LINSCOTT LAW & GREENSPAN engineers

TRAFFIC STUDY

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY

Signal Hill, California
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Prepared for:

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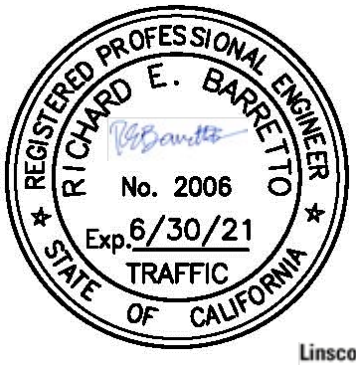

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EXECUTIVE SUMMARY

Project Description

- The existing Target Center (Store T2319), addressed at 950 E. 33rd Street, is located south of E. 33rd Street, between Atlantic Avenue and California Avenue, and north of the San Diego (I-405) Freeway in the City of Signal Hill, California. The Project site consists of two (2) parcels with a total land area of 13.635± acres, of which 4.377± acres is currently vacant. The Target Center site is a 9.258± acre parcel of land that is currently developed with a 135,811 square-foot (SF) free-standing discount store and surface parking supply of 538 spaces. The remaining 4.377± acres, which is generally located on the west side of California Avenue, south of the existing Target and north of the I-405 Freeway, is currently vacant.

- The proposed Project, all of which will be constructed on existing surface parking and/or vacant land, includes development of up to 23,500 SF of retail/restaurant and retail/service/medical office space within three (3) buildings and a three-story self-storage facility totaling 177,345 SF, inclusive of a lobby/guest services area. There are no plans to expand the existing Target. Upon completion of the Project, a total of 491 spaces will be provided.

- The "Drive-Thru" building is a proposed 5,000 SF restaurant pad with drive-thru that would contain one or more restaurant/food uses of which one would operate the drive-thru. The "Retail/Other" building totals 15,000 SF and would be occupied by a single tenant or a various mix retail tenant which may include "take-out" food uses, whereas the "Retail/Service/Medical Office" is a 3,500 SF building that would be occupied by either a medical/dental office or retail use; the amount of potential outdoor dining area that the Project will provide for the "Drive-Thru" is not known at this time. To provide a conservative assessment, up to 600 SF of outdoor dining area is assumed to be provided.

- The proposed three-story, 177,345 SF self-storage facility also includes the provision of up to 25 RV covered storage spaces in the gated storage yard. The proposed self-storage facility leasing office is expected to operate Monday-Friday from 9:30 am-6:00 pm, Saturday from 9:00 am-5:30 pm, and Sunday between 10:00 am-4:00 pm; access to the storage units will be available to customers/tenants Monday-Sunday, between 6:00 am-10:00 pm. Access to the gated yard for employees and tenants will be provided via gate access, Monday-Sunday, between 6:00 am-10:00 pm.

- The Project's total floor area will consist of the following:
  - 135,811 SF Target store,
  - 15,000 SF of retail/other uses,
  - 3,500 SF of retail/service/medical space,
  - 5,000 SF of restaurant uses with up to 600 SF of outdoor dining area, and

- 177,345 SF of self-storage space

- Since a tenant mix has not been identified for the Project's 5,000 SF of restaurant floor area and up to 600 SF of outdoor dining area, the following mix/type of restaurant has been assumed and is evaluated in this study to allow for flexibility in future tenancies, along with the proposed retail and self-storage space:

Project Option	Retail Shop	Fine/ Casual Dining/ Outdoor Dining	QSR/Fast-Casual/ Outdoor Dining	Fast-Food w/ Drive-Thru/ Outdoor Dining	Retail/ Service/ Medical Office	Self-Storage
❑ Option 1	15,000 SF	2,000 SF/ 300 SF	--	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Option 2	15,000 SF	--	2,000 SF/ 300 SF	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Option 3	15,000 SF	--	--	5,000 SF/ 600 SF	3,500 SF	177,345 SF

- Vehicular access to the Project site will be provided via two (2) existing full access unsignalized driveways located on E. 33rd Street and one (1) existing full access unsignalized driveway located on California Avenue. A second access driveway on California Avenue is proposed. However, this access, which will be gated, will only be used on the occasion that an RV is to exit the facility.

- To provide a conservative assessment, the trip generation potential of all 3 options have been compared and Option 3 will be analyzed in the report. Option 3 of the proposed Project is forecast to generate approximately 2,033 daily trips, with 144 trips (80 inbound, 64 outbound) produced in the AM peak hour and 130 trips (63 inbound, 67 outbound) produced in the PM peak hour on a "typical" weekday.

Study Area

- Eight (8) key study intersections have been identified for evaluation in collaboration with City of Signal Hill staff. The eight (8) intersections listed below, of which three (3) are located solely within the City of Long Beach, provide regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation, as well as identifies the applicable jurisdiction.

Key Intersection	Jurisdiction	
	City of Long Beach	City of Signal Hill
1. Atlantic Avenue at 33rd Street	Long Beach	--
2. California Avenue at 33rd Street	--	Signal Hill
3. California Avenue at 32nd Street	--	Signal Hill
4. Orange Avenue at 33rd Street	--	Signal Hill
5. Orange Avenue at 32nd Street	--	Signal Hill
6. California Avenue at Spring Street	Long Beach	Signal Hill
7. California Avenue at Wardlow Road	Long Beach	--
8. Orange Avenue at Wardlow Road	Long Beach	--

Related Projects Description

- Thirty-eight (38) cumulative projects are expected to generate a combined total of 26,697 daily trips, 1,930 AM peak hour trips (1,119 inbound and 811 outbound) and 2,441 PM peak hour trips (1,106 inbound and 1,335 outbound) on a typical weekday.

