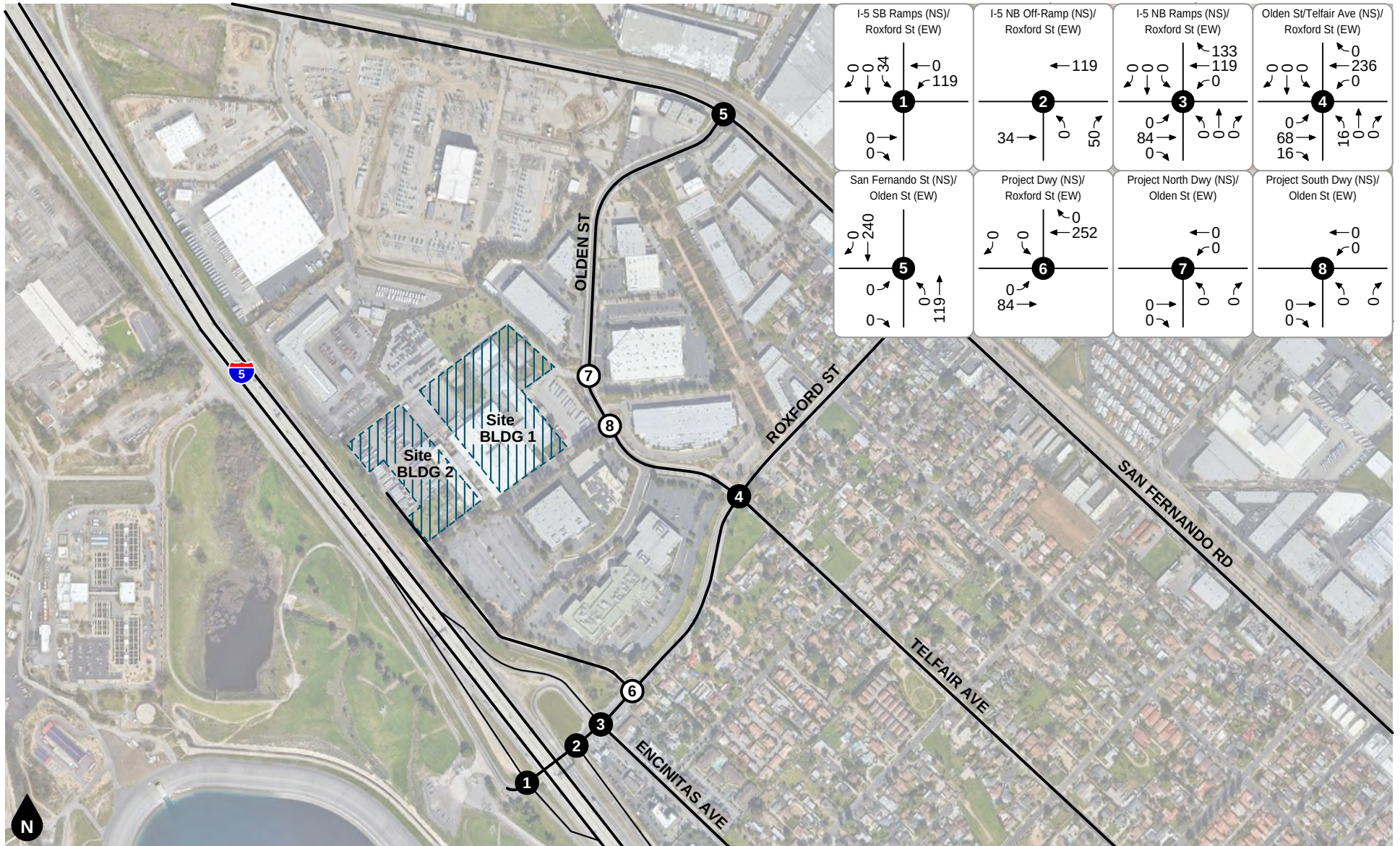
Figure 18
Related Projects Map



Legend

- # Study Intersection
- # Project Driveway

Figure 19
Related Projects
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- # Project Driveway

Figure 20
Related Projects
PM Peak Hour Intersection Turning Movement Volumes

3. NON-CEQA TRANSPORTATION ANALYSIS

This section presents evaluation of non-CEQA transportation impacts and potential improvements or corrective measures that may be required to address identified deficiencies under the discretionary authority of the City of Los Angeles to regulate the use of land and approve land development projects. The impacts, also referred to as deficiencies, discussed in this section are not intended to be interpreted as thresholds of significance for purposes of CEQA review. In order for the City of Los Angeles to make findings to support approval of a land use development project, the following transportation elements of the proposed Project are evaluated:

- Pedestrian, Bicycle and Transit Access
- Project Access and Circulation
- Project Construction
- Residential Street Cut-Through Analysis

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS ASSESSMENT

The pedestrian, bicycle and transit facilities assessment is intended to determine a project's potential effect on pedestrian, bicycle, and transit facilities in the vicinity of the proposed project. The deficiencies could be physical (through removal, modification, or degradation of facilities) or demand-based (by adding pedestrian or bicycle demand to inadequate facilities).

Screening Criteria

The City-established screening for this evaluation consists of a preliminary assessment based on additional land use quantities and increases in net daily trips generated. If the answer is "yes" to all of the following questions, further analysis is required to assess whether the project would negatively affect existing pedestrian, bicycle, or transit facilities:

- Does the land use project involve a discretionary action that would be under review by the Department of City Planning?

Answer: Yes.

- Does the land use project include the construction or addition of: 1) 50 (or more) dwelling units or guest rooms or combination thereof; or 2) 50,000 square feet (or more) of non-residential space?

Answer: Yes.

- Would the project generate a net increase of 1,000 or more daily vehicle trips, or is the project's frontage along an Avenue, Boulevard, or Collector (as designated in the City's General Plan) 250 linear feet or more, or is the project's building frontage encompassing an entire block along an Avenue or Boulevard (as designated in the City's General Plan)?

Answer: No.

As previously noted in the approved MOU, the proposed Project is forecast to result in a net increase of 41 daily vehicles trips based on the City of Los Angeles VMT Calculator. The project frontage is approximately 360 feet along Telefair Avenue and approximately 150 feet along Roxford Street and does not encompass an entire block.

Finding: The proposed Project satisfies the City-established screening criteria for pedestrian, bicycle, and transit access; therefore, no further analysis or improvements are necessary.

PROJECT ACCESS AND CIRCULATION EVALUATION

Project access and circulation relates to the provision of access to and from the project site, including operational or capacity constraints. Constraints may be related to vehicular-vehicular, vehicular-bicycle, or vehicular-pedestrian conflicts created by driveway configurations or placement in areas of inadequate visibility, adjacent to bicycle or pedestrian facilities, or too close to intersections or crosswalks. If determined to be necessary based on consultation with LADOT, operational performance may be quantified for primary site access points, unsignalized intersections integral to site access, and signalized intersections in the project site vicinity; however, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA as required by section 15064.3 of the California Code of Regulations.

Screening Criteria

The City-established screening for this evaluation consists of a preliminary assessment based on net increase in daily trips generated. For land use projects, if the answer is “yes” to all of the following questions, further analysis will be required to assess whether the project would negatively affect project access and circulation:

- Does the land use project involve a discretionary action that would be under review by the Department of City Planning?

Answer: Yes.

- Would the land use project generate a net increase of 250 or more daily vehicle trips?

Answer: No.

Since the Project does satisfy the screening criteria, no further analysis is required to assess whether the proposed project would conflict with this threshold. However, the intersection analysis is provided in this report to address any potential traffic concerns.

Study Area and Time Periods

Based on the City-approved MOU (see Appendix B), the study area consists of the following study intersections within the City of Los Angeles and Caltrans jurisdictions that are analyzed during typical weekday AM and PM peak hours:

Study Intersections ¹	Jurisdiction
1. I-5 Southbound Ramps (NS) at Roxford Street (EW)	Caltrans/City of Los Angeles
2. I-5 Northbound Off-Ramps (NS) at Roxford Street (EW)	Caltrans/City of Los Angeles
3. Encinitas Avenue (NS) at Roxford Street (EW)	Caltrans/City of Los Angeles
4. Olden Street/Telefair Avenue (NS) at Roxford Street (EW)	City of Los Angeles
5. San Fernando Road (NS) at Olden Street (EW)	City of Los Angeles
6. Project Driveway (NS) at Roxford Street (EW)	City of Los Angeles
7. Project North Driveway (NS) at Olden Street/Telefair Avenue (EW)	City of Los Angeles
8. Project South Driveway (NS) at Olden Street/Telefair Avenue (EW)	City of Los Angeles

Notes:

(1) NS = North-South roadway; EW = East-West roadway

Project Trip Generation, Distribution, and Assignment

Table 3, Table 4 and Table 5 show the existing entitled use trip credit and proposed Project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on review of the existing and proposed Project land uses and ITE land use

descriptions, trip generation rates for general light industrial (Land Use Code 110), Mini-Warehouse/Storage (Land Use Code 151), high-cube fulfillment center warehouse (Land Use Code 155) and general office building (Land Use Code 710) were determined to most closely represent the existing and proposed Project land uses and were selected for the analysis.

The project trip generation was also calculated in terms of Passenger Car Equivalent (PCE) trips. The percentage of truck trips was obtained from the ITE Trip Generation Manual Supplement (10th Edition, 2020). The truck mix by axle type was determined based on South Coast Air Quality Management District (SCAQMD) recommendations for high-cube warehousing facilities without cold-storage. Truck trips were converted to PCE trips based on the following factors: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with four or more axles.

As shown in Table 5, the proposed Project is forecast to generate a total of approximately negative 30 net vehicle PCE trips during the AM peak hour and 26 net vehicle PCE trips during the PM peak hour, with the consideration of the existing land use trip credit. Overall, the proposed Project will generate 125 AM peak hour PCE trips and 169 PM peak hour PCE trips, including the existing trip credit.

Figure 21 and Figure 22 shows the forecast outbound and inbound distribution patterns for the total proposed Project-generated trips. The Project trip distribution patterns were developed manually in consultation with LADOT staff and are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

The forecast intersection turning movement volumes for the trips generated by the proposed Project are shown on Figure 25 and Figure 26.

Table 3
Existing Entitled Use Light Industrial Trip Credit

Land Use: General Light Industrial	253,762 TSf
------------------------------------	-------------

TRIP GENERATION RATES PER TSF ¹								
Vehicle Type	Source ²	AM Peak Hour			PM Peak Hour			Daily Rate
		In	Out	Rate	In	Out	Rate	
All Vehicles	ITE 130	88%	12%	0.700	13%	87%	0.630	4.960
Passenger Cars (97.0% AM, 98.0% PM, 92.0% Daily)	TGMS 110	0.598	0.081	0.679	0.080	0.537	0.617	4.563
Trucks (3.0% AM, 2.0% PM, 8.0% Daily)	TGMS 110	0.018	0.003	0.021	0.002	0.011	0.013	0.397
Truck Mix:	Fontana							
2-Axle Trucks (32.7%)		0.006	0.001	0.007	0.001	0.004	0.005	0.130
3-Axle Trucks (17.9%)		0.003	0.000	0.003	0.000	0.002	0.002	0.071
4+ Axle Trucks (49.4%)		0.009	0.001	0.010	0.001	0.005	0.006	0.196

VEHICLE TRIPS GENERATED							
Vehicle Type	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Passenger Cars	120	16	136	16	107	123	913
Trucks							
2-Axle Trucks	1	0	1	0	1	1	26
3-Axle Trucks	1	0	1	0	0	0	14
4+ Axle Trucks	2	0	2	0	1	1	39
Subtotal	4	0	4	0	2	2	79
Total Vehicle Trips Generated	124	16	140	16	109	125	992

PCE ³ TRIPS GENERATED								
Vehicle Type	PCE Factor ⁴	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Passenger Cars	1.0	120	16	136	16	107	123	913
Trucks								
2-Axle Trucks	1.5	2	0	2	0	2	2	39
3-Axle Trucks	2.0	2	0	2	0	0	0	28
4+ Axle Trucks	3.0	6	0	6	0	3	3	117
Subtotal		10	0	10	0	5	5	184
Total PCE Trips Generated		130	16	146	16	112	128	1,097

Notes:

(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) [Trip Generation Manual](#) (10th Edition, 2017); ### = ITE Land Use Code.

TGMS = ITE [Trip Generation Manual Supplement](#) (10th Edition, 2020); ### = ITE Land Use Code.

Fontana = City of Fontana [Truck Trip Generation Study](#) (August 2003); recommended truck mix for Light Industrial classification.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016), Appendix B.

Table 4
Proposed Project Warehouse Trip Generation

Land Use: High-Cube Fulfillment Center Warehouse (Non-Sort)	568,313 TSF
---	-------------

TRIP GENERATION RATES PER TSF ¹								
Vehicle Type	Source ²	AM Peak Hour			PM Peak Hour			Daily Rate
		In	Out	Rate	In	Out	Rate	
All Vehicles	TGMS 155	81%	19%	0.150	39%	61%	0.160	1.810
Passenger Cars (91.0% AM, 93.0% PM, 73.0% Daily)	TGMS 155	0.111	0.026	0.137	0.058	0.091	0.149	1.321
Trucks (9.0% AM, 7.0% PM, 27.0% Daily)	TGMS 155*	0.011	0.003	0.014	0.004	0.007	0.011	0.489
Truck Mix:	SCAQMD							
2-Axle Trucks (16.7%)		0.002	0.000	0.002	0.001	0.001	0.002	0.082
3-Axle Trucks (20.7%)		0.002	0.001	0.003	0.001	0.001	0.002	0.101
4+ Axle Trucks (62.6%)		0.007	0.002	0.009	0.003	0.004	0.007	0.306

VEHICLE TRIPS GENERATED							
Vehicle Type	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Passenger Cars	63	15	78	33	52	85	751
Trucks							
2-Axle Trucks	1	0	1	1	1	2	47
3-Axle Trucks	1	1	2	1	1	2	57
4+ Axle Trucks	4	1	5	2	2	4	174
Subtotal	6	2	8	4	4	8	278
Total Vehicle Trips Generated	69	17	86	37	56	93	1,029

PCE ³ TRIPS GENERATED								
Vehicle Type	PCE Factor ⁴	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Passenger Cars	1.0	63	15	78	33	52	85	751
Trucks								
2-Axle Trucks	1.5	2	0	2	2	2	4	71
3-Axle Trucks	2.0	2	2	4	2	2	4	114
4+ Axle Trucks	3.0	12	3	15	6	6	12	522
Subtotal		16	5	21	10	10	20	707
Total PCE Trips Generated		79	20	99	43	62	105	1,458

Notes:

(1) TSF = Thousand Square Feet

(2) TGMS = [Trip Generation Manual Supplement](#) (Institute of Transportation Engineers (ITE), February 2020); ### = ITE Land Use Code.

* = Daily truck percent based on ITE 150 (Warehousing) since it is not available for ITE 155 (Non-Sort).

SCAQMD = South Coast Air Quality Management District recommendations for non-cold storage high-cube warehouse.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016), Appendix B.

Table 5
Overall Project Trip Generation

Trip Generation Rates									
Land Use	Source ¹	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			% In	% Out	Rate	% In	% Out	Rate	
Mini-Warehouse/Storage	ITE 151	TSF	60%	40%	0.10	47%	53%	0.17	1.51
General Office	ITE 710	TSF	86%	14%	0.47	16%	84%	1.15	9.74

Trips Generated									
Land Use	Quantity	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Existing Entitled Use Trip Credit	253.762	TSF							
Light Industrial ³									
• Passenger Car Traffic			120	16	136	16	107	123	913
• Heavy Truck Traffic (PCE) ⁴			10	0	10	0	5	5	184
Subtotal Existing Light Industrial Trips³			130	16	146	16	112	128	1,097
Mini-Warehouse/Storage	88.000	TSF	5	4	9	7	8	15	133
Subtotal Existing Off-Site Vehicle Storage Lot Trips			5	4	9	7	8	15	133
Total Existing Entitled Use									
• Passenger Car Traffic			125	20	145	23	115	138	1,046
• Heavy Truck Traffic (PCE) ⁴			10	0	10	0	5	5	184
Total Existing Entitled Use Trip Credit			135	20	155	23	120	143	1,230
Proposed Project Use	568.313	TSF							
High-Cube Fulfillment Center Warehouse ⁵									
• Passenger Car Traffic			63	15	78	33	52	85	751
• Heavy Truck Traffic (PCE) ⁴			16	5	21	10	10	20	707
Subtotal Proposed Project Warehouse Trips⁵			79	20	99	43	62	105	1,458
General Office	55.516	TSF	22	4	26	10	54	64	541
Subtotal Proposed Project Office Trips			22	4	26	10	54	64	541
Total Proposed Project									
• Passenger Car Traffic			85	19	104	43	106	149	1,292
• Heavy Truck Traffic (PCE) ⁴			16	5	21	10	10	20	707
Total Proposed Project Trips			101	24	125	53	116	169	1,999
Net Project Change									
• Passenger Car Traffic			-40	-1	-41	20	-9	11	246
• Heavy Truck Traffic (PCE) ⁴			6	5	11	10	5	15	523
Overall Project Net Trips			-34	+4	-30	+30	-4	+26	+769

Notes:

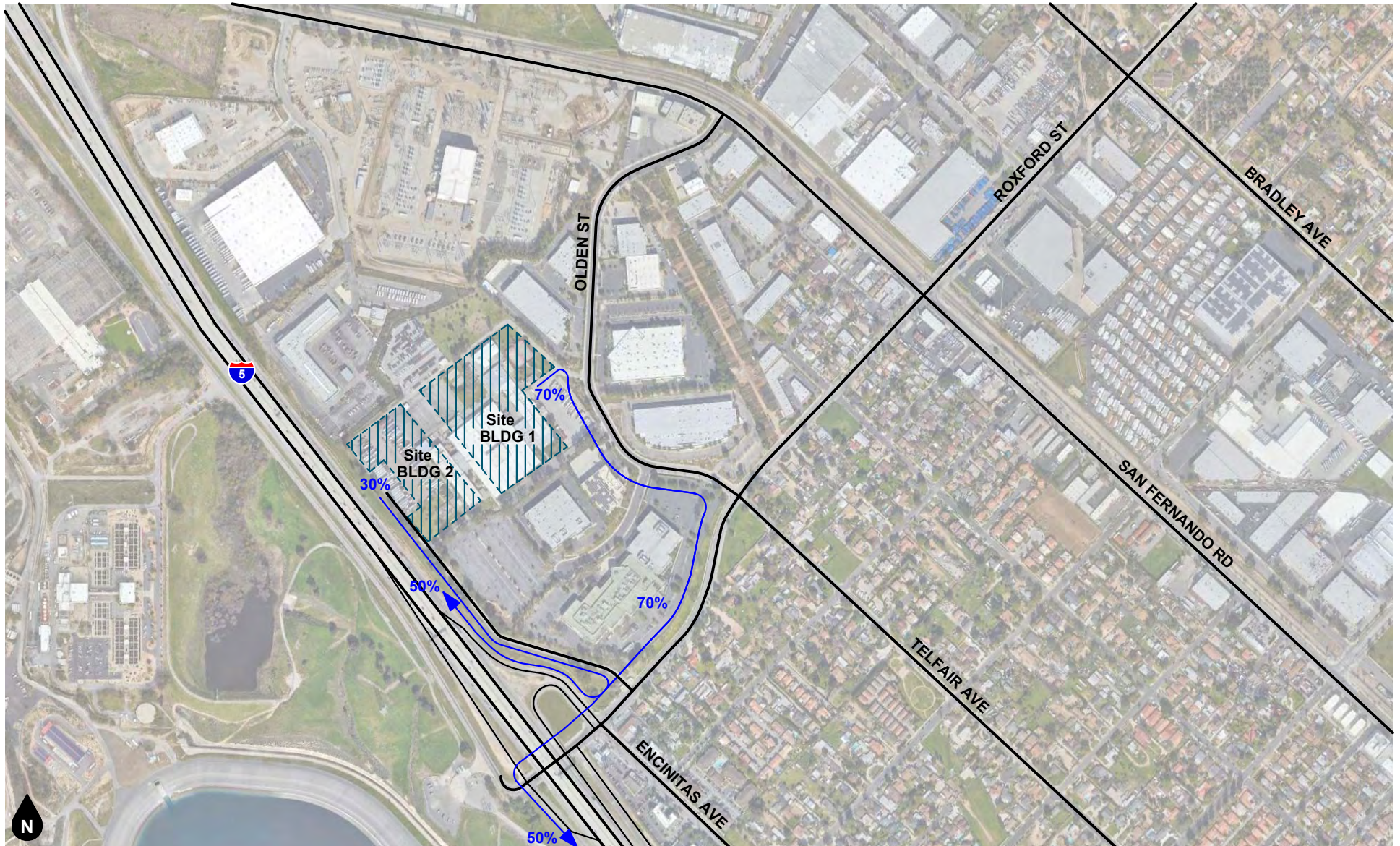
(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 11th Edition, 2021; ### = Land Use Code

(2) TSF = Thousand Square Feet

(3) Existing entitled use light industrial trip credit (see Table 3).

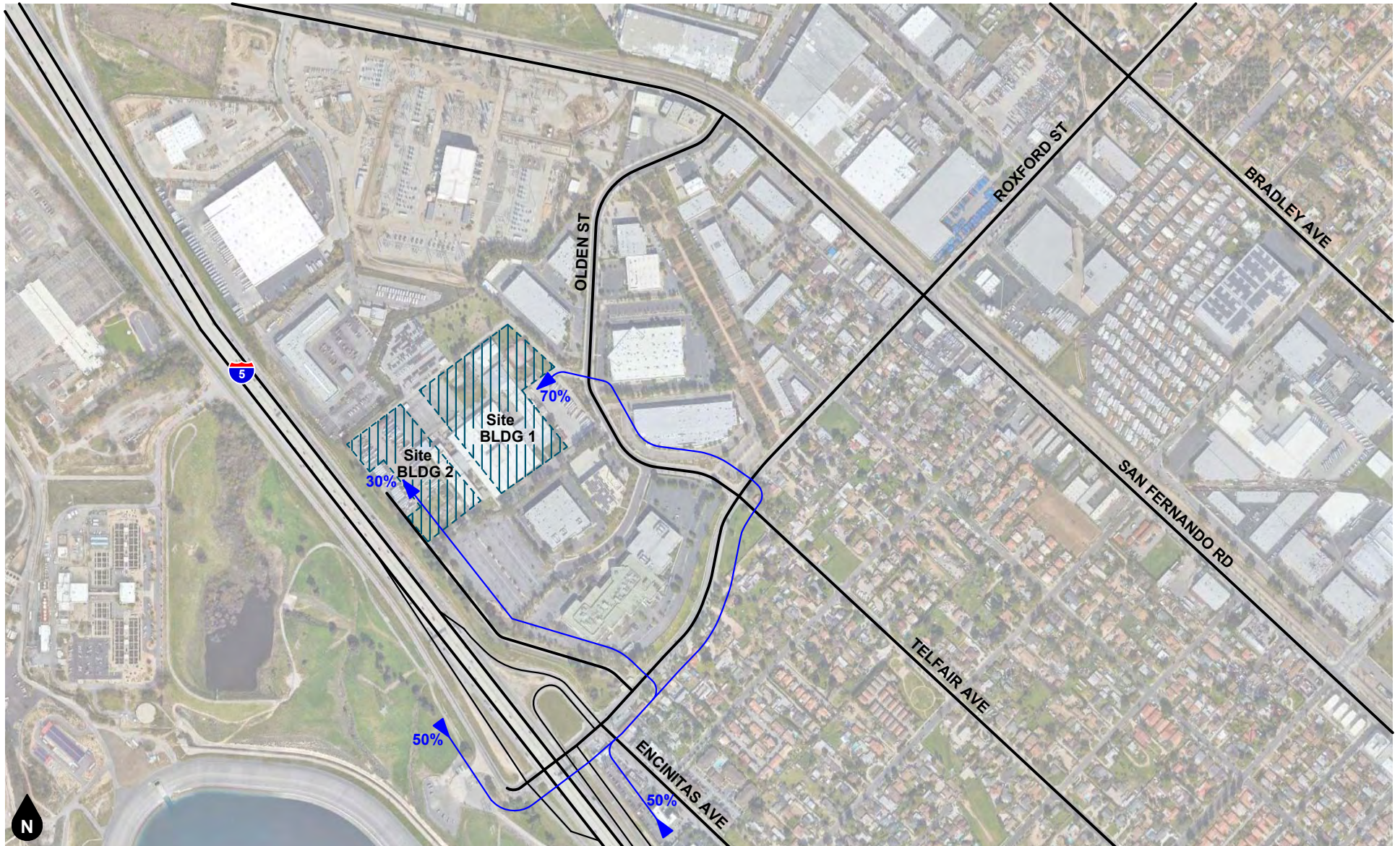
(4) PCE = Passenger Car Equivalent

(5) Proposed project warehouse trip generation (see Table 4).



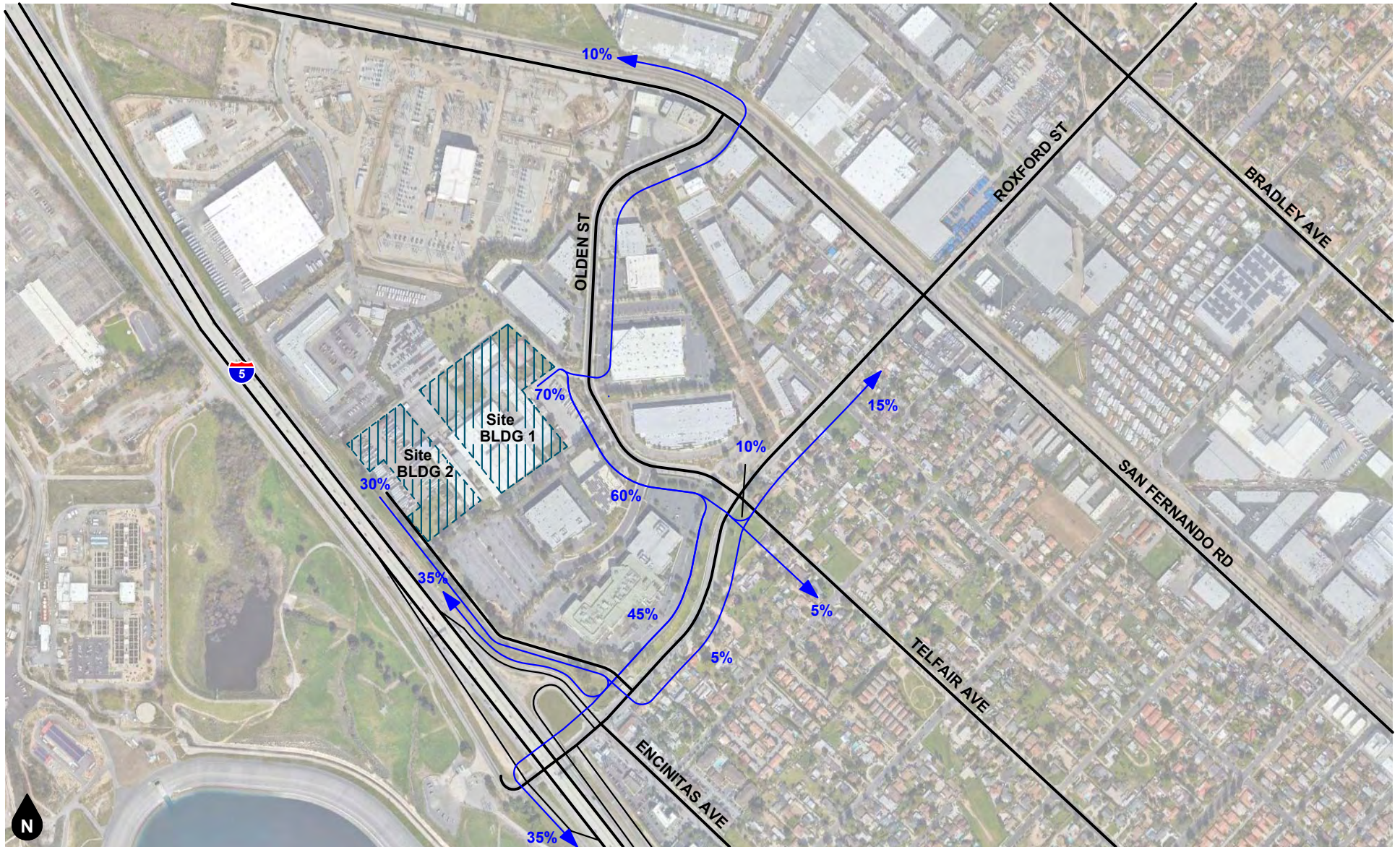
Legend
 ← 10% Percent From Project

Figure 21
Project Truck Outbound Trip Distribution



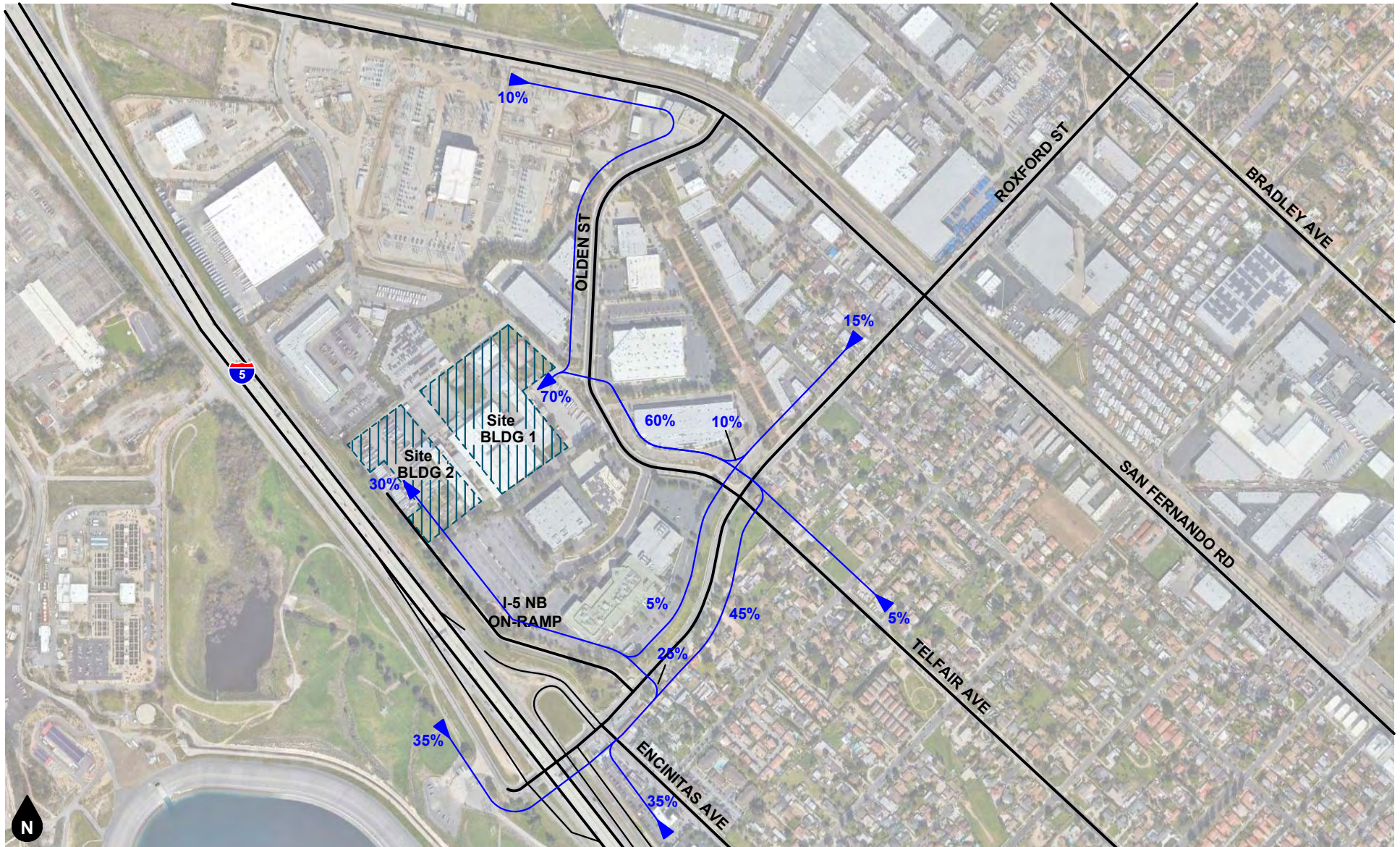
Legend
 ← 10% Percent To Project

Figure 22
Project Truck Inbound Trip Distribution



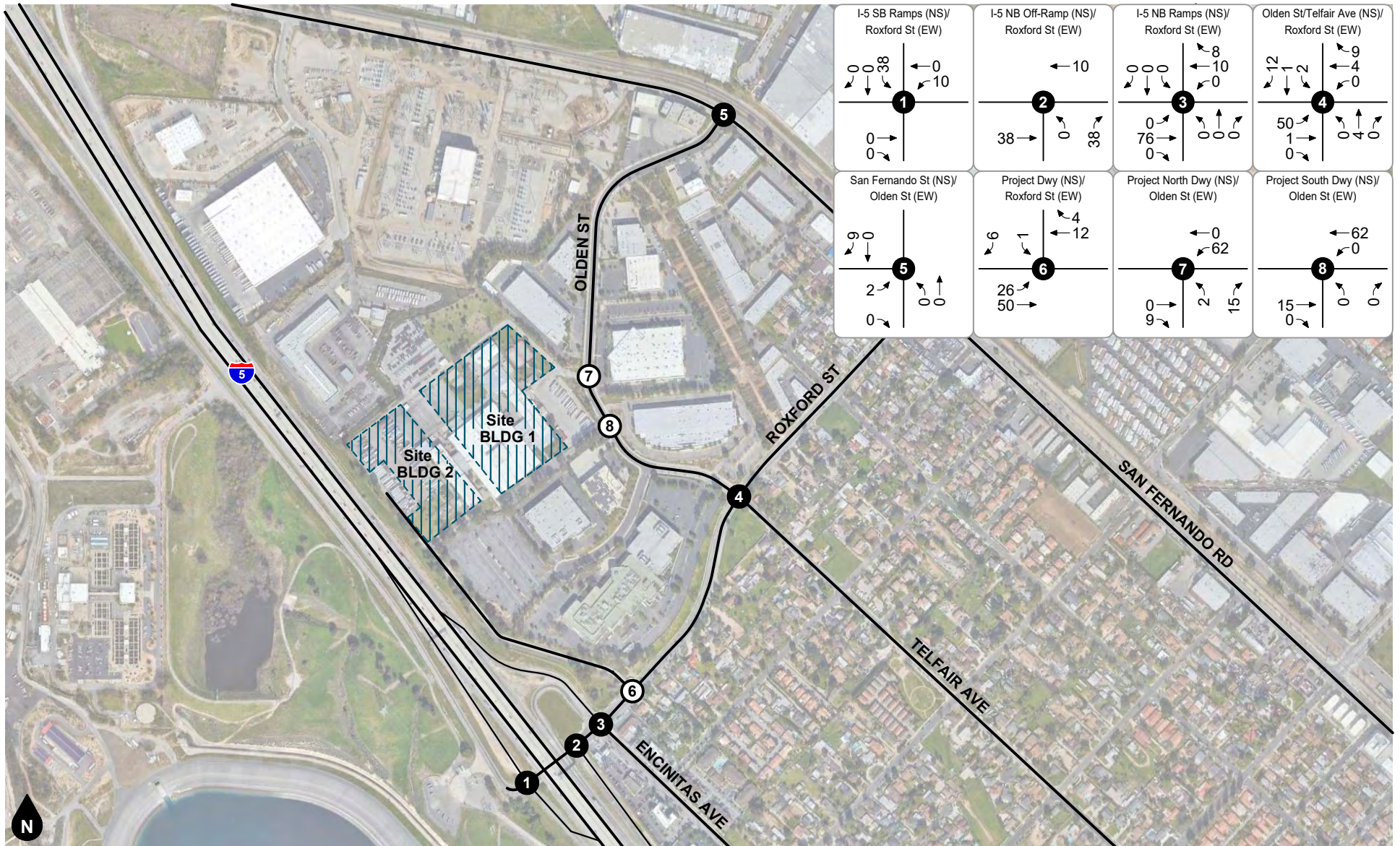
Legend
 ← 10% Percent From Project

Figure 23
Project Passenger Car Outbound Trip Distribution



Legend
 ← 10% Percent To Project

Figure 24
Project Passenger Car Inbound Trip Distribution

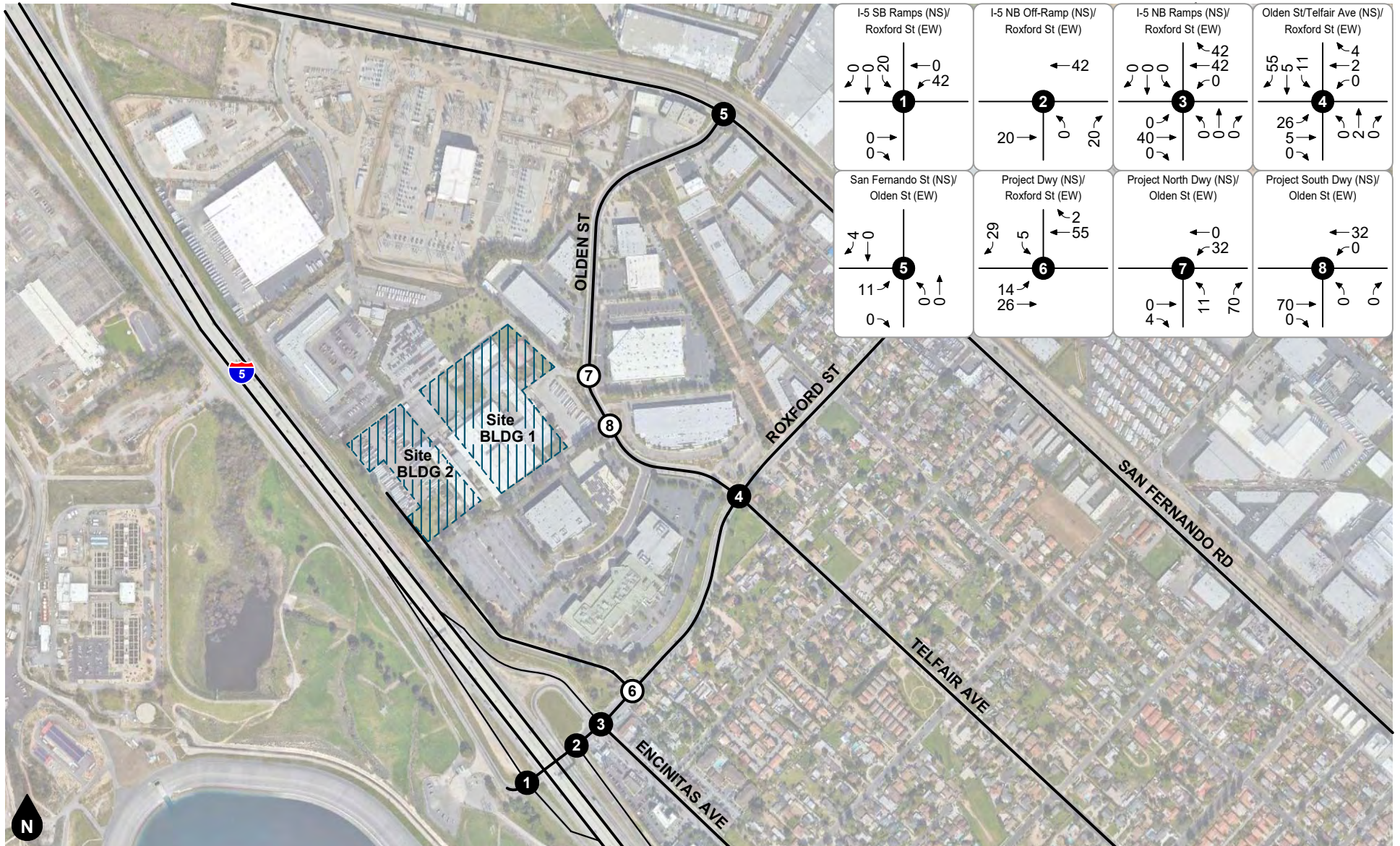


Legend

Study Intersection

Project Driveway

Figure 25
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- # Project Driveway

Figure 26
Project PM Peak Hour Intersection Turning Movement Volumes

Analysis Scenario Volume Forecasts

In addition to existing (year 2021) conditions, the following future scenarios are analyzed:

- Existing Plus Project Conditions
- Opening Year (2024) Without Project Conditions
- Opening Year (2024) With Project Conditions

Existing Plus Project

Existing Plus Project volume forecasts were derived by adding the Project-generated trips to the existing volumes previously discussed in the Project Context section.

Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 27 and Figure 28.

Opening Year (2024) Without Project

To account for background traffic growth, future trips generated by the related projects previously discussed in the Project Context section were added to existing volumes. Additionally, existing 2021 traffic volumes were increased by a growth rate of 0.5 percent (0.5%) per year over a three-year period. This equates to a total growth factor of approximately 1.015 (1.5%) for Opening Year (2024) conditions. The ambient growth rate was conservatively applied to all movements at the study intersections and accounts for background growth not explicitly identified in the related projects list.

Opening Year (2024) Without Project AM and PM peak hour intersection turning movement volumes are shown on Figure 29 and Figure 30.

Opening Year (2024) With Project

Opening Year (2024) With Project volume forecasts were developed by adding Project-generated trips to the Opening Year (2024) Without Project forecast.

Opening Year (2024) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 31 and Figure 32.

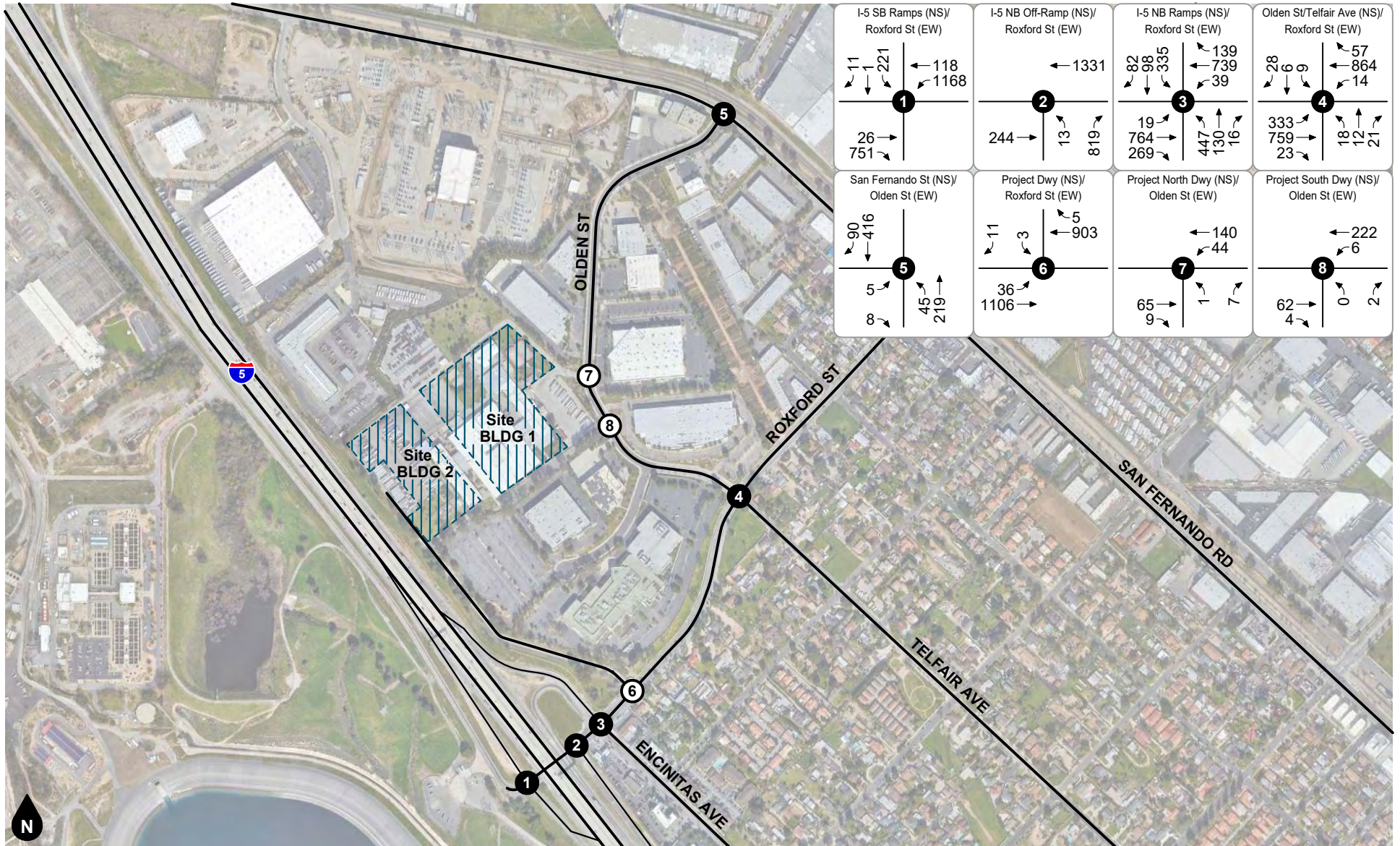
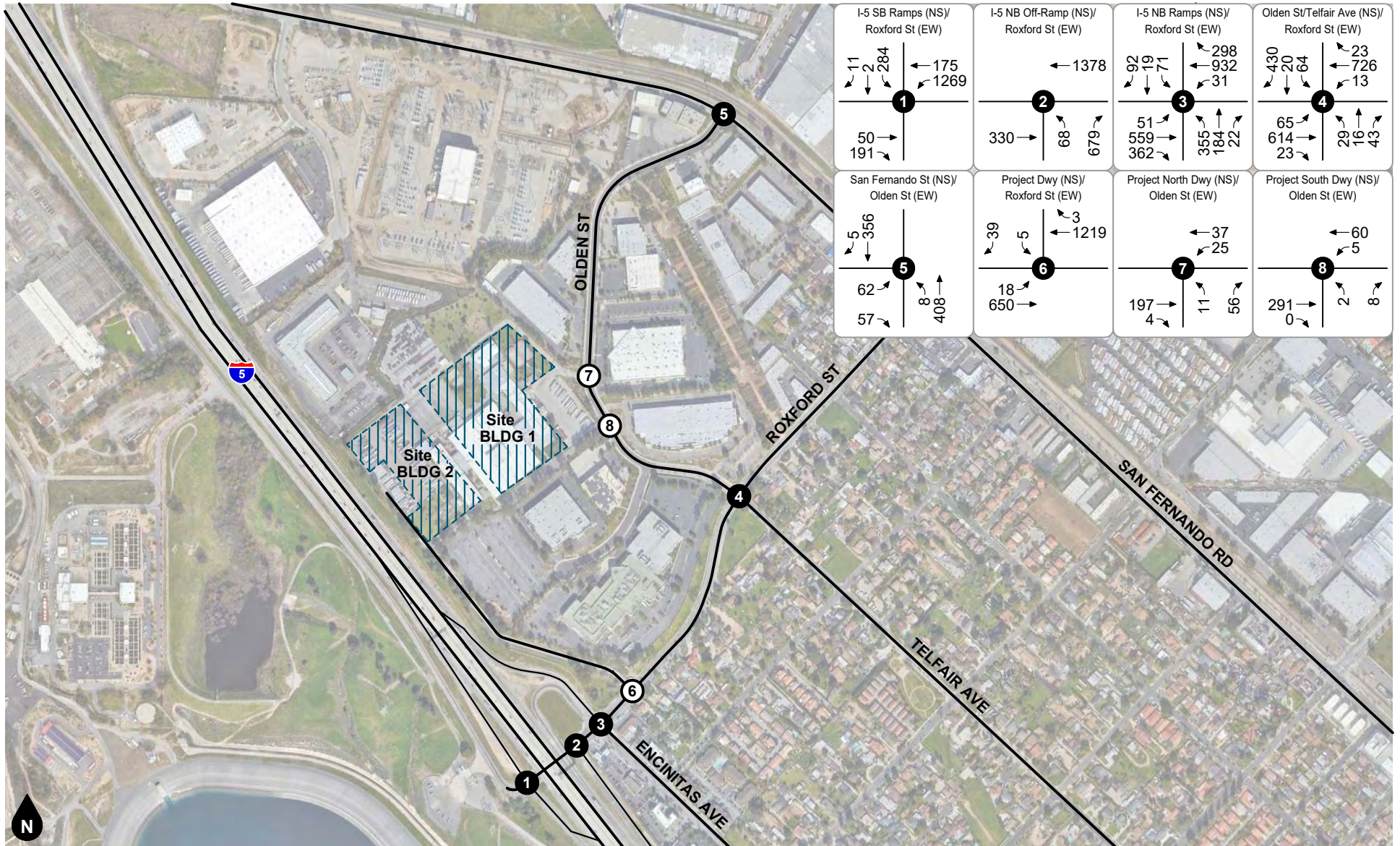


Figure 27
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes

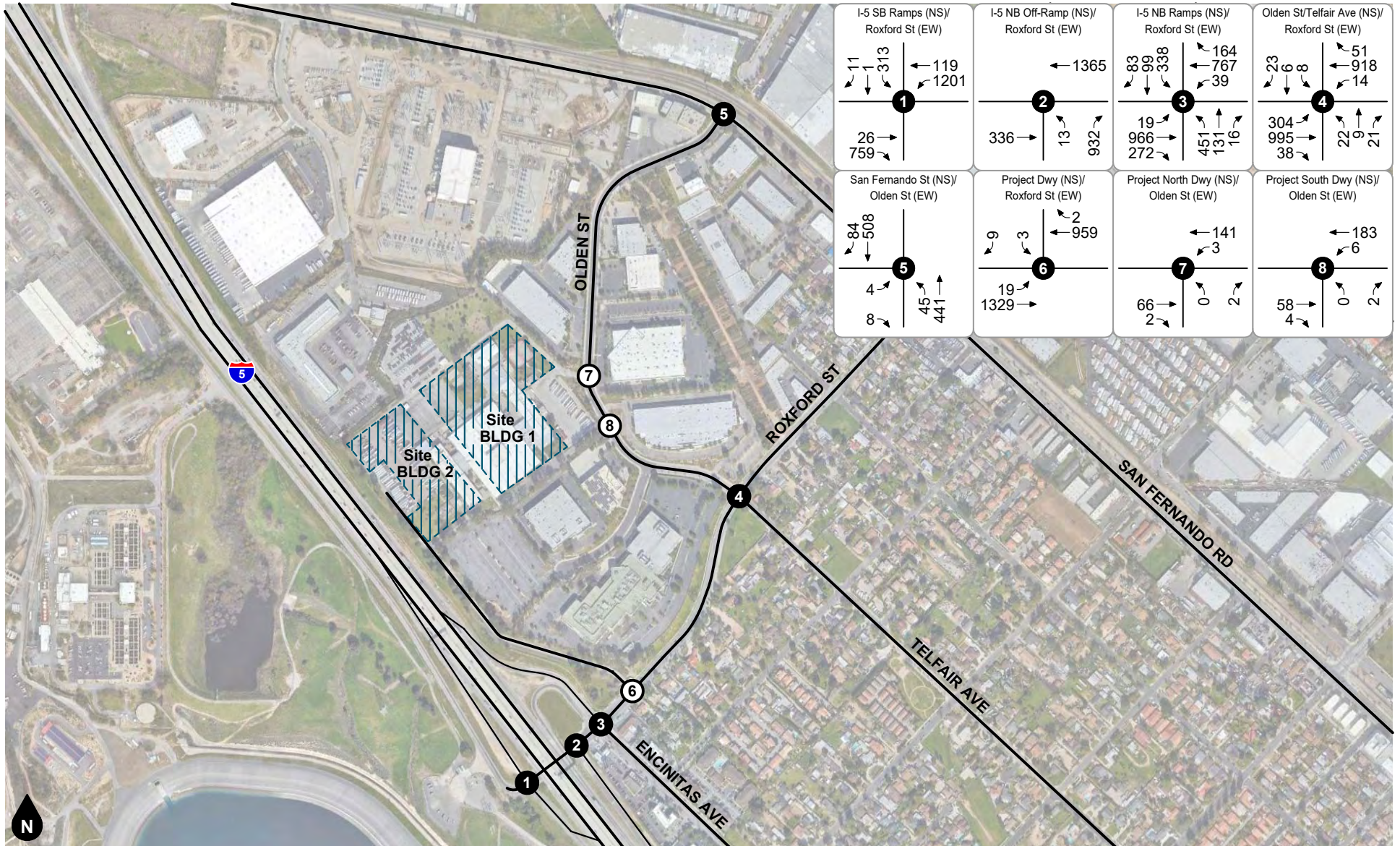


Legend

Study Intersection

Project Driveway

Figure 28
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes

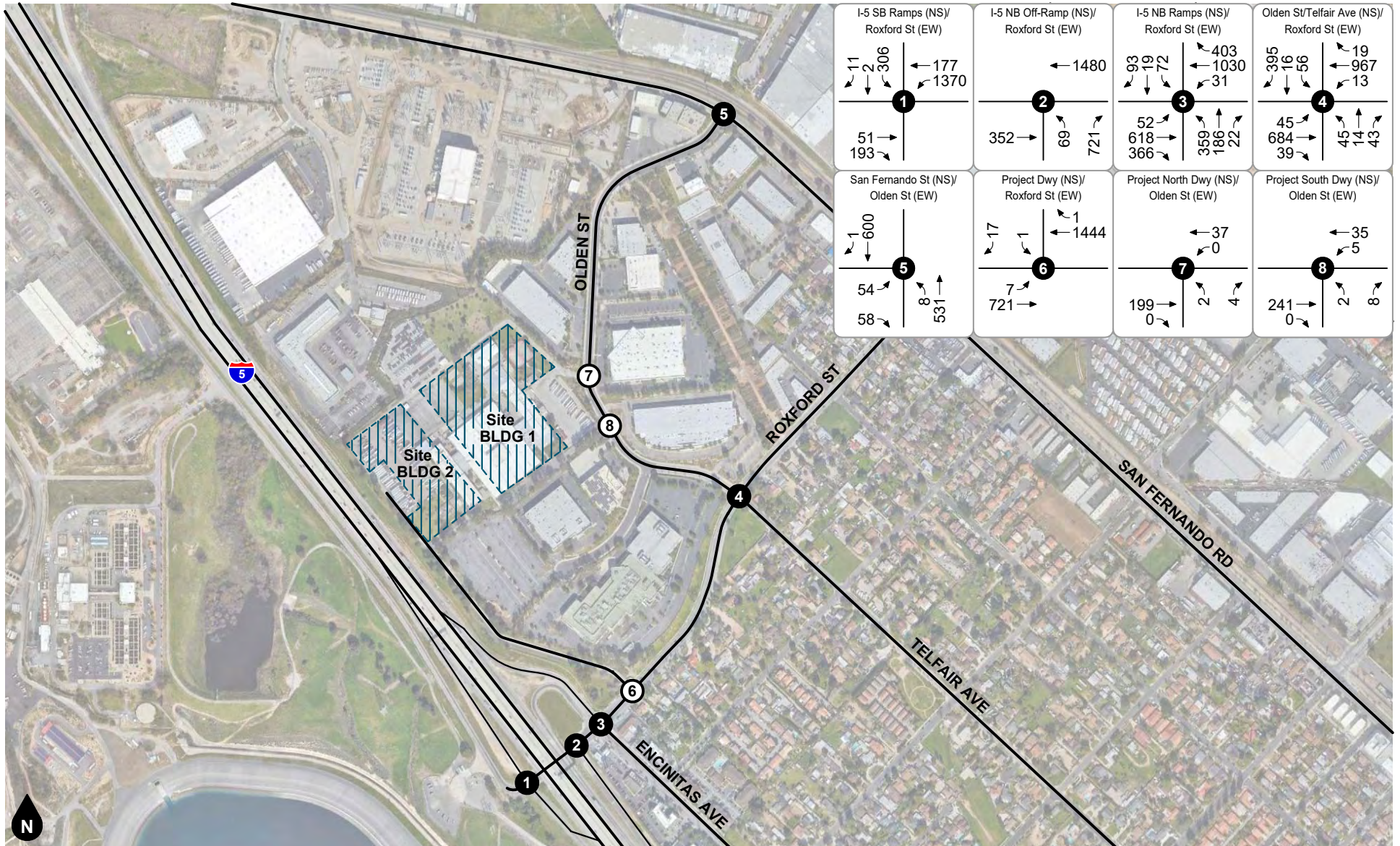


Legend

Study Intersection

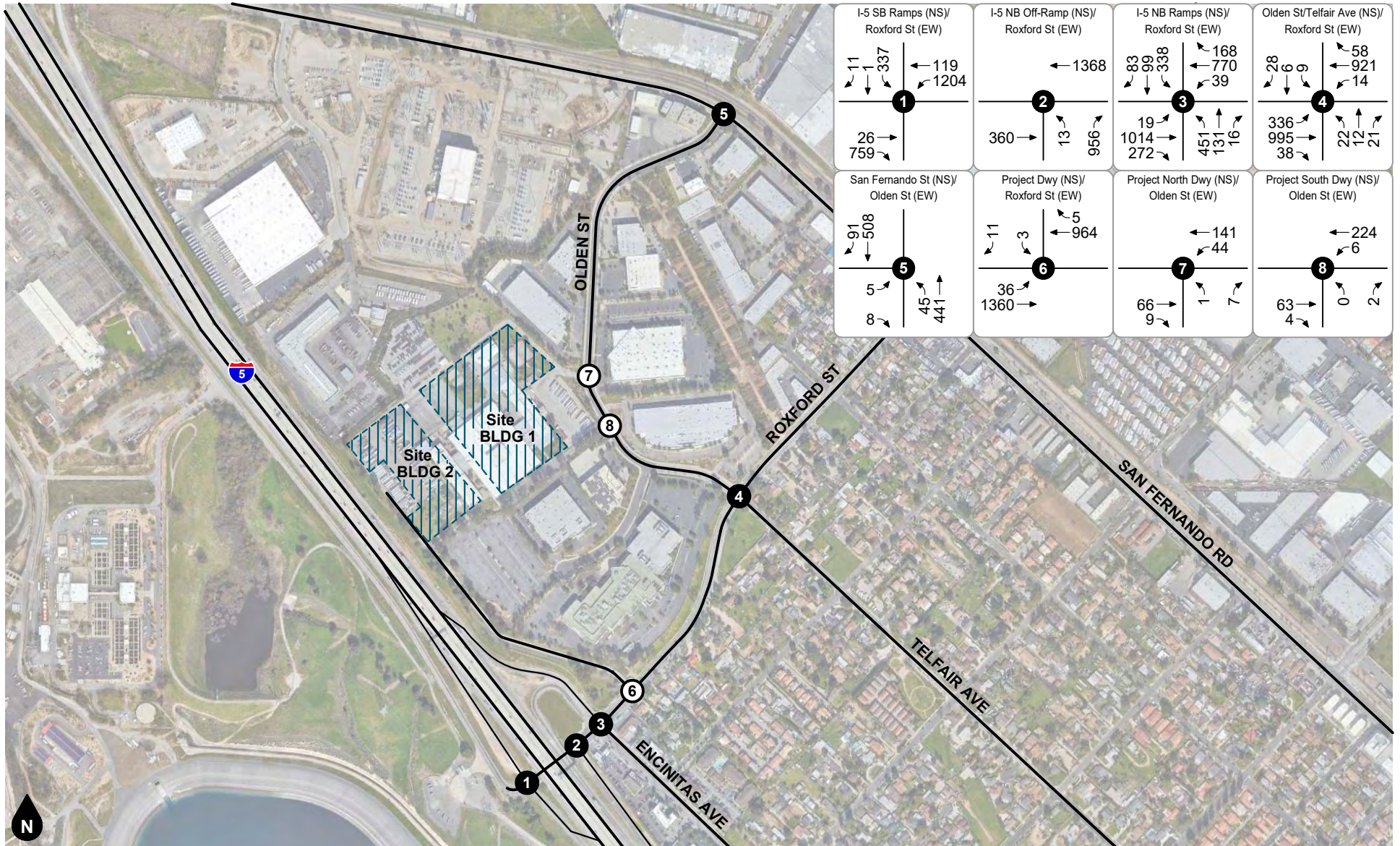
Project Driveway

Figure 29
Opening Year (2024) Without Project
AM Peak Hour Intersection Turning Movement Volumes



- Legend
- # Study Intersection
 - # Project Driveway

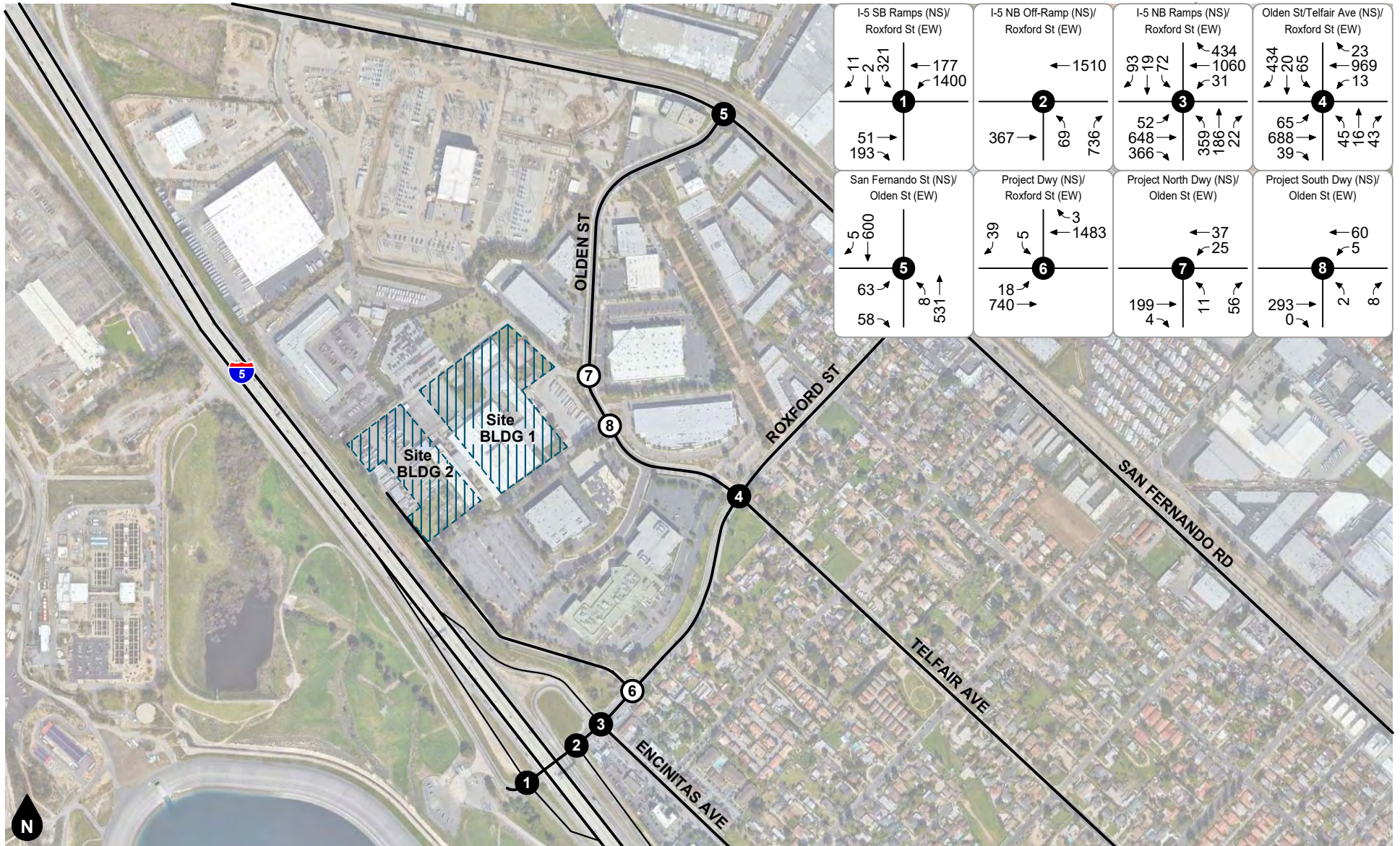
Figure 30
Opening Year (2024) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

- Study Intersection
- Project Driveway

Figure 31
Opening Year (2024) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Project Driveway

Figure 32
Opening Year (2024) With Project
PM Peak Hour Intersection Turning Movement Volumes

Operational Evaluation

In accordance with the 2020 LADOT Transportation Assessment Guidelines, intersection Level of Service (LOS) methodologies from the latest edition (6th Edition) of the Transportation Research Board Highway Capacity Manual (HCM) are used to evaluate the operation of the project driveways and nearby intersections. The HCM methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle, Level of Service, and queuing. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

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

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane).

For study intersections with poor Level of Service (E or F), further review of queue lengths based on the HCM 95th-percentile back-of-queue methodology is conducted to evaluate whether the addition of Project-generated trips substantially contributes to unacceptable queueing on an Avenue or Boulevard or substantially extends queueing at a nearby signalized intersection. The 95th-percentile queue length effectively represents the maximum queue length expected (to a 95 percent confidence level) and is an industry accepted standard for determining turning lane storage and intersection spacing requirements.

Intersection Level of Service analysis was performed using the Vistro software with HCM-default saturation flow rates and measured peak hour factors from the intersection volume counts. Detailed Level of Service worksheets for each of the analysis scenarios are provided in Appendix E.

Existing Conditions

The study intersection Levels of Service for existing conditions are shown in Table 6. As shown in Table 6, the study intersections currently operate at Levels of Service D or better during the peak hours for Existing 2021 conditions, except for the following intersection:

- I-5 Northbound Off-Ramp (NS) at Roxford Street (EW) – #2 (AM and PM Peak Hours)

Existing Plus Project

The study intersection Levels of Service for Existing Plus Project conditions are shown in Table 7. As shown in Table 7, the study intersections are forecast to continue operating at Levels of Service D or better during the peak hours for Existing Plus Project conditions, except for the following intersection:

- I-5 Northbound Off-Ramp (NS) at Roxford Street (EW) – #2 (AM and PM Peak Hours)

As shown in Table 7, the proposed project is forecast to result in no additional operational deficiencies at the study intersections for Existing Plus Project conditions based on the City-established guidelines. Since the intersection of I-5 Northbound Off-Ramp at Roxford Street [Intersection #2] is already operating at deficient Level of Service during Existing conditions and not caused by the project, no additional improvements are recommended. Furthermore, the I-5 Northbound Off-Ramp intersection is located in close proximity to the existing signalized intersection of Encinitas Avenue and Roxford Street where installing another traffic signal at the I-5 Northbound Off-Ramp would not be appropriate. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp is an existing traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street.

For the intersection of Olden Street/Telfair Avenue at Roxford Street [Intersection #4], it recommended that the eastbound and westbound signal phasing on Roxford Street be improved to protected left-turn phasing to address traffic concerns on Roxford Street raised by local residents. The eastbound and westbound protected left-turn phasing would facilitate safer turning movements for the project truck traffic making eastbound left turns to Olden Street/Telfair Avenue. Additional advanced warning signage such as “Signal Ahead” warning signs should be installed on Roxford Street approach the signalized intersection at Olden Street/Telfair Avenue [Intersection #4].

Opening Year (2024) Without Project Intersection Delay Levels of Service

The intersection delay Levels of Service for Opening Year (2024) Without Project conditions are shown in Table 8. As shown in Table 8, the study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2024) Without Project conditions, except for the following intersection:

- I-5 Northbound Off-Ramp (NS) at Roxford Street (EW) – #2 (AM and PM Peak Hours)

Opening Year (2024) With Project Intersection Delay Levels of Service

The intersection delay Levels of Service for Opening Year (2024) With Project conditions are shown in Table 9. As shown in Table 9, the study intersections are projected to continue operating at Levels of Service D or better during the peak hours for Opening Year (2024) With Project conditions, except for the following intersection:

- I-5 Northbound Off-Ramp (NS) at Roxford Street (EW) – #2 (AM and PM Peak Hours)

As shown in Table 9, the proposed project is forecast to result in no operational deficiencies at the study intersections for Opening Year (2024) With Project conditions based on the City-established guidelines. Since the intersection of I-5 Northbound Off-Ramp at Roxford Street [Intersection #2] is already operating at deficient Level of Service during Opening Year Without Project conditions and not caused by the project, no additional improvements are recommended. Furthermore, the I-5 Northbound Off-Ramp intersection is located in close proximity to the existing signalized intersection of Encinitas Avenue and Roxford Street where installing another traffic signal at the I-5 Northbound Off-Ramp would not be appropriate. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp is an existing traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street.

For the intersection of Olden Street/Telfair Avenue at Roxford Street [Intersection #4], it recommended that the eastbound and westbound signal phasing on Roxford Street be improved to protected left-turn phasing to address traffic concerns on Roxford Street raised by local residents. The eastbound and westbound protected left-turn phasing would facilitate safer turning movements for the project truck traffic making eastbound left turns to Olden Street/Telfair Avenue. Additional advanced warning signage such as “Signal Ahead” warning signs should be installed on Roxford Street approach the signalized intersection at Olden Street/Telfair Avenue [Intersection #4].

Finding: The proposed project is forecast to result in no additional operational deficiencies at the study intersections for the scenarios evaluated based on the City-established guidelines. Since the intersection of I-5 Northbound Off-Ramp at Roxford Street [Intersection #2] is already operating at deficient Level of Service during Existing and Opening Year Without Project conditions and not caused by the project, no additional improvements are recommended. Furthermore, the I-5 Northbound Off-Ramp intersection is located in close proximity to the existing signalized intersection of Encinitas Avenue and Roxford Street where installing another traffic signal at the I-5 Northbound Off-Ramp would not be appropriate. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) and the southbound approach on the I-5 Southbound Ramps (Intersection #1) are an existing and Opening Year Without Project traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street.

For the intersection of Olden Street/Telfair Avenue at Roxford Street [Intersection #4], it recommended that the eastbound and westbound signal phasing on Roxford Street be improved to protected left-turn phasing to address traffic concerns on Roxford Street raised by local residents. The eastbound and westbound protected left-turn phasing would facilitate safer turning movements for the project truck traffic making eastbound left turns to Olden Street/Telfair Avenue. Additional advanced warning signage such as “Signal Ahead” warning signs should be installed on Roxford Street approach the signalized intersection at Olden Street/Telfair Avenue [Intersection #4].

Freeway Off-Ramp Intersection Queuing Analysis

This section presents the queuing analysis conducted for the I-5 Freeway off-ramp intersections on Roxford Street (Intersections #1, #2 and #3). The queuing analysis was performed using the Vistro analysis software for Opening Year (2024) With Project conditions. The queuing analysis assessed the 95th-percentile queue lengths at the three off-ramp intersections along Roxford Street.

Table 10 summarizes the queuing analysis results for Opening Year (2024) With Project conditions. The intersection queuing analysis worksheets are included in Appendix F. Based on the queuing analysis results in Table 10, no queuing deficiencies are forecast to occur at the three freeway off-ramps locations for Opening Year (2024) With Project conditions. There appears to be adequate storage lengths on the off-ramps so that the I-5 freeway mainline traffic flow will not be impacted by off-ramp queues.

Finding: No queuing deficiencies are forecast to occur at the three freeway off-ramps locations for Opening Year (2024) With Project conditions. There appears to be adequate storage lengths on the off-ramps so that the I-5 freeway mainline traffic flow will not be impacted by off-ramp queues. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) is an existing traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street or the I-5 freeway mainline traffic flow.

Safety Evaluation

In accordance with 2020 LADOT Transportation Assessment Guidelines, a safety evaluation should be performed for transportation projects. Since the proposed Project is a land development project, no evaluation is necessary.

Passenger Loading Evaluation

The demand for curbside space has substantially increased due to the continued expansion of driver-for-hire transportation network companies (TNCs) and shared mobility services. On-site loading demand of the project frontage is characterized by the following considerations:

- Would the project result in passenger loading demand that could not be accommodated within any proposed on-site passenger loading facility?

Response: No.

- Would accommodating the passenger loading demand create pedestrian or bicycle conflicts?

Response: No.

- Which curbside management options should be explored to better address passenger loading needs in the public right-of-way?

Response: Not applicable.

Finding: The proposed industrial warehouse project generates very low passenger traffic and does not have passenger loading issue. No further analysis or improvements on the public right-of-way are necessary.

Table 6
Existing Intersection Levels of Service

Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
		Delay ²	LOS ³	Delay ²	LOS ³
1. I-5 SB Ramps at Roxford St	TS	28.5	C	23.4	C
2. I-5 NB Off-Ramp at Roxford St	CSS	44.4	E	231.1	F
3. I-5 NB Ramps/Encinitas Ave at Roxford St	TS	23.6	C	19.8	B
4. Olden St/Telfair Ave at Roxford St	TS	5.0	A	16.5	B
5. San Fernando Rd at Roxford St	CSS	15.7	C	16.4	C
6. Project Dwy at Roxford St	CSS	20.5	C	25.8	D
7. Project North Dwy at Olden St/Telfair Ave	CSS	10.0	A	10.8	B
8. Project North Dwy at Olden St/Telfair Ave	CSS	10.2	B	11.1	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, all way stop control, or roundabout, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst movement.

(3) LOS = Level of Service

Table 7
Existing Plus Project Intersection Levels of Service

Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
		Delay ²	LOS ³	Delay ²	LOS ³
1. I-5 SB Ramps at Roxford St	TS	29.9	C	24.9	C
2. I-5 NB Off-Ramp at Roxford St	CSS	47.2	E	270.0	F
3. I-5 NB Ramps/Encinitas Ave at Roxford St	TS	23.8	C	20.4	C
4. Olden St/Telfair Ave at Roxford St - EB/WB Protected Left-Turn Phasing	TS	5.6	A	19.0	B
	TS	4.8	A	18.9	B
5. San Fernando Rd at Roxford St	CSS	15.8	C	16.8	C
6. Project Dwy at Roxford St	CSS	21.3	C	28.4	D
7. Project North Dwy at Olden St/Telfair Ave	CSS	11.0	B	12.6	B
8. Project North Dwy at Olden St/Telfair Ave	CSS	10.6	B	12.1	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, all way stop control, or roundabout, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst movement.

(3) LOS = Level of Service

Table 8
Opening Year (2023) Without Project Intersection Levels of Service

Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
		Delay ²	LOS ³	Delay ²	LOS ³
1. I-5 SB Ramps at Roxford St	TS	29.9	C	31.2	C
2. I-5 NB Off-Ramp at Roxford St	CSS	67.9	F	393.2	F
3. I-5 NB Ramps/Encinitas Ave at Roxford St	TS	26.2	C	23.6	C
4. Olden St/Telfair Ave at Roxford St	TS	5.5	A	19.7	B
5. San Fernando Rd at Roxford St	CSS	20.0	C	26.8	D
6. Project Dwy at Roxford St	CSS	22.8	C	34.5	D
7. Project North Dwy at Olden St/Telfair Ave	CSS	10.0	A	10.8	B
8. Project North Dwy at Olden St/Telfair Ave	CSS	10.2	B	11.2	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, all way stop control, or roundabout, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst movement.

(3) LOS = Level of Service

Table 9
Opening Year (2023) With Project Intersection Levels of Service

Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
		Delay ²	LOS ³	Delay ²	LOS ³
1. I-5 SB Ramps at Roxford St	TS	31.9	C	36.3	D
2. I-5 NB Off-Ramp at Roxford St	CSS	76.1	F	444.4	F
3. I-5 NB Ramps/Encinitas Ave at Roxford St	TS	27.0	C	25.6	C
4. Olden St/Telfair Ave at Roxford St - EB/WB Protected Left-Turn Phasing	TS	6.1	A	24.7	C
	TS	5.3	A	24.7	C
5. San Fernando Rd at Roxford St	CSS	20.2	C	28.4	D
6. Project Dwy at Roxford St	CSS	23.8	C	38.7	E
7. Project North Dwy at Olden St/Telfair Ave	CSS	11.0	B	12.6	B
8. Project North Dwy at Olden St/Telfair Ave	CSS	10.6	B	12.2	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, all way stop control, or roundabout, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst movement.

(3) LOS = Level of Service

Table 10
Freeway Off-Ramp Intersection Queuing Analysis

Study Intersection	Turning Movement	Available Storage Length		Opening Year (2023) With Project			
				AM Peak Hour		PM Peak Hour	
				Traffic Volumes	95th Percentile Queue	Traffic Volumes	95th Percentile Queue
1. I-5 SB Off-Ramp at Roxford St	SB Left	250' Left-Thru Lane + 740' Lane	990'	351	6'	321	414'
	SB Thru	250' Left-Thru Lane + 740' Lane	990'	1	1'	2	9'
	SB Right	250' Thru-Right Lane + 90' Transition	340'	11	9'	11	36'
2. I-5 NB Off-Ramp at Roxford St	NB Left	780' Left-Right Lane + 290' Lane	1070'	13	257'	69	740'
	NB Right	780' Right Turn Lane	780'	956	213'	736	435'
3. I-5 NB Loop Off-Ramp/ Encinitas Ave at Roxford St	SB Left	200' Left Turn Lane + 730' Lane	930'	338	344'	72	51'
	SB Thru	200' Thru-Right Lane	200'	99	125'	19	89'
	SB Right	200' Thru-Right Lane	200'	83	10'	93	39'

PROJECT CONSTRUCTION

The construction evaluation addresses activities associated with Project construction and major in-street construction of infrastructure projects.