Traffic Impact Analysis

Existing Traffic Conditions

- All of the key study intersections currently operate at LOS D or better during the weekday AM and PM peak hours.

Existing Plus Project Traffic Conditions

- All of the key study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours under Existing Plus Project traffic conditions.

Year 2024 Cumulative Traffic Conditions

- One (1) key study intersection is forecast to operate adversely under Year 2024 Cumulative traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours. The intersection operating adversely includes the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS
5. Orange Avenue at 32nd Street	--	--	--	--	0.988	E	--	--

Year 2024 Cumulative Plus Project Traffic Conditions

- One (1) key study intersection is forecast to operate adversely under Year 2024 Cumulative Plus Project traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours with the addition of project traffic. The intersection operating adversely includes the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
5. Orange Avenue at 32nd Street	--	--	--	--	0.990	E	--	--

- Although the intersection of Orange Avenue/32nd Street is forecast to operate adversely, the project increment adds less than 0.020 to the ICU value and hence the Project's impact is considered insignificant based on the LOS standards and significance criteria defined in this report. In addition to not meeting the significant impact criteria, the intersection of Orange Avenue/32nd Street has Project peak hour trips that are less than the 40 trip threshold required for analysis.

Year 2041 Buildout Traffic Conditions

- Two (2) key study intersections are forecast to operate adversely under Year 2041 Buildout traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours. The intersections operating adversely include the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
4. Orange Avenue at 33rd Street	--	--	--	--	0.912	E	--	--
5. Orange Avenue at 32nd Street	0.906	E	--	--	1.121	F	--	--

Year 2041 Buildout Plus Project Traffic Conditions

- Two (2) key study intersection are forecast to operate adversely under Year 2041 Buildout Plus Project traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours with the addition of project traffic. The intersections operating adversely include the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
4. Orange Avenue at 33rd Street	--	--	--	--	0.916	E	--	--
5. Orange Avenue at 32nd Street	0.909	E	--	--	1.123	F	--	--

- Although the intersections of Orange Avenue/33rd Street and Orange Avenue/32nd Street are forecast to operate adversely, the project increment adds less than 0.020 to the ICU value and hence the Project's impact is considered insignificant based on the LOS standards and significance criteria defined in this report. In addition to not meeting the significant impact criteria, the intersection of Orange Avenue/33rd Street and Orange Avenue/32nd Street has Project peak hour trips that are less than the 40 trip threshold required for analysis.

City of Signal Hill Intersection Left-Turn Vehicle Queuing Analysis

Existing Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under existing traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Westbound left-turn – PM peak hour

Existing Plus Project Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Westbound left-turn – PM peak hour

- The addition of project traffic does not contribute to the westbound left-turn movement at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under existing conditions.

Year 2024 Cumulative Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under Year 2024 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Westbound left-turn – PM peak hour

Year 2024 Cumulative Plus Project Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Westbound left-turn – PM peak hour

- The addition of project traffic does not contribute to the westbound left-turn movement at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2024 cumulative conditions.

Year 2041 Buildout Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under Year 2041 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Southbound left-turn – PM peak hour
        - Westbound left-turn – PM peak hour

Year 2041 Buildout Plus Project Traffic Conditions

- One (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 5: Orange Avenue at 32nd Street
        - Southbound left-turn – PM peak hour
        - Westbound left-turn – PM peak hour

- The addition of project traffic does not contribute to the southbound or westbound left-turn movements at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2041 buildout conditions.

City of Long Beach Intersection Vehicle Queuing Analysis

Existing Traffic Conditions

- One (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach under existing traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Eastbound left-turn – PM peak hour

Existing Plus Project Traffic Conditions

- One (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Eastbound left-turn – AM peak hour & PM peak hour

- The addition of project traffic contributes to the eastbound left-turn movement at the intersection of Orange Avenue/Wardlow Road. Although the eastbound left-turn experiences pre-project storage deficiencies in the PM peak hour, the proposed Project contributes to the storage deficiencies in the AM peak hour. The Project adds a fraction of a vehicle to the projected queues and therefore is not considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, Orange Avenue at Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

Year 2024 Cumulative Traffic Conditions

- One (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach under Year 2024 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Northbound left-turn – AM peak hour & PM peak hour
        - Northbound through/right – PM peak hour
        - Eastbound left-turn – AM peak hour & PM peak hour

Year 2024 Cumulative Plus Project Traffic Conditions

- One (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Northbound left-turn – AM peak hour & PM peak hour
        - Northbound through/right – PM peak hour
        - Eastbound left-turn – AM peak hour & PM peak hour

- The addition of project traffic does not contribute to the northbound left-turn or northbound through/right movements at the intersection of Orange Avenue/Wardlow Road and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2024 cumulative conditions.

- The addition of project traffic contributes to the eastbound left-turn movement at the intersection of Orange Avenue/Wardlow Road. The Project adds a fraction of a vehicle to the projected queues and therefore is not considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, Orange Avenue at Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

Year 2040 Buildout Traffic Conditions

- Three (3) key study intersections have queues which exceed the existing storage capacity for one or more intersection approach under Year 2041 buildout traffic conditions. The remaining key study intersection has queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 1: Atlantic Avenue at 33rd Street
        - Southbound left-turn – PM peak hour
    - Intersection No. 6: California Avenue at Spring Street
        - Southbound left-turn – PM peak hour
    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Northbound left-turn – AM peak hour & PM peak hour
        - Northbound through/right – PM peak hour
        - Eastbound left-turn – AM peak hour & PM peak hour
        - Westbound left-turn – AM peak hour

Year 2041 Buildout Plus Project Traffic Conditions

- Three (3) key study intersection have queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersection has queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

    - Intersection No. 1: Atlantic Avenue at 33rd Street
        - Southbound left-turn – PM peak hour
    - Intersection No. 6: California Avenue at Spring Street
        - Southbound left-turn – PM peak hour
    - Intersection No. 8: Orange Avenue at Wardlow Road
        - Northbound left-turn – AM peak hour & PM peak hour
        - Northbound through/right – PM peak hour
        - Eastbound left-turn – AM peak hour & PM peak hour
        - Westbound left-turn – AM peak hour

- The addition of project traffic does not contribute to the northbound left-turn, northbound through/right, or westbound left-turn movements at the intersection of Orange Avenue/Wardlow Road and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2041 buildout conditions.

- The addition of project traffic contributes to the southbound left-turn and eastbound left-turn movements at the intersections of California Avenue/Spring Street and Orange Avenue/Wardlow Road, respectively, however, this approach has pre-project storage deficiencies as reported under Year 2041 buildout conditions. The Project adds a fraction of a vehicle to the projected queues and therefore is not considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, California Avenue/Spring Street and Orange Avenue/Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

- The addition of project traffic also contributes to the southbound left-turn movement at the intersection of Atlantic Avenue/33rd Street, however, this approach has pre-project storage deficiencies as reported under Year 2041 buildout conditions. It should be noted that the City of Long Beach guidelines do not require a long-term analysis to be performed. The queuing results are provided for informational purposes only. However, based on the queuing results it is recommended to lengthen the southbound left-turn pocket in order to accommodate the queues. As an alternative improvement, modifying the existing signal to include protected-permissive phasing for the southbound direction minimize queues.

Recommended Improvements

Existing Plus Project Traffic Conditions

- The proposed Project will not impact any of the eight key study intersections under the "Existing Plus Project" traffic scenario. Therefore, no improvements are recommended.

Year 2024 Cumulative Plus Project Traffic Conditions

- The proposed Project will not impact any of the eight key study intersections under the "Year 2024 Cumulative Plus Project" traffic scenario. Therefore, no improvements are recommended.

Year 2041 Cumulative Plus Project Traffic Conditions

- The proposed Project will impact one (1) of the eight key study intersections under the "Year 2041 Buildout Plus Project" traffic scenario. The recommended improvements include the following:

  - Intersection 1 – Atlantic Avenue at 33rd Street: Restripe the southbound leg to lengthen the southbound left-turn pocket storage. These improvements are subject to the approval of the City of Long Beach.

  As an alternative improvement, modifying the existing signal to include protected-permissive phasing for the southbound direction to help reduce the southbound left-turn queue and thus would reduce the amount of on-street parking to be removed.

Site Access Evaluation

- The proposed driveways are forecast to operate at acceptable LOS D or better a during both the AM and PM peak hours. Therefore, access to the project site is considered adequate as the current/proposed driveway configurations can accommodate forecast traffic volumes either entering or exiting the Project site.

Project-Related Fair Share Contribution

- The Project's traffic percentage at the intersection of Atlantic Avenue/33rd Street totals 20.0% under Year 2041 buildout traffic conditions.

Congestion Management Program Compliance Assessment

- Based on the proposed Project's trip generation potential, trip distribution and trip assignment, the Project will not add more than 50 at the identified CMP intersections during the weekday AM peak hour or PM peak hour. Therefore, a CMP intersection traffic impact analysis is not required and impacts would be less than significant.

Based on the project's trip generation potential and distribution pattern, the proposed Project will not add more than 150 trips during the AM or PM peak hour at this CMP mainline freeway-monitoring location. Therefore, a CMP freeway traffic impact analysis is not required.

Transit Impact Review

- The proposed Project is forecast to generate 14 transit trips (8 inbound and 6 outbound) during the AM peak hour and 13 transit trips (6 inbound and 7 outbound) during the PM peak hour. Over a 24-hour period the proposed Project is forecasted to generate 199 daily weekday transit trips.

Vehicle Miles Traveled (VMT) Analysis

- For the VMT screening analysis, the presumption of less than significant impact near Transit Stations was applied to the proposed Project. Since the proposed Project is considered to be located within half a mile of an existing high-quality transit corridor, this project can be screened from further VMT analysis and can be presumed to have a less than significant impact on VMT.

- Retail Screening: The proposed Project consists of two commercial/retail building totaling 20,600 SF which is less than the 50,000 SF threshold for small projects. It should be noted that if the 3,500 SF of medical/dental office use were converted to retail the commercial/retail component would consist of 24,100 SF which is less than the 50,000 SF threshold for small projects. Therefore, the commercial/retail component of the Project can be screened from further VMT analysis and the commercial/retail component can be presumed to have a less than significant impact on VMT.

- Medical/Dental Office Screening: Assuming a medical/dental office tenant, the proposed 3,500 SF medical/dental office component of the Project is forecast to generate 71 daily trips which is less than 110 daily trip threshold for small projects. As such the medical/dental office component of the Project can be screened from further VMT analysis and the medical/dental office component can be presumed to have a less than significant impact on VMT.

- Self-Storage Screening: Self-storage facilities are generally meant to serve the local community and therefore can be assumed to be a local-serving development which will reduce VMT. It is our understanding that the City of Signal Hill has only a few self-storage facilities and has a need for additional facilities to better serve the community. Therefore, the self-storage component of the Project can be screened from further VMT analysis and the self-storage component can be presumed to have a less than significant impact on VMT.

In addition to the screening criteria identified above, Greenhouse Gas (GHG) emissions have been quantified and analyzed for the self-storage component of this Project based on the application of CalEEMod. Based on the GHG data contained in the CalEEMod, the proposed GHG emissions based on the VMT for the self-storage component of the Project is approximately 502.5 MTCO2e annually from VMT.