Screening Criteria

If the answer is “yes” to any of the following questions, further analysis is required to assess if the Project could negatively affect existing pedestrian, bicycle, transit, or vehicle circulation:

- Would the project require construction activities to take place within the right-of-way of a Boulevard or Avenue (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than one day (including day and evening hours, and overnight closures if on a residential street)?

Answer: No.

- Would the project require construction activities to take place within the right-of-way of a Collector or Local Street (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than seven days (including day and evening hours, and including overnight closures if on a residential street)?

Answer: No.

- Would in-street construction activities result in the loss of regular vehicle, bicycle, or pedestrian access, including loss of bicycle parking to an existing land use for more than one day, including day and evening hours and overnight closures if access is lost to residential units?

Answer: No.

- Would in-street construction activities result in the loss of regular ADA pedestrian access to an existing transit station, stop, or facility (e.g., layover zone) during revenue hours?

Answer: No.

- Would in-street construction activities result in the temporary loss for more than one day of an existing bus stop or rerouting of a bus route that serves the project site?

Answer: No.

- Would construction activities result in the temporary removal and/or loss of on-street metered parking for more than 30 days?

Answer: No.

- Would the project involve a discretionary action to construct new buildings or additions of more than 1,000 square feet that require access for hauling construction materials and equipment from streets of less than 24-feet wide in a hillside area?

Answer: No.

Finding: The proposed Project satisfies the City-established screening criteria for project construction analysis; therefore, no further analysis or corrective measures are necessary.

RESIDENTIAL STREET CUT-THROUGH

Cut-through trips are defined as those which feature travel along a street classified as a Local Street in the City’s General Plan, with residential land-use frontage, as an alternative to a higher classification street segment (e.g., Collector, Avenue, or Boulevard as designated in the City’s General Plan) to access a destination

that is not within the neighborhood within which the Local Street is located. It is City policy to locate new project driveways on lower-volume side streets and not on arterials; therefore, trips to and from new development projects with driveways located on such side street streets are not considered cut-through.

Screening Criteria

If the answer is “yes” to all of the following questions, further analysis may be required to assess whether the project would negatively affect residential streets:

- Would the project generate a net increase of 250 or more daily vehicle trips?
Answer: Yes.
- Does the land use project include a discretionary action that would be under review by the Department of City Planning?
Answer: Yes.

In addition, all of the following conditions must be present when selecting residential street segments for cut-through analysis for development projects:

- The project is located along a currently congested Boulevard or Avenue and adds trips that may lead to trip diversion to parallel routes along residential Local Streets. The congestion level of the Boulevard or Avenue can be determined based on the estimated peak hour Level of Service under project conditions of the study intersections. Level of Service E and F are considered to represent congested conditions.
- The project is projected to add a substantial amount of automobile traffic to the congested Boulevard(s), Avenue(s), or Collector(s) that could potentially cause a shift to alternative route(s).
- Nearby local residential street(s) (defined as Local streets as designated in the City’s General Plan passing through a residential neighborhood) provide motorists with a viable alternative route. A viable alternative route is defined as one which is parallel and reasonably adjacent to the primary route as to make it attractive as an alternative to the primary route. LADOT has discretion to define which routes are viable alternative routes, based on, but not limited to, features such as geography and presence of existing traffic control devices, etc.

Based on the intersection operational analysis, the arterial street study intersections (Intersections #1, #2, #4, #5 and #6) are forecast to operate at Level of Service D or better with the addition of Project-generated trips. Therefore, the arterial street study intersections are not considered to operate under congested conditions and the addition of Project-generated trips is not anticipated to cause a shift to alternative routes.

Finding: Based on the screening review and City-approved MOU, the proposed Project is not anticipated to substantially contribute to cut-through trips on residential streets; therefore, no further analysis or corrective measures are necessary.

4. CONCLUSIONS

Non-CEQA Findings

Pedestrian, Bicycle, and Transit Access Assessment

The proposed Project satisfies the City-established screening criteria for pedestrian, bicycle, and transit access; therefore, no further analysis or improvements are necessary.

Project Access and Circulation Evaluation

The proposed project is forecast to result in no additional operational deficiencies at the study intersections for the scenarios evaluated based on the City-established guidelines. Since the intersection of I-5 Northbound Off-Ramp at Roxford Street [Intersection #2] is already operating at deficient Level of Service during Existing and Opening Year Without Project conditions and not caused by the project, no additional improvements are recommended. Furthermore, the I-5 Northbound Off-Ramp intersection is located in close proximity to the existing signalized intersection of Encinitas Avenue and Roxford Street where installing another traffic signal at the I-5 Northbound Off-Ramp would not be appropriate. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) is an existing and Opening Year and Without Project traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street.

For the intersection of Olden Street/Telfair Avenue at Roxford Street [Intersection #4], it recommended that the eastbound and westbound signal phasing on Roxford Street be improved to protected left-turn phasing to address traffic concerns on Roxford Street raised by local residents. The eastbound and westbound protected left-turn phasing would facilitate safer turning movements for the project truck traffic making eastbound left turns to Olden Street/Telfair Avenue. Additional advanced warning signage such as "Signal Ahead" warning signs should be installed on Roxford Street approach the signalized intersection at Olden Street/Telfair Avenue [Intersection #4].

No queuing deficiencies are forecast to occur at the three freeway off-ramps locations for Opening Year (2024) With Project conditions. There appears to be adequate storage lengths on the off-ramps so that the I-5 freeway mainline traffic flow will not be impacted by off-ramp queues. The deficient delay and queue experienced by the northbound approach on the I-5 Northbound Off-Ramp (Intersection #2) is an existing and Opening Year Without Project traffic issue, but it will not adversely affect the eastbound and westbound traffic flow along Roxford Street or the I-5 freeway mainline traffic flow.

Project Construction

The proposed Project satisfies the City-established screening criteria for project construction analysis; therefore, no further analysis or corrective measures are necessary.

Residential Street Cut-Through

Based on the screening review and City-approved MOU, the proposed Project is not anticipated to substantially contribute to cut-through trips on residential streets; therefore, no further analysis or corrective measures are necessary.

APPENDICES

- Appendix A Glossary
- Appendix B Memorandum of Understanding
- Appendix C Volume Count Worksheets
- Appendix D Existing Volume Adjustment Factor Calculations
- Appendix E Level of Service Worksheets
- Appendix F Intersection Queuing Analysis Worksheets

APPENDIX A

GLOSSARY

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

MEMORANDUM OF UNDERSTANDING

Transportation Assessment Memorandum of Understanding (MOU)

This MOU acknowledges that the Transportation Assessment for the following Project will be prepared in accordance with the latest version of LADOT's Transportation Assessment Guidelines:

I. PROJECT INFORMATION

Project Name: Roxford Street Warehouses Project

Project Address: 15825 Roxford Street, Sylmar, CA 91342 (see Figure 1)

Project Description: Demolition of existing 253,762 SF light industrial use and a 88,000 SF off-site vehicle storage lot for a car dealership/sales. Construction of 2 new buildings with 568,313 SF warehouse and 55,516 SF office use. See Appendix A

LADOT Project Case Number: 50250 Project Site Plan attached? (Required) ☒ Yes ☐ No

II. TRANSPORTATION DEMAND MANAGEMENT (TDM) MEASURES

Select any of the following TDM measures, which may be eligible as a Project Design Feature¹, that are being considered for this project:

☐ Reduced Parking Supply ² per LA TOC Affordable Housing Guidelines	☐ Bicycle Parking and Amenities LAMC 12.21.A.16(a)(1)	☐ Parking Cash Out
--	---	---

List any other TDM measures (e.g. bike share kiosks, unbundled parking, microtransit service, etc.) below that are also being considered and would require LADOT staff's determination of its eligibility as a TDM measure. LADOT staff will make the final determination of the TDM measure's eligibility for this project.

- | | | | |
|---|--|---|---------|
| 1 | <u>Voluntary travel behavior change program</u> | 4 | <u></u> |
| 2 | <u>Bicycle parking per LAMC</u> | 5 | <u></u> |
| 3 | <u>Pedestrian network improvements (within project only)</u> | 6 | <u></u> |

III. TRIP GENERATION

Trip Generation Rate(s) Source: ITE 10th Edition / Other ITE Code 130, 151, 155, 710

Trip Generation Adjustment (Exact amount of credit subject to approval by LADOT)	Yes	No
Transit Usage	☐	☒
Existing Active or Previous Land Use	☒	☐
Internal Trip	☐	☒
Pass-By Trip	☐	☒
Transportation Demand Management (See above)	☐	☒

Trip generation table including a description of the existing and proposed land uses, rates, estimated morning and afternoon peak hour volumes (ins/outs/totals), proposed trip credits, etc. attached? (Required) ☒ Yes ☐ No

	IN	OUT	TOTAL
AM Trips	<u>-34</u>	<u>4</u>	<u>-30</u>
PM Trips	<u>30</u>	<u>-4</u>	<u>26</u>

NET Daily Vehicle Trips (DVT)
1,074 DVT (ITE ¹¹ ed.)
1,074 DVT (VMT Calculator ver. 1.3)

See Tables 1, 2, 3 & VMT calculator

¹ At this time Project Design Features are only those measures that are also shown to be needed to comply with a local ordinance, affordable housing incentive program, or State law.

²Select if reduced parking supply is pursued as a result of a parking incentive as permitted by the City's Bicycle Parking Ordinance, State Density Bonus Law, or the City's Transit Oriented Community Guidelines.

IV. STUDY AREA AND ASSUMPTIONS

Project Buildout Year: 2024 Ambient Growth Rate: 0.5 % Per Yr. > CMP growth (0.4%) [See Table 4]

Related Projects List, researched by the consultant and approved by LADOT, attached? (Required) ☐ Yes ☒ No

STUDY INTERSECTIONS and/or STREET SEGMENTS: (See Figure 1 and page 3 for additional intersections)

(May be subject to LADOT revision after access, safety, and circulation evaluation.)

- | | |
|---|---|
| 1 I-5 Southbound Ramps (NS) / Roxford St (EW) | 4 Olden St/Telfair Ave (NS) / Roxford St (EW) |
| 2 I-5 Northbound Off-Ramps (NS) / Roxford St (EW) | 5 San Fernando Rd (NS) / Olden St (EW) |
| 3 Encinitas Ave (NS) / Roxford St (EW) | 6 Project Dwy (NS) / Roxford St (EW) |

Provide a separate list if more than six study intersections and/or street segments.

Is this Project located on a street within the High Injury Network? ☐ Yes ☒ No

If a study intersection is located within a ¼-mile of an adjacent municipality's jurisdiction, signature approval from said municipality is required prior to MOU approval.

V. ACCESS ASSESSMENT

- Does the project exceed 1,000 net DVT? ☒ Yes ☐ No
- Is the project's frontage 250 linear feet or more along an Avenue or Boulevard as classified by the City's General Plan? ☐ Yes ☒ No
- Is the project's building frontage encompassing an entire block along an Avenue or Boulevard as classified by the City's General Plan? ☐ Yes ☒ No

VI. ACCESS ASSESSMENT CRITERIA

If Yes to any of the above questions a., b., or c., complete **Attachment C.1: Access Assessment Criteria**.

VII. SITE PLAN AND MAP OF STUDY AREA

Please note that the site plan should also be submitted to the Department of City Planning for cursory review.

Does the attached site plan and/or map of study area show	Yes See Figure #	No	Not Applicable
Each study intersection and/or street segment	☒ 1	☐	☐
*Project Vehicle Peak Hour trips at each study intersection	☐	☒	☐
*Project Vehicle Peak Hour trips at each project access point	☐	☒	☐
*Project trip distribution percentages at each study intersection	☒ 3-6	☐	☐
Project driveways designed per LADOT MPP 321 (show widths and directions or lane assignment)	☐	☒	☐
Pedestrian access points and any pedestrian paths	☐	☒	☐
Pedestrian loading zones	☐	☒	☐
Delivery loading zone or area	☒ 2	☐	☐
Bicycle parking onsite	☐	☒	☐
Bicycle parking offsite (in public right-of-way)	☐	☒	☐

*For mixed-use projects, also show the project trips and project trip distribution by land use category.

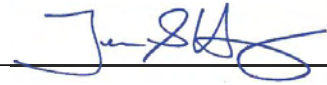
VIII. FREEWAY SAFETY ANALYSIS SCREENING

Will the project add 25 or more trips to any freeway off-ramp in either the AM or PM peak hour? ☐ YES ☒ NO

Provide a brief explanation or graphic identifying the number of project trips expected to be added to the nearby freeway off-ramps serving the project site. If Yes to the question above, a freeway ramp analysis is required.

IX. CONTACT INFORMATION

	<u>CONSULTANT</u>	<u>DEVELOPER</u>
Name:	Ganddini Group, Inc./ Tom Huang	XEBEC HOLDING, LLC/ Mr. Shean Kim
Address:	555 Parkcenter Dr, #225, Santa Ana, CA	3010 Old Ranch Parkway, #470, Seal Beach, CA
Phone Number:	(714) 795-3100 x102 / 949-302-2995	(562) 546-0252 / (510) 381-1611
E-Mail:	tom@ganddini.com	sheank@xebecrealty.com

Approved by:	 Consultant's Representative	3/15/2022 Date	x _____ LADOT Representative	**Date
Adjacent Municipality: N/A				
Approved by: _____ (if applicable) Representative Date				

**MOUs are generally valid for two years after signing. If after two years a transportation assessment has not been submitted to LADOT, the developer's representative shall check with the appropriate LADOT office to determine if the terms of this MOU are still valid or if a new MOU is needed.

STUDY INTERSECTIONS

7	Project North Dwy (NS) / Olden St/Telfair Ave (EW)	10
8	Project South Dwy (NS) / Olden St/Telfair Ave (EW)	11
9		12

PROJECT DESCRIPTION

The project site is currently developed with several existing industrial buildings with approximately 253,762 square feet of light industrial use and a 88,000 square foot off-site lot for a car dealership/sales. The proposed project involves the demolition of the existing buildings and construction of two new industrial warehouses buildings. The total building area is 568,313 square feet of industrial warehouse use and 55,516 square feet of office use. The project site will provide one access driveway on Roxford Street and two access driveways on Olden Street. The north driveway on Olden Street will serve truck traffic, and the south driveway on Olden Street will serve passenger cars. The driveway on Roxford Street will serve both truck and passenger car traffic. (See Figure 2 and Appendix A).

Access Assessment Criteria

This Criteria acknowledges that the Transportation Assessment for the following Project will be prepared in accordance with the latest version of LADOT's Transportation Assessment Guidelines:

I. PROJECT INFORMATION

Project Name: Roxford Street Warehouses Project

Project Address: 15825 Roxford Street, Sylmar, CA 91342 (see Figure 1)

Project Description: Demolition of existing 253,762 SF light industrial use and a 88,000 SF off-site vehicle storage lot for a car dealership/sales. Construction of 2 new buildings with 568,313 SF warehouse and 55,516 SF office use. See Appendix A.

LADOT Project Case Number: 50250

II. PEDESTRIAN/ PERSON TRIP GENERATION

ITE 11th Edition

Source of Pedestrian/Person Trip Generation Rate(s)? ☐ VMT Calculator ☐ ITE 10th Edition ☒ Other: See Appendix B-7

	Land Use	Size/Unit	Daily Person Trips
Proposed	General Office Building (ITE 710)	55,516 sf	826
	Industrial Warehouse	568,313 sf	0
	Total new trips:		826

Pedestrian/Person trip generation table including a description of the proposed land uses, trip credits, person trip assumptions, comparison studies used for reference, etc. attached? ☐ Yes ☒ No

III. PEDESTRIAN ATTRACTORS INVENTORY (See attached Figure 7)

Attach Pedestrian Map for the area (1,320-foot radius from edge of the project site) depicting:

- site pedestrian entrance(s)
- Existing or proposed passenger loading zones
- pedestrian generation/distribution values
 - Geographic Distribution: N 50 % S 50 % E 0 % W 0 %
- transit boarding and alighting of transit stops (should include Metro rail stations; Metro, DASH, and other municipal bus stops)
- Key pedestrian destinations with hours of operation:
 - schools (school times)
 - government offices with a public counter or meeting room
 - senior citizen centers
 - recreation centers or playgrounds
 - public libraries
 - medical centers or clinics
 - child care facilities
 - post offices

- places of worship
- grocery stores
- other facilities that attract pedestrian trips
- pedestrian walking routes to key destinations from project site

Note: Pedestrian Count Summary, Bicycle Count Summary, Manual Traffic Count Summary will need to be attached to the Transportation Assessment

IV. FACILITIES INVENTORY (See attached Figure 7)

Is a High Injury Network street located within 1,320-foot radius from the edge of the project site? ☐ Yes ☒ No
If yes, list streets and include distance from the project:

None	at _____ (feet)
_____	at _____ (feet)
_____	at _____ (feet)
_____	at _____ (feet)

Attach Radius Map for the area (1,320 foot radius from edge of the project site) depicting the following existing and proposed facilities: (See attached Figure 7)

- transit stops
- bike facilities
- traffic control devices for controlled crossings
- uncontrolled crosswalks
- location of any missing, damaged or substandard sidewalks

For a reference of planned facilities, see the [Transportation Assessment Support Map](#)

Crossing Distances

Does the project property have frontage along an arterial street (designated as either an Avenue or Boulevard?)

☐ Yes ☒ No Olden Street is not designated as either an Avenue or Boulevard. The project site has an access road connecting to Roxford Street but no adjacent frontage along it.
If yes, provide the distance between the crossing control devices (e.g. signalized crosswalk, or controlled mid-block crossing) along any arterial within 1,320 feet of the property.

800 _____ (feet) at Roxford Street / Telfair Avenue	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____

V. Project Construction

Will the project require any construction activity within the city right-of-way? ☐ Yes ☒ No

If yes, will the project require temporary closure of any of the following city facilities?

- sidewalk No temporary closure
- bike lane
- parking lane
- travel lane
- bus stop
- bicycle parking (racks or corrals)
- bike share or other micro-mobility station
- car share station
- parklet
- other: _____

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

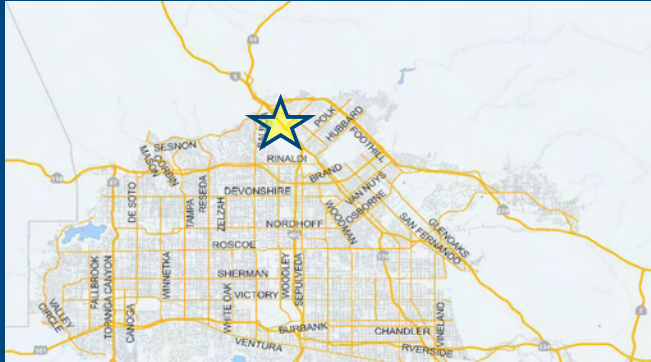


Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: Roxford Street Warehouses Project
 Scenario: 2023 With Project
 Address: 15825 W ROXFORD ST, 91342

www



Is the project replacing an existing number of residential units with a smaller number of residential units AND is located within one-half mile of a fixed-rail or fixed-guideway transit

☒ Yes ☐ No

Existing Land Use

Land Use Type	Value	Unit
Industrial Warehousing/Self-Storage	88	ksf
Industrial Light Industrial	253.762	ksf
Industrial Warehousing/Self-Storage	88.000	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

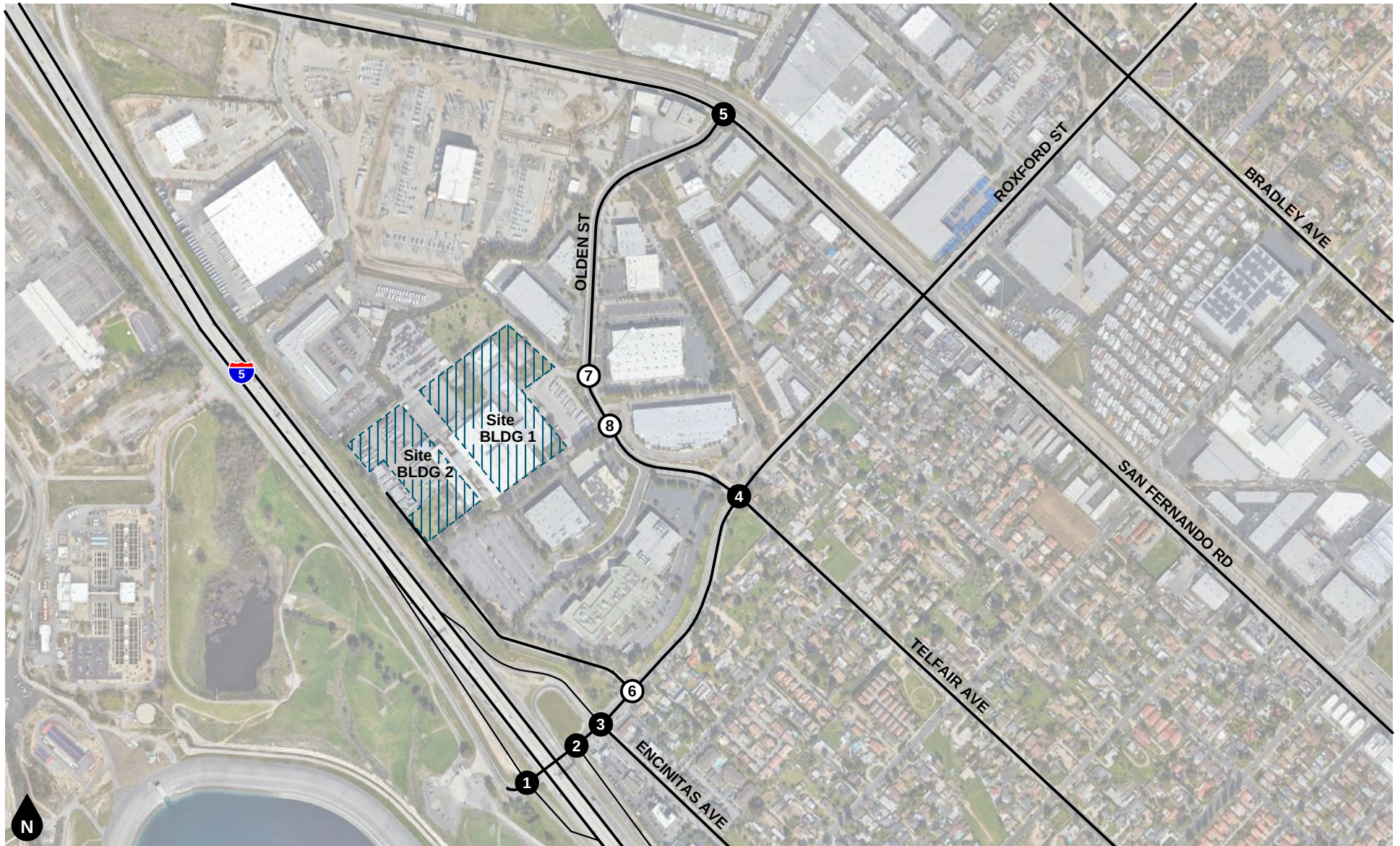
Land Use Type	Value	Unit
Industrial Warehousing/Self-Storage	568.313	ksf
Office General Office	55.516	ksf
Industrial Warehousing/Self-Storage	568.313	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed
1,877 Daily Vehicle Trips	1,918 Daily Vehicle Trips
26,297 Daily VMT	27,371 Daily VMT
Tier 1 Screening Criteria	
Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐	
Tier 2 Screening Criteria	
The net increase in daily trips < 250 trips	41 Net Daily Trips
The net increase in daily VMT ≤ 0	1,074 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	0.000 ksf
The proposed project is not required to perform VMT analysis.	





Legend

- # Study Intersection
- # Project Driveway

Figure 1
Project Location Map

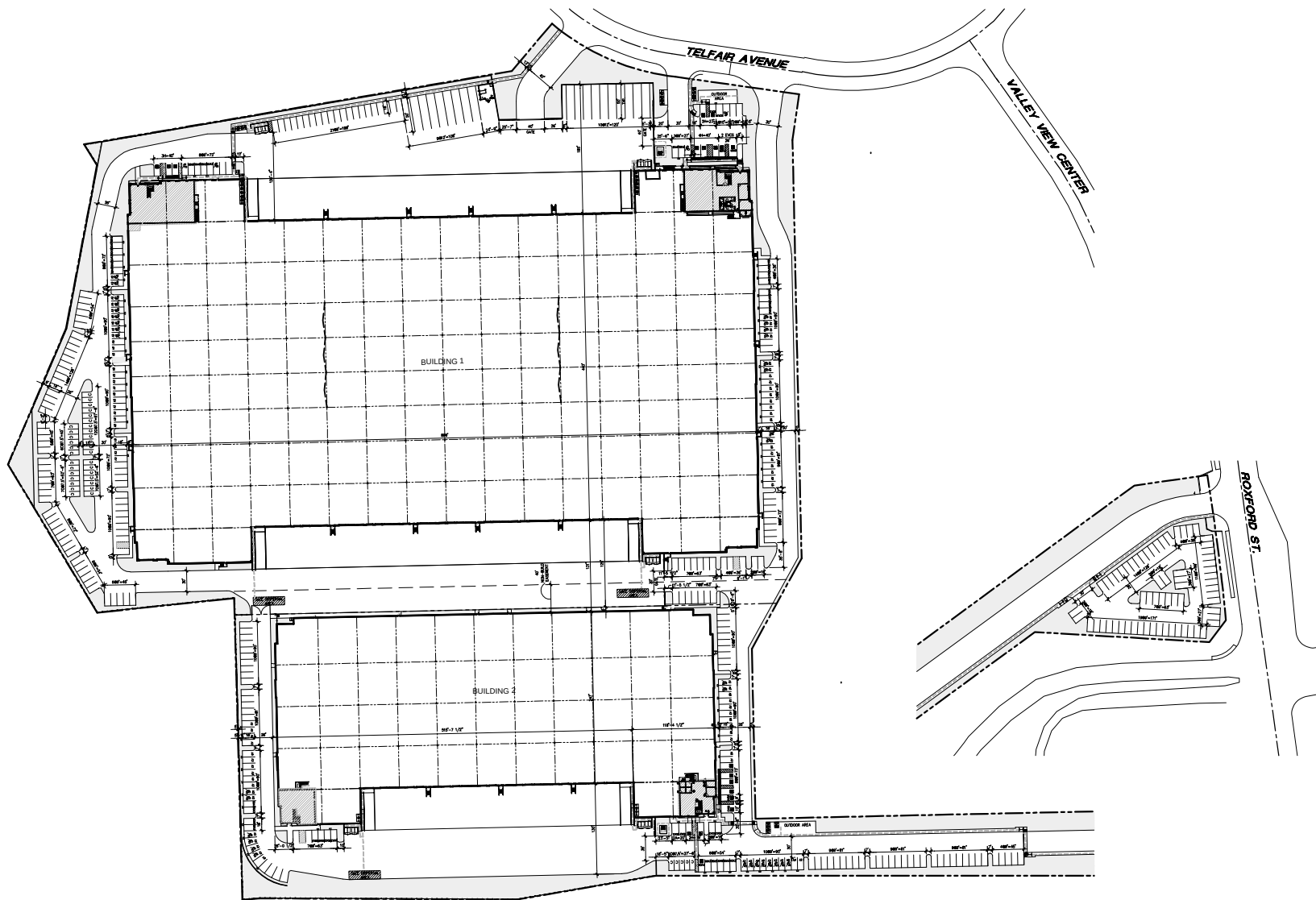
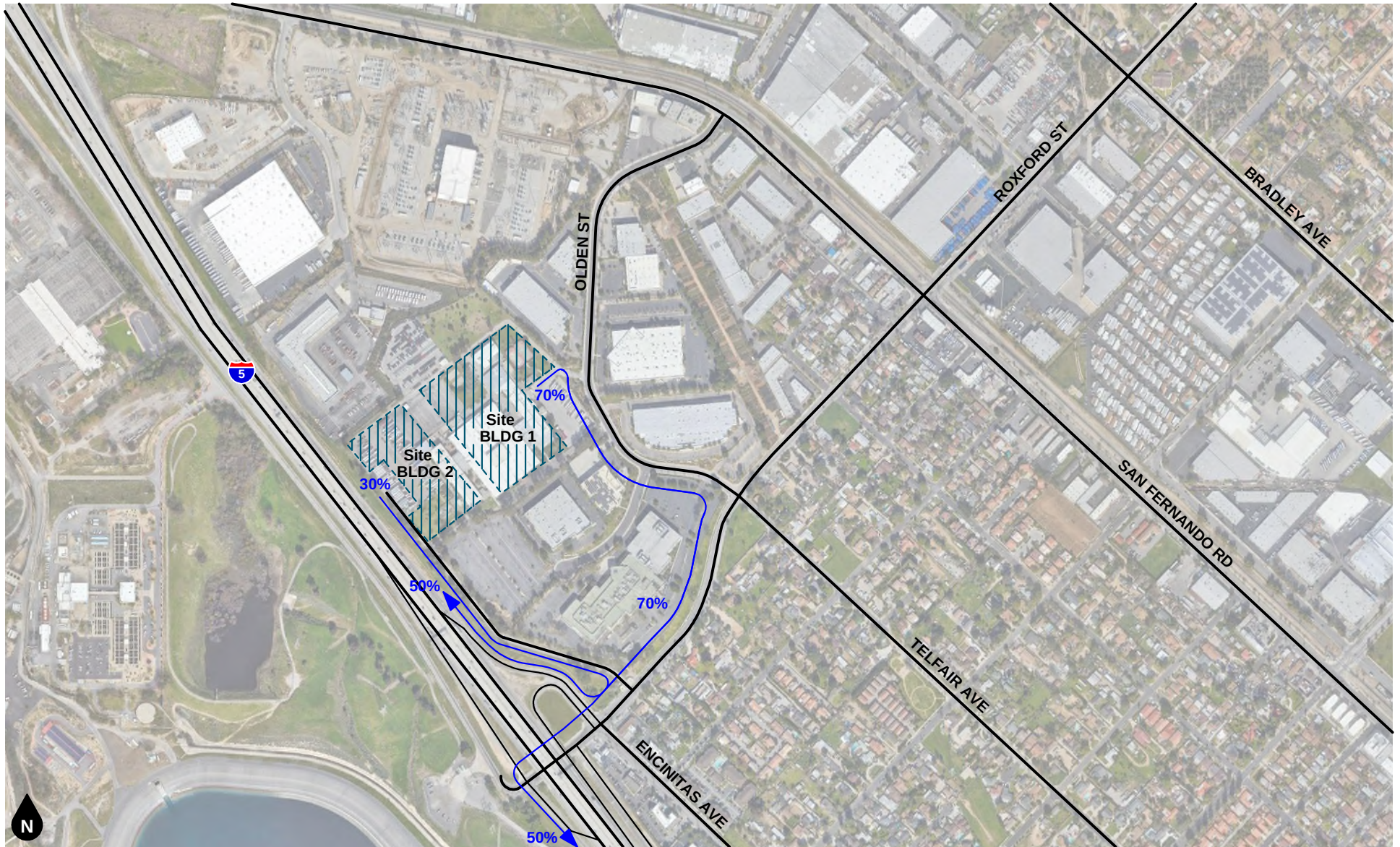


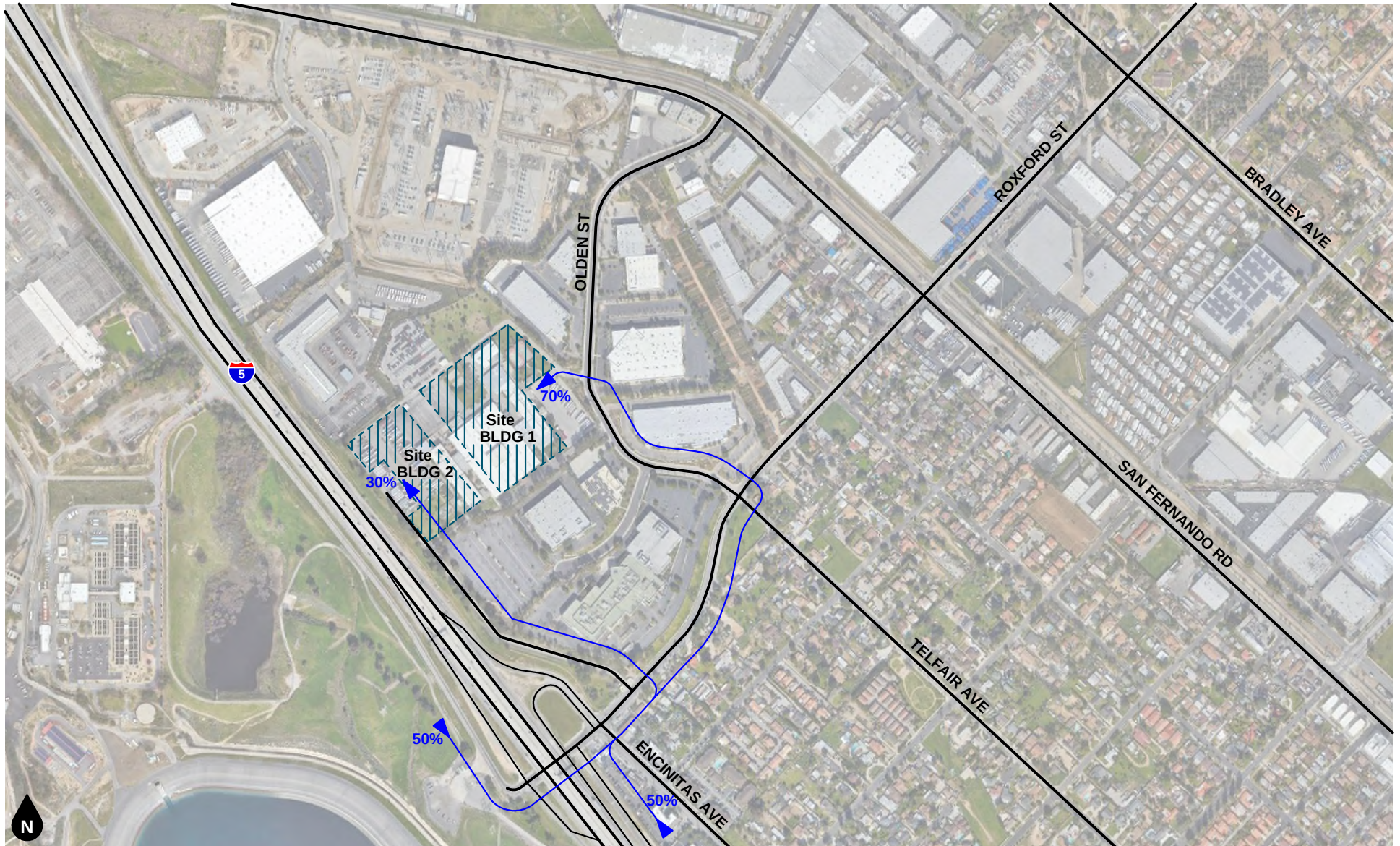
Figure 2
Site Plan



Legend

← 10% Percent From Project

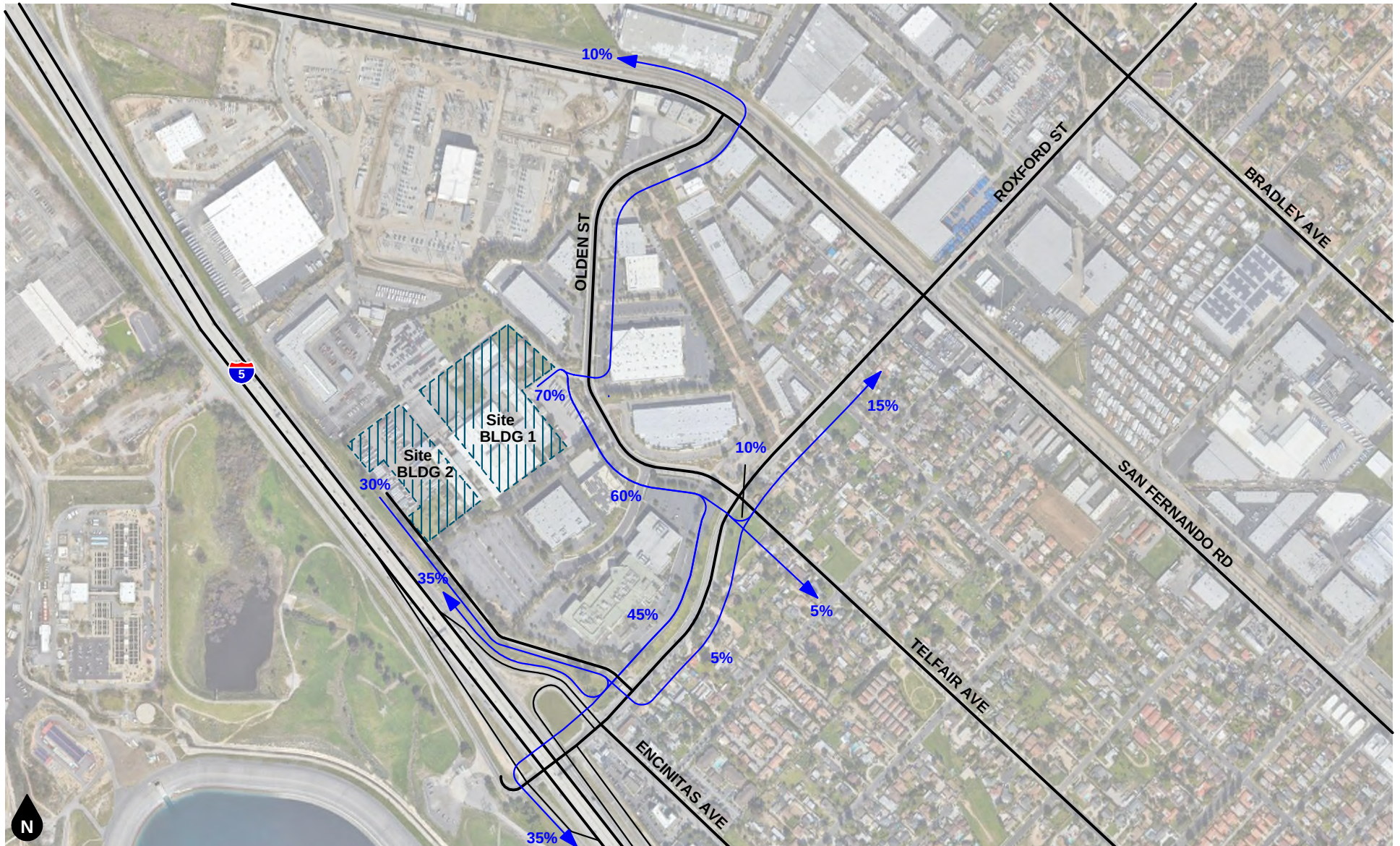
Figure 3
Project Truck Outbound Trip Distribution