The mobile source GHG emission is 83% lower than the applicable threshold of significance for GHG for the proposed Project. Thus indicating that the self-storage component of the Project's contribution to VMT, which is directly correlated to GHG emissions, would not lead to a significant impact under CEQA. Therefore, it can be concluded that the self-storage component of the proposed Project would not generate GHG emissions that would have a significant impact on the environment. As a result, this Project clearly complies with the state's goals of reducing greenhouse gas emissions, traffic-related air pollution and the intent of SB 743.

TRAFFIC STUDY

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY

Signal Hill, California
March 10, 2021

1.0 INTRODUCTION

This traffic study report addresses the potential traffic impacts and circulation needs associated with the Target Center Retail Expansion and Self-Storage Facility Project (hereinafter referred to as Project). The Project site is located south of E. 33rd Street, between Atlantic Avenue and California Avenue, and north of the San Diego (I-405) Freeway in the City of Signal Hill, California. The Project includes development of up to 23,500 square-feet (SF) of retail/restaurant and retail/service/medical office space within three (3) buildings and a three-story self-storage facility totaling 177,345 SF.

1.1 Scope of Work

This report documents the findings and recommendations of a traffic study, conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts associated with the proposed Project. The traffic analysis evaluates the existing operating conditions at eight (8) key study intersections within the project vicinity, estimates the trip generation potential of the proposed Project, and forecasts future operating conditions without and with the Project. Where necessary, intersection improvements/mitigation measures are identified to offset the impact of the proposed Project. ***Appendix A*** contains the traffic study Scope of Work.

This traffic report satisfies the traffic study requirements of the City of Signal Hill as well as the City of Long Beach and is consistent with the requirements and procedures outlined in the most current *Congestion Management Program (CMP) for Los Angeles County.*

The Project site has been visited by LLG and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at the eight (8) key study locations on a "typical" weekday for use in the preparation of intersection level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the project has been researched at the Cities of Signal Hill and Long Beach. Based on our research, thirty-eight (38) cumulative projects were considered in the cumulative traffic analysis for this project.

Based on the City of Signal Hill requirements, this traffic report analyzes existing, future near-term Year 2024, and future long-term buildout Year 2041 weekday AM and PM peak hour traffic conditions without and with the proposed Project. Peak hour traffic forecasts for the Year 2024 and Year 2041 horizon years have been projected by increasing existing traffic volumes by an annual growth rate of one percent (1.0%) per year and adding traffic volumes generated by the thirty-eight (38) cumulative projects.

1.2 Study Area

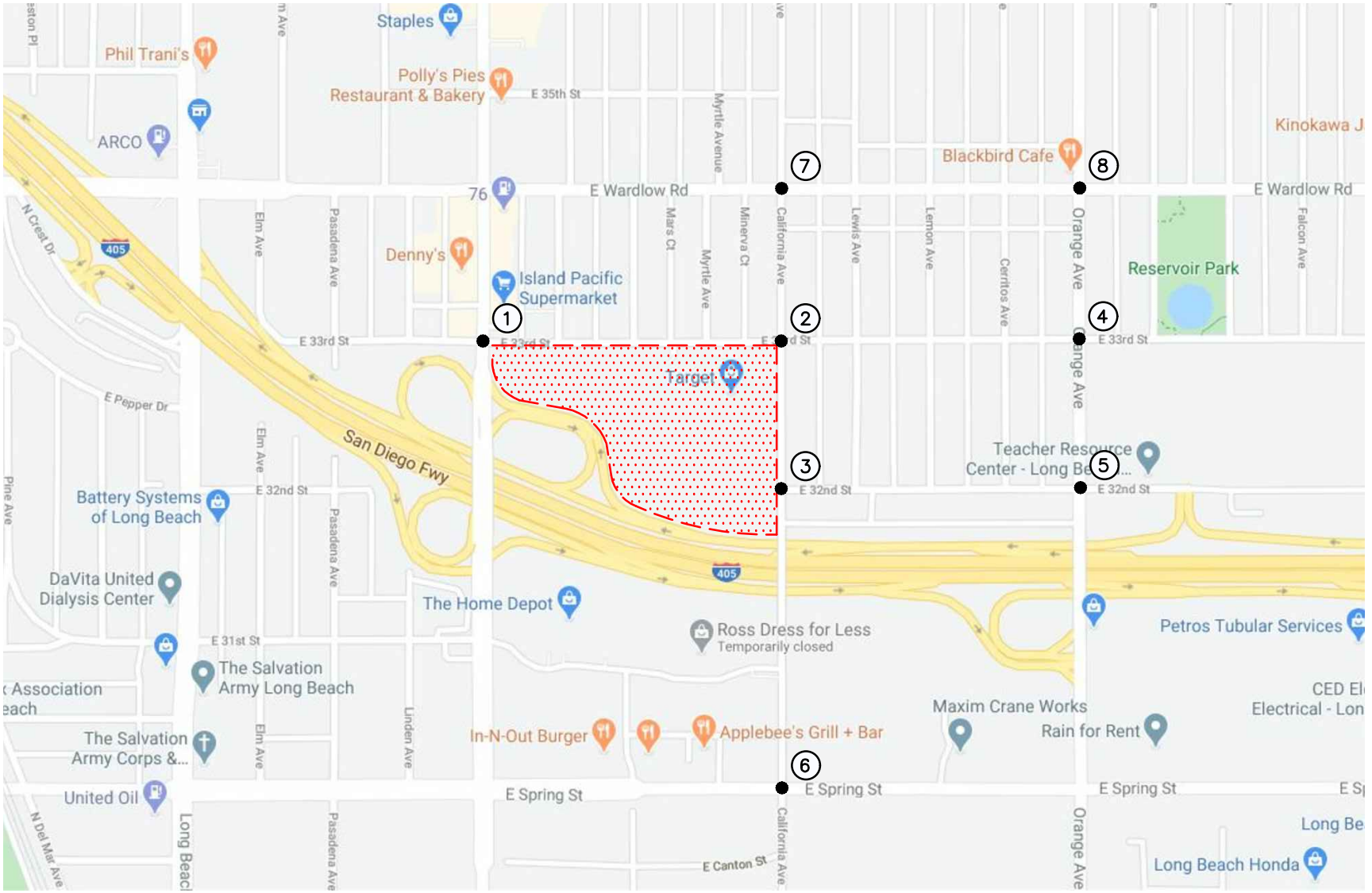
Eight (8) key study intersections have been identified for evaluation in collaboration with City of Signal Hill staff. The eight (8) intersections listed below, of which three (3) are located solely within the City of Long Beach, provide regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation, as well as identifies the applicable jurisdiction.