Legend

← 10% Percent To Project

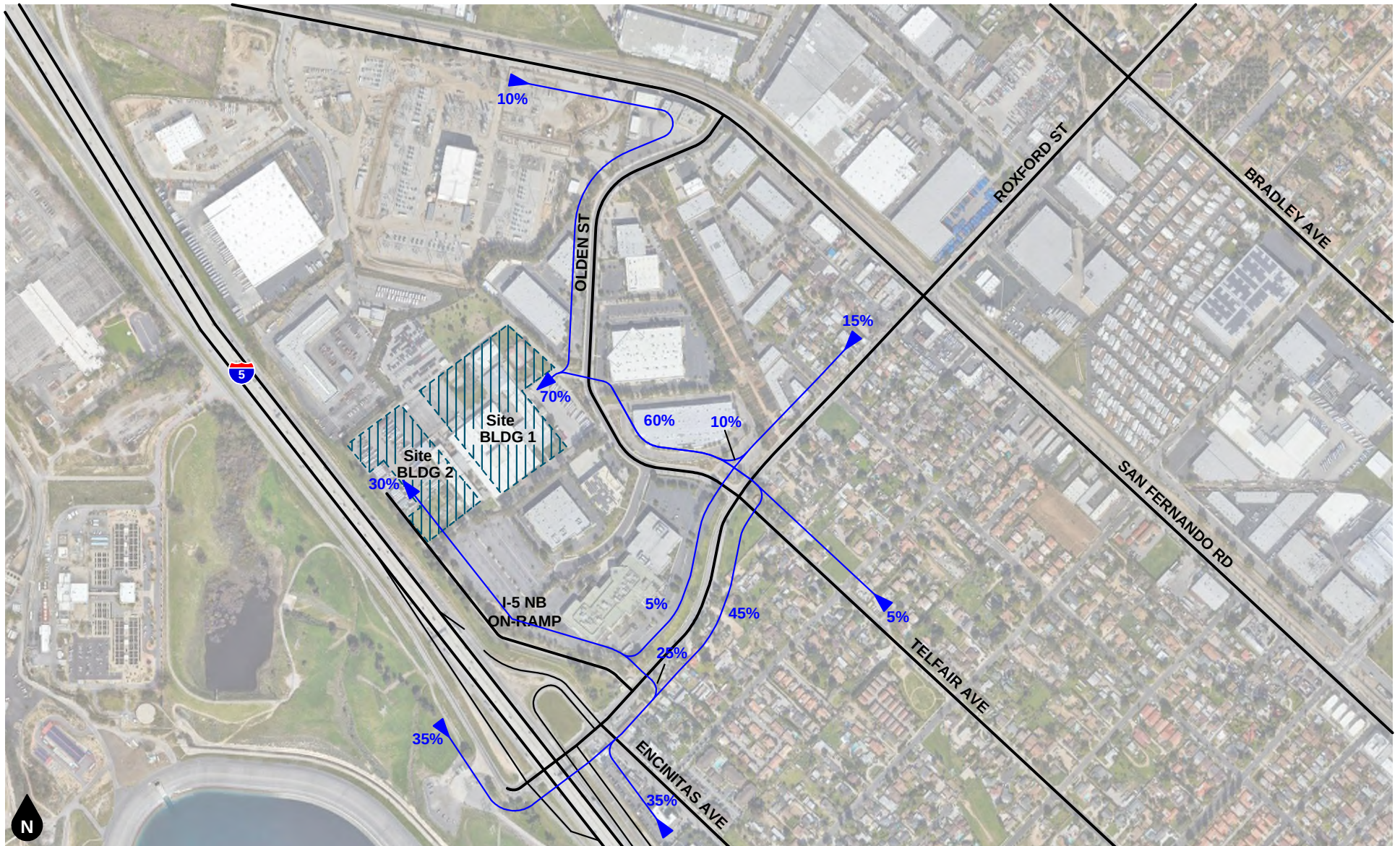
Figure 4
Project Truck Inbound Trip Distribution



Legend

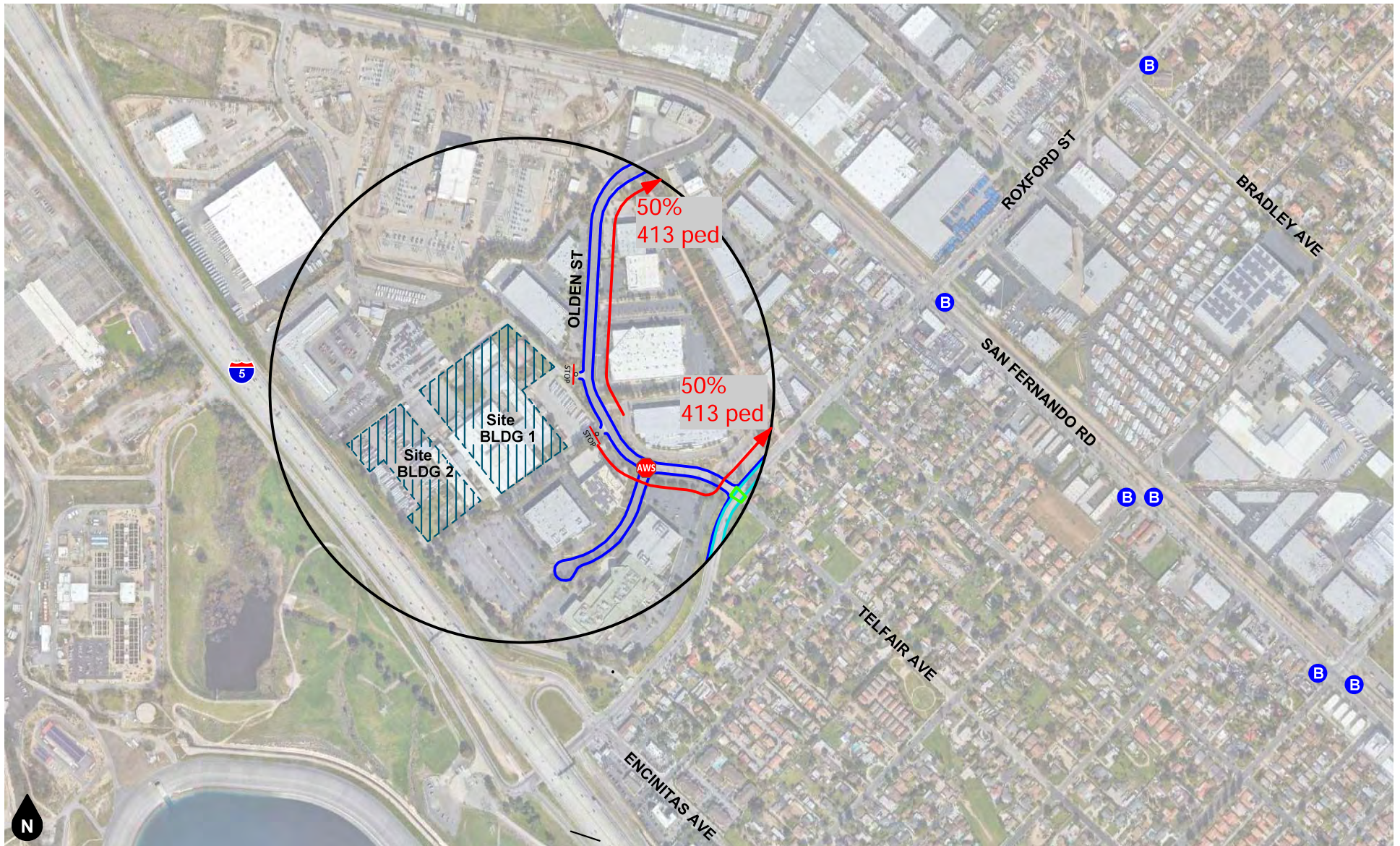
← 10% Percent From Project

Figure 5
Project Passenger Car Outbound Trip Distribution



Legend
 ← 10% Percent To Project

Figure 6
Project Passenger Car Inbound Trip Distribution



Legend

- 1,320 ft Radius
- Future Class II Bike Lane
- Sidewalk
- Cross Walk
- B Bus Stop
- AWS All Way Stop
- STOP Stop Sign
- ← Pedestrian Daily Trip Distribution
- 10% 413 ped
- 50% 413 ped
- 50% 413 ped

Figure 7
Existing Pedestrian and Bicycle Facilities

Table 1
Existing Entitled Use Light Industrial Trip Credit

Land Use: General Light Industrial
Size: 200,000 TSF

TRIP GENERATION RATES PER TSF ¹								
Vehicle Type	Source ²	AM Peak Hour			PM Peak Hour			Daily Rate
		In	Out	Rate	In	Out	Rate	
All Vehicles	ITE 130	88%	12%	0.700	13%	87%	0.630	4.960
Passenger Cars (97.0% AM, 98.0% PM, 92.0% Daily)	TGMS 110	0.598	0.081	0.679	0.080	0.537	0.617	4.563
Trucks (3.0% AM, 2.0% PM, 8.0% Daily)	TGMS 110	0.018	0.003	0.021	0.002	0.011	0.013	0.397
Truck Mix:	Fontana							
2-Axle Trucks (32.7%)		0.006	0.001	0.007	0.001	0.004	0.005	0.130
3-Axle Trucks (17.9%)		0.003	0.000	0.003	0.000	0.002	0.002	0.071
4+ Axle Trucks (49.4%)		0.009	0.001	0.010	0.001	0.005	0.006	0.196

VEHICLE TRIPS GENERATED							
Vehicle Type	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Passenger Cars	120	16	136	16	107	123	913
Trucks							
2-Axle Trucks	1	0	1	0	1	1	26
3-Axle Trucks	1	0	1	0	0	0	14
4+ Axle Trucks	2	0	2	0	1	1	39
Subtotal	4	0	4	0	2	2	79
Total Vehicle Trips Generated	124	16	140	16	109	125	992

PCE ³ TRIPS GENERATED								
Vehicle Type	PCE Factor ⁴	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Passenger Cars	1.0	120	16	136	16	107	123	913
Trucks								
2-Axle Trucks	1.5	2	0	2	0	2	2	39
3-Axle Trucks	2.0	2	0	2	0	0	0	28
4+ Axle Trucks	3.0	6	0	6	0	3	3	117
Subtotal		10	0	10	0	5	5	184
Total PCE Trips Generated		130	16	146	16	112	128	1,097

Notes:

(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) [Trip Generation Manual](#) (10th Edition, 2017); ### = ITE Land Use Code.
 TGMS = ITE [Trip Generation Manual Supplement](#) (10th Edition, 2020); ### = ITE Land Use Code.
 Fontana = City of Fontana [Truck Trip Generation Study](#) (August 2003); recommended truck mix for Light Industrial classification.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016), Appendix B.

Table 2
Proposed Project Warehouse Trip Generation

Land Use: High-Cube Fulfillment Center Warehouse (Non-Sort)
Size: 568,313 TSF

TRIP GENERATION RATES PER TSF ¹								
Vehicle Type	Source ²	AM Peak Hour			PM Peak Hour			Daily Rate
		In	Out	Rate	In	Out	Rate	
All Vehicles	TGMS 155	81%	19%	0.150	39%	61%	0.160	1.810
Passenger Cars (91.0% AM, 93.0% PM, 73.0% Daily)	TGMS 155	0.111	0.026	0.137	0.058	0.091	0.149	1.321
Trucks (9.0% AM, 7.0% PM, 27.0% Daily)	TGMS 155*	0.011	0.003	0.014	0.004	0.007	0.011	0.489
Truck Mix:	SCAQMD							
2-Axle Trucks (16.7%)		0.002	0.000	0.002	0.001	0.001	0.002	0.082
3-Axle Trucks (20.7%)		0.002	0.001	0.003	0.001	0.001	0.002	0.101
4+ Axle Trucks (62.6%)		0.007	0.002	0.009	0.003	0.004	0.007	0.306

VEHICLE TRIPS GENERATED							
Vehicle Type	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Passenger Cars	63	15	78	33	52	85	751
Trucks							
2-Axle Trucks	1	0	1	1	1	2	47
3-Axle Trucks	1	1	2	1	1	2	57
4+ Axle Trucks	4	1	5	2	2	4	174
Subtotal	6	2	8	4	4	8	278
Total Vehicle Trips Generated	69	17	86	37	56	93	1,029

PCE ³ TRIPS GENERATED								
Vehicle Type	PCE Factor ⁴	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Passenger Cars	1.0	63	15	78	33	52	85	751
Trucks								
2-Axle Trucks	1.5	2	0	2	2	2	4	71
3-Axle Trucks	2.0	2	2	4	2	2	4	114
4+ Axle Trucks	3.0	12	3	15	6	6	12	522
Subtotal		16	5	21	10	10	20	707
Total PCE Trips Generated		79	20	99	43	62	105	1,458

Notes:

(1) TSF = Thousand Square Feet

(2) TGMS = Trip Generation Manual Supplement (Institute of Transportation Engineers (ITE), February 2020); ### = ITE Land Use Code.

* = Daily truck percent based on ITE 150 (Warehousing) since it is not available for ITE 155 (Non-Sort).

SCAQMD = South Coast Air Quality Management District recommendations for non-cold storage high-cube warehouse.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016), Appendix B.

Table 3
Overall Project Trip Generation

Trip Generation Rates									
Land Use	Source ¹	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			% In	% Out	Rate	% In	% Out	Rate	
Mini-Warehouse/Storage	ITE 151	TSF	60%	40%	0.10	47%	53%	0.17	1.51
General Office	ITE 710	TSF	86%	14%	0.47	16%	84%	1.15	9.74

Trips Generated									
Land Use	Quantity	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Existing Entitled Use Trip Credit									
Light Industrial ³	253.762	TSF							
• Passenger Car Traffic			120	16	136	16	107	123	913
• Heavy Truck Traffic (PCE) ⁴			10	0	10	0	5	5	184
Subtotal Existing Light Industrial Trips³			130	16	146	16	112	128	1,097
Mini-Warehouse/Storage	88.000	TSF	5	4	9	7	8	15	133
Subtotal Existing Off-Site Vehicle Storage Lot Trips			5	4	9	7	8	15	133
Total Existing Entitled Use									
• Passenger Car Traffic			125	20	145	23	115	138	1,046
• Heavy Truck Traffic (PCE) ⁴			10	0	10	0	5	5	184
Total Existing Entitled Use Trip Credit			135	20	155	23	120	143	1,230
Proposed Project Use									
High-Cube Fulfillment Center Warehouse ⁵	568.313	TSF							
• Passenger Car Traffic			63	15	78	33	52	85	751
• Heavy Truck Traffic (PCE) ⁴			16	5	21	10	10	20	707
Subtotal Proposed Project Warehouse Trips⁵			79	20	99	43	62	105	1,458
General Office	55.516	TSF	22	4	26	10	54	64	541
Subtotal Proposed Project Office Trips			22	4	26	10	54	64	541
Total Proposed Project									
• Passenger Car Traffic			85	19	104	43	106	149	1,292
• Heavy Truck Traffic (PCE) ⁴			16	5	21	10	10	20	707
Total Proposed Project Trips			101	24	125	53	116	169	1,999
Net Project Change									
• Passenger Car Traffic			-40	-1	-41	20	-9	11	246
• Heavy Truck Traffic (PCE) ⁴			6	5	11	10	5	15	523
Overall Project Net Trips			-34	+4	-30	+30	-4	+26	+769

Notes:

(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 11th Edition, 2021; ### = Land Use Code

(2) TSF = Thousand Square Feet

(3) Existing entitled use light industrial trip credit (see Table 1).

(4) PCE = Passenger Car Equivalent

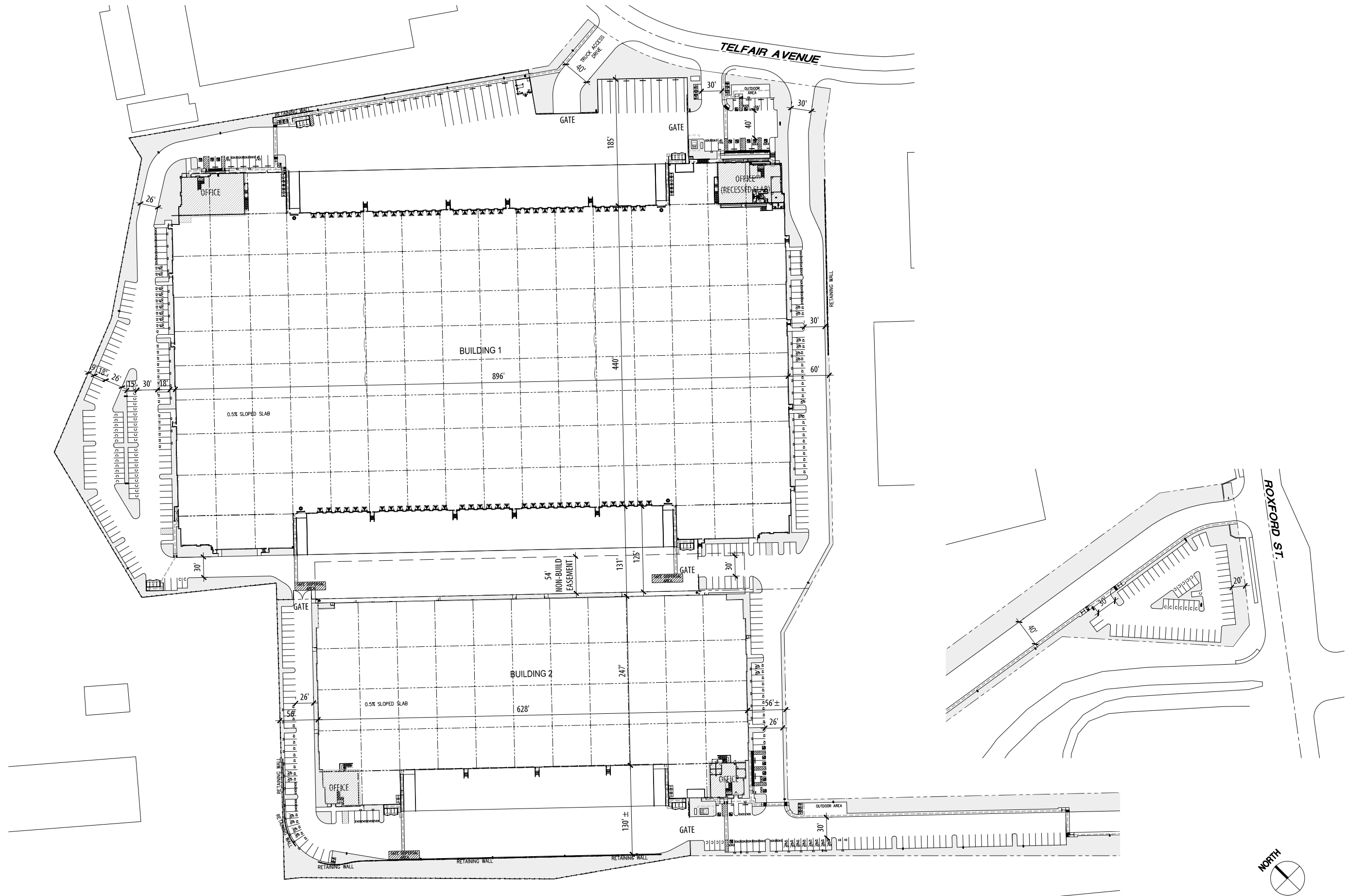
(5) Proposed project warehouse trip generation (see Table 2).

Table 4
Annual Growth Rate Calculation

Regional Statistical Area (RSA)	Year 1		Year 2		Overall Growth		Annual Growth	
	Year	Growth Factor ¹	Year	Growth Factor ¹	Years of Growth	Growth Factor	Growth Factor	Growth Rate
14 Sylmar	2020	1.049	2025	1.071	5	1.022	1.004	0.4%

Notes:

(1) Los Angeles County Congestion Management Program (CMP) General Traffic Volume Growth Factors (Exhibit D-1)



ROXFORD STREET WAREHOUSES - SYLMAR, CA

XEBEC REALTY

Appendix A -1

Apx - 26

PROJECT NO.: XRP040.01
DATE: 02/03/22

SCHEME B
CONCEPTUAL SITE PLAN

NOTE: LAND AREA AND BUILDING SQUARE FOOTAGE ARE PRELIMINARY AND MAY BE SUBJECT TO CHANGE UPON REVIEW BY GOVERNING AGENCIES, CIVIL ENGINEER, AND OWNER.
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ARCHITECTS
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Irvine, CA 92618
T 949 474 1775
www.GAAarchitects.com

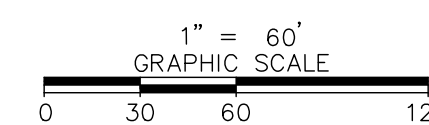
SITE PLAN - SCHEME B - FUTURE USE

SITE AREA		BUILDING 1	BUILDING 2	TOTAL
Site Area (SF)		780,514	436,250	1,216,764
Site Area (Acres)		17.92	10.01	27.93
BUILDING AREA		BUILDING 1	BUILDING 2	TOTAL
Office		45,388	10,128	55,516
Manufacturing		25,127	69,147	94,274
Warehouse		382,214	91,825	474,039
TOTAL BUILDING AREA		452,729	171,100	623,829
COVERAGE		55.0%	38.0%	48.9%
FAR		58.0%	39.2%	51.3%
PARKING REQUIRED		BUILDING 1	BUILDING 2	TOTAL
Office	1/500	91	20	111
Manufacturing	1/500	50	138	188
Warehouse				
0 - 10,000 sf	1/500	20	20	40
10,000 sf +	1/5000	75	17	92
TOTAL PARKING REQUIRED		236	195	431
STANDARD PARKING		134	133	267
CA/VP	8%	(20)	(16)	(36)
EV	30%	72	59	131
EVCS	10%	(24)	(20)	(44)
COMPACT		32	4	36
PARKING PROVIDED		238	196	434
PARKING RATIO		0.6/1000	0.6/1000	0.6/1000
DOCK DOORS		72	23	95
GRADE DOORS		4	2	6
TRAILER STALLS		19	0	19

* EVCS included in EV count
 * CA/VP included in EV count

LANDSCAPE	%	
Required (x%)	0.0%	0
Provided	18.5%	144,209

Percentage of Manufacturing	Bldg 1	Bldg 2
	5.85%	41.75%



DATE	REVISION HISTORY	BY	SURVIVOR JOB NUMBER: 423152
			SCALE: 1" = 60'
			DRAWN BY:
			KFQ
			APPROVED BY:

ALTA/NSPS LAND TITLE SURVEY
AEI JOB # 423152
15825 ROXFORD STREET

COORDINATED BY:

AEI Consultants

TELEPHONE: 925.746.6000

EMAIL: SURVEY@AEICONSULTANTS.COM



High-Cube Fulfillment Center Warehouse - Non-Sort (155)

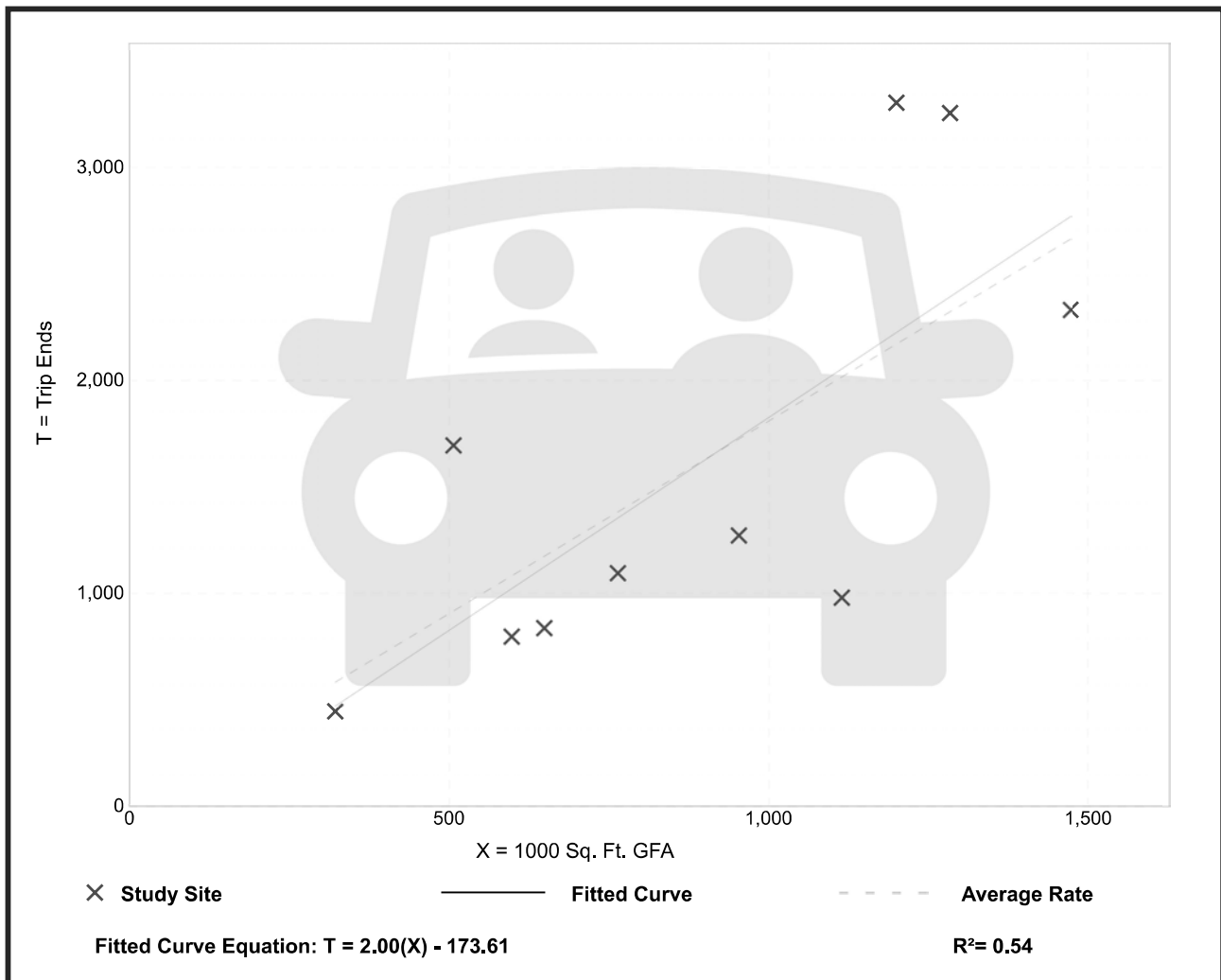
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 886
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.81	0.88 - 3.34	0.76

Data Plot and Equation



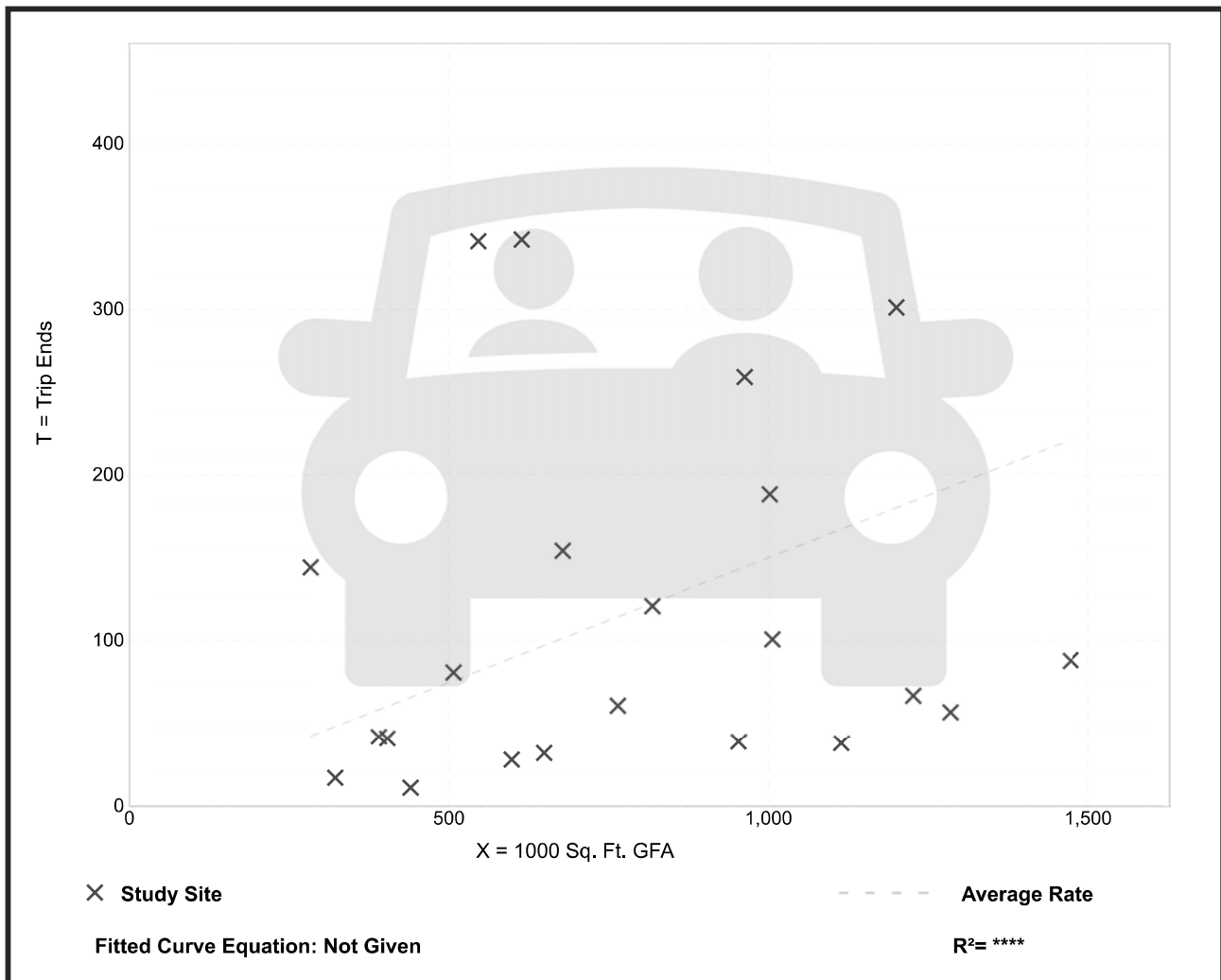
High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 22
 Avg. 1000 Sq. Ft. GFA: 783
 Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.15	0.03 - 0.62	0.15

Data Plot and Equation



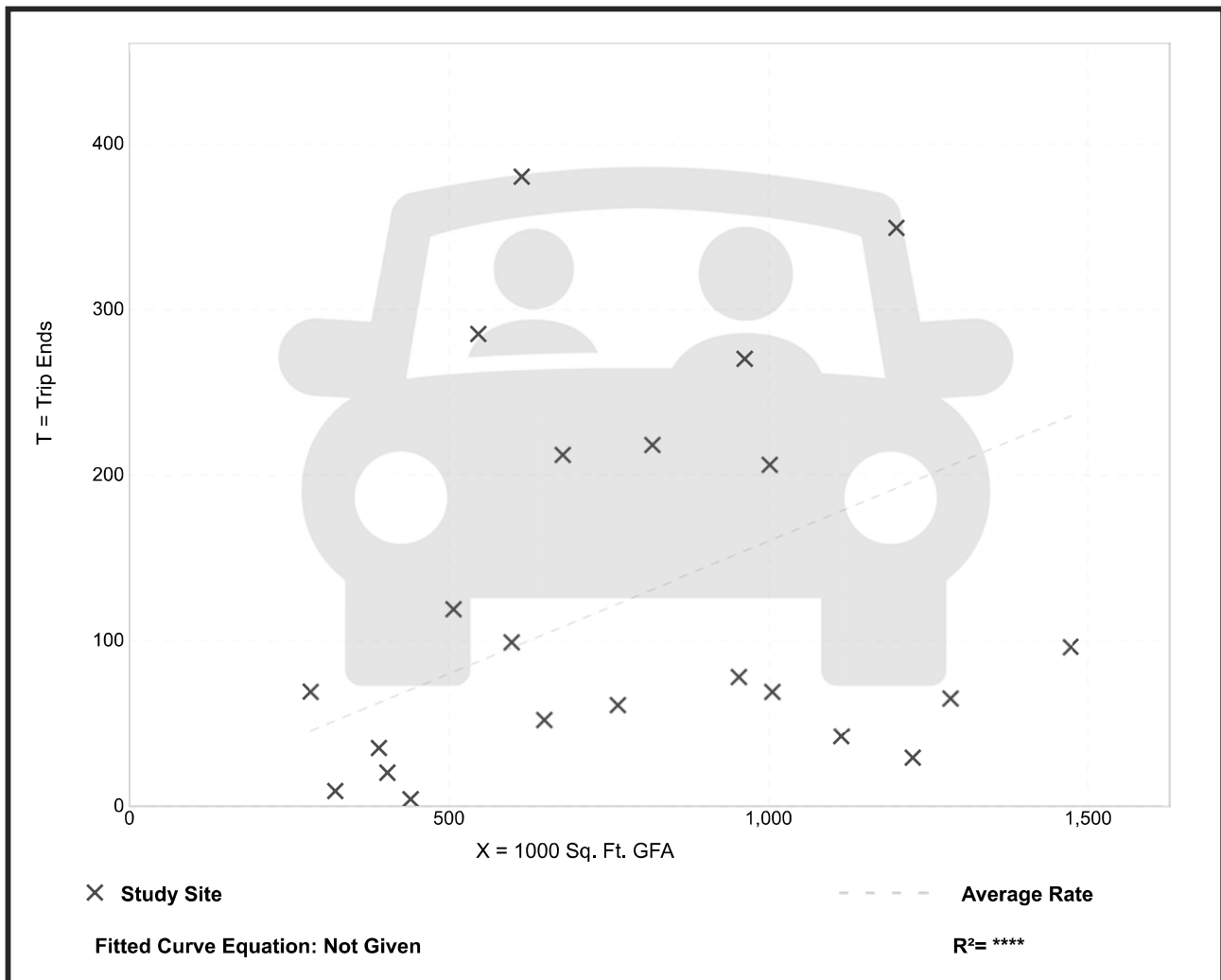
High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 22
 Avg. 1000 Sq. Ft. GFA: 783
 Directional Distribution: 39% entering, 61% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.16	0.01 - 0.62	0.15

Data Plot and Equation



General Office Building (710)

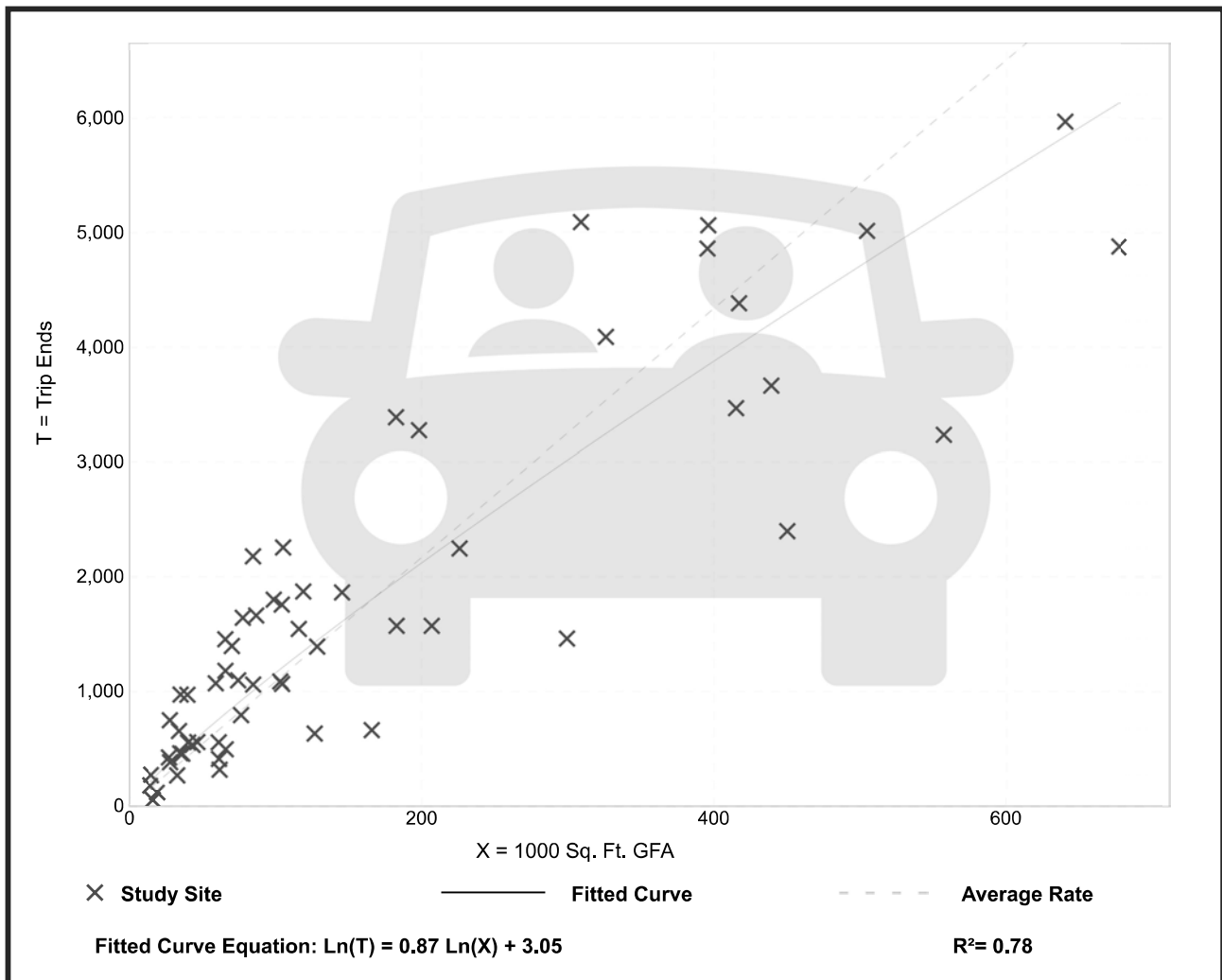
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 59
Avg. 1000 Sq. Ft. GFA: 163
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.84	3.27 - 27.56	4.76

Data Plot and Equation



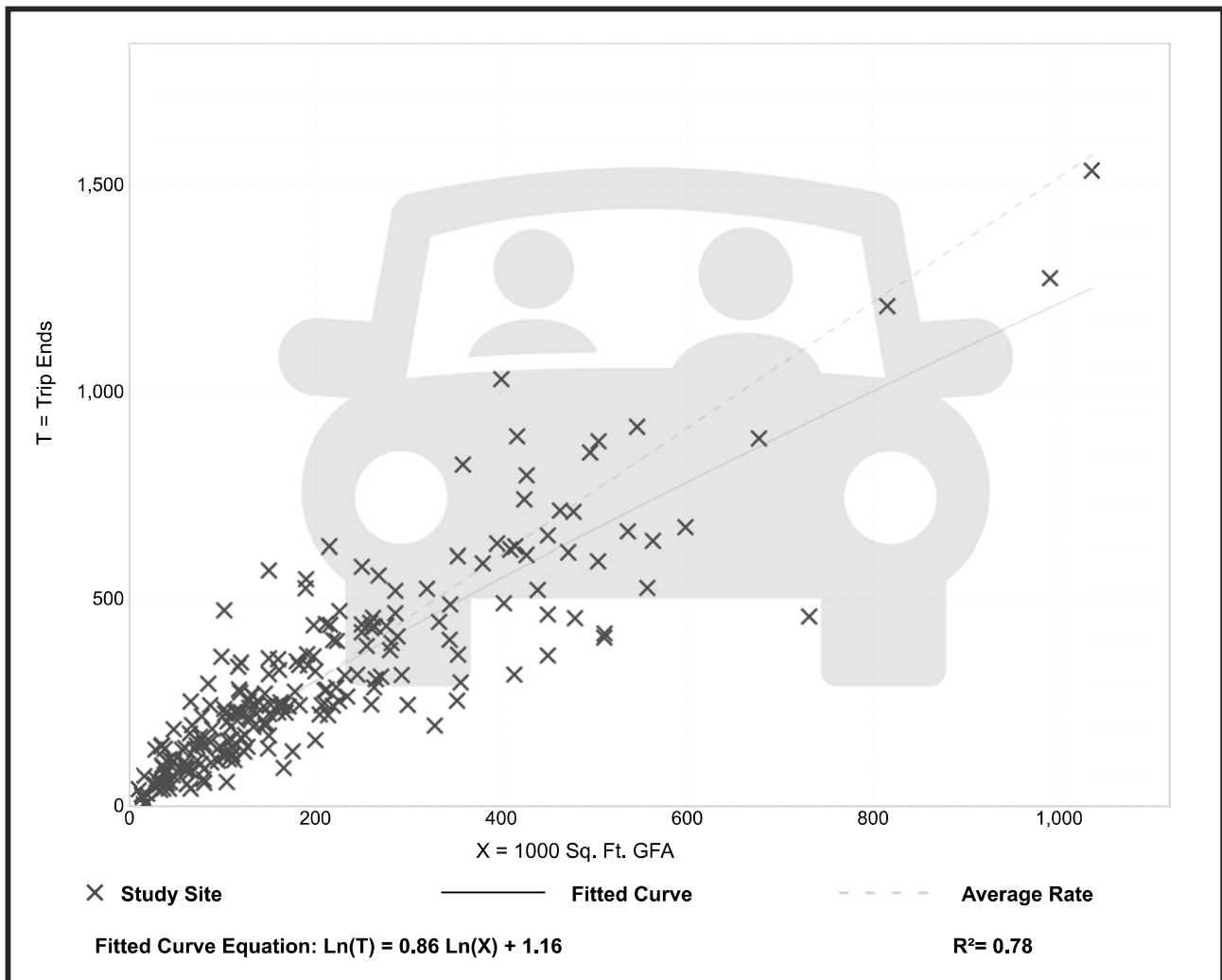
General Office Building (710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 221
 Avg. 1000 Sq. Ft. GFA: 201
 Directional Distribution: 88% entering, 12% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.52	0.32 - 4.93	0.58

Data Plot and Equation



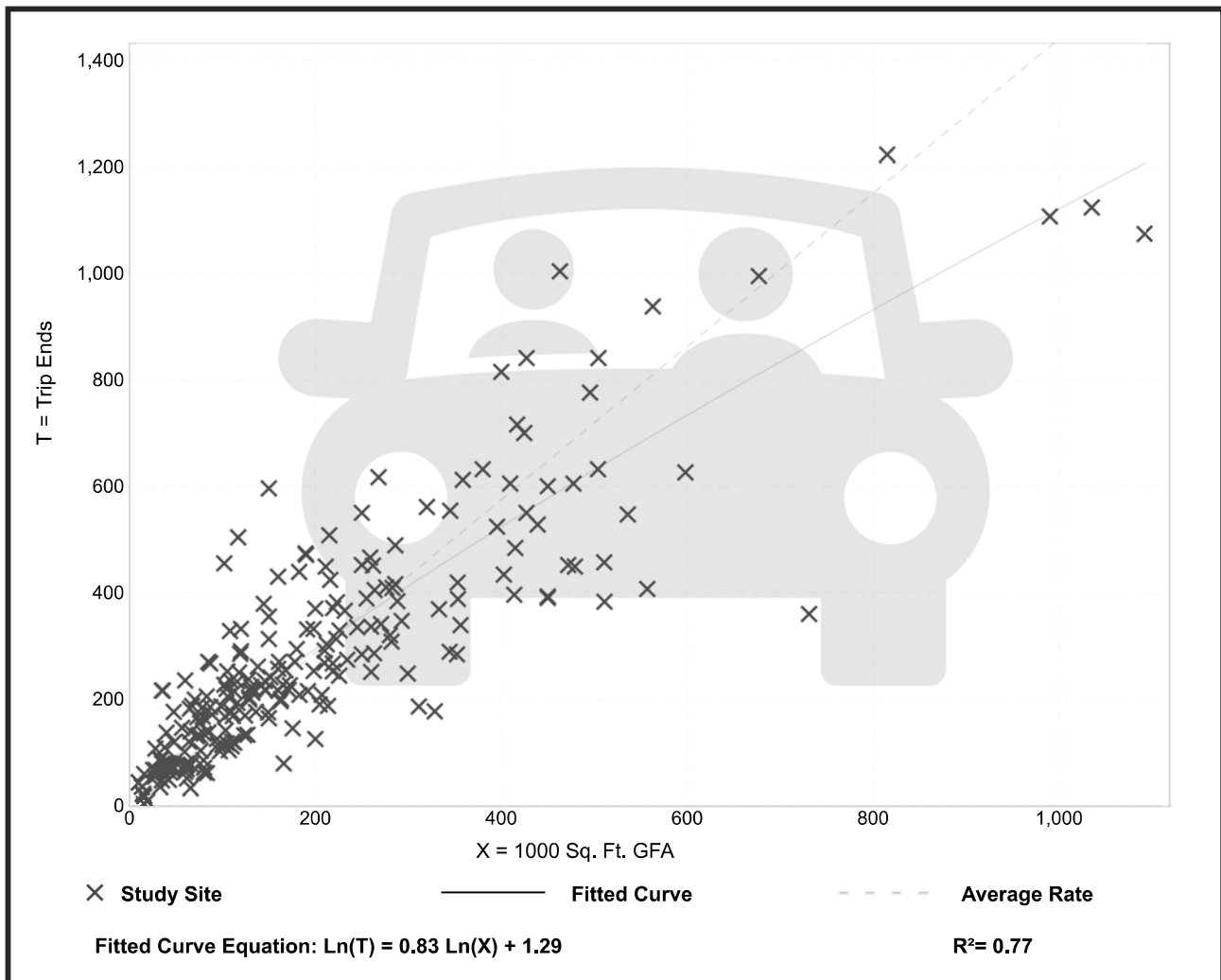
General Office Building (710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 232
 Avg. 1000 Sq. Ft. GFA: 199
 Directional Distribution: 17% entering, 83% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.44	0.26 - 6.20	0.60

Data Plot and Equation



General Office Building (710)

Person Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 74
Directional Distribution: 50% entering, 50% exiting

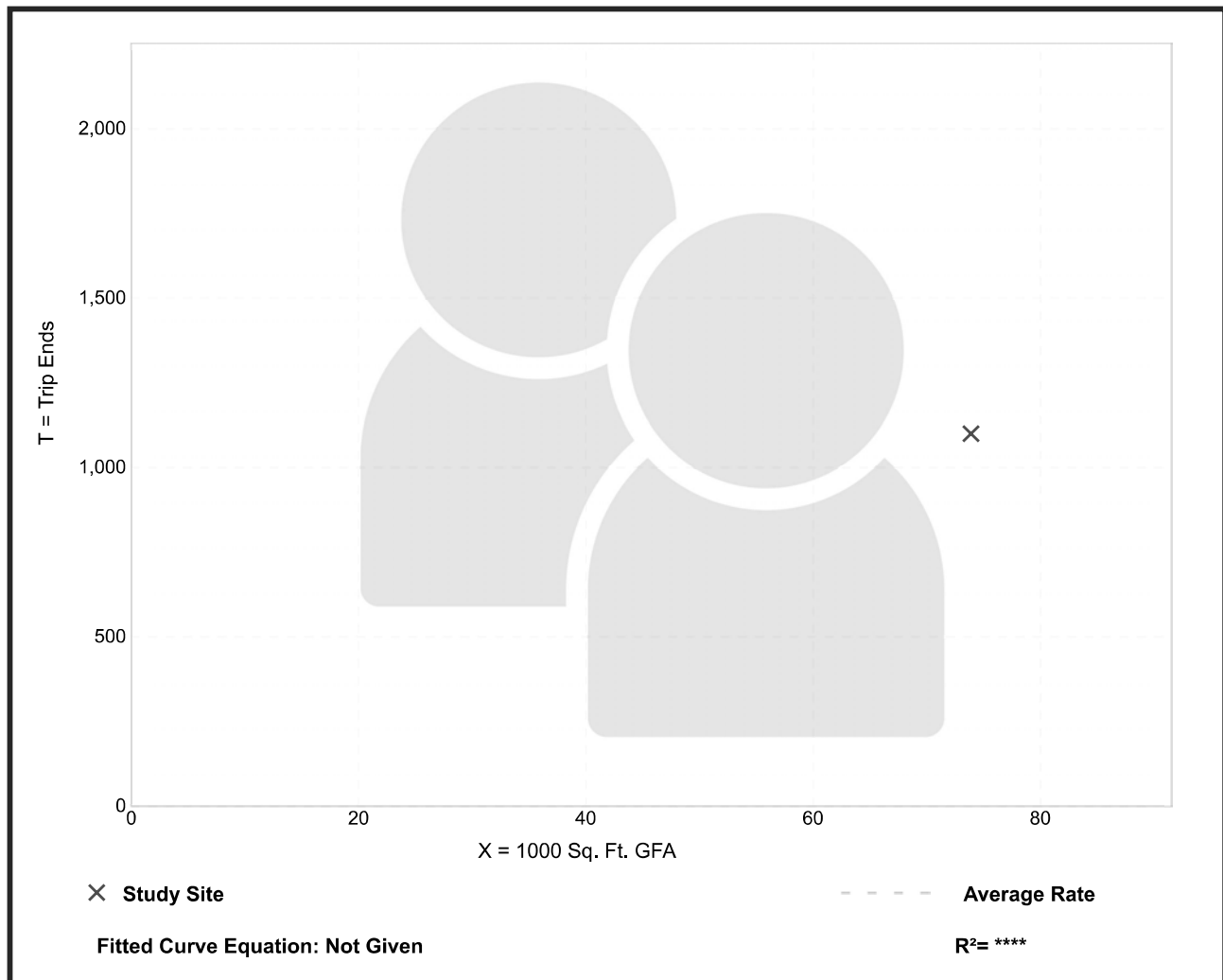
Person Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.87	14.87 - 14.87	*

$$55.516 \text{ tsf} \times 14.87 \text{ person trips/tsf} = 826 \text{ person trips}$$

Data Plot and Equation

Caution – Small Sample Size



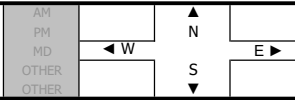
APPENDIX C

VOLUME COUNT WORKSHEETS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

PROJECT #: SC
LOCATION #: 1
CONTROL: SIGNAL

NOTES:

☒ Add U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		I-5 SB Ramps			I-5 SB Ramps			Roorford			Roorford								
LANES:		NL X	NT X	NR X	SL 0.5	ST 1	SR 0.5	EL X	ET 1	ER 1	WL 2	WT 1	WR X	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	50	1	2	0	5	60	257	26	0	401	0	0	0	0	0
	7:15 AM	0	0	0	42	1	4	0	3	118	268	15	0	451	0	0	0	0	0
	7:30 AM	0	0	0	41	0	1	0	3	155	282	21	0	503	0	0	0	0	0
	7:45 AM	0	0	0	35	0	2	0	9	195	223	30	0	494	0	0	0	0	0
	8:00 AM	0	0	0	50	0	1	0	6	165	218	20	0	460	0	0	0	0	0
	8:15 AM	0	0	0	42	1	3	0	9	123	178	21	0	377	0	0	0	0	0
	8:30 AM	0	0	0	33	1	0	0	5	93	166	32	0	330	0	0	0	0	0
	8:45 AM	0	0	0	33	0	2	0	13	117	159	19	0	343	0	0	0	0	0
	9:00 AM	0	0	0	44	0	1	0	8	80	149	24	0	306	0	0	0	0	0
	9:15 AM	0	0	0	51	0	2	0	1	44	135	39	0	272	0	0	0	0	0
	9:30 AM	0	0	0	53	2	2	0	6	39	138	33	0	273	0	0	0	0	0
	9:45 AM	0	0	0	48	1	1	0	3	23	152	32	0	260	0	0	0	0	0
	VOLUMES	0	0	0	522	7	21	0	71	1,212	2,325	312	0	4,470	0	0	0	0	0
	APPROACH %	0%	0%	0%	95%	1%	4%	0%	6%	94%	88%	12%	0%		0	0	0	0	0
APP/DEPART	0	/	0	550	/	3,544	1,283	/	593	2,637	/	333	0						
BEGIN PEAK HR	7:15 AM																		
VOLUMES	0	0	0	168	1	8	0	21	633	991	86	0	1,908						
APPROACH %	0%	0%	0%	95%	1%	5%	0%	3%	97%	92%	8%	0%							
PEAK HR FACTOR	0.000			0.868			0.801			0.889			0.948						
APP/DEPART	0	/	0	177	/	1,625	654	/	189	1,077	/	94	0						
PM	03:00 PM	0	0	0	59	1	1	0	14	44	205	43	0	367	0	0	0	0	0
	3:15 PM	0	0	0	56	1	1	0	12	58	189	18	0	335	0	0	0	0	0
	3:30 PM	0	0	0	42	1	0	0	24	37	243	26	0	373	0	0	0	0	0
	3:45 PM	0	0	0	59	1	1	0	16	50	184	23	0	334	0	0	0	0	0
	4:00 PM	0	0	0	67	2	1	0	14	45	227	19	0	375	0	0	0	0	0
	4:15 PM	0	0	0	53	0	0	0	8	40	206	31	0	338	0	0	0	0	0
	4:30 PM	0	0	0	52	2	2	0	18	40	247	29	0	390	0	0	0	0	0
	4:45 PM	0	0	0	60	0	3	0	8	26	199	38	0	334	0	0	0	0	0
	5:00 PM	0	0	0	48	0	2	0	10	40	316	27	0	443	0	0	0	0	0
	5:15 PM	0	0	0	55	0	1	0	5	39	253	36	0	389	0	0	0	0	0
	5:30 PM	0	0	0	64	1	1	0	13	37	209	19	0	344	0	0	0	0	0
	5:45 PM	0	0	0	50	0	1	0	4	22	183	29	0	289	0	0	0	0	0
	VOLUMES	0	0	0	665	9	14	0	146	478	2,661	338	0	4,311	0	0	0	0	0
	APPROACH %	0%	0%	0%	97%	1%	2%	0%	23%	77%	89%	11%	0%		0	0	0	0	0
APP/DEPART	0	/	0	688	/	3,148	624	/	811	2,999	/	352	0						
BEGIN PEAK HR	4:30 PM																		
VOLUMES	0	0	0	215	2	8	0	41	145	1,015	130	0	1,556						
APPROACH %	0%	0%	0%	96%	1%	4%	0%	22%	78%	89%	11%	0%							
PEAK HR FACTOR	0.000			0.893			0.802			0.835			0.878						
APP/DEPART	0	/	0	225	/	1,162	186	/	256	1,145	/	138	0						

I-5 SB Ramps

NORTH SIDE

Roxford

WEST SIDE

EAST SIDE

Roxford

SOUTH SIDE

I-5 SB Ramps

AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
	9:00 AM
	9:15 AM
PM	9:30 AM
	9:45 AM
	TOTAL
	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

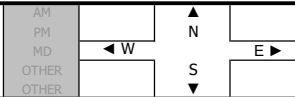
[illegible][illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

PROJECT #: SC
LOCATION #: 2
CONTROL: STOP N

NOTES:

Queue NB AM/PM

☐ Add U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS					
		I-5 NB Off-Ramp			I-5 SB Off-Ramp			Roanoke			Roanoke									
LANES:		NL 0.5	NT X	NR 1.5	SL X	ST X	SR X	EL X	ET 1	ER X	WL X	WT 2	WR X	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	
AM	7:00 AM	5	0	180	0	0	0	0	55	0	0	279	0	519	0	0	0	0	0	
	7:15 AM	2	0	175	0	0	0	0	45	0	0	282	0	504	0	0	0	0	0	
	7:30 AM	1	0	157	0	0	0	0	43	0	0	302	0	503	0	0	0	0	0	
	7:45 AM	4	0	182	0	0	0	0	43	0	0	250	0	479	0	0	0	1	1	
	8:00 AM	5	0	160	0	0	0	0	56	0	0	233	0	454	0	0	0	0	0	
	8:15 AM	5	0	171	0	0	0	0	50	0	0	195	0	421	0	0	0	0	0	
	8:30 AM	8	0	170	0	0	0	0	38	0	0	191	0	407	0	0	0	0	0	
	8:45 AM	5	0	175	0	0	0	0	46	0	0	173	0	399	0	0	0	0	0	
	9:00 AM	8	0	164	0	0	0	0	51	0	0	166	0	389	0	0	0	0	0	
	9:15 AM	6	0	175	0	0	0	0	52	0	0	168	0	401	0	0	0	0	0	
	9:30 AM	9	0	125	0	0	0	0	59	0	0	163	0	356	0	0	0	0	0	
	9:45 AM	12	0	139	0	0	0	0	51	0	0	173	0	375	0	0	0	0	0	
	VOLUMES	70	0	1,973	0	0	0	0	589	0	0	2,575	0	5,208	0	0	0	1	1	1
	APPROACH %	3%	0%	97%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	0%	0	0	0	1	1
APP/DEPART	2,043	/	0	0	/	0	589	/	2,563	2,576	/	2,645	0							
BEGIN PEAK HR	7:00 AM																			
VOLUMES	12	0	694	0	0	0	0	186	0	0	1,113	0	2,006							
APPROACH %	2%	0%	98%	0%	0%	0%	0%	100%	0%	0%	100%	0%	0%							
PEAK HR FACTOR	0.949			0.000			0.845			0.922			0.966							
APP/DEPART	706	/	0	0	/	0	186	/	881	1,114	/	1,125	0							
PM	03:00 PM	15	0	146	0	0	0	0	72	0	0	233	0	466	0	0	0	0	0	
	3:15 PM	9	0	126	0	0	0	0	68	0	0	199	0	402	0	0	0	0	0	
	3:30 PM	9	0	109	0	0	0	0	65	0	0	260	0	443	0	0	0	0	0	
	3:45 PM	13	0	134	0	0	0	0	75	0	0	194	0	416	0	0	0	0	0	
	4:00 PM	8	0	143	0	0	0	0	80	0	0	239	0	470	0	0	0	0	0	
	4:15 PM	7	0	145	0	0	0	0	60	0	0	230	0	442	0	0	0	0	0	
	4:30 PM	11	0	128	0	0	0	0	69	0	0	266	0	474	0	0	0	0	0	
	4:45 PM	16	0	142	0	0	0	0	67	0	0	221	0	446	0	0	0	0	0	
	5:00 PM	13	0	130	0	0	0	0	57	0	0	330	0	530	0	0	0	0	0	
	5:15 PM	13	0	132	0	0	0	0	59	0	0	277	0	481	0	0	0	0	0	
	5:30 PM	8	0	147	0	0	0	0	78	0	0	220	0	453	0	0	0	0	0	
	5:45 PM	14	0	135	0	0	0	0	56	0	0	198	0	403	0	0	0	0	0	
	VOLUMES	136	0	1,617	0	0	0	0	806	0	0	2,867	0	5,426	0	0	0	0	0	0
	APPROACH %	8%	0%	92%	0%	0%	0%	0%	100%	0%	0%	100%	0%	0%						
APP/DEPART	1,753	/	0	0	/	0	806	/	2,423	2,867	/	3,003	0							
BEGIN PEAK HR	4:30 PM																			
VOLUMES	53	0	532	0	0	0	0	252	0	0	1,094	0	1,931							
APPROACH %	9%	0%	91%	0%	0%	0%	0%	100%	0%	0%	100%	0%	0%							
PEAK HR FACTOR	0.926			0.000			0.913			0.829			0.911							
APP/DEPART	585	/	0	0	/	0	252	/	784	1,094	/	1,147	0							

I-5 NB Off-Ramp

NORTH SIDE

Roxford

WEST SIDE

EAST SIDE

Roxford

SOUTH SIDE

I-5 NB Off-Ramp

	AM	PM
	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
	9:00 AM	
	9:15 AM	
	9:30 AM	
	9:45 AM	
	TOTAL	
		3:00 PM
		3:15 PM
		3:30 PM
		3:45 PM
		4:00 PM
		4:15 PM
		4:30 PM
		4:45 PM
		5:00 PM
		5:15 PM
		5:30 PM
		5:45 PM
		TOTAL

[illegible][illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

SC
4
SIGNAL

◀ W	

☒ Add U-Turns to Left Turns

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	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1

Telfair

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	1	0	0	1
0	0	1	0	1
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
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
1	1	1	0	3
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	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1

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☒ Add U-Turns to Left Turns

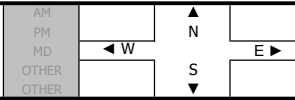
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	1	0	2

BICYCLE CROSSINGS					
NS	SS	ES	WS	TOTAL	
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	2	2	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	1	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	3	3	

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

PROJECT #: SC
LOCATION #: 6
CONTROL: STOP S

NOTES:

☐ Add U-Turns to Left Turns

LANES:		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	U-TURNS						
		Project Dwy			Project Stwy			Roaford			Roaford				NB	SB	EB	WB	TTL		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR								
		X	X	X	0	X	0	1	1	2	X	X	2	0	0	0	0	0	0		
AM	7:00 AM	0	0	0	0	0	1	3	198	0	0	220	0	422	0	0	1	0	1		
	7:15 AM	0	0	0	0	0	3	5	216	0	0	186	0	410	0	0	0	1	1		
	7:30 AM	0	0	0	1	0	1	3	197	0	0	221	0	423	0	0	0	1	1		
	7:45 AM	0	0	0	0	0	1	4	255	0	0	179	1	440	0	0	0	0	0		
	8:00 AM	0	0	0	0	0	1	3	259	0	0	165	1	429	0	0	1	0	1		
	8:15 AM	0	0	0	0	0	1	2	206	0	0	150	1	360	0	0	0	0	0		
	8:30 AM	0	0	0	0	0	6	6	206	0	0	112	0	330	0	0	0	1	1		
	8:45 AM	0	0	0	0	0	1	4	190	0	0	156	1	352	0	0	0	0	0		
	9:00 AM	0	0	0	0	0	7	6	184	0	0	126	0	323	0	0	1	0	1		
	9:15 AM	0	0	0	1	0	4	4	179	0	0	119	0	307	0	0	0	0	0		
	9:30 AM	0	0	0	0	0	2	4	124	0	0	114	0	244	0	0	0	0	0		
	9:45 AM	0	0	0	0	0	0	5	127	0	0	126	0	258	0	0	0	0	0		
	VOLUMES	0	0	0	2	0	28	49	2,341	0	0	1,874	4	4,304	0	0	3	3	6		
	APPROACH %	0%	0%	0%	7%	0%	93%	2%	98%	0%	0%	100%	0%		0	0	0	0	0	0	
APP/DEPART	0		53	30	/	0	2,393	/	2,346	1,881	/	1,905	0								
BEGIN PEAK HR	7:15 AM																				
VOLUMES	0	0	0	1	0	6	15	927	0	0	751	2	1,705	0	0	0	0	0	0		
APPROACH %	0%	0%	0%	14%	0%	86%	2%	98%	0%	0%	99%	0%		0	0	0	0	0	0		
PEAK HR FACTOR	0.000			0.583			0.896			0.850			0.969								
APP/DEPART	0		17	7	/	0	943	/	930	755	/	758	0								
PM	3:00 PM	0	0	0	1	0	2	2	142	0	0	188	0	335	0	0	0	0	0		
	3:15 PM	0	0	0	0	0	1	2	123	0	0	159	0	285	0	0	2	0	2		
	3:30 PM	0	0	0	0	0	4	2	96	0	0	222	0	324	0	0	0	0	0		
	3:45 PM	0	0	0	1	0	5	3	156	0	0	172	2	339	0	0	0	0	0		
	4:00 PM	0	0	0	0	0	7	2	145	0	0	221	1	376	0	0	1	0	1		
	4:15 PM	0	0	0	1	0	3	1	137	0	0	192	0	334	0	0	0	0	0		
	4:30 PM	0	0	0	0	0	3	0	135	0	0	239	1	378	0	0	1	1	2		
	4:45 PM	0	0	0	1	0	4	1	135	0	0	195	0	336	0	0	0	0	0		
	5:00 PM	0	0	0	0	0	3	2	107	0	0	297	0	409	0	0	1	0	1		
	5:15 PM	0	0	0	0	0	3	0	116	0	0	231	0	350	0	0	0	0	0		
	5:30 PM	0	0	0	1	0	3	1	129	0	0	198	0	332	0	0	1	0	1		
	5:45 PM	0	0	0	0	0	5	0	136	0	0	159	0	300	0	0	1	0	1		
	VOLUMES	0	0	0	5	0	43	16	1,557	0	0	2,473	4	4,106	0	0	7	1	8		
	APPROACH %	0%	0%	0%	10%	0%	90%	1%	99%	0%	0%	100%	0%		0	0	0	0	0	0	
APP/DEPART	0		20	48	/	0	1,580	/	1,563	2,478	/	2,523	0								
BEGIN PEAK HR	4:30 PM																				
VOLUMES	0	0	0	1	0	13	3	493	0	0	962	1	1,476	0	0	0	0	0	0		
APPROACH %	0%	0%	0%	7%	0%	93%	1%	99%	0%	0%	100%	0%		0	0	0	0	0	0		
PEAK HR FACTOR	0.000			0.700			0.915			0.811			0.900								
APP/DEPART	0		4	14	/	0	498	/	495	964	/	977	0								

Project Dwy

NORTH SIDE

Roxford

WEST SIDE

EAST SIDE

Roxford

SOUTH SIDE

Project Dwy

	AM	PM
	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
	9:00 AM	
	9:15 AM	
	9:30 AM	
	9:45 AM	
	TOTAL	
		3:00 PM
		3:15 PM
		3:30 PM
		3:45 PM
		4:00 PM
		4:15 PM
		4:30 PM
		4:45 PM
		5:00 PM
		5:15 PM
		5:30 PM
		5:45 PM
		TOTAL

[illegible][illegible][illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Thu, Oct 21, 21

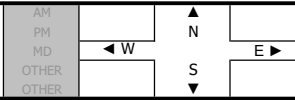
LOCATION:
NORTH & SOUTH:
EAST & WEST:

LA
Telfair
Project North Dwy

PROJECT #:
LOCATION #:
CONTROL:

SC
7
STOP E

NOTES:



Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	U-TURNS				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB	TTL
LANES:	0	1	X	X	1	0	0	X	0	X	X	X		0	0	0	0	0
7:00 AM	0	22	0	0	8	0	0	0	1	0	0	0	31	0	0	0	0	0
7:15 AM	3	25	0	0	6	0	0	0	0	0	0	0	34	0	0	0	0	0
7:30 AM	0	15	0	0	6	0	0	0	0	0	0	0	21	0	0	0	0	0
7:45 AM	0	33	0	0	7	0	0	0	0	0	0	0	40	0	0	0	0	0
8:00 AM	2	24	0	0	11	2	0	0	2	0	0	0	41	0	0	0	0	0
8:15 AM	0	40	0	0	16	0	0	0	0	0	0	0	56	0	0	0	0	0
8:30 AM	0	25	0	0	14	0	0	0	0	0	0	0	39	0	0	0	0	0
8:45 AM	0	32	0	0	11	0	0	0	0	0	0	0	43	0	0	0	0	0
9:00 AM	0	29	0	0	6	0	0	0	0	0	0	0	35	0	0	0	0	0
9:15 AM	2	27	0	0	8	0	0	0	0	0	0	0	37	0	0	0	0	0
9:30 AM	0	19	0	0	10	1	0	0	0	0	0	0	30	0	0	0	0	0
9:45 AM	2	9	0	0	5	0	0	0	1	0	0	0	17	0	0	0	0	0
VOLUMES	9	300	0	0	108	3	0	0	4	0	0	0	424	0	0	0	0	0
APPROACH %	3%	97%	0%	0%	97%	3%	0%	0%	100%	0%	0%	0%						
APP/DEPART	309	/	300	111	/	112	4	/	0	0	/	12	0					
BEGIN PEAK HR	8:00 AM																	
VOLUMES	2	121	0	0	52	2	0	0	2	0	0	0	179	0	0	0	0	0
APPROACH %	2%	98%	0%	0%	96%	4%	0%	0%	100%	0%	0%	0%						
PEAK HR FACTOR		0.769			0.844			0.250			0.000		0.799					
APP/DEPART	123	/	121	54	/	54	2	/	0	0	/	4	0					
03:00 PM	0	10	0	0	13	2	0	0	2	0	0	0	27	0	0	0	0	0
3:15 PM	0	7	0	0	7	0	0	0	0	0	0	0	14	0	0	0	0	0
3:30 PM	2	1	0	0	14	0	0	0	0	0	0	0	17	1	0	0	0	1
3:45 PM	0	7	0	0	7	2	0	0	0	0	0	0	16	0	0	0	0	0
4:00 PM	0	7	0	0	25	0	4	0	5	0	0	0	41	0	0	0	0	0
4:15 PM	1	9	0	0	13	1	2	0	2	0	0	0	28	0	0	0	0	0
4:30 PM	0	7	0	0	26	1	2	0	2	0	0	0	38	0	0	0	0	0
4:45 PM	0	6	0	0	35	0	0	0	2	0	0	0	43	0	0	0	0	0
5:00 PM	0	7	0	0	71	0	2	0	0	0	0	0	80	0	0	0	0	0
5:15 PM	0	6	0	0	26	0	0	0	0	0	0	0	32	0	0	0	0	0
5:30 PM	0	10	0	0	32	0	0	0	1	0	0	0	43	0	0	0	0	0
5:45 PM	0	5	0	0	31	0	1	0	0	0	0	0	37	0	0	0	0	0
VOLUMES	3	82	0	0	300	6	11	0	14	0	0	0	416	1	0	0	0	1
APPROACH %	4%	96%	0%	0%	98%	2%	44%	0%	56%	0%	0%	0%						
APP/DEPART	85	/	93	306	/	315	25	/	0	0	/	8	0					
BEGIN PEAK HR	4:45 PM																	
VOLUMES	0	29	0	0	164	0	2	0	3	0	0	0	198	0	0	0	0	0
APPROACH %	0%	100%	0%	0%	100%	0%	40%	0%	60%	0%	0%	0%						
PEAK HR FACTOR		0.725			0.577			0.625			0.000		0.619					
APP/DEPART	29	/	31	164	/	167	5	/	0	0	/	0	0					

Telfair

NORTH SIDE

Project North Dwy

WEST SIDE

EAST SIDE

Project North Dwy

SOUTH SIDE

Telfair

AM	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
	9:00 AM	
	9:15 AM	
PM	3:00 PM	
	3:15 PM	
	3:30 PM	
	3:45 PM	
	4:00 PM	
	4:15 PM	
	4:30 PM	
	4:45 PM	
	5:00 PM	
	5:15 PM	
	5:30 PM	
	5:45 PM	
	TOTAL	

ALL PED AND BIKE				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
1	0	0	1	2
1	0	0	0	1
0	0	0	0	0
1	0	0	1	2
1	0	0	0	1
0	0	0	0	0
2	0	0	2	4
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	1	2
0	0	0	4	4
7	0	0	9	16
0	0	0	9	9
1	0	0	2	3
1	0	0	2	3
0	0	0	2	2
1	0	0	1	2
0	0	0	2	2
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	2	2
0	0	0	2	2
3	0	0	24	27

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
1	0	0	1	2
1	0	0	0	1
0	0	0	0	0
1	0	0	1	2
1	0	0	0	1
0	0	0	0	0
2	0	0	2	4
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	1	2
0	0	0	4	4
7	0	0	9	16
0	0	0	9	9
1	0	0	2	3
1	0	0	2	3
0	0	0	2	2
0	0	0	1	1
0	0	0	2	2
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	2	2
0	0	0	2	2
2	0	0	24	26

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
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

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Thu, Oct 21, 21

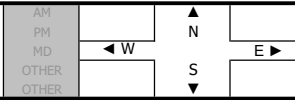
LOCATION:
NORTH & SOUTH:
EAST & WEST:

LA
Telfair
Project South Dwy

PROJECT #:
LOCATION #:
CONTROL:

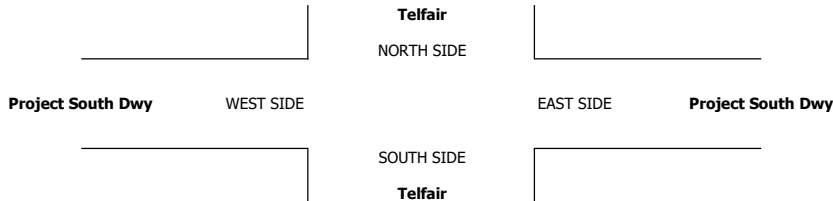
SC
8
STOP E

NOTES:



Add U-Turns to Left Turns

	NORTHBOUND Telfair - Olden			SOUTHBOUND Telfair - Olden			EASTBOUND Project South Dwy			WESTBOUND Project South Dwy			TOTAL	U-TURNS				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB	TTL
LANES:	0	1	X	X	1	0	0	X	0	X	X	X		0	0	0	0	0
7:00 AM	2	24	0	0	8	0	0	0	0	0	0	0	34	0	0	0	0	0
7:15 AM	2	35	0	0	6	0	2	0	0	0	0	0	45	0	0	1	0	1
7:30 AM	3	21	0	0	5	2	0	0	0	0	0	0	31	0	0	0	0	0
7:45 AM	4	33	0	0	8	0	0	0	1	0	0	0	46	0	0	0	0	0
8:00 AM	1	35	0	0	8	2	0	0	0	0	0	0	46	0	0	0	0	0
8:15 AM	2	43	0	0	17	1	0	0	2	0	0	0	65	0	0	0	0	0
8:30 AM	1	35	0	0	14	0	0	0	0	0	0	0	50	0	0	0	0	0
8:45 AM	1	43	0	0	12	0	0	0	0	0	0	0	56	0	0	0	0	0
9:00 AM	0	37	0	0	6	0	0	0	0	0	0	0	43	0	0	0	0	0
9:15 AM	0	30	0	0	8	0	0	0	0	0	0	0	38	0	0	0	0	0
9:30 AM	1	29	0	0	12	0	0	0	0	0	0	0	42	0	0	0	0	0
9:45 AM	1	16	0	0	5	0	0	0	0	0	0	0	22	0	0	0	0	0
VOLUMES	18	381	0	0	109	5	2	0	3	0	0	0	518	0	0	1	0	1
APPROACH %	5%	95%	0%	0%	96%	4%	40%	0%	60%	0%	0%	0%						
APP/DEPART	399	/	382	114	/	112	5	/	0	0	/	24	0					
BEGIN PEAK HR	8:00 AM																	
VOLUMES	5	156	0	0	51	3	0	0	2	0	0	0	217					
APPROACH %	3%	97%	0%	0%	94%	6%	0%	0%	100%	0%	0%	0%						
PEAK HR FACTOR	0.894			0.750			0.250			0.000			0.835					
APP/DEPART	161	/	156	54	/	53	2	/	0	0	/	8	0					
03:00 PM	0	13	0	0	15	0	0	0	0	0	0	0	28	0	0	0	0	0
3:15 PM	0	8	0	0	15	0	0	0	0	0	0	0	23	0	0	0	0	0
3:30 PM	0	4	0	0	18	0	2	0	0	0	0	0	24	0	0	0	0	0
3:45 PM	0	6	0	0	12	0	0	0	2	0	0	0	20	0	0	0	0	0
4:00 PM	0	7	0	0	42	0	0	0	0	0	0	0	49	0	0	0	0	0
4:15 PM	0	12	0	0	19	1	0	0	3	0	0	0	35	0	0	0	0	0
4:30 PM	1	6	0	0	30	0	0	0	0	0	0	0	37	0	0	0	0	0
4:45 PM	3	4	0	0	53	0	0	0	2	0	0	0	62	0	0	0	0	0
5:00 PM	0	6	0	0	76	0	2	0	3	0	0	0	87	0	0	0	0	0
5:15 PM	0	8	0	0	30	0	0	0	1	0	0	0	39	0	0	0	0	0
5:30 PM	1	9	0	0	39	0	0	0	1	0	0	0	50	0	0	0	0	0
5:45 PM	0	2	0	0	26	0	0	0	1	0	0	0	29	0	0	0	0	0
VOLUMES	5	85	0	0	375	1	4	0	13	0	0	0	483	0	0	0	0	0
APPROACH %	6%	94%	0%	0%	100%	0%	24%	0%	76%	0%	0%	0%						
APP/DEPART	90	/	89	376	/	388	17	/	0	0	/	6	0					
BEGIN PEAK HR	4:45 PM																	
VOLUMES	4	27	0	0	198	0	2	0	7	0	0	0	238					
APPROACH %	13%	87%	0%	0%	100%	0%	22%	0%	78%	0%	0%	0%						
PEAK HR FACTOR	0.775			0.651			0.450			0.000			0.684					
APP/DEPART	31	/	29	198	/	205	9	/	0	0	/	4	0					



	AM	PM
7:00 AM		
7:15 AM		
7:30 AM		
7:45 AM		
8:00 AM		
8:15 AM		
8:30 AM		
8:45 AM		
9:00 AM		
9:15 AM		
9:30 AM		
9:45 AM		
TOTAL		
3:00 PM		
3:15 PM		
3:30 PM		
3:45 PM		
4:00 PM		
4:15 PM		
4:30 PM		
4:45 PM		
5:00 PM		
5:15 PM		
5:30 PM		
5:45 PM		
TOTAL		

ALL PED AND BIKE				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	2	2
0	0	0	0	0
0	0	0	1	1
0	0	0	2	2
0	0	0	2	2
0	0	0	10	10
0	0	0	8	8
1	0	0	3	4
0	0	0	2	2
0	0	0	3	3
0	0	0	0	0
0	0	0	2	2
0	0	0	0	0
0	0	0	2	2
0	1	0	0	1
0	0	0	1	1
0	0	0	3	3
0	0	0	1	1
1	1	0	25	27