Key Intersection	Jurisdiction	
	City of Long Beach	City of Signal Hill
9. Atlantic Avenue at 33rd Street	Long Beach	--
10. California Avenue at 33rd Street	--	Signal Hill
11. California Avenue at 32nd Street	--	Signal Hill
12. Orange Avenue at 33rd Street	--	Signal Hill
13. Orange Avenue at 32nd Street	--	Signal Hill
14. California Avenue at Spring Street	Long Beach	Signal Hill
15. California Avenue at Wardlow Road	Long Beach	--
16. Orange Avenue at Wardlow Road	Long Beach	--

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system. The Volume-Capacity (V/C), Delay, and Level of Service (LOS) investigations at these key locations, as well as the Project Driveways, were used to evaluate the potential traffic-related impacts associated with the proposed Project.

Included in this traffic study report are:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions,
- AM and PM peak hour capacity analyses for existing plus project conditions,
- AM and PM peak hour capacity analyses for future near-term (Year 2024) conditions without and with project traffic,
- AM and PM peak hour capacity analyses for future long-term (Year 2041) conditions without and with project traffic,
- Intersection vehicle queuing analyses,
- Recommended Improvements,
- Site Access Evaluation (Project Driveway LOS)
- Congestion Management Program Compliance Assessment, and
- Vehicle Miles Traveled (VMT) Analysis.



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1–1

VICINITY MAP

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

2.0 PROJECT DESCRIPTION

The existing Target Center (Store T2319), addressed at 950 E. 33rd Street, is located south of E. 33rd Street, between Atlantic Avenue and California Avenue, and north of the San Diego (I-405) Freeway in the City of Signal Hill, California. The Project site consists of two (2) parcels with a total land area of 13.635± acres, of which 4.377± acres is currently vacant. The Target Center site is a 9.258± acre parcel of land that is currently developed with a 135,811 square-foot (SF) free-standing discount store and surface parking supply of 538 spaces. The remaining 4.377± acres, which is generally located on the west side of California Avenue, south of the existing Target and north of the I-405 Freeway, is currently vacant. ***Figure 2-1*** presents the existing site aerial.

The proposed Project, all of which will be constructed on existing surface parking and/or vacant land, includes development of up to 23,500 SF of retail/restaurant and retail/service/medical office space within three (3) buildings and a three-story self-storage facility totaling 177,345 SF, inclusive of a lobby/guest services area. There are no plans to expand the existing Target. Upon completion of the Project, a total of 491 spaces will be provided.

The "Drive-Thru" building is a proposed 5,000 SF restaurant pad with drive-thru that would contain one or more restaurant/food uses of which one would operate the drive-thru. The "Retail/Other" building totals 15,000 SF and would be occupied by a single tenant or a various mix retail tenant which may include "take-out" food uses, whereas the "Retail/Service/Medical Office" is a 3,500 SF building that would be occupied by either a medical/dental office or retail use; the amount of potential outdoor dining area that the Project will provide for the "Drive-Thru" is not known at this time. To provide a conservative assessment, up to 600 SF of outdoor dining area is assumed to be provided.

The proposed three-story, 177,345 SF self-storage facility also includes the provision of up to 25 RV covered storage spaces in the gated storage yard. The proposed self-storage facility leasing office is expected to operate Monday-Friday from 9:30 am-6:00 pm, Saturday from 9:00 am-5:30 pm, and Sunday between 10:00 am-4:00 pm; access to the storage units will be available to customers/tenants Monday-Sunday, between 6:00 am-10:00 pm. Access to the gated yard for employees and tenants will be provided via gate access, Monday-Sunday, between 6:00 am-10:00 pm.

Figure 2-2 presents the Project's Conceptual Site Plan, inclusive of the existing Chick-fil-A, prepared by Kimley Horn & Associates, Inc. dated March 5, 2021. The Project's total floor area will consist of the following:

- 135,811 SF Target store,
- 15,000 SF of retail/other uses,
- 3,500 SF of retail/service/medical space,
- 5,000 SF of restaurant uses with up to 600 SF of outdoor dining area, and
- 177,345 SF of self-storage space

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LINSCOTT LAW & GREENSPAN engineers