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	2	2
0	0	0	0	0
0	0	0	1	1
0	0	0	2	2
0	0	0	2	2
0	0	0	10	10
0	0	0	8	8
1	0	0	3	4
0	0	0	2	2
0	0	0	2	2
0	0	0	0	0
0	0	0	2	2
0	1	0	0	1
0	0	0	1	1
0	0	0	3	3
0	0	0	1	1
1	1	0	24	26

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
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

APPENDIX D

EXISTING VOLUME ADJUSTMENT FACTOR CALCULATIONS

Appendix A
Caltrans PEMS I-5 Freeway Mainline Count Comparisons

Freeway Segment	Travel Direction	Peak Hour	2/4/2020	2/5/2020	2/6/2020	February 2020 Average		
			Tue	Wed	Thu			
Mainline VDS 718394 - RTE 118 CN	I-5 N	AM	3500 8:15:00 AM	3605 8:20:00 AM	3705 8:20:00 AM	3603	7,563	8,734
Mainline VDS 759850 - SAN FERNANDO	I-5 S		3830 8:55:00 AM	4114 7:55:00 AM	3936 7:55:00 AM	3960		
Mainline VDS 759626 - LAUREL CANYON	I-5 N	AM	3333 8:15:00 AM	3389 8:25:00 AM	3443 8:30:00 AM	3388	9,904	8,734
Mainline VDS 759888 - LYONS 1	I-5 S		6680 7:55:00 AM	6088 8:35:00 AM	6781 7:55:00 AM	6516		
Mainline VDS 718394 - RTE 118 CN	I-5 N	PM	4912 4:55:00 PM	4704 4:55:00 PM	4983 4:55:00 PM	4866	8,319	9,887
Mainline VDS 759850 - SAN FERNANDO	I-5 S		3353 5:25:00 PM	3455 5:40:00 PM	3550 5:55:00 PM	3453		
Mainline VDS 759626 - LAUREL CANYON	I-5 N	PM	4677 4:55:00 PM	4462 4:55:00 PM	4658 4:55:00 PM	4599	11,454	9,887
Mainline VDS 759888 - LYONS 1	I-5 S		6656 5:30:00 PM	6841 5:30:00 PM	7069 5:55:00 PM	6855		

Freeway Segment	Travel Direction	Peak Hour	6/22/2021	6/23/2021	6/24/2021	June 2021 Average		
			Tue	Wed	Thu			
Mainline VDS 718394 - RTE 118 CN	I-5 N	AM	3170 8:30:00 AM	3229 8:05:00 AM	3115 8:10:00 AM	3171	7,787	8,342
Mainline VDS 759850 - SAN FERNANDO	I-5 S		4624 7:55:00 AM	4610 7:55:00 AM	4613 8:00:00 AM	4616		
Mainline VDS 759626 - LAUREL CANYON	I-5 N	AM	3402 8:20:00 AM	3476 8:10:00 AM	3384 7:55:00 AM	3421	8,897	8,342
Mainline VDS 759888 - LYONS 1	I-5 S		5380 8:35:00 AM	5514 8:15:00 AM	5533 8:25:00 AM	5476		
Mainline VDS 718394 - RTE 118 CN	I-5 N	PM	4255 4:55:00 PM	4311 4:55:00 PM	4436 4:55:00 PM	4334	7,793	8,683
Mainline VDS 759850 - SAN FERNANDO	I-5 S		3404 5:30:00 PM	3448 5:50:00 PM	3526 5:40:00 PM	3459		
Mainline VDS 759626 - LAUREL CANYON	I-5 N	PM	3327 4:55:00 PM	3460 4:55:00 PM	3717 4:55:00 PM	3501	9,573	8,683
Mainline VDS 759888 - LYONS 1	I-5 S		6003 5:15:00 PM	5972 5:55:00 PM	6242 4:55:00 PM	6072		

Roadway Segment		Peak Hour	Jun 2021 to Feb 2020 Seasonal Factor		
I-5 Freeway	Mainline VDS 718394 - RTE 118 CN	AM	1.136	0.971	1.042
	Mainline VDS 759850 - SAN FERNANDO		0.858		
	Mainline VDS 759626 - LAUREL CANYON		0.990	1.113	
	Mainline VDS 759888 - LYONS 1		1.190		
	Mainline VDS 718394 - RTE 118 CN	PM	1.123	1.067	1.132
	Mainline VDS 759850 - SAN FERNANDO		0.998		
	Mainline VDS 759626 - LAUREL CANYON		1.314	1.196	
	Mainline VDS 759888 - LYONS 1		1.129		

APPENDIX E

LEVEL OF SERVICE WORKSHEETS

Roxford Street Warehouses Project

Vistro File: G:\...\AM.vistro
Report File: G:\...\AM E.pdf

Scenario 1 Existing
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	EB Right	0.974	28.5	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.121	44.4	E
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.614	23.6	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.553	5.0	A
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.012	15.7	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.013	20.5	C
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.0	A
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.974

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	177	1	10	0	23	675	1047	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1130	1.1130	1.1130	1.0000	1.1130	1.1130	1.1130	1.1130	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Growth Rate	1.01	1.01	1.01	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	197	1	11	0	26	751	1165	118	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9600	0.9600	0.9600	0.9500	0.9600	0.9600	0.9600	0.9600	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	51	0	3	0	7	196	303	31	0
Total Analysis Volume [veh/h]	0	0	0	205	1	11	0	27	782	1214	123	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	11	0	0	29	0	0	20	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		63	63	63	63	63	63
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		59	59	30	30	25	25
g / C, Green / Cycle		0.94	0.94	0.47	0.47	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate		0.11	0.01	0.01	0.48	0.35	0.06
s, saturation flow rate [veh/h]		1810	1488	1900	1615	3514	1900
c, Capacity [veh/h]		1697	1396	899	764	1403	759
d1, Uniform Delay [s]		0.14	0.12	8.92	16.69	17.47	12.22
k, delay calibration		0.50	0.50	0.11	0.47	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.15	0.01	0.01	37.46	1.73	0.10
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.12	0.01	0.03	1.02	0.87	0.16
d, Delay for Lane Group [s/veh]		0.28	0.13	8.93	54.15	19.19	12.32
Lane Group LOS		A	A	A	F	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.07	0.00	0.20	18.15	7.25	1.00
50th-Percentile Queue Length [ft/ln]		1.72	0.11	4.90	453.87	181.24	25.03
95th-Percentile Queue Length [veh/ln]		0.12	0.01	0.35	25.57	11.67	1.80
95th-Percentile Queue Length [ft/ln]		3.09	0.20	8.81	639.36	291.63	45.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.28	0.13	0.13	0.00	8.93	54.15	19.19	12.32	0.00
Movement LOS				A	A	A		A	F	B	B	
d_A, Approach Delay [s/veh]	0.00			0.27			52.64			18.56		
Approach LOS	A			A			D			B		
d_I, Intersection Delay [s/veh]	28.55											
Intersection LOS	C											
Intersection V/C	0.974											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	233	833	533
d_b, Bicycle Delay [s]	30.00	23.41	10.21	16.13
I_b,int, Bicycle LOS Score for Intersection	4.132	1.739	2.894	3.766
Bicycle LOS	D	A	C	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	12	714	198	0	0	1193
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.0000	1.0000	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	1.00	0.00
Growth Rate	1.00	1.00	1.00	1.01	1.01	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	795	220	0	0	1328
Peak Hour Factor	0.9590	0.9590	0.9590	0.9500	0.9500	0.9590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	207	57	0	0	346
Total Analysis Volume [veh/h]	14	829	229	0	0	1385
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	1.02	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	44.41	15.84	0.00	0.00	0.00	0.00
Movement LOS	E	F	A			A
95th-Percentile Queue Length [veh/ln]	4.33	3.68	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	108.26	91.95	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.32		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	5.60					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	402	117	14	301	88	74	17	643	242	35	661	121
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	447	130	16	335	98	82	19	716	269	39	736	135
Peak Hour Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	33	4	86	25	21	5	183	69	10	188	35
Total Analysis Volume [veh/h]	457	133	16	343	100	84	19	732	275	40	753	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	14	14	14	20	20	20	20	20	20
g / C, Green / Cycle	0.23	0.23	0.23	0.23	0.23	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.09	0.19	0.10	0.03	0.28	0.28	0.07	0.24	0.24
s, saturation flow rate [veh/h]	1810	1810	1697	1810	1758	634	1900	1725	569	1900	1799
c, Capacity [veh/h]	423	423	396	423	411	183	633	575	151	633	599
d1, Uniform Delay [s]	20.20	20.20	19.35	21.78	19.71	25.11	18.49	18.49	28.73	17.59	17.59
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.12	0.12	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.90	4.90	2.71	15.52	3.51	0.25	3.40	3.74	0.92	1.58	1.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.54	0.38	0.81	0.45	0.10	0.83	0.83	0.26	0.72	0.72
d, Delay for Lane Group [s/veh]	25.10	25.10	22.06	37.30	23.22	25.36	21.89	22.23	29.65	19.18	19.26
Lane Group LOS	C	C	C	D	C	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.17	3.17	1.92	6.02	2.44	0.25	6.43	5.90	0.58	5.09	4.84
50th-Percentile Queue Length [ft/ln]	79.17	79.17	47.93	150.40	60.92	6.13	160.87	147.47	14.54	127.37	120.97
95th-Percentile Queue Length [veh/ln]	5.70	5.70	3.45	10.04	4.39	0.44	10.59	9.88	1.05	8.80	8.45
95th-Percentile Queue Length [ft/ln]	142.51	142.51	86.28	250.97	109.66	11.04	264.87	247.05	26.16	219.91	211.16

Movement, Approach, & Intersection Results

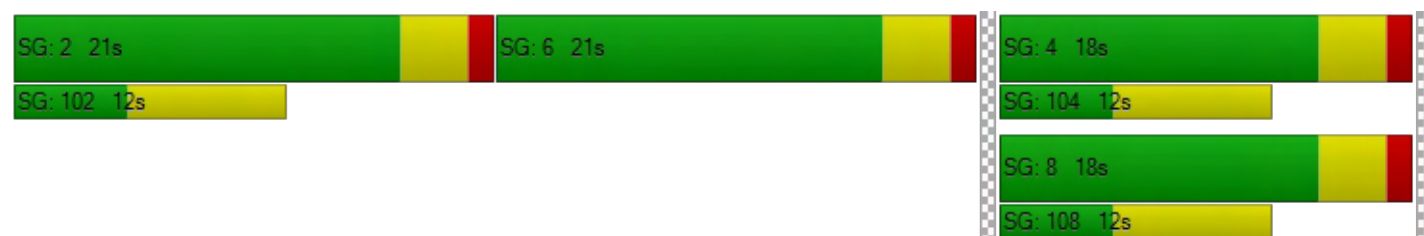
d_M, Delay for Movement [s/veh]	25.10	22.06	22.06	37.30	23.22	23.22	25.36	21.99	22.23	29.65	19.21	19.26
Movement LOS	C	C	C	D	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	24.35			32.38			22.11			19.67		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	23.57											
Intersection LOS	C											
Intersection V/C	0.614											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.418	2.338	0.000	2.817
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.060	2.429	2.406	2.328
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	5.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	+			+			+ +				+ + +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	9	21	8	6	23	1	301	759	23	14	861	50
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	5	2	2	6	0	78	196	6	4	222	13
Total Analysis Volume [veh/h]	19	9	22	8	6	24	1	311	783	24	14	889	52
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	17	0	0	17	0	0	0	103	0	0	103	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.89	0.89	0.89	0.89	0.89
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.52	0.43	0.02	0.25	0.25
s, saturation flow rate [veh/h]	1777	1790	605	1890	686	1900	1863
c, Capacity [veh/h]	126	122	559	1674	593	1683	1650
d1, Uniform Delay [s]	55.92	55.60	3.77	1.37	3.03	1.05	1.05
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.01	1.45	3.98	1.00	0.07	0.42	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.31	0.56	0.48	0.02	0.28	0.28
d, Delay for Lane Group [s/veh]	57.93	57.05	7.75	2.36	3.10	1.47	1.47
Lane Group LOS	E	E	A	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.57	1.18	2.36	1.44	0.08	0.78	0.77
50th-Percentile Queue Length [ft/ln]	39.13	29.46	58.91	35.98	1.92	19.47	19.19
95th-Percentile Queue Length [veh/ln]	2.82	2.12	4.24	2.59	0.14	1.40	1.38
95th-Percentile Queue Length [ft/ln]	70.44	53.04	106.04	64.76	3.45	35.05	34.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.93	57.93	57.93	57.05	57.05	57.05	7.75	7.75	2.36	2.36	3.10	1.47	1.47
Movement LOS	E	E	E	E	E	E	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	57.93			57.05			3.87				1.49		
Approach LOS	E			E			A				A		
d_I, Intersection Delay [s/veh]	5.00												
Intersection LOS	A												
Intersection V/C	0.553												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.788			2.340			3.200			2.767			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	217			217			1650			1650			
d_b, Bicycle Delay [s]	47.70			47.70			1.84			1.84			
I_b,int, Bicycle LOS Score for Intersection	1.642			1.622			2.893			2.347			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	40	197	374	75	4	7
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	219	416	83	4	8
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	61	116	23	1	2
Total Analysis Volume [veh/h]	50	245	465	93	4	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	8.70	0.00	0.00	0.00	15.69	10.14
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.15	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.85	0.00	0.00	0.00	1.85	1.85
d_A, Approach Delay [s/veh]	1.47		0.00		11.84	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.68					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	3	8	17	966	807	2
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	9	19	1075	898	2
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	5	277	231	1
Total Analysis Volume [veh/h]	3	9	20	1107	925	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	20.48	11.80	9.96	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.24	2.24	2.06	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.97		0.18		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	0	2	58	2	3	126
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	65	2	3	140
Peak Hour Factor	0.8050	0.8050	0.8050	0.8050	0.8050	0.8050
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	20	1	1	43
Total Analysis Volume [veh/h]	0	2	81	2	4	174
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.96	8.67	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.15	0.15
d_A, Approach Delay [s/veh]	8.67		0.00		0.17	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	A					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	0	2	51	4	5	163
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	57	4	6	181
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	17	1	2	54
Total Analysis Volume [veh/h]	0	2	68	5	7	217
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.22	8.62	0.00	0.00	7.35	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.29	0.29
d_A, Approach Delay [s/veh]	8.62		0.00		0.23	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	B					

Roxford Street Warehouses Project

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Scenario 1 Existing
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.728	23.4	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.859	231.1	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.564	19.8	B
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	WB Left	0.745	16.5	B
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.159	16.4	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.006	25.8	D
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.005	10.8	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.005	11.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	225	2	9	0	42	160	1036	146	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1960	1.1960	1.1960	1.0000	1.1960	1.1960	1.1960	1.1960	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	269	2	11	0	50	191	1239	175	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.8850	0.8850	0.8850	0.9500	0.8850	0.8850	0.8850	0.8850	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	76	1	3	0	14	54	350	49	0
Total Analysis Volume [veh/h]	0	0	0	304	2	12	0	56	216	1400	198	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	64
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	42	0	0	11	0	0	11	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		64	64	64	64	64	64
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	11	11	28	28
g / C, Green / Cycle		0.20	0.20	0.17	0.17	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate		0.17	0.01	0.03	0.13	0.40	0.11
s, saturation flow rate [veh/h]		1795	1490	1885	1602	3486	1885
c, Capacity [veh/h]		358	297	323	275	1541	833
d1, Uniform Delay [s]		24.75	20.75	22.69	25.45	16.69	11.16
k, delay calibration		0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		21.47	0.30	0.25	4.96	2.37	0.15
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.85	0.05	0.17	0.79	0.91	0.24
d, Delay for Lane Group [s/veh]		46.22	21.05	22.95	30.41	19.05	11.30
Lane Group LOS		D	C	C	C	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		6.29	0.19	0.75	3.51	8.49	1.54
50th-Percentile Queue Length [ft/ln]		157.22	4.63	18.68	87.80	212.30	38.60
95th-Percentile Queue Length [veh/ln]		10.40	0.33	1.34	6.32	13.27	2.78
95th-Percentile Queue Length [ft/ln]		260.04	8.33	33.62	158.05	331.77	69.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	46.22	21.05	21.05	0.00	22.95	30.41	19.05	11.30	0.00
Movement LOS				D	C	C		C	C	B	B	
d_A, Approach Delay [s/veh]	0.00			45.11			28.87			18.09		
Approach LOS	A			D			C			B		
d_I, Intersection Delay [s/veh]	23.36											
Intersection LOS	C											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1188	219	219
d_b, Bicycle Delay [s]	32.00	5.28	25.38	25.38
I_b,int, Bicycle LOS Score for Intersection	4.132	1.822	2.008	4.196
Bicycle LOS	D	A	B	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	231.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.859

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	57	555	263	0	0	1127
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.0000	1.0000	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.01	1.01	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	664	315	0	0	1348
Peak Hour Factor	0.9150	0.9150	0.9150	0.9500	0.9500	0.9150
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	181	86	0	0	368
Total Analysis Volume [veh/h]	74	726	344	0	0	1473
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.86	1.04	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	231.06	96.52	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	19.81	11.72	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	495.16	293.02	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	108.96		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	33.31					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	297	154	18	59	16	77	43	442	303	26	754	223
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	355	184	22	71	19	92	51	529	362	31	902	267
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	50	6	19	5	25	14	145	99	8	247	73
Total Analysis Volume [veh/h]	389	202	24	78	21	101	56	579	396	34	988	292
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	29	29	29	29	29	29
g / C, Green / Cycle	0.16	0.16	0.16	0.16	0.16	0.48	0.48	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.04	0.07	0.13	0.28	0.28	0.06	0.35	0.35
s, saturation flow rate [veh/h]	1795	1808	1679	1795	1645	435	1885	1633	581	1885	1740
c, Capacity [veh/h]	285	287	266	285	261	194	910	788	268	910	840
d1, Uniform Delay [s]	24.04	24.04	24.03	22.20	22.94	23.73	11.10	11.11	17.68	12.38	12.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.12	0.12	0.11	0.23	0.24
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.51	15.37	16.29	2.37	5.91	0.81	0.66	0.76	0.21	2.42	2.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.73	0.73	0.27	0.47	0.29	0.57	0.57	0.13	0.73	0.74
d, Delay for Lane Group [s/veh]	39.56	39.41	40.32	24.57	28.85	24.55	11.76	11.87	17.89	14.80	15.21
Lane Group LOS	D	D	D	C	C	C	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.87	3.88	3.66	1.10	1.90	0.73	4.15	3.62	0.35	6.25	5.92
50th-Percentile Queue Length [ft/ln]	96.66	96.99	91.58	27.38	47.40	18.34	103.78	90.52	8.80	156.19	148.10
95th-Percentile Queue Length [veh/ln]	6.96	6.98	6.59	1.97	3.41	1.32	7.47	6.52	0.63	10.35	9.92
95th-Percentile Queue Length [ft/ln]	173.98	174.58	164.85	49.29	85.33	33.01	186.81	162.94	15.83	258.68	247.89

Movement, Approach, & Intersection Results

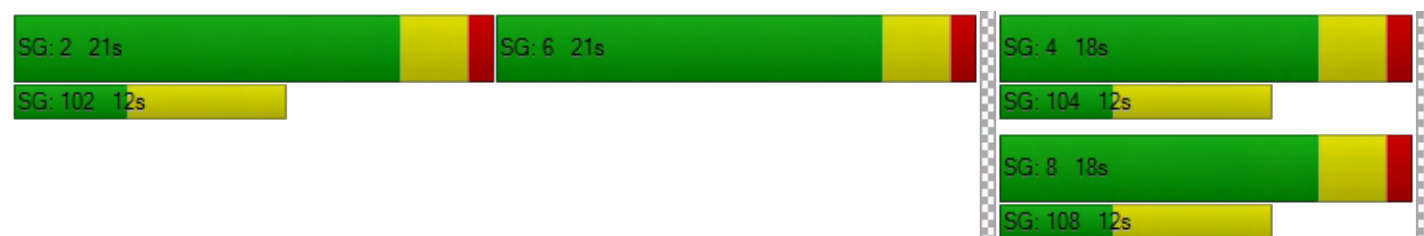
d_M, Delay for Movement [s/veh]	39.49	40.18	40.32	24.57	28.85	28.85	24.55	11.77	11.87	17.89	14.93	15.21
Movement LOS	D	D	D	C	C	C	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	39.75			27.18			12.50			15.07		
Approach LOS	D			C			B			B		
d_I, Intersection Delay [s/veh]	19.80											
Intersection LOS	B											
Intersection V/C	0.564											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.420			2.374			0.000			2.812		
Crosswalk LOS	B			B			F			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	567			567			467			467		
d_b, Bicycle Delay [s]	15.41			15.41			17.63			17.63		
I_b,int, Bicycle LOS Score for Intersection	2.067			1.890			2.410			2.644		
Bicycle LOS	B			A			B			B		

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	+			+			+ +				+ + +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	14	43	55	16	391	1	45	610	23	13	724	19
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	4	12	16	5	112	0	13	175	7	4	208	5
Total Analysis Volume [veh/h]	33	16	49	63	18	449	1	52	700	26	15	831	22
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	30	30	30	30	30
g / C, Green / Cycle	0.36	0.36	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.09	0.33	0.08	0.39	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1137	1596	652	1873	734	1885	1868
c, Capacity [veh/h]	495	650	327	940	227	946	937
d1, Uniform Delay [s]	12.84	18.03	15.20	12.19	22.36	9.66	9.66
k, delay calibration	0.11	0.21	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	4.76	1.06	6.14	0.56	1.57	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.82	0.16	0.77	0.07	0.45	0.45
d, Delay for Lane Group [s/veh]	13.03	22.79	16.26	18.33	22.92	11.23	11.24
Lane Group LOS	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.85	7.14	0.57	7.76	0.21	3.42	3.39
50th-Percentile Queue Length [ft/ln]	21.29	178.46	14.32	194.05	5.23	85.44	84.78
95th-Percentile Queue Length [veh/ln]	1.53	11.52	1.03	12.33	0.38	6.15	6.10
95th-Percentile Queue Length [ft/ln]	38.32	288.00	25.77	308.27	9.41	153.80	152.60

Movement, Approach, & Intersection Results

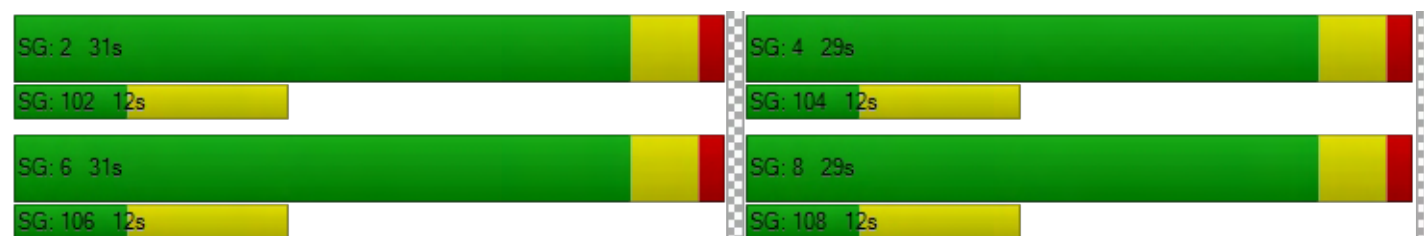
d_M, Delay for Movement [s/veh]	13.03	13.03	13.03	22.79	22.79	22.79	16.26	16.26	18.33	18.33	22.92	11.24	11.24
Movement LOS	B	B	B	C	C	C	B	B	B	B	C	B	B
d_A, Approach Delay [s/veh]	13.03			22.79			18.19				11.44		
Approach LOS	B			C			B				B		
d_I, Intersection Delay [s/veh]	16.46												
Intersection LOS	B												
Intersection V/C	0.745												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68			
I_p,int, Pedestrian LOS Score for Intersection	1.781			2.023			2.829			2.796			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	900			900			833			833			
d_b, Bicycle Delay [s]	9.08			9.08			10.21			10.21			
I_b,int, Bicycle LOS Score for Intersection	1.721			2.434			2.759			2.276			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.159

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	7	341	298	1	44	48
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	408	356	1	53	57
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	119	103	0	15	17
Total Analysis Volume [veh/h]	9	474	414	1	62	66
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.16	0.08
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	16.38	11.64
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.94	0.94
95th-Percentile Queue Length [ft/ln]	0.59	0.00	0.00	0.00	23.43	23.43
d_A, Approach Delay [s/veh]	0.15		0.00		13.94	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	1	14	6	528	987	1
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	17	7	631	1180	1
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	2	175	326	0
Total Analysis Volume [veh/h]	1	19	8	698	1305	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.05	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	25.76	14.24	11.88	0.00	0.00	0.00
Movement LOS	D	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.08	4.08	1.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.81		0.13		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	D					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	2	3	165	0	0	31
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	197	0	0	37
Peak Hour Factor	0.6280	0.6280	0.6280	0.6280	0.6280	0.6280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	78	0	0	15
Total Analysis Volume [veh/h]	3	6	314	0	0	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.78	10.01	0.00	0.00	7.88	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.99	0.99	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.27		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	2	7	200	0	4	29
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	239	0	5	35
Peak Hour Factor	0.6950	0.6950	0.6950	0.6950	0.6950	0.6950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	86	0	2	13
Total Analysis Volume [veh/h]	3	12	344	0	7	50
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.14	10.26	0.00	0.00	7.97	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.70	1.70	0.00	0.00	0.31	0.31
d_A, Approach Delay [s/veh]	10.43		0.00		0.98	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	B					

Roxford Street Warehouses Project

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Scenario 2 Existing Plus Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	EB Right	0.988	29.9	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.126	47.2	E
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.628	23.8	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.614	5.6	A
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.018	15.8	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.013	21.3	C
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.002	11.0	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.988

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	177	1	10	0	23	675	1047	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1130	1.1130	1.1130	1.0000	1.1130	1.1130	1.1130	1.1130	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Growth Rate	1.01	1.01	1.01	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	24	0	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	221	1	11	0	26	751	1168	118	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9600	0.9600	0.9600	0.9500	0.9600	0.9600	0.9600	0.9600	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	58	0	3	0	7	196	304	31	0
Total Analysis Volume [veh/h]	0	0	0	230	1	11	0	27	782	1217	123	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	64
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	11	0	0	29	0	0	20	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		64	64	64	64	64	64
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		61	61	30	30	25	25
g / C, Green / Cycle		0.95	0.95	0.47	0.47	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate		0.13	0.01	0.01	0.48	0.35	0.06
s, saturation flow rate [veh/h]		1810	1488	1900	1615	3514	1900
c, Capacity [veh/h]		1714	1409	889	755	1399	757
d1, Uniform Delay [s]		0.10	0.09	9.21	17.07	17.77	12.42
k, delay calibration		0.50	0.50	0.11	0.48	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.16	0.01	0.01	41.39	1.80	0.10
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.13	0.01	0.03	1.04	0.87	0.16
d, Delay for Lane Group [s/veh]		0.27	0.10	9.23	58.45	19.57	12.52
Lane Group LOS		A	A	A	F	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.08	0.00	0.20	18.98	7.43	1.02
50th-Percentile Queue Length [ft/ln]		1.94	0.11	5.05	474.55	185.83	25.54
95th-Percentile Queue Length [veh/ln]		0.14	0.01	0.36	26.81	11.90	1.84
95th-Percentile Queue Length [ft/ln]		3.49	0.19	9.09	670.13	297.61	45.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.27	0.10	0.10	0.00	9.23	58.45	19.57	12.52	0.00
Movement LOS				A	A	A		A	F	B	B	
d_A, Approach Delay [s/veh]	0.00			0.26			56.81			18.92		
Approach LOS	A			A			E			B		
d_I, Intersection Delay [s/veh]	29.85											
Intersection LOS	C											
Intersection V/C	0.988											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	219	781	500
d_b, Bicycle Delay [s]	32.00	25.38	11.88	18.00
I_b,int, Bicycle LOS Score for Intersection	4.132	1.759	2.894	3.771
Bicycle LOS	D	A	C	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	47.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.126

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	12	714	198	0	0	1193
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.0000	1.0000	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	1.00	0.00
Growth Rate	1.00	1.00	1.00	1.01	1.01	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	24	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	819	244	0	0	1331
Peak Hour Factor	0.9590	0.9590	0.9590	0.9500	0.9500	0.9590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	214	64	0	0	347
Total Analysis Volume [veh/h]	14	854	254	0	0	1388
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	1.08	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	47.25	17.16	0.00	0.00	0.00	0.00
Movement LOS	E	F	A			A
95th-Percentile Queue Length [veh/ln]	4.91	4.16	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	122.83	103.93	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.65		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	6.10					
Intersection LOS	E					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	23.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.628

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	402	117	14	301	88	74	17	643	242	35	661	121
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	48	0	0	3	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	447	130	16	335	98	82	19	764	269	39	739	139
Peak Hour Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	33	4	86	25	21	5	195	69	10	189	36
Total Analysis Volume [veh/h]	457	133	16	343	100	84	19	781	275	40	756	142
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	14	14	14	21	21	21	21	21	21
g / C, Green / Cycle	0.23	0.23	0.23	0.23	0.23	0.35	0.35	0.35	0.35	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.09	0.19	0.10	0.03	0.29	0.29	0.07	0.24	0.24
s, saturation flow rate [veh/h]	1810	1810	1697	1810	1758	630	1900	1733	543	1900	1797
c, Capacity [veh/h]	411	411	386	411	400	190	657	599	149	657	621
d1, Uniform Delay [s]	20.53	20.53	19.67	22.13	20.04	24.49	18.12	18.13	28.89	16.98	16.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.14	0.14	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.33	5.33	2.91	17.78	3.79	0.23	3.93	4.32	0.96	1.38	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.56	0.39	0.83	0.46	0.10	0.84	0.84	0.27	0.70	0.70
d, Delay for Lane Group [s/veh]	25.86	25.86	22.57	39.91	23.82	24.72	22.05	22.45	29.85	18.37	18.45
Lane Group LOS	C	C	C	D	C	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.22	3.22	1.94	6.26	2.47	0.24	6.80	6.27	0.58	5.02	4.76
50th-Percentile Queue Length [ft/ln]	80.60	80.60	48.62	156.56	61.87	6.05	169.88	156.78	14.56	125.38	118.92
95th-Percentile Queue Length [veh/ln]	5.80	5.80	3.50	10.37	4.45	0.44	11.07	10.38	1.05	8.69	8.33
95th-Percentile Queue Length [ft/ln]	145.08	145.08	87.52	259.16	111.37	10.89	276.76	259.46	26.21	217.20	208.34

Movement, Approach, & Intersection Results

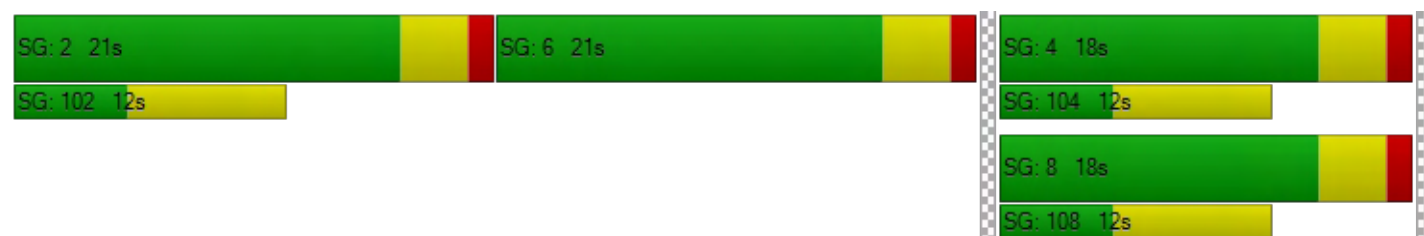
d_M, Delay for Movement [s/veh]	25.86	22.57	22.57	39.91	23.82	23.82	24.72	22.17	22.45	29.85	18.40	18.45
Movement LOS	C	C	C	D	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	25.05			34.29			22.28			18.89		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	23.82											
Intersection LOS	C											
Intersection V/C	0.628											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.418	2.339	0.000	2.827
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.060	2.429	2.446	2.333
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	5.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	+			+			+ +				+ + +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	1	0	5	0	31	0	0	0	3	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	12	21	9	6	28	1	332	759	23	14	864	57
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	5	2	2	7	0	86	196	6	4	223	15
Total Analysis Volume [veh/h]	19	12	22	9	6	29	1	343	783	24	14	892	59
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	17	0	0	17	0	0	0	103	0	0	103	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.88	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.57	0.43	0.02	0.25	0.25
s, saturation flow rate [veh/h]	1795	1793	599	1890	686	1900	1859
c, Capacity [veh/h]	128	123	554	1672	592	1681	1644
d1, Uniform Delay [s]	55.89	55.68	4.39	1.39	3.08	1.07	1.07
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	1.73	5.18	1.00	0.07	0.43	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.36	0.62	0.48	0.02	0.29	0.29
d, Delay for Lane Group [s/veh]	58.01	57.41	9.57	2.39	3.15	1.50	1.51
Lane Group LOS	E	E	A	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.66	1.37	3.03	1.49	0.08	0.81	0.80
50th-Percentile Queue Length [ft/ln]	41.52	34.26	75.74	37.24	1.94	20.35	20.02
95th-Percentile Queue Length [veh/ln]	2.99	2.47	5.45	2.68	0.14	1.47	1.44
95th-Percentile Queue Length [ft/ln]	74.73	61.66	136.33	67.03	3.49	36.64	36.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.01	58.01	58.01	57.41	57.41	57.41	9.57	9.57	2.39	2.39	3.15	1.50	1.51
Movement LOS	E	E	E	E	E	E	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	58.01			57.41			4.54				1.53		
Approach LOS	E			E			A				A		
d_I, Intersection Delay [s/veh]	5.56												
Intersection LOS	A												
Intersection V/C	0.614												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.789			2.406			3.257			2.770			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	217			217			1650			1650			
d_b, Bicycle Delay [s]	47.70			47.70			1.84			1.84			
I_b,int, Bicycle LOS Score for Intersection	1.647			1.632			2.893			2.356			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.018

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	40	197	374	75	4	7
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	219	416	90	5	8
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	61	116	25	1	2
Total Analysis Volume [veh/h]	50	245	465	101	6	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	8.73	0.00	0.00	0.00	15.81	10.22
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	3.88	0.00	0.00	0.00	2.33	2.33
d_A, Approach Delay [s/veh]	1.48		0.00		12.46	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	3	8	17	966	807	2
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	17	31	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	11	36	1106	903	5
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	9	285	232	1
Total Analysis Volume [veh/h]	3	11	37	1139	930	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	21.29	11.87	10.12	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.16	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.59	2.59	3.94	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.89		0.32		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	0	2	58	2	3	126
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	5	0	7	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	7	65	9	44	140
Peak Hour Factor	0.8050	0.8050	0.8050	0.8050	0.8050	0.8050
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	20	3	14	43
Total Analysis Volume [veh/h]	1	9	81	11	55	174
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	10.96	8.73	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	0.82	0.82	0.00	0.00	2.24	2.24
d_A, Approach Delay [s/veh]	8.95		0.00		1.79	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.51					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	0	2	51	4	5	163
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	41
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	62	4	6	222
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	19	1	2	66
Total Analysis Volume [veh/h]	0	2	74	5	7	266
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.61	8.64	0.00	0.00	7.36	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.29	0.29
d_A, Approach Delay [s/veh]	8.64		0.00		0.19	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	B					

Roxford Street Warehouses Project

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Scenario 2 Existing Plus Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.748	24.9	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.923	270.0	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.586	20.4	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	WB Left	0.787	19.0	B
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.185	16.8	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.036	28.4	D
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.033	12.6	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.006	12.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	24.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	225	2	9	0	42	160	1036	146	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1960	1.1960	1.1960	1.0000	1.1960	1.1960	1.1960	1.1960	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	15	0	0	0	0	0	30	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	284	2	11	0	50	191	1269	175	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.8850	0.8850	0.8850	0.9500	0.8850	0.8850	0.8850	0.8850	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	80	1	3	0	14	54	358	49	0
Total Analysis Volume [veh/h]	0	0	0	321	2	12	0	56	216	1434	198	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	11	0	0	11	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		66	66	66	66	66	66
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		14	14	11	11	29	29
g / C, Green / Cycle		0.21	0.21	0.17	0.17	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate		0.18	0.01	0.03	0.13	0.41	0.11
s, saturation flow rate [veh/h]		1795	1490	1885	1602	3486	1885
c, Capacity [veh/h]		370	307	321	273	1541	833
d1, Uniform Delay [s]		25.38	21.04	23.46	26.31	17.48	11.50
k, delay calibration		0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		22.98	0.28	0.26	5.13	3.07	0.15
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.87	0.05	0.17	0.79	0.93	0.24
d, Delay for Lane Group [s/veh]		48.37	21.32	23.72	31.44	20.56	11.65
Lane Group LOS		D	C	C	C	C	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		6.93	0.19	0.77	3.64	9.34	1.61
50th-Percentile Queue Length [ft/ln]		173.15	4.72	19.37	91.05	233.54	40.28
95th-Percentile Queue Length [veh/ln]		11.24	0.34	1.39	6.56	14.35	2.90
95th-Percentile Queue Length [ft/ln]		281.05	8.50	34.87	163.89	358.86	72.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	48.37	21.32	21.32	0.00	23.72	31.44	20.56	11.65	0.00
Movement LOS				D	C	C		C	C	C	B	
d_A, Approach Delay [s/veh]	0.00			47.23			29.85			19.47		
Approach LOS	A			D			C			B		
d_I, Intersection Delay [s/veh]	24.89											
Intersection LOS	C											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	0			1212			212			212		
d_b, Bicycle Delay [s]	33.00			5.12			26.37			26.37		
I_b,int, Bicycle LOS Score for Intersection	4.132			1.836			2.008			4.252		
Bicycle LOS	D			A			B			E		

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	270.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.923

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	57	555	263	0	0	1127
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.0000	1.0000	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.01	1.01	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	15	0	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	679	330	0	0	1378
Peak Hour Factor	0.9150	0.9150	0.9150	0.9500	0.9500	0.9150
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	186	90	0	0	377
Total Analysis Volume [veh/h]	74	742	361	0	0	1506
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.92	1.08	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	270.05	113.43	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	21.83	12.89	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	545.73	322.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	127.63		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	38.82					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	297	154	18	59	16	77	43	442	303	26	754	223
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	30	0	0	30	31
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	355	184	22	71	19	92	51	559	362	31	932	298
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	50	6	19	5	25	14	153	99	8	255	82
Total Analysis Volume [veh/h]	389	202	24	78	21	101	56	612	396	34	1021	326
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	9	9	9	30	30	30	30	30	30
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.04	0.07	0.14	0.29	0.29	0.06	0.37	0.38
s, saturation flow rate [veh/h]	1795	1808	1679	1795	1645	408	1885	1641	563	1885	1732
c, Capacity [veh/h]	272	274	255	272	249	179	937	816	260	937	861
d1, Uniform Delay [s]	24.51	24.51	24.50	22.64	23.39	25.43	10.64	10.65	18.07	12.06	12.17
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.14	0.14	0.11	0.26	0.27
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.67	18.50	19.55	2.63	6.72	0.98	0.71	0.82	0.23	2.84	3.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.77	0.77	0.29	0.49	0.31	0.57	0.58	0.13	0.74	0.75
d, Delay for Lane Group [s/veh]	43.18	43.01	44.05	25.27	30.10	26.42	11.35	11.47	18.29	14.90	15.52
Lane Group LOS	D	D	D	C	C	C	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.09	4.10	3.87	1.12	1.95	0.77	4.15	3.64	0.36	6.56	6.27
50th-Percentile Queue Length [ft/ln]	102.16	102.49	96.85	27.99	48.82	19.28	103.72	91.04	8.92	163.90	156.75
95th-Percentile Queue Length [veh/ln]	7.36	7.38	6.97	2.02	3.52	1.39	7.47	6.55	0.64	10.76	10.38
95th-Percentile Queue Length [ft/ln]	183.89	184.48	174.33	50.39	87.88	34.71	186.69	163.87	16.05	268.88	259.41

Movement, Approach, & Intersection Results

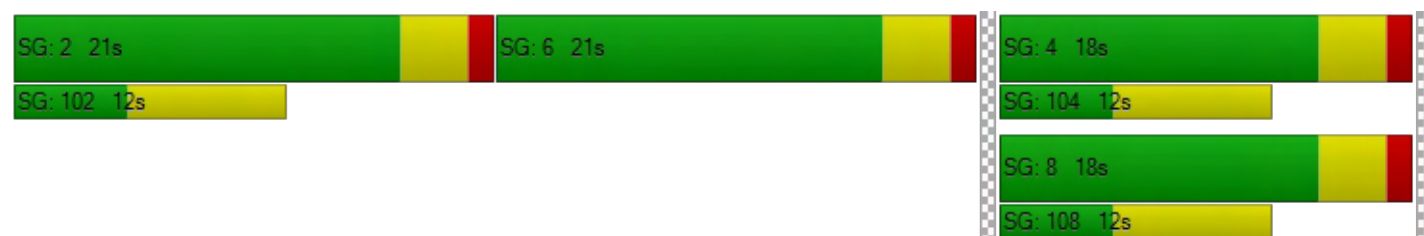
d_M, Delay for Movement [s/veh]	43.10	43.89	44.05	25.27	30.10	30.10	26.42	11.37	11.47	18.29	15.10	15.52
Movement LOS	D	D	D	C	C	C	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	43.40			28.22			12.20			15.28		
Approach LOS	D			C			B			B		
d_I, Intersection Delay [s/veh]	20.37											
Intersection LOS	C											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			0.0			9.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	21.68			21.68			0.00			21.68		
I_p,int, Pedestrian LOS Score for Intersection	2.420			2.383			0.000			2.831		
Crosswalk LOS	B			B			F			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	567			567			467			467		
d_b, Bicycle Delay [s]	15.41			15.41			17.63			17.63		
I_b,int, Bicycle LOS Score for Intersection	2.067			1.890			2.437			2.699		
Bicycle LOS	B			A			B			B		

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	9	4	39	0	19	4	0	0	2	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	16	43	64	20	430	1	64	614	23	13	726	23
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	5	12	18	6	123	0	18	176	7	4	208	7
Total Analysis Volume [veh/h]	33	18	49	73	23	494	1	73	705	26	15	834	26
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	24	28	28	28	28	28
g / C, Green / Cycle	0.40	0.40	0.47	0.47	0.47	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.11	0.39	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1093	1594	648	1873	731	1885	1865
c, Capacity [veh/h]	516	705	297	875	184	881	871
d1, Uniform Delay [s]	11.49	17.08	17.94	14.00	25.53	11.08	11.08
k, delay calibration	0.11	0.26	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	6.32	2.01	9.28	0.87	1.95	1.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.84	0.25	0.84	0.08	0.49	0.49
d, Delay for Lane Group [s/veh]	11.67	23.40	19.94	23.28	26.40	13.03	13.05
Lane Group LOS	B	C	B	C	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.81	8.11	0.92	9.18	0.23	3.84	3.81
50th-Percentile Queue Length [ft/ln]	20.19	202.67	22.96	229.39	5.83	96.07	95.19
95th-Percentile Queue Length [veh/ln]	1.45	12.78	1.65	14.14	0.42	6.92	6.85
95th-Percentile Queue Length [ft/ln]	36.34	319.41	41.32	353.58	10.49	172.93	171.35

Movement, Approach, & Intersection Results

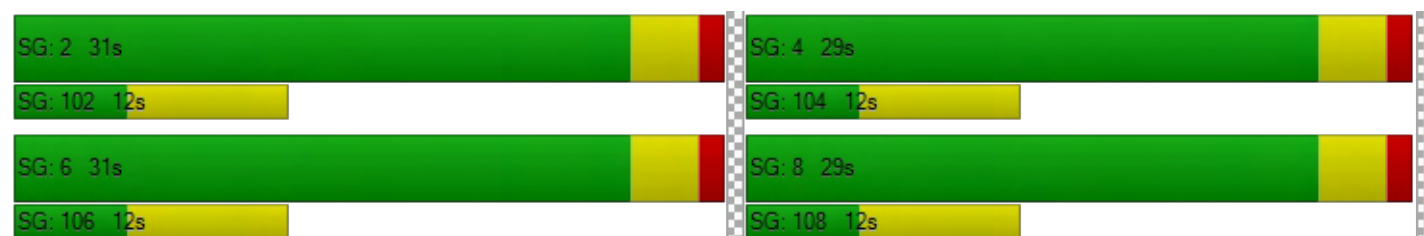
d_M, Delay for Movement [s/veh]	11.67	11.67	11.67	23.40	23.40	23.40	19.94	19.94	23.28	23.28	26.40	13.04	13.05
Movement LOS	B	B	B	C	C	C	B	B	C	C	C	B	B
d_A, Approach Delay [s/veh]	11.67			23.40			22.97				13.27		
Approach LOS	B			C			C				B		
d_I, Intersection Delay [s/veh]	19.02												
Intersection LOS	B												
Intersection V/C	0.787												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68			
I_p,int, Pedestrian LOS Score for Intersection	1.783			2.088			2.880			2.814			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	900			900			833			833			
d_b, Bicycle Delay [s]	9.08			9.08			10.21			10.21			
I_b,int, Bicycle LOS Score for Intersection	1.725			2.533			2.767			2.281			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.185

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	7	341	298	1	44	48
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	408	356	5	62	57
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	119	103	1	18	17
Total Analysis Volume [veh/h]	9	474	414	6	72	66
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.19	0.08
d_M, Delay for Movement [s/veh]	8.18	0.00	0.00	0.00	16.81	12.05
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	1.07	1.07
95th-Percentile Queue Length [ft/ln]	0.60	0.00	0.00	0.00	26.85	26.85
d_A, Approach Delay [s/veh]	0.15		0.00		14.53	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.00					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	1	14	6	528	987	1
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	22	11	19	39	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	39	18	650	1219	3
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	5	180	337	1
Total Analysis Volume [veh/h]	6	43	20	719	1348	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.11	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	28.44	15.80	12.34	0.00	0.00	0.00
Movement LOS	D	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.50	0.50	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.45	12.45	3.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.35		0.33		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	D					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	2	3	165	0	0	31
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	52	0	4	25	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	56	197	4	25	37
Peak Hour Factor	0.6280	0.6280	0.6280	0.6280	0.6280	0.6280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	22	78	2	10	15
Total Analysis Volume [veh/h]	18	89	314	6	40	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	12.56	10.92	0.00	0.00	7.99	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.55	0.55	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	13.72	13.72	0.00	0.00	1.54	1.54
d_A, Approach Delay [s/veh]	11.20		0.00		3.23	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.89					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	2	7	200	0	4	29
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	52	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	291	0	5	60
Peak Hour Factor	0.6950	0.6950	0.6950	0.6950	0.6950	0.6950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	105	0	2	22
Total Analysis Volume [veh/h]	3	12	419	0	7	86
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.13	10.81	0.00	0.00	8.16	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.90	1.90	0.00	0.00	0.33	0.33
d_A, Approach Delay [s/veh]	11.07		0.00		0.61	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	B					

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Scenario 3 Opening Year Without Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	EB Right	1.059	29.9	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.152	67.9	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.689	26.2	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Left	0.605	5.5	A
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.016	20.0	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.015	22.8	C
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.0	A
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.059

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	177	1	10	0	23	675	1047	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1130	1.1130	1.1130	1.0000	1.1130	1.1130	1.1130	1.1130	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	114	0	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	313	1	11	0	26	759	1201	119	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9600	0.9600	0.9600	0.9500	0.9600	0.9600	0.9600	0.9600	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	82	0	3	0	7	198	313	31	0
Total Analysis Volume [veh/h]	0	0	0	326	1	11	0	27	791	1251	124	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	11	0	0	31	0	0	18	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		64	64	64	64	64	64
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		60	60	30	30	26	26
g / C, Green / Cycle		0.94	0.94	0.47	0.47	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate		0.18	0.01	0.01	0.49	0.36	0.07
s, saturation flow rate [veh/h]		1810	1488	1900	1615	3514	1900
c, Capacity [veh/h]		1699	1397	888	755	1430	773
d1, Uniform Delay [s]		0.15	0.12	9.24	17.09	17.53	12.08
k, delay calibration		0.50	0.50	0.11	0.49	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.25	0.01	0.01	45.57	1.84	0.10
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.19	0.01	0.03	1.05	0.87	0.16
d, Delay for Lane Group [s/veh]		0.40	0.13	9.25	62.66	19.37	12.17
Lane Group LOS		A	A	A	F	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.12	0.00	0.20	19.84	7.61	1.01
50th-Percentile Queue Length [ft/ln]		2.97	0.11	5.05	495.89	190.16	25.24
95th-Percentile Queue Length [veh/ln]		0.21	0.01	0.36	28.09	12.13	1.82
95th-Percentile Queue Length [ft/ln]		5.34	0.19	9.09	702.34	303.23	45.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.40	0.13	0.13	0.00	9.25	62.66	19.37	12.17	0.00
Movement LOS				A	A	A		A	F	B	B	
d_A, Approach Delay [s/veh]	0.00			0.39			60.90			18.72		
Approach LOS	A			A			E			B		
d_I, Intersection Delay [s/veh]	29.91											
Intersection LOS	C											
Intersection V/C	1.059											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	233	900	467
d_b, Bicycle Delay [s]	30.00	23.41	9.08	17.63
I_b,int, Bicycle LOS Score for Intersection	4.132	1.838	2.909	3.828
Bicycle LOS	D	A	C	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	67.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	12	714	198	0	0	1193
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.0000	1.0000	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	1.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	129	114	0	0	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	932	336	0	0	1365
Peak Hour Factor	0.9590	0.9590	0.9590	0.9500	0.9500	0.9590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	243	88	0	0	356
Total Analysis Volume [veh/h]	14	972	350	0	0	1423
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	1.39	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	67.86	27.71	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	8.89	7.38	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	222.20	184.49	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	28.28		0.00		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	10.11					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	402	117	14	301	88	74	17	643	242	35	661	121
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	243	0	0	24	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	451	131	16	338	99	83	19	966	272	39	767	164
Peak Hour Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	115	33	4	86	25	21	5	247	70	10	196	42
Total Analysis Volume [veh/h]	461	134	16	346	101	85	19	988	278	40	784	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	12	12	12	24	24	24	24	24	24
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.20	0.40	0.40	0.40	0.40	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.09	0.19	0.11	0.03	0.34	0.35	0.09	0.26	0.26
s, saturation flow rate [veh/h]	1810	1810	1697	1810	1758	599	1900	1759	445	1900	1785
c, Capacity [veh/h]	362	362	339	362	351	216	761	705	143	761	715
d1, Uniform Delay [s]	22.07	22.07	21.13	23.81	21.54	21.85	16.48	16.55	29.19	14.56	14.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.22	0.23	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.32	8.32	4.14	37.54	5.61	0.17	5.96	6.81	1.06	0.92	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.64	0.44	0.96	0.53	0.09	0.86	0.87	0.28	0.64	0.64
d, Delay for Lane Group [s/veh]	30.39	30.39	25.26	61.35	27.15	22.03	22.44	23.36	30.25	15.48	15.54
Lane Group LOS	C	C	C	E	C	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.60	3.60	2.11	8.25	2.72	0.22	8.16	7.80	0.59	4.76	4.49
50th-Percentile Queue Length [ft/ln]	90.00	90.00	52.80	206.21	68.11	5.61	204.02	194.91	14.63	119.08	112.19
95th-Percentile Queue Length [veh/ln]	6.48	6.48	3.80	12.96	4.90	0.40	12.85	12.38	1.05	8.34	7.96
95th-Percentile Queue Length [ft/ln]	162.00	162.00	95.03	323.96	122.60	10.10	321.15	309.39	26.33	208.57	199.04

Movement, Approach, & Intersection Results

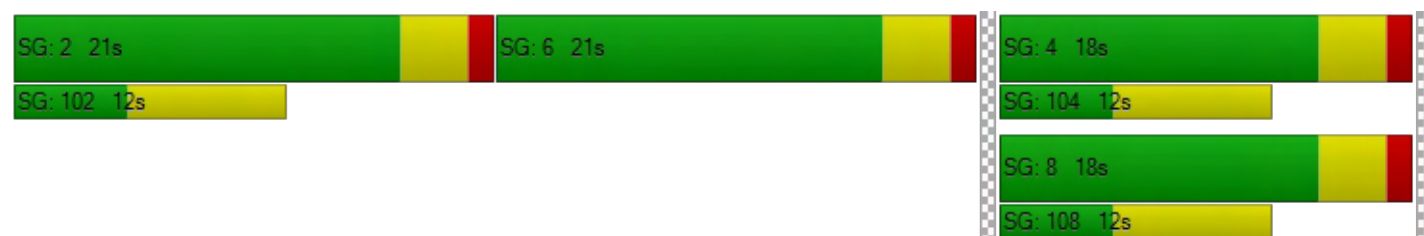
d_M, Delay for Movement [s/veh]	30.39	25.26	25.26	61.35	27.15	27.15	22.03	22.75	23.36	30.25	15.51	15.54
Movement LOS	C	C	C	E	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	29.13			49.39			22.87			16.11		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	26.15											
Intersection LOS	C											
Intersection V/C	0.689											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.420	2.347	0.000	2.878
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.064	2.437	2.620	2.378
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	5.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	⬆			⬆			⬆				⬆		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	0	0	0	0	0	228	15	0	48	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	9	21	8	6	23	1	304	995	38	14	918	51
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	2	5	2	2	6	0	78	257	10	4	237	13
Total Analysis Volume [veh/h]	23	9	22	8	6	24	1	314	1027	39	14	947	53
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	17	0	0	17	0	0	0	103	0	0	103	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.88	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.55	0.56	0.03	0.27	0.27
s, saturation flow rate [veh/h]	1769	1793	572	1888	538	1900	1865
c, Capacity [veh/h]	130	124	529	1669	442	1680	1649
d1, Uniform Delay [s]	55.87	55.45	4.31	1.84	5.19	1.09	1.09
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.13	1.37	4.86	1.88	0.13	0.46	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.42	0.31	0.59	0.64	0.03	0.30	0.30
d, Delay for Lane Group [s/veh]	58.00	56.82	9.17	3.73	5.32	1.55	1.56
Lane Group LOS	E	E	A	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.69	1.18	2.73	2.68	0.11	0.88	0.87
50th-Percentile Queue Length [ft/ln]	42.30	29.39	68.15	67.06	2.84	21.94	21.64
95th-Percentile Queue Length [veh/ln]	3.05	2.12	4.91	4.83	0.20	1.58	1.56
95th-Percentile Queue Length [ft/ln]	76.14	52.89	122.68	120.71	5.12	39.50	38.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.00	58.00	58.00	56.82	56.82	56.82	9.17	9.17	3.73	3.73	5.32	1.56	1.56
Movement LOS	E	E	E	E	E	E	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	58.00			56.82			4.97				1.61		
Approach LOS	E			E			A				A		
d_I, Intersection Delay [s/veh]	5.54												
Intersection LOS	A												
Intersection V/C	0.605												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.796			2.346			3.303			2.816			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	217			217			1650			1650			
d_b, Bicycle Delay [s]	47.70			47.70			1.84			1.84			
I_b,int, Bicycle LOS Score for Intersection	1.649			1.622			3.320			2.396			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	40	197	374	75	4	7
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	220	88	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	441	508	84	4	8
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	123	142	23	1	2
Total Analysis Volume [veh/h]	50	493	568	94	4	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	9.06	0.00	0.00	0.00	20.02	10.62
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.17	0.00	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	4.23	0.00	0.00	0.00	2.30	2.30
d_A, Approach Delay [s/veh]	0.83		0.00		13.51	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.52					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	3	8	17	966	807	2
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	243	52	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	9	19	1329	959	2
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	5	342	247	1
Total Analysis Volume [veh/h]	3	9	20	1369	988	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.83	12.16	10.25	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.45	2.45	2.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.83		0.15		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	0	2	58	2	3	126
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	66	2	3	141
Peak Hour Factor	0.8050	0.8050	0.8050	0.8050	0.8050	0.8050
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	20	1	1	44
Total Analysis Volume [veh/h]	0	2	82	2	4	175
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.97	8.67	0.00	0.00	7.37	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.15	0.15
d_A, Approach Delay [s/veh]	8.67		0.00		0.16	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	A					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	0	2	51	4	5	163
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	58	4	6	183
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	17	1	2	55
Total Analysis Volume [veh/h]	0	2	69	5	7	219
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.24	8.62	0.00	0.00	7.35	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.29	0.29
d_A, Approach Delay [s/veh]	8.62		0.00		0.23	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	B					

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Report File: G:\...\IPM OY.pdf

Roxford Street Warehouses Project

Scenario 3 Opening Year Without Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.797	31.2	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	1.135	393.2	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.660	23.6	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	WB Left	0.807	19.7	B
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.273	26.8	D
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.008	34.5	D
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.005	10.8	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.005	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	31.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	225	2	9	0	42	160	1036	146	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1960	1.1960	1.1960	1.0000	1.1960	1.1960	1.1960	1.1960	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	34	0	0	0	0	0	119	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	306	2	11	0	51	193	1370	177	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.8850	0.8850	0.8850	0.9500	0.8850	0.8850	0.8850	0.8850	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	86	1	3	0	14	55	387	50	0
Total Analysis Volume [veh/h]	0	0	0	346	2	12	0	58	218	1548	200	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	11	0	0	11	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		66	66	66	66	66	66
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	11	11	30	30
g / C, Green / Cycle		0.19	0.19	0.17	0.17	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate		0.19	0.01	0.03	0.14	0.44	0.11
s, saturation flow rate [veh/h]		1795	1490	1885	1602	3486	1885
c, Capacity [veh/h]		350	290	324	275	1576	852
d1, Uniform Delay [s]		26.56	21.65	23.41	26.26	17.86	11.11
k, delay calibration		0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		45.64	0.31	0.26	5.11	7.17	0.14
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.99	0.05	0.18	0.79	0.98	0.23
d, Delay for Lane Group [s/veh]		72.20	21.96	23.67	31.37	25.02	11.25
Lane Group LOS		E	C	C	C	C	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		9.54	0.19	0.80	3.67	11.21	1.58
50th-Percentile Queue Length [ft/ln]		238.39	4.84	20.05	91.81	280.14	39.55
95th-Percentile Queue Length [veh/ln]		14.60	0.35	1.44	6.61	16.70	2.85
95th-Percentile Queue Length [ft/ln]		364.99	8.71	36.08	165.26	417.39	71.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	72.20	21.96	21.96	0.00	23.67	31.37	25.02	11.25	0.00
Movement LOS				E	C	C		C	C	C	B	
d_A, Approach Delay [s/veh]	0.00			70.25			29.75			23.45		
Approach LOS	A			E			C			C		
d_I, Intersection Delay [s/veh]	31.24											
Intersection LOS	C											
Intersection V/C	0.797											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1212	212	212
d_b, Bicycle Delay [s]	33.00	5.12	26.37	26.37
I_b,int, Bicycle LOS Score for Intersection	4.132	1.857	2.015	4.444
Bicycle LOS	D	A	B	E

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	393.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.135

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	57	555	263	0	0	1127
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.0000	1.0000	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	50	34	0	0	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	721	352	0	0	1480
Peak Hour Factor	0.9150	0.9150	0.9150	0.9500	0.9500	0.9150
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	197	96	0	0	404
Total Analysis Volume [veh/h]	75	788	385	0	0	1617
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.14	1.19	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	393.16	166.54	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	27.55	16.16	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	688.63	403.90	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	186.23		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	56.10					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	297	154	18	59	16	77	43	442	303	26	754	223
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	84	0	0	119	133
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	359	186	22	72	19	93	52	618	366	31	1030	403
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	51	6	20	5	25	14	169	100	8	282	110
Total Analysis Volume [veh/h]	393	204	24	79	21	102	57	677	401	34	1128	441
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	9	9	9	30	30	30	30	30	30
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.04	0.07	0.17	0.30	0.31	0.06	0.43	0.45
s, saturation flow rate [veh/h]	1795	1808	1679	1795	1644	330	1885	1653	527	1885	1710
c, Capacity [veh/h]	272	274	254	272	249	135	938	822	241	938	851
d1, Uniform Delay [s]	24.55	24.54	24.53	22.65	23.41	29.70	10.92	10.93	19.09	13.28	13.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.16	0.17	0.11	0.35	0.37
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.33	19.15	20.23	2.69	6.84	2.09	0.99	1.15	0.27	7.37	10.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.78	0.77	0.29	0.49	0.42	0.61	0.61	0.14	0.86	0.90
d, Delay for Lane Group [s/veh]	43.87	43.70	44.77	25.34	30.24	31.79	11.90	12.08	19.35	20.65	24.65
Lane Group LOS	D	D	D	C	C	C	B	B	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.16	4.18	3.95	1.14	1.97	0.85	4.59	4.08	0.37	9.34	9.81
50th-Percentile Queue Length [ft/ln]	104.12	104.45	98.74	28.40	49.35	21.31	114.70	101.96	9.29	233.40	245.24
95th-Percentile Queue Length [veh/ln]	7.50	7.52	7.11	2.04	3.55	1.53	8.10	7.34	0.67	14.35	14.95
95th-Percentile Queue Length [ft/ln]	187.41	188.01	177.73	51.11	88.83	38.35	202.51	183.53	16.72	358.67	373.65

Movement, Approach, & Intersection Results

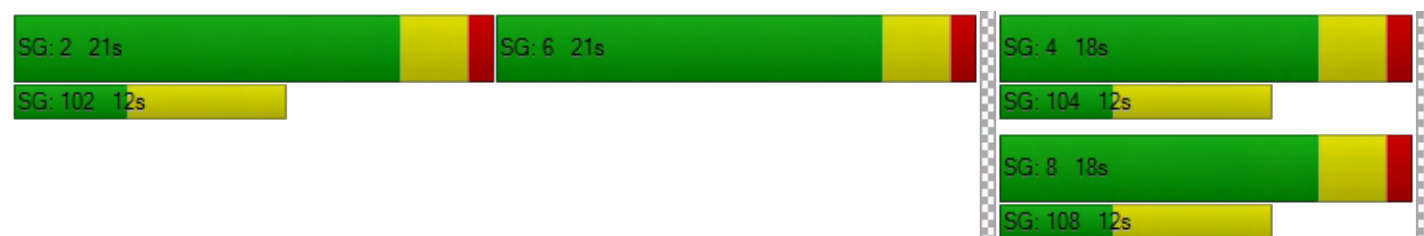
d_M, Delay for Movement [s/veh]	43.79	44.60	44.77	25.34	30.24	30.24	31.79	11.93	12.08	19.35	21.79	24.65
Movement LOS	D	D	D	C	C	C	C	B	B	B	C	C
d_A, Approach Delay [s/veh]	44.10			28.33			12.98			22.53		
Approach LOS	D			C			B			C		
d_I, Intersection Delay [s/veh]	23.57											
Intersection LOS	C											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.423	2.413	0.000	2.885
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.072	1.893	2.496	2.882
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	19.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.807

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	+			+			+ +				+ + +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	0	0	0	0	0	0	0	68	16	0	236	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	14	43	56	16	395	1	45	684	39	13	967	19
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	4	12	16	5	113	0	13	196	11	4	278	5
Total Analysis Volume [veh/h]	52	16	49	64	18	454	1	52	785	45	15	1110	22
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	30	30	30	30	30
g / C, Green / Cycle	0.37	0.37	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.34	0.11	0.44	0.02	0.30	0.30
s, saturation flow rate [veh/h]	943	1595	501	1867	666	1885	1872
c, Capacity [veh/h]	434	655	242	930	158	939	933
d1, Uniform Delay [s]	12.84	17.93	19.22	13.63	27.34	10.84	10.84
k, delay calibration	0.11	0.21	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	4.91	2.08	12.72	1.19	2.89	2.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.82	0.22	0.89	0.10	0.60	0.60
d, Delay for Lane Group [s/veh]	13.17	22.84	21.30	26.35	28.54	13.72	13.75
Lane Group LOS	B	C	C	C	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.03	7.23	0.70	11.14	0.25	5.21	5.18
50th-Percentile Queue Length [ft/ln]	25.70	180.82	17.57	278.45	6.24	130.20	129.48
95th-Percentile Queue Length [veh/ln]	1.85	11.64	1.26	16.61	0.45	8.95	8.91
95th-Percentile Queue Length [ft/ln]	46.25	291.08	31.62	415.28	11.23	223.77	222.79

Movement, Approach, & Intersection Results

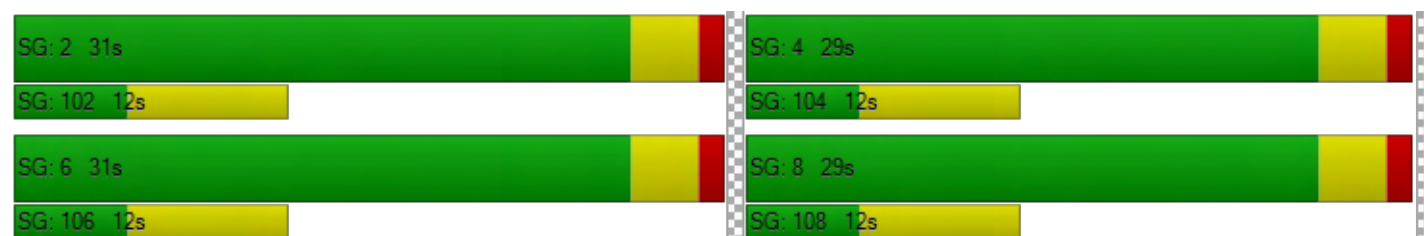
d_M, Delay for Movement [s/veh]	13.17	13.17	13.17	22.84	22.84	22.84	21.30	21.30	26.35	26.35	28.54	13.74	13.75
Movement LOS	B	B	B	C	C	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	13.17			22.84			26.05			13.93			
Approach LOS	B			C			C			B			
d_I, Intersection Delay [s/veh]	19.66												
Intersection LOS	B												
Intersection V/C	0.807												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68			
I_p,int, Pedestrian LOS Score for Intersection	1.796			2.025			2.972			2.857			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	900			900			833			833			
d_b, Bicycle Delay [s]	9.08			9.08			10.21			10.21			
I_b,int, Bicycle LOS Score for Intersection	1.753			2.444			2.931			2.506			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.273

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	7	341	298	1	44	48
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	119	240	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	531	600	1	54	58
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	154	174	0	16	17
Total Analysis Volume [veh/h]	9	617	698	1	63	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.27	0.10
d_M, Delay for Movement [s/veh]	9.04	0.00	0.00	0.00	26.79	16.71
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	1.70	1.70
95th-Percentile Queue Length [ft/ln]	0.76	0.00	0.00	0.00	42.61	42.61
d_A, Approach Delay [s/veh]	0.13		0.00		21.60	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.99					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	34.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	1	14	6	528	987	1
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	252	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	17	7	721	1444	1
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	2	199	399	0
Total Analysis Volume [veh/h]	1	19	8	798	1597	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.06	0.02	0.01	0.02	0.00
d_M, Delay for Movement [s/veh]	34.51	16.71	13.94	0.00	0.00	0.00
Movement LOS	D	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.22	5.22	1.49	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.60		0.14		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	D					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	2	3	165	0	0	31
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	199	0	0	37
Peak Hour Factor	0.6280	0.6280	0.6280	0.6280	0.6280	0.6280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	79	0	0	15
Total Analysis Volume [veh/h]	3	6	317	0	0	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.81	10.03	0.00	0.00	7.88	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.99	0.99	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.29		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	2	7	200	0	4	29
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	241	0	5	35
Peak Hour Factor	0.6950	0.6950	0.6950	0.6950	0.6950	0.6950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	87	0	2	13
Total Analysis Volume [veh/h]	3	12	347	0	7	50
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.17	10.28	0.00	0.00	7.97	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.70	1.70	0.00	0.00	0.31	0.31
d_A, Approach Delay [s/veh]	10.45		0.00		0.98	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	B					

Roxford Street Warehouses Project

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Scenario 4 Opening Year With Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	EB Right	1.074	31.9	C
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.158	76.1	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.703	27.0	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Left	0.655	6.1	A
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.025	20.2	C
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.015	23.8	C
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.002	11.0	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.000	10.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.074

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	177	1	10	0	23	675	1047	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1130	1.1130	1.1130	1.0000	1.1130	1.1130	1.1130	1.1130	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	138	0	0	0	0	0	27	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	337	1	11	0	26	759	1204	119	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9600	0.9600	0.9600	0.9500	0.9600	0.9600	0.9600	0.9600	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	88	0	3	0	7	198	314	31	0
Total Analysis Volume [veh/h]	0	0	0	351	1	11	0	27	791	1254	124	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	11	0	0	32	0	0	17	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		65	65	65	65	65	65
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		62	62	30	30	26	26
g / C, Green / Cycle		0.95	0.95	0.46	0.46	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate		0.19	0.01	0.01	0.49	0.36	0.07
s, saturation flow rate [veh/h]		1810	1488	1900	1615	3514	1900
c, Capacity [veh/h]		1719	1414	874	743	1427	771
d1, Uniform Delay [s]		0.10	0.08	9.65	17.61	17.89	12.31
k, delay calibration		0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.27	0.01	0.01	51.60	1.91	0.10
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.20	0.01	0.03	1.06	0.88	0.16
d, Delay for Lane Group [s/veh]		0.37	0.09	9.66	69.22	19.80	12.41
Lane Group LOS		A	A	A	F	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.13	0.00	0.21	21.03	7.83	1.04
50th-Percentile Queue Length [ft/ln]		3.20	0.11	5.25	525.67	195.87	25.88
95th-Percentile Queue Length [veh/ln]		0.23	0.01	0.38	29.88	12.43	1.86
95th-Percentile Queue Length [ft/ln]		5.77	0.19	9.45	747.11	310.63	46.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.37	0.09	0.09	0.00	9.66	69.22	19.80	12.41	0.00
Movement LOS				A	A	A		A	F	B	B	
d_A, Approach Delay [s/veh]	0.00			0.36			67.25			19.14		
Approach LOS	A			A			E			B		
d_I, Intersection Delay [s/veh]	31.85											
Intersection LOS	C											
Intersection V/C	1.074											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	215	862	400
d_b, Bicycle Delay [s]	32.50	25.88	10.53	20.80
I_b,int, Bicycle LOS Score for Intersection	4.132	1.859	2.909	3.833
Bicycle LOS	D	A	C	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	76.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	12	714	198	0	0	1193
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.0000	1.0000	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	1.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	153	138	0	0	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	956	360	0	0	1368
Peak Hour Factor	0.9590	0.9590	0.9590	0.9500	0.9500	0.9590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	249	94	0	0	357
Total Analysis Volume [veh/h]	14	997	375	0	0	1426
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	1.48	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	76.14	32.52	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	10.27	8.51	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	256.67	212.82	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	33.12		0.00		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	11.91					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	402	117	14	301	88	74	17	643	242	35	661	121
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	291	0	0	27	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	451	131	16	338	99	83	19	1014	272	39	770	168
Peak Hour Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	115	33	4	86	25	21	5	259	70	10	197	43
Total Analysis Volume [veh/h]	461	134	16	346	101	85	19	1037	278	40	787	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	12	12	12	25	25	25	25	25	25
g / C, Green / Cycle	0.19	0.19	0.19	0.19	0.19	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.09	0.19	0.11	0.03	0.36	0.36	0.09	0.26	0.26
s, saturation flow rate [veh/h]	1810	1810	1697	1810	1758	595	1900	1764	424	1900	1783
c, Capacity [veh/h]	351	351	329	351	341	223	785	728	141	785	736
d1, Uniform Delay [s]	22.41	22.41	21.45	24.17	21.86	21.18	16.13	16.22	29.28	14.02	14.02
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.24	0.25	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.28	9.28	4.51	44.82	6.16	0.16	6.45	7.48	1.09	0.84	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.66	0.46	0.99	0.55	0.09	0.87	0.87	0.28	0.63	0.63
d, Delay for Lane Group [s/veh]	31.69	31.69	25.95	68.99	28.03	21.34	22.58	23.70	30.37	14.86	14.91
Lane Group LOS	C	C	C	E	C	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.70	3.70	2.15	8.89	2.78	0.22	8.48	8.18	0.59	4.66	4.39
50th-Percentile Queue Length [ft/ln]	92.39	92.39	53.76	222.15	69.53	5.49	211.96	204.58	14.65	116.61	109.74
95th-Percentile Queue Length [veh/ln]	6.65	6.65	3.87	13.77	5.01	0.40	13.25	12.87	1.05	8.21	7.83
95th-Percentile Queue Length [ft/ln]	166.30	166.30	96.76	344.37	125.16	9.89	331.34	321.86	26.36	205.16	195.64

Movement, Approach, & Intersection Results

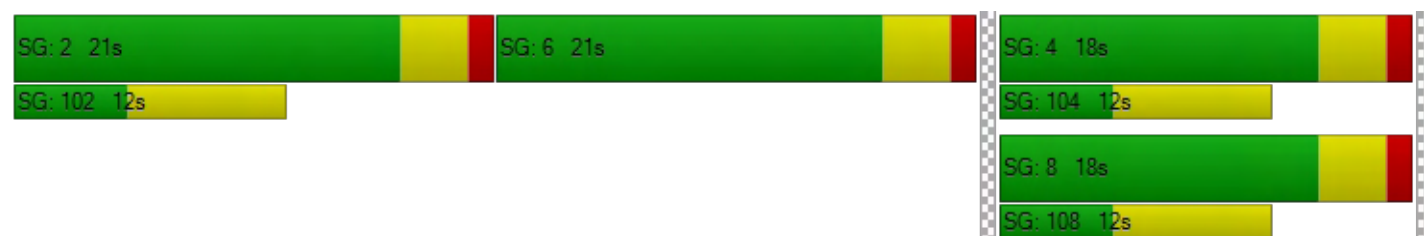
d_M, Delay for Movement [s/veh]	31.69	25.95	25.95	68.99	28.03	28.03	21.34	22.96	23.70	30.37	14.88	14.91
Movement LOS	C	C	C	E	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	30.28			54.67			23.09			15.51		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	27.01											
Intersection LOS	C											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.420	2.348	0.000	2.888
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.064	2.437	2.660	2.384
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	6.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	3	0	1	0	5	0	31	228	15	0	51	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	12	21	9	6	28	1	335	995	38	14	921	58
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	5	2	2	7	0	86	257	10	4	238	15
Total Analysis Volume [veh/h]	23	12	22	9	6	29	1	346	1027	39	14	950	60
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	17	0	0	17	0	0	0	103	0	0	103	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.88	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.61	0.56	0.03	0.27	0.27
s, saturation flow rate [veh/h]	1782	1797	567	1888	538	1900	1861
c, Capacity [veh/h]	131	126	524	1668	441	1678	1644
d1, Uniform Delay [s]	55.86	55.53	5.10	1.87	5.26	1.12	1.12
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.26	1.65	6.46	1.89	0.13	0.47	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.35	0.66	0.64	0.03	0.30	0.30
d, Delay for Lane Group [s/veh]	58.12	57.18	11.56	3.76	5.40	1.58	1.59
Lane Group LOS	E	E	B	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.79	1.37	3.56	2.76	0.11	0.91	0.90
50th-Percentile Queue Length [ft/ln]	44.72	34.17	89.11	69.00	2.87	22.82	22.46
95th-Percentile Queue Length [veh/ln]	3.22	2.46	6.42	4.97	0.21	1.64	1.62
95th-Percentile Queue Length [ft/ln]	80.49	61.51	160.40	124.19	5.17	41.08	40.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.12	58.12	58.12	57.18	57.18	57.18	11.56	11.56	3.76	3.76	5.40	1.59	1.59
Movement LOS	E	E	E	E	E	E	B	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	58.12			57.18			5.68				1.64		
Approach LOS	E			E			A				A		
d_I, Intersection Delay [s/veh]	6.12												
Intersection LOS	A												
Intersection V/C	0.655												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.797			2.411			3.359			2.819			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	217			217			1650			1650			
d_b, Bicycle Delay [s]	47.70			47.70			1.84			1.84			
I_b,int, Bicycle LOS Score for Intersection	1.654			1.632			3.320			2.404			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	40	197	374	75	4	7
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	220	88	7	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	441	508	91	5	8
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	123	142	25	1	2
Total Analysis Volume [veh/h]	50	493	568	102	6	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	9.09	0.00	0.00	0.00	20.23	10.77
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.17	0.00	0.00	0.00	0.12	0.12
95th-Percentile Queue Length [ft/ln]	4.26	0.00	0.00	0.00	2.98	2.98
d_A, Approach Delay [s/veh]	0.84		0.00		14.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	23.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	3	8	17	966	807	2
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	17	274	57	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	11	36	1360	964	5
Peak Hour Factor	0.9710	0.9710	0.9710	0.9710	0.9710	0.9710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	9	350	248	1
Total Analysis Volume [veh/h]	3	11	37	1401	993	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	23.80	12.25	10.42	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.83	2.83	4.17	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.72		0.27		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	0	2	58	2	3	126
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	5	0	7	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	7	66	9	44	141
Peak Hour Factor	0.8050	0.8050	0.8050	0.8050	0.8050	0.8050
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	20	3	14	44
Total Analysis Volume [veh/h]	1	9	82	11	55	175
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	10.98	8.73	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	0.82	0.82	0.00	0.00	2.24	2.24
d_A, Approach Delay [s/veh]	8.95		0.00		1.79	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.50					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	0	2	51	4	5	163
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	0	0	41
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	63	4	6	224
Peak Hour Factor	0.8350	0.8350	0.8350	0.8350	0.8350	0.8350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	19	1	2	67
Total Analysis Volume [veh/h]	0	2	75	5	7	268
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.63	8.65	0.00	0.00	7.36	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.15	0.15	0.00	0.00	0.30	0.30
d_A, Approach Delay [s/veh]	8.65		0.00		0.19	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	B					