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SOURCE: GOOGLE

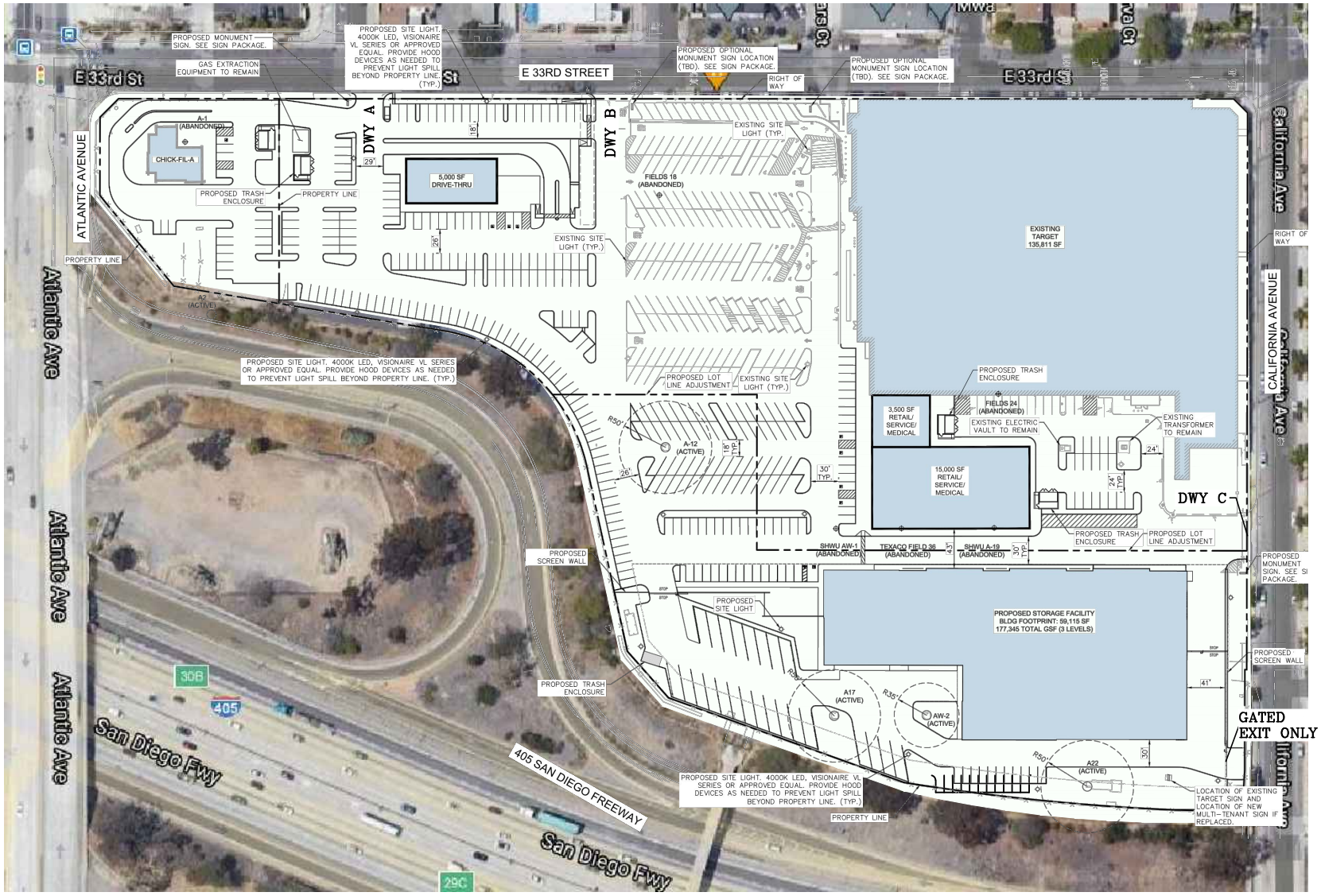
KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE AERIAL

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

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SOURCE: KIMLEY HORN & ASSOCIATES

FIGURE 2-2

PROPOSED PROJECT SITE PLAN

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

Restaurant Tenant Mix

Since a tenant mix has not been identified for the Project's 5,000 SF of restaurant floor area and up to 600 SF of outdoor dining area, the following mix/type of restaurant has been assumed and is evaluated in this study to allow for flexibility in future tenancies, along with the proposed retail and self-storage space:

Project Option	Retail Shop	Fine/ Casual Dining/ Outdoor Dining	QSR/Fast-Casual/ Outdoor Dining	Fast-Food w/ Drive-Thru/ Outdoor Dining	Retail/ Service/ Medical Office	Self-Storage
❑ Option 1	15,000 SF	2,000 SF/ 300 SF	--	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Option 2	15,000 SF	--	2,000 SF/ 300 SF	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Option 3	15,000 SF	--	--	5,000 SF/ 600 SF	3,500 SF	177,345 SF

2.1 Site Access

As shown in *Figure 2-2*, vehicular access to the Project site will be provided via two (2) existing full access unsignalized driveways, identified at Project Driveway A and B, located on E. 33rd Street and one (1) existing full access unsignalized driveway, identified as Project Driveway C, located on California Avenue. A second access driveway on California Avenue is proposed. However, this access, which will be gated, will only be used on the occasion that an RV is to exit the facility.

2.2 Pedestrian Circulation

Pedestrian circulation will be provided via existing public sidewalks along E. 33rd Street and California Avenue within the vicinity of the Project frontage. The proposed Project will protect the existing sidewalks along E. 33rd Street and California Avenue, and if necessary, repair or reconstruct sidewalks along the project frontage per the City's request.

Existing pedestrian facilities within the project area are adequate. Sidewalks are generally provided throughout the City along with crosswalks at most major intersections. In close proximity to the site, the intersections of Atlantic Avenue/33rd Street, California Avenue/33rd Street and California Avenue/32nd Street provide pedestrians connectivity via the existing sidewalks linking the project site to the surrounding community.

3.0 EXISTING CONDITIONS

3.1 Existing Street System

The principal local network of streets serving the project site includes Atlantic Avenue, California Avenue, Orange Avenue, 33rd Street, 32nd Street, Wardlow Road, and Spring Street. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Atlantic Avenue is a four-lane, divided roadway oriented in the north-south direction. The posted speed limit is 30 miles per hour (mph). Parking is generally not permitted on both sides of the roadway within the vicinity of the project. A traffic signal controls the study intersection of Atlantic Avenue at 33rd Street.

California Avenue is a two-lane undivided roadway north of 32nd Street and divided roadway south of 32nd street, oriented in the north-south direction. The posted speed limit is 40 mph south of Spring Street, 35 mph between Spring Street and 32nd Street, and 30 mph north of 32nd Street. Parking is not permitted on either side of the roadway south of 32nd Street but is permitted on both sides of the roadway north of 32nd Street within the vicinity of the project. California Avenue is considered a collector street within the City of Signal Hill Circulation Element. Traffic signals control the study intersections of California Avenue at Spring Street and Wardlow Street.

Orange Avenue is a two-lane, undivided roadway oriented in the north-south direction. The posted speed limit is 35 mph. Parking is not permitted on either side of the roadway south of 32nd Street but is permitted on both sides of the roadway north of 33rd Street within the vicinity of the project. Parking between 33rd Street and 32nd Street is only permitted on west side of Orange Avenue. Orange Avenue is considered a minor arterial within the City of Signal Hill Circulation Element. Traffic signals controls the study intersections of Orange Avenue at 32nd Street, 33rd Street and Wardlow Street.

33rd Street is a four-lane, undivided roadway west of California Avenue and two-lane undivided roadway east of California Avenue, oriented in the east-west direction. The posted speed limit is 30 mph east of California Avenue and 25 mph west of California Avenue. Parking is generally permitted on either side of the roadway within the vicinity of the project. 33rd Street is considered a collector street west of California Avenue and east of Orange Avenue within the City of Signal Hill Circulation Element.

32nd Street is a two-lane, undivided roadway oriented in the east-west direction. The posted speed limit is 25 mph. Parking is generally permitted on either side of the roadway within the vicinity of the project.

Wardlow Road is a four-lane, undivided roadway oriented in the east-west direction. The posted speed limit is 35 mph. Parking is generally permitted on either side of the roadway within the vicinity of the project.

Spring Street is a four-lane, divided roadway oriented in the east-west direction. The posted speed limit is 40 mph. Parking is not permitted on either side of the roadway west of Orange Avenue but is permitted on both sides of the roadway east of Orange Avenue within the vicinity of the project.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. The number of travel lanes and intersection controls for the key area intersections are identified.

3.2 Existing Traffic Volumes

Due to the Covid-19 virus, the Governor of California has issued a state-wide "stay at home" order which has ultimately resulted in a decrease in traffic. Based on these current conditions, the ability to collect traffic counts to establish baseline conditions that would be reflective of traffic conditions without "stay at home" orders in effect are not possible. As such, to establish "baseline" traffic conditions, pre-Covid-19 (i.e. under normal circumstances without "stay at home" orders in effect), LLG has researched historic data and was able to obtain Year 2018 counts at four (4) of the study locations as summarized below:

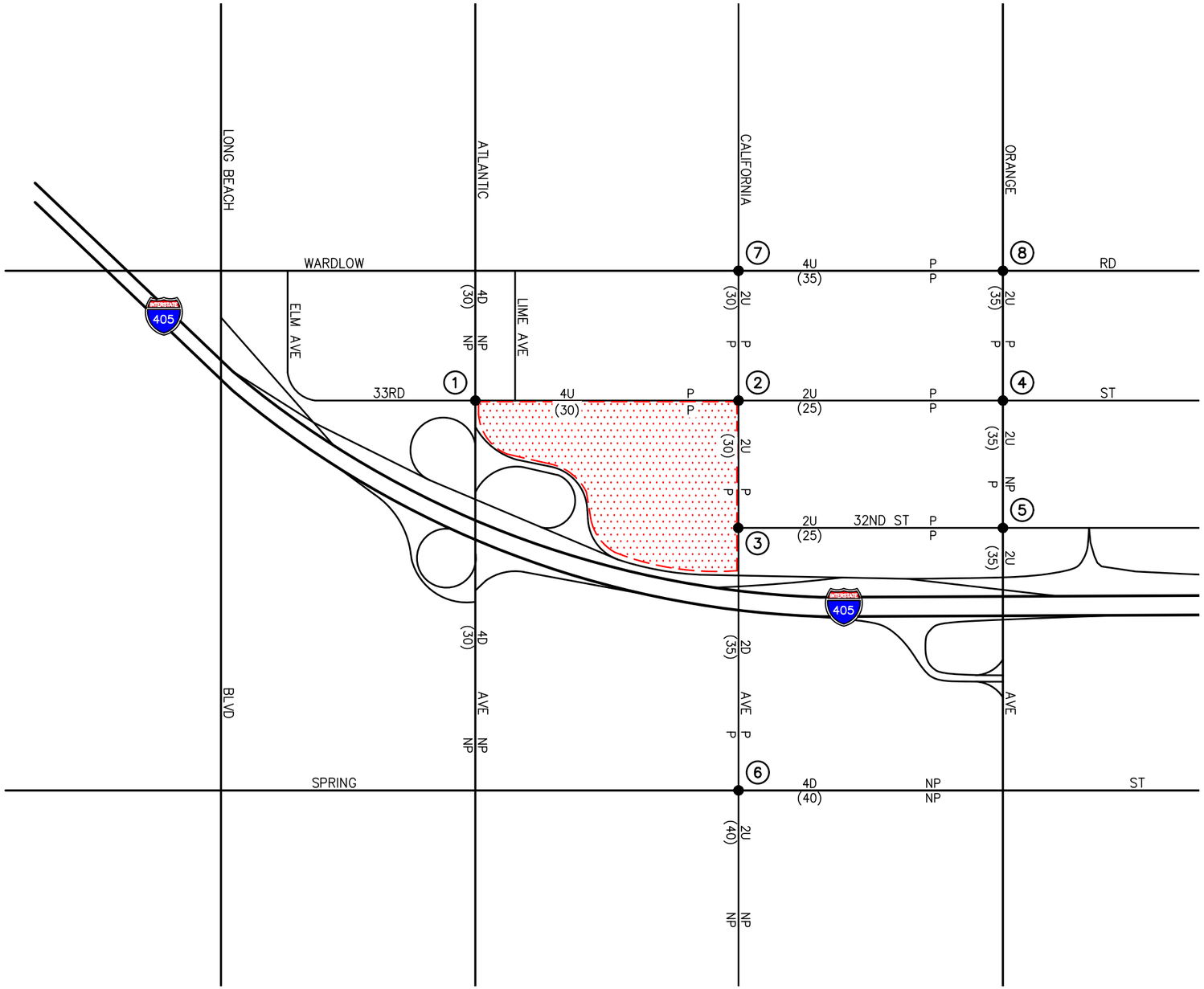
Key Intersection	Historic Year 2018 Traffic Counts Available	Collect Year 2021 Covid-19 Traffic Counts
1. Atlantic Avenue at 33rd Street	Yes	Yes
2. California Avenue at 33rd Street	--	Yes
3. California Avenue at 32nd Street	--	Yes
4. Orange Avenue at 33rd Street	--	Yes
5. Orange Avenue at 32nd Street	Yes	Yes
6. California Avenue at Spring Street	Yes	Yes
7. California Avenue at Wardlow Road	--	Yes
8. Orange Avenue at Wardlow Road	Yes	Yes