Roxford Street Warehouses Project

Vistro File: G:\...\IPM.vistro

Scenario 4 Opening Year With Project

Report File: G:\...\IPM OYP.pdf

4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	I-5 SB Ramps (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Left	0.817	36.3	D
2	I-5 NB Off-Ramp (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	NB Left	1.219	444.4	F
3	I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.683	25.6	C
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	EB Thru	0.850	24.7	C
5	San Fernando St (NS) at Olden St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.318	28.4	D
6	Project Dwy (NS) at Roxford St (EW)	Two-way stop	HCM 6th Edition	SB Left	0.051	38.7	E
7	Project North Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.033	12.6	B
8	Project South Dwy (NS) at Olden St/Telfair Ave (EW)	Two-way stop	HCM 6th Edition	NB Left	0.006	12.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutesDelay (sec / veh): 36.3
Level Of Service: D
Volume to Capacity (v/c): 0.817**Intersection Setup**

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	225	2	9	0	42	160	1036	146	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1960	1.1960	1.1960	1.0000	1.1960	1.1960	1.1960	1.1960	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	49	0	0	0	0	0	149	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	321	2	11	0	51	193	1400	177	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.8850	0.8850	0.8850	0.9500	0.8850	0.8850	0.8850	0.8850	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	91	1	3	0	14	55	395	50	0
Total Analysis Volume [veh/h]	0	0	0	363	2	12	0	58	218	1582	200	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	11	0	0	11	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		66	66	66	66	66	66
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	11	11	30	30
g / C, Green / Cycle		0.19	0.19	0.17	0.17	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate		0.20	0.01	0.03	0.14	0.45	0.11
s, saturation flow rate [veh/h]		1795	1490	1885	1602	3486	1885
c, Capacity [veh/h]		349	290	324	275	1576	852
d1, Uniform Delay [s]		26.63	21.65	23.41	26.26	18.12	11.10
k, delay calibration		0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		58.54	0.31	0.26	5.11	11.38	0.14
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		1.04	0.05	0.18	0.79	1.00	0.23
d, Delay for Lane Group [s/veh]		85.17	21.97	23.67	31.37	29.50	11.24
Lane Group LOS		F	C	C	C	F	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		10.85	0.19	0.80	3.67	12.45	1.58
50th-Percentile Queue Length [ft/ln]		271.26	4.84	20.05	91.81	311.28	39.54
95th-Percentile Queue Length [veh/ln]		16.57	0.35	1.44	6.61	18.28	2.85
95th-Percentile Queue Length [ft/ln]		414.26	8.71	36.08	165.26	457.11	71.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	85.17	21.97	21.97	0.00	23.67	31.37	29.50	11.24	0.00
Movement LOS				F	C	C		C	C	F	B	
d_A, Approach Delay [s/veh]	0.00			82.82			29.75			27.45		
Approach LOS	A			F			C			C		
d_I, Intersection Delay [s/veh]	36.29											
Intersection LOS	D											
Intersection V/C	0.817											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	0			1212			212			212		
d_b, Bicycle Delay [s]	33.00			5.12			26.37			26.37		
I_b,int, Bicycle LOS Score for Intersection	4.132			1.871			2.015			4.500		
Bicycle LOS	D			A			B			E		

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	444.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.219

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	57	555	263	0	0	1127
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.0000	1.0000	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	65	49	0	0	149
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	736	367	0	0	1510
Peak Hour Factor	0.9150	0.9150	0.9150	0.9500	0.9500	0.9150
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	201	100	0	0	413
Total Analysis Volume [veh/h]	75	804	401	0	0	1650
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.22	1.23	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	444.36	189.04	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	29.61	17.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	740.28	435.17	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	210.82		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	63.25					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	297	154	18	59	16	77	43	442	303	26	754	223
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	114	0	0	149	164
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	359	186	22	72	19	93	52	648	366	31	1060	434
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	51	6	20	5	25	14	177	100	8	290	119
Total Analysis Volume [veh/h]	393	204	24	79	21	102	57	710	401	34	1161	475
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	9	9	9	30	30	30	30	30	30
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.04	0.07	0.18	0.31	0.31	0.07	0.44	0.47
s, saturation flow rate [veh/h]	1795	1808	1679	1795	1644	309	1885	1660	511	1885	1706
c, Capacity [veh/h]	272	274	254	272	249	124	938	826	232	938	849
d1, Uniform Delay [s]	24.55	24.54	24.54	22.65	23.41	30.05	11.05	11.07	19.60	13.68	14.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.18	0.18	0.11	0.37	0.41
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.34	19.17	20.25	2.69	6.84	2.65	1.14	1.33	0.29	9.95	16.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.78	0.77	0.29	0.49	0.46	0.63	0.63	0.15	0.89	0.94
d, Delay for Lane Group [s/veh]	43.89	43.72	44.79	25.34	30.25	32.70	12.19	12.40	19.88	23.63	30.89
Lane Group LOS	D	D	D	C	C	C	B	B	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.17	4.18	3.95	1.14	1.97	0.87	4.80	4.30	0.38	10.53	11.79
50th-Percentile Queue Length [ft/ln]	104.15	104.48	98.77	28.40	49.36	21.63	120.10	107.52	9.47	263.15	294.80
95th-Percentile Queue Length [veh/ln]	7.50	7.52	7.11	2.04	3.55	1.56	8.40	7.70	0.68	15.85	17.42
95th-Percentile Queue Length [ft/ln]	187.46	188.06	177.78	51.12	88.84	38.93	209.96	192.54	17.04	396.17	435.59

Movement, Approach, & Intersection Results

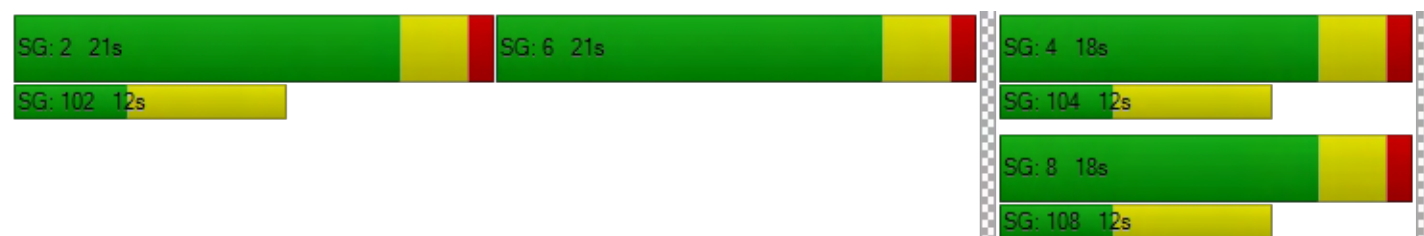
d_M, Delay for Movement [s/veh]	43.81	44.62	44.79	25.34	30.25	30.25	32.70	12.23	12.40	19.88	25.65	30.89
Movement LOS	D	D	D	C	C	C	C	B	B	B	C	C
d_A, Approach Delay [s/veh]	44.12			28.33			13.29			27.02		
Approach LOS	D			C			B			C		
d_I, Intersection Delay [s/veh]	25.61											
Intersection LOS	C											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.423	2.421	0.000	2.904
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.072	1.893	2.523	2.937
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	24.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	2	0	9	4	39	0	19	72	16	0	238	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	16	43	65	20	434	1	64	688	39	13	969	23
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	5	12	19	6	125	0	18	197	11	4	278	7
Total Analysis Volume [veh/h]	52	18	49	75	23	498	1	73	790	45	15	1113	26
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	24	28	28	28	28	28
g / C, Green / Cycle	0.40	0.40	0.46	0.46	0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.13	0.37	0.15	0.45	0.02	0.30	0.30
s, saturation flow rate [veh/h]	902	1593	498	1867	663	1885	1870
c, Capacity [veh/h]	450	710	216	866	120	874	867
d1, Uniform Delay [s]	11.48	16.98	22.96	15.64	30.06	12.41	12.42
k, delay calibration	0.11	0.27	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	6.49	4.27	23.10	2.12	3.80	3.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.84	0.34	0.96	0.12	0.65	0.65
d, Delay for Lane Group [s/veh]	11.79	23.48	27.24	38.74	32.18	16.22	16.25
Lane Group LOS	B	C	C	D	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.97	8.21	1.16	14.36	0.28	5.89	5.86
50th-Percentile Queue Length [ft/ln]	24.29	205.20	28.89	359.05	6.95	147.35	146.41
95th-Percentile Queue Length [veh/ln]	1.75	12.91	2.08	20.58	0.50	9.88	9.83
95th-Percentile Queue Length [ft/ln]	43.72	322.67	51.99	514.43	12.51	246.88	245.63

Movement, Approach, & Intersection Results

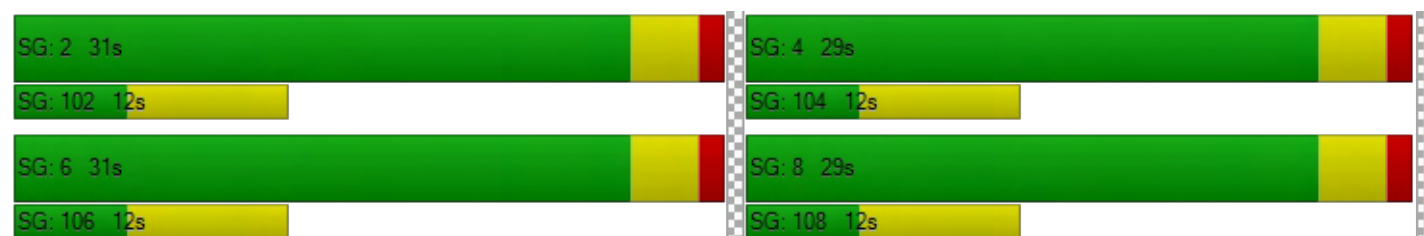
d_M, Delay for Movement [s/veh]	11.79	11.79	11.79	23.48	23.48	23.48	27.24	27.24	38.74	38.74	32.18	16.23	16.25
Movement LOS	B	B	B	C	C	C	C	C	D	D	C	B	B
d_A, Approach Delay [s/veh]	11.79			23.48			37.81				16.44		
Approach LOS	B			C			D				B		
d_I, Intersection Delay [s/veh]	24.74												
Intersection LOS	C												
Intersection V/C	0.850												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68			
I_p,int, Pedestrian LOS Score for Intersection	1.799			2.090			3.022			2.876			
Crosswalk LOS	A			B			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	900			900			833			833			
d_b, Bicycle Delay [s]	9.08			9.08			10.21			10.21			
I_b,int, Bicycle LOS Score for Intersection	1.756			2.543			2.939			2.512			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: San Fernando St (NS) at Olden St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.318

Intersection Setup

Name	San Fernando St		San Fernando St		Olden St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	San Fernando St		San Fernando St		Olden St	
Base Volume Input [veh/h]	7	341	298	1	44	48
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	119	240	4	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	531	600	5	63	58
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	154	174	1	18	17
Total Analysis Volume [veh/h]	9	617	698	6	73	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.32	0.10
d_M, Delay for Movement [s/veh]	9.06	0.00	0.00	0.00	28.36	18.24
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	2.02	2.02
95th-Percentile Queue Length [ft/ln]	0.76	0.00	0.00	0.00	50.43	50.43
d_A, Approach Delay [s/veh]	0.13		0.00		23.52	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.30					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	38.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	Project Dwy		Roxford St		Roxford St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project Dwy		Roxford St		Roxford St	
Base Volume Input [veh/h]	1	14	6	528	987	1
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	22	11	103	291	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	39	18	740	1483	3
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	5	205	410	1
Total Analysis Volume [veh/h]	6	43	20	819	1640	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.13	0.05	0.01	0.02	0.00
d_M, Delay for Movement [s/veh]	38.73	19.35	14.61	0.00	0.00	0.00
Movement LOS	E	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.67	0.67	0.16	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.69	16.69	3.99	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.73		0.35		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	E					

Intersection Level Of Service Report**Intersection 7: Project North Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Project North Dwy		Olden St		Telfair Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project North Dwy		Olden St		Telfair Ave	
Base Volume Input [veh/h]	2	3	165	0	0	31
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	52	0	4	25	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	56	199	4	25	37
Peak Hour Factor	0.6280	0.6280	0.6280	0.6280	0.6280	0.6280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	22	79	2	10	15
Total Analysis Volume [veh/h]	18	89	317	6	40	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	12.60	10.95	0.00	0.00	7.99	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.55	0.55	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	13.78	13.78	0.00	0.00	1.54	1.54
d_A, Approach Delay [s/veh]	11.23		0.00		3.23	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.88					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 8: Project South Dwy (NS) at Olden St/Telfair Ave (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Project South Dwy		Telfair Ave		Olden St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project South Dwy		Telfair Ave		Olden St	
Base Volume Input [veh/h]	2	7	200	0	4	29
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	52	0	0	25
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	293	0	5	60
Peak Hour Factor	0.6950	0.6950	0.6950	0.6950	0.6950	0.6950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	105	0	2	22
Total Analysis Volume [veh/h]	3	12	422	0	7	86
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.16	10.83	0.00	0.00	8.17	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.90	1.90	0.00	0.00	0.33	0.33
d_A, Approach Delay [s/veh]	11.10		0.00		0.61	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	B					

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Right	0.464	4.8	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	4.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration	+			+			+ +				+ + +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	1	0	5	0	31	0	0	0	3	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	12	21	9	6	28	1	332	759	23	14	864	57
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	5	2	2	7	0	86	196	6	4	223	15
Total Analysis Volume [veh/h]	19	12	22	9	6	29	1	343	783	24	14	892	59
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	16	0	0	16	0	0	0	104	0	0	104	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.00	0.43	0.25	0.26
s, saturation flow rate [veh/h]	1795	1793	599	1890	1900	1859
c, Capacity [veh/h]	128	123	553	1672	1681	1645
d1, Uniform Delay [s]	55.89	55.68	1.88	1.39	1.06	1.07
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.12	1.73	0.01	1.00	0.42	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.36	0.00	0.48	0.28	0.29
d, Delay for Lane Group [s/veh]	58.01	57.41	1.89	2.39	1.49	1.52
Lane Group LOS	E	E	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.66	1.37	0.00	1.49	0.80	0.81
50th-Percentile Queue Length [ft/ln]	41.52	34.26	0.09	37.24	20.06	20.32
95th-Percentile Queue Length [veh/ln]	2.99	2.47	0.01	2.68	1.44	1.46
95th-Percentile Queue Length [ft/ln]	74.73	61.66	0.17	67.03	36.10	36.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.01	58.01	58.01	57.41	57.41	57.41	1.89	0.00	2.39	2.39	0.00	1.50	1.52
Movement LOS	E	E	E	E	E	E	A		A	A		A	A
d_A, Approach Delay [s/veh]	58.01			57.41			2.39			1.50			
Approach LOS	E			E			A			A			
d_I, Intersection Delay [s/veh]	4.83												
Intersection LOS	A												
Intersection V/C	0.464												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.764			1.777			2.672			2.768			
Crosswalk LOS	A			A			B			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	200			200			1667			1667			
d_b, Bicycle Delay [s]	48.60			48.60			1.67			1.67			
I_b,int, Bicycle LOS Score for Intersection	1.647			1.632			2.893			2.344			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Right	0.787	18.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	9	4	39	0	19	4	0	0	2	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	16	43	64	20	430	1	64	614	23	13	726	23
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	5	12	18	6	123	0	18	176	7	4	208	7
Total Analysis Volume [veh/h]	33	18	49	73	23	494	1	73	705	26	15	834	26
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	0	29	0	0	29	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	24	28	28	28	28
g / C, Green / Cycle	0.40	0.40	0.47	0.47	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.00	0.39	0.23	0.23
s, saturation flow rate [veh/h]	1093	1594	648	1873	1885	1865
c, Capacity [veh/h]	516	705	296	875	881	871
d1, Uniform Delay [s]	11.49	17.08	15.96	14.00	11.06	11.09
k, delay calibration	0.11	0.26	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	6.32	0.02	9.28	1.93	2.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.84	0.00	0.84	0.49	0.49
d, Delay for Lane Group [s/veh]	11.67	23.40	15.98	23.28	12.99	13.09
Lane Group LOS	B	C	B	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.81	8.11	0.01	9.18	3.82	3.84
50th-Percentile Queue Length [ft/ln]	20.19	202.67	0.27	229.39	95.38	95.89
95th-Percentile Queue Length [veh/ln]	1.45	12.78	0.02	14.14	6.87	6.90
95th-Percentile Queue Length [ft/ln]	36.34	319.41	0.48	353.58	171.68	172.60

Movement, Approach, & Intersection Results

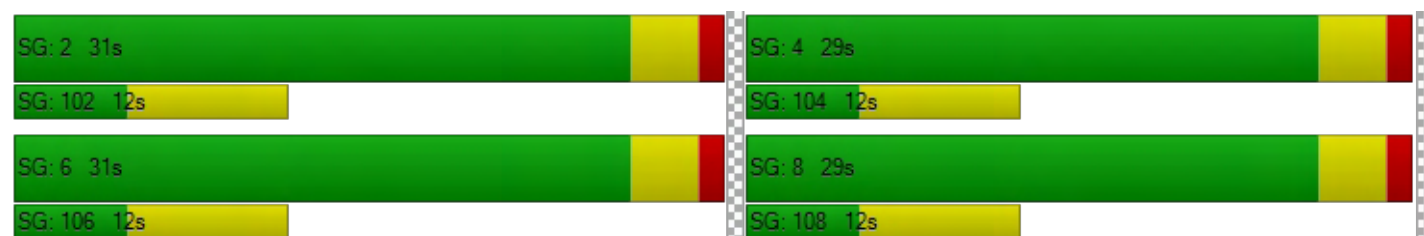
d_M, Delay for Movement [s/veh]	11.67	11.67	11.67	23.40	23.40	23.40	15.98	0.00	23.28	23.28	0.00	13.04	13.09
Movement LOS	B	B	B	C	C	C	B		C	C		B	B
d_A, Approach Delay [s/veh]	11.67			23.40			23.27			13.04			
Approach LOS	B			C			C			B			
d_I, Intersection Delay [s/veh]	18.94												
Intersection LOS	B												
Intersection V/C	0.787												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	21.68			21.68			21.68			21.68			
I_p,int, Pedestrian LOS Score for Intersection	1.756			1.953			2.755			2.812			
Crosswalk LOS	A			A			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	900			900			833			833			
d_b, Bicycle Delay [s]	9.08			9.08			10.21			10.21			
I_b,int, Bicycle LOS Score for Intersection	1.725			2.533			2.767			2.269			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Roxford Street Warehouses Project

Scenario 4 Opening Year With Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	NB Left	0.607	5.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutesDelay (sec / veh): 5.3
Level Of Service: A
Volume to Capacity (v/c): 0.607**Intersection Setup**

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	16	8	19	7	5	21	1	270	682	21	13	774	45
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.113	1.113	1.113	1.113	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	3	0	1	0	5	0	31	228	15	0	51	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	12	21	9	6	28	1	335	995	38	14	921	58
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.969	0.969	0.969	0.969	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	5	2	2	7	0	86	257	10	4	238	15
Total Analysis Volume [veh/h]	23	12	22	9	6	29	1	346	1027	39	14	950	60
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	26	0	0	0	94	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	106	106	106	106
g / C, Green / Cycle	0.05	0.05	0.88	0.88	0.88	0.88
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.00	0.56	0.27	0.27
s, saturation flow rate [veh/h]	1783	1796	567	1888	1900	1861
c, Capacity [veh/h]	131	126	524	1668	1678	1644
d1, Uniform Delay [s]	55.86	55.53	2.00	1.87	1.11	1.12
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.26	1.65	0.01	1.89	0.46	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.35	0.00	0.64	0.30	0.31
d, Delay for Lane Group [s/veh]	58.12	57.18	2.00	3.76	1.57	1.60
Lane Group LOS	E	E	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.79	1.37	0.00	2.76	0.90	0.91
50th-Percentile Queue Length [ft/ln]	44.71	34.17	0.10	69.00	22.50	22.79
95th-Percentile Queue Length [veh/ln]	3.22	2.46	0.01	4.97	1.62	1.64
95th-Percentile Queue Length [ft/ln]	80.48	61.51	0.18	124.19	40.50	41.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.12	58.12	58.12	57.18	57.18	57.18	2.00	0.00	3.76	3.76	0.00	1.59	1.60
Movement LOS	E	E	E	E	E	E	A		A	A		A	A
d_A, Approach Delay [s/veh]	58.12			57.18			3.76			1.59			
Approach LOS	E			E			A			A			
d_I, Intersection Delay [s/veh]	5.26												
Intersection LOS	A												
Intersection V/C	0.607												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	51.34			51.34			51.34			51.34			
I_p,int, Pedestrian LOS Score for Intersection	1.772			1.777			2.769			2.817			
Crosswalk LOS	A			A			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	367			367			1500			1500			
d_b, Bicycle Delay [s]	40.02			40.02			3.75			3.75			
I_b,int, Bicycle LOS Score for Intersection	1.654			1.632			3.320			2.393			
Bicycle LOS	A			A			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Roxford Street Warehouses Project
Vistro File: G:\...\PM MIT.vistro
Report File: G:\...\PM OYP IMP.pdf

Scenario 4 Opening Year With Project
4/18/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Olden St/Telfair Ave (NS) at Roxford St (EW)	Signalized	HCM 6th Edition	SB Right	0.838	24.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Olden St/Telfair Ave (NS) at Roxford St (EW)Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutesDelay (sec / veh): 24.7
Level Of Service: C
Volume to Capacity (v/c): 0.838**Intersection Setup**

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Approach	Northbound			Southbound			Eastbound				Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.0	100.0	100.0	100.0	55.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00				30.00		
Grade [%]	0.00			0.00			0.00				0.00		
Curb Present	No			No			No				No		
Crosswalk	Yes			Yes			Yes				Yes		

Volumes

Name	Telfair Ave			Olden St			Roxford St				Roxford St		
Base Volume Input [veh/h]	24	12	36	46	13	327	1	38	510	19	11	605	16
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.196	1.196	1.196	1.196	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	2	0	9	4	39	0	19	72	16	0	238	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	16	43	65	20	434	1	64	688	39	13	969	23
Peak Hour Factor	0.8710	0.8710	0.8710	0.8710	0.8710	0.8710	0.871	0.871	0.871	0.871	0.8710	0.8710	0.8710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	5	12	19	6	125	0	18	197	11	4	278	7
Total Analysis Volume [veh/h]	52	18	49	75	23	498	1	73	790	45	15	1113	26
Presence of On-Street Parking	No		No	No		No	No			No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0				0		
v_di, Inbound Pedestrian Volume crossing	0			0			0				0		
v_co, Outbound Pedestrian Volume crossing	0			0			0				0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0				0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0		
Bicycle Volume [bicycles/h]	0			0			0				0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	59	0	0	59	0	0	0	31	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	0	7	0	0	7	0
Rest In Walk		No			No				No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No				No			No	
Maximum Recall		No			No				No			No	
Pedestrian Recall		No			No				No			No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	46	46	46	46
g / C, Green / Cycle	0.40	0.40	0.51	0.51	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.16	0.37	0.00	0.45	0.30	0.30
s, saturation flow rate [veh/h]	739	1600	498	1867	1885	1870
c, Capacity [veh/h]	351	680	221	960	969	961
d1, Uniform Delay [s]	17.84	25.85	23.16	19.21	15.21	15.27
k, delay calibration	0.11	0.18	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	5.99	0.04	10.62	2.61	2.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.88	0.00	0.87	0.59	0.59
d, Delay for Lane Group [s/veh]	18.41	31.83	23.20	29.83	17.83	17.95
Lane Group LOS	B	C	C	C	B	B
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.68	12.86	0.02	16.50	8.27	8.31
50th-Percentile Queue Length [ft/ln]	42.11	321.50	0.43	412.57	206.85	207.85
95th-Percentile Queue Length [veh/ln]	3.03	18.74	0.03	23.17	12.99	13.04
95th-Percentile Queue Length [ft/ln]	75.81	468.53	0.77	579.13	324.78	326.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.41	18.41	18.41	31.83	31.83	31.83	23.20	0.00	29.83	29.83	0.00	17.89	17.95
Movement LOS	B	B	B	C	C	C	C		C	C		B	B
d_A, Approach Delay [s/veh]	18.41			31.83			29.82			17.89			
Approach LOS	B			C			C			B			
d_I, Intersection Delay [s/veh]	24.71												
Intersection LOS	C												
Intersection V/C	0.838												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			9.0			9.0			
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00			
d_p, Pedestrian Delay [s]	36.45			36.45			36.45			36.45			
I_p,int, Pedestrian LOS Score for Intersection	1.792			1.976			2.919			2.895			
Crosswalk LOS	A			A			C			C			
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000			
c_b, Capacity of the bicycle lane [bicycles/h]	1222			1222			600			600			
d_b, Bicycle Delay [s]	6.81			6.81			22.05			22.05			
I_b,int, Bicycle LOS Score for Intersection	1.756			2.543			2.939			2.499			
Bicycle LOS	A			B			C			B			

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX F

INTERSECTION QUEUING ANALYSIS WORKSHEETS

Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.074

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	177	1	10	0	23	675	1047	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1130	1.1130	1.1130	1.0000	1.1130	1.1130	1.1130	1.1130	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	138	0	0	0	0	0	27	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	337	1	11	0	26	759	1204	119	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9600	0.9600	0.9600	0.9500	0.9600	0.9600	0.9600	0.9600	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	88	0	3	0	7	198	314	31	0
Total Analysis Volume [veh/h]	0	0	0	351	1	11	0	27	791	1254	124	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	11	0	0	32	0	0	17	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		65	65	65	65	65	65
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		62	62	30	30	26	26
g / C, Green / Cycle		0.95	0.95	0.46	0.46	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate		0.19	0.01	0.01	0.49	0.36	0.07
s, saturation flow rate [veh/h]		1810	1488	1900	1615	3514	1900
c, Capacity [veh/h]		1719	1414	874	743	1427	771
d1, Uniform Delay [s]		0.10	0.08	9.65	17.61	17.89	12.31
k, delay calibration		0.50	0.50	0.11	0.50	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.27	0.01	0.01	51.60	1.91	0.10
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.20	0.01	0.03	1.06	0.88	0.16
d, Delay for Lane Group [s/veh]		0.37	0.09	9.66	69.22	19.80	12.41
Lane Group LOS		A	A	A	F	B	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		0.13	0.00	0.21	21.03	7.83	1.04
50th-Percentile Queue Length [ft/ln]		3.20	0.11	5.25	525.67	195.87	25.88
95th-Percentile Queue Length [veh/ln]		0.23	0.01	0.38	29.88	12.43	1.86
95th-Percentile Queue Length [ft/ln]		5.77	0.19	9.45	747.11	310.63	46.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.37	0.09	0.09	0.00	9.66	69.22	19.80	12.41	0.00
Movement LOS				A	A	A		A	F	B	B	
d_A, Approach Delay [s/veh]	0.00			0.36			67.25			19.14		
Approach LOS	A			A			E			B		
d_I, Intersection Delay [s/veh]	31.85											
Intersection LOS	C											
Intersection V/C	1.074											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	215	862	400
d_b, Bicycle Delay [s]	32.50	25.88	10.53	20.80
I_b,int, Bicycle LOS Score for Intersection	4.132	1.859	2.909	3.833
Bicycle LOS	D	A	C	D

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	76.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	12	714	198	0	0	1193
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.0000	1.0000	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	1.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	153	138	0	0	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	956	360	0	0	1368
Peak Hour Factor	0.9590	0.9590	0.9590	0.9500	0.9500	0.9590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	249	94	0	0	357
Total Analysis Volume [veh/h]	14	997	375	0	0	1426
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	1.48	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	76.14	32.52	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	10.27	8.51	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	256.67	212.82	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	33.12		0.00		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	11.91					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	402	117	14	301	88	74	17	643	242	35	661	121
Base Volume Adjustment Factor	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130	1.1130
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	291	0	0	27	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	451	131	16	338	99	83	19	1014	272	39	770	168
Peak Hour Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	115	33	4	86	25	21	5	259	70	10	197	43
Total Analysis Volume [veh/h]	461	134	16	346	101	85	19	1037	278	40	787	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	12	12	12	25	25	25	25	25	25
g / C, Green / Cycle	0.19	0.19	0.19	0.19	0.19	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.09	0.19	0.11	0.03	0.36	0.36	0.09	0.26	0.26
s, saturation flow rate [veh/h]	1810	1810	1697	1810	1758	595	1900	1764	424	1900	1783
c, Capacity [veh/h]	351	351	329	351	341	223	785	728	141	785	736
d1, Uniform Delay [s]	22.41	22.41	21.45	24.17	21.86	21.18	16.13	16.22	29.28	14.02	14.02
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.24	0.25	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.28	9.28	4.51	44.82	6.16	0.16	6.45	7.48	1.09	0.84	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.66	0.46	0.99	0.55	0.09	0.87	0.87	0.28	0.63	0.63
d, Delay for Lane Group [s/veh]	31.69	31.69	25.95	68.99	28.03	21.34	22.58	23.70	30.37	14.86	14.91
Lane Group LOS	C	C	C	E	C	C	C	C	C	B	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	3.70	3.70	2.15	8.89	2.78	0.22	8.48	8.18	0.59	4.66	4.39
50th-Percentile Queue Length [ft/ln]	92.39	92.39	53.76	222.15	69.53	5.49	211.96	204.58	14.65	116.61	109.74
95th-Percentile Queue Length [veh/ln]	6.65	6.65	3.87	13.77	5.01	0.40	13.25	12.87	1.05	8.21	7.83
95th-Percentile Queue Length [ft/ln]	166.30	166.30	96.76	344.37	125.16	9.89	331.34	321.86	26.36	205.16	195.64

Movement, Approach, & Intersection Results

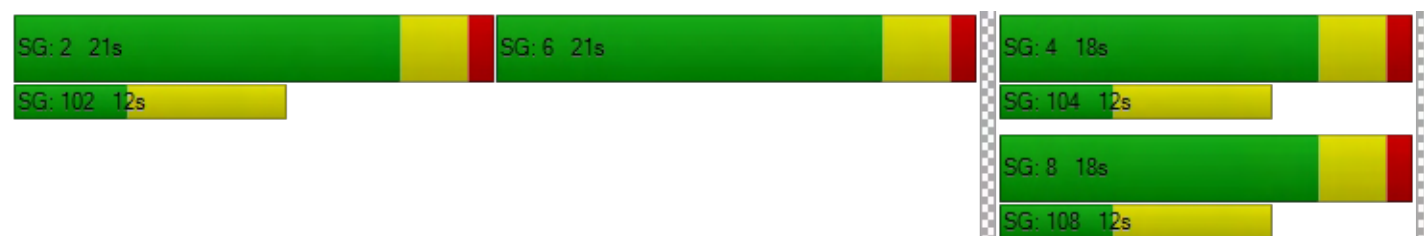
d_M, Delay for Movement [s/veh]	31.69	25.95	25.95	68.99	28.03	28.03	21.34	22.96	23.70	30.37	14.88	14.91
Movement LOS	C	C	C	E	C	C	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	30.28			54.67			23.09			15.51		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	27.01											
Intersection LOS	C											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.420	2.348	0.000	2.888
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.064	2.437	2.660	2.384
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: I-5 SB Ramps (NS) at Roxford St (EW)

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.817

Intersection Setup

Name				I-5 SB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	2	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	40.00	160.00	100.00	100.00
Speed [mph]	30.00			30.00			15.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name				I-5 SB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	0	0	0	225	2	9	0	42	160	1036	146	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.1960	1.1960	1.1960	1.0000	1.1960	1.1960	1.1960	1.1960	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	49	0	0	0	0	0	149	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	321	2	11	0	51	193	1400	177	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.8850	0.8850	0.8850	0.9500	0.8850	0.8850	0.8850	0.8850	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	91	1	3	0	14	55	395	50	0
Total Analysis Volume [veh/h]	0	0	0	363	2	12	0	58	218	1582	200	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	66
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Split	Split	Split	Split	Permiss
Signal group	0	0	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	11	0	0	11	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	7	0	0	7	0	0	7	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall					No			No			No	
Maximum Recall					No			No			No	
Pedestrian Recall					No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	C	R	L	C
C, Cycle Length [s]		66	66	66	66	66	66
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	11	11	30	30
g / C, Green / Cycle		0.19	0.19	0.17	0.17	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate		0.20	0.01	0.03	0.14	0.45	0.11
s, saturation flow rate [veh/h]		1795	1490	1885	1602	3486	1885
c, Capacity [veh/h]		349	290	324	275	1576	852
d1, Uniform Delay [s]		26.63	21.65	23.41	26.26	18.12	11.10
k, delay calibration		0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		58.54	0.31	0.26	5.11	11.38	0.14
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		1.04	0.05	0.18	0.79	1.00	0.23
d, Delay for Lane Group [s/veh]		85.17	21.97	23.67	31.37	29.50	11.24
Lane Group LOS		F	C	C	C	F	B
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		10.85	0.19	0.80	3.67	12.45	1.58
50th-Percentile Queue Length [ft/ln]		271.26	4.84	20.05	91.81	311.28	39.54
95th-Percentile Queue Length [veh/ln]		16.57	0.35	1.44	6.61	18.28	2.85
95th-Percentile Queue Length [ft/ln]		414.26	8.71	36.08	165.26	457.11	71.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	85.17	21.97	21.97	0.00	23.67	31.37	29.50	11.24	0.00
Movement LOS				F	C	C		C	C	F	B	
d_A, Approach Delay [s/veh]	0.00			82.82			29.75			27.45		
Approach LOS	A			F			C			C		
d_I, Intersection Delay [s/veh]	36.29											
Intersection LOS	D											
Intersection V/C	0.817											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1212	212	212
d_b, Bicycle Delay [s]	33.00	5.12	26.37	26.37
I_b,int, Bicycle LOS Score for Intersection	4.132	1.871	2.015	4.500
Bicycle LOS	D	A	B	E

Sequence

Ring 1	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: I-5 NB Off-Ramp (NS) at Roxford St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	444.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.219

Intersection Setup

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	0	0
Pocket Length [ft]	100.00	780.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	I-5 NB Off-Ramp		Roxford St		Roxford St	
Base Volume Input [veh/h]	57	555	263	0	0	1127
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.0000	1.0000	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	65	49	0	0	149
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	736	367	0	0	1510
Peak Hour Factor	0.9150	0.9150	0.9150	0.9500	0.9500	0.9150
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	201	100	0	0	413
Total Analysis Volume [veh/h]	75	804	401	0	0	1650
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.22	1.23	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	444.36	189.04	0.00	0.00	0.00	0.00
Movement LOS	F	F	A			A
95th-Percentile Queue Length [veh/ln]	29.61	17.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	740.28	435.17	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	210.82		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	63.25					
Intersection LOS	F					

Intersection Level Of Service Report**Intersection 3: I-5 NB Ramps/Encinitas Ave (NS) at Roxford St (EW)**

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	52.00	100.00	100.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Encinitas Ave			I-5 NB Ramps			Roxford St			Roxford St		
Base Volume Input [veh/h]	297	154	18	59	16	77	43	442	303	26	754	223
Base Volume Adjustment Factor	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960	1.1960
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	114	0	0	149	164
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	359	186	22	72	19	93	52	648	366	31	1060	434
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	51	6	20	5	25	14	177	100	8	290	119
Total Analysis Volume [veh/h]	393	204	24	79	21	102	57	710	401	34	1161	475
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	2.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	18	0	0	18	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	7	0	0	7	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	9	9	9	9	30	30	30	30	30	30
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.12	0.12	0.12	0.04	0.07	0.18	0.31	0.31	0.07	0.44	0.47
s, saturation flow rate [veh/h]	1795	1808	1679	1795	1644	309	1885	1660	511	1885	1706
c, Capacity [veh/h]	272	274	254	272	249	124	938	826	232	938	849
d1, Uniform Delay [s]	24.55	24.54	24.54	22.65	23.41	30.05	11.05	11.07	19.60	13.68	14.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.18	0.18	0.11	0.37	0.41
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.34	19.17	20.25	2.69	6.84	2.65	1.14	1.33	0.29	9.95	16.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.78	0.77	0.29	0.49	0.46	0.63	0.63	0.15	0.89	0.94
d, Delay for Lane Group [s/veh]	43.89	43.72	44.79	25.34	30.25	32.70	12.19	12.40	19.88	23.63	30.89
Lane Group LOS	D	D	D	C	C	C	B	B	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.17	4.18	3.95	1.14	1.97	0.87	4.80	4.30	0.38	10.53	11.79
50th-Percentile Queue Length [ft/ln]	104.15	104.48	98.77	28.40	49.36	21.63	120.10	107.52	9.47	263.15	294.80
95th-Percentile Queue Length [veh/ln]	7.50	7.52	7.11	2.04	3.55	1.56	8.40	7.70	0.68	15.85	17.42
95th-Percentile Queue Length [ft/ln]	187.46	188.06	177.78	51.12	88.84	38.93	209.96	192.54	17.04	396.17	435.59

Movement, Approach, & Intersection Results

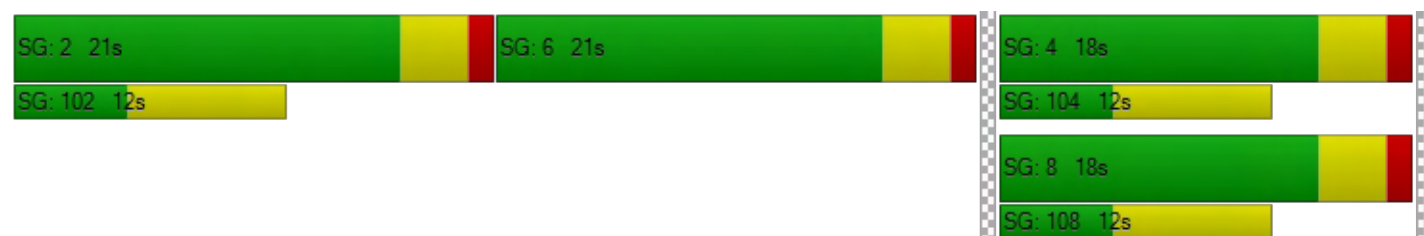
d_M, Delay for Movement [s/veh]	43.81	44.62	44.79	25.34	30.25	30.25	32.70	12.23	12.40	19.88	25.65	30.89
Movement LOS	D	D	D	C	C	C	C	B	B	B	C	C
d_A, Approach Delay [s/veh]	44.12			28.33			13.29			27.02		
Approach LOS	D			C			B			C		
d_I, Intersection Delay [s/veh]	25.61											
Intersection LOS	C											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersection	2.423	2.421	0.000	2.904
Crosswalk LOS	B	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	467	467
d_b, Bicycle Delay [s]	15.41	15.41	17.63	17.63
I_b,int, Bicycle LOS Score for Intersection	2.072	1.893	2.523	2.937
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





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