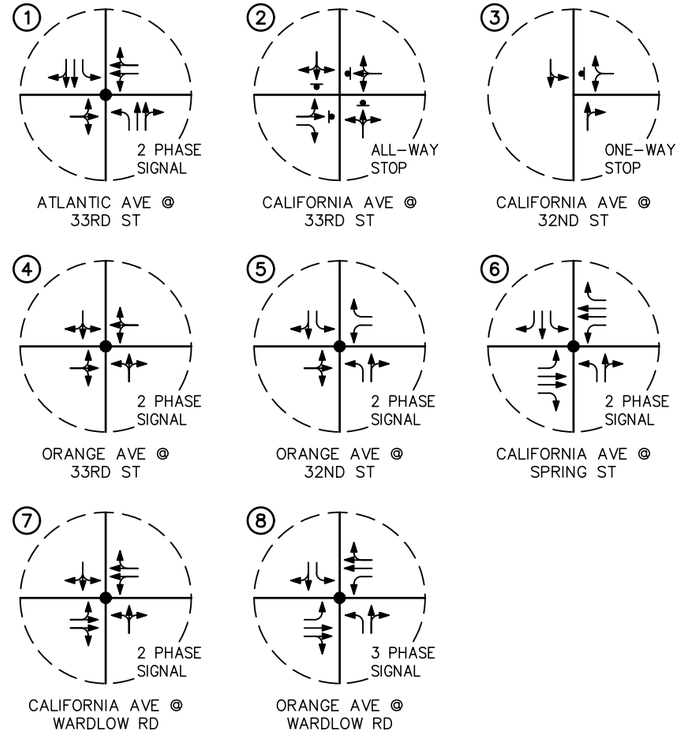
Given the availability of historic data, the following steps were used to establish Existing Year 2021 pre-Covid-19 baseline traffic conditions:

(1) Historic data is available at four locations for Year 2018 (i.e. Intersections No. 1, No. 5, No. 6 and No. 8).

(2) Given data is not available at four study locations (i.e. Intersections No. 2, No. 3, No. 4 and No. 7), LLG collected Year 2021 Covid-19 traffic counts at all study locations for use in establishing traffic counts/turning movement percentages. These traffic counts were collected in January 2021 by National Data and Surveying Services, Inc.

(3) Using information from (1) and (2), compare 2018 to 2021 to establish change in traffic counts due to current Covid-19 environment.





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
- ← = APPROACH LANE ASSIGNMENT
- ● = TRAFFIC SIGNAL, ☚ = STOP SIGN
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- 2 = NUMBER OF TRAVEL LANES
- (XX) = POSTED SPEED LIMIT (MPH)
- F = FREE-RIGHT
- = PROJECT SITE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

(4) Apply the rate calculated in (3) to 2021 Covid-19 traffic counts, and forecast 2018 baseline traffic conditions for Intersections No. 2, No. 3, No. 4, and No. 7.

(5) Lastly, apply an annual growth factor of 1% per year for three years to the Year 2018 baseline traffic conditions to establish Year 2021 pre-Covid-19 baseline traffic conditions.

Figures 3-2 and ***3-3*** illustrate the Year 2021 existing AM and PM peak hour traffic volumes at the eight (8) key study intersections and the three (3) project driveways evaluated in this report, respectively.

Appendix B contains a summary table for the Year 2021 pre-Covid-19 baseline volume development as well as the detailed peak hour traffic count sheets for the key intersections evaluated in this report.

3.3 Existing Public Transit

The Long Beach Transit (LBT) provide public transit services in the vicinity of the proposed Project. In the vicinity of the Project, LBT Route 61, 101 and 103 currently serves Atlantic Avenue. LBT Route 71 currently serve Orange Avenue. ***Figure 3-4*** graphically illustrates the transit routes of Long Beach Transit within the vicinity of the Project site. ***Figure 3-5*** identifies the location of the existing bus stops in proximity to the Project site.

3.4 Existing Bicycle Master Plan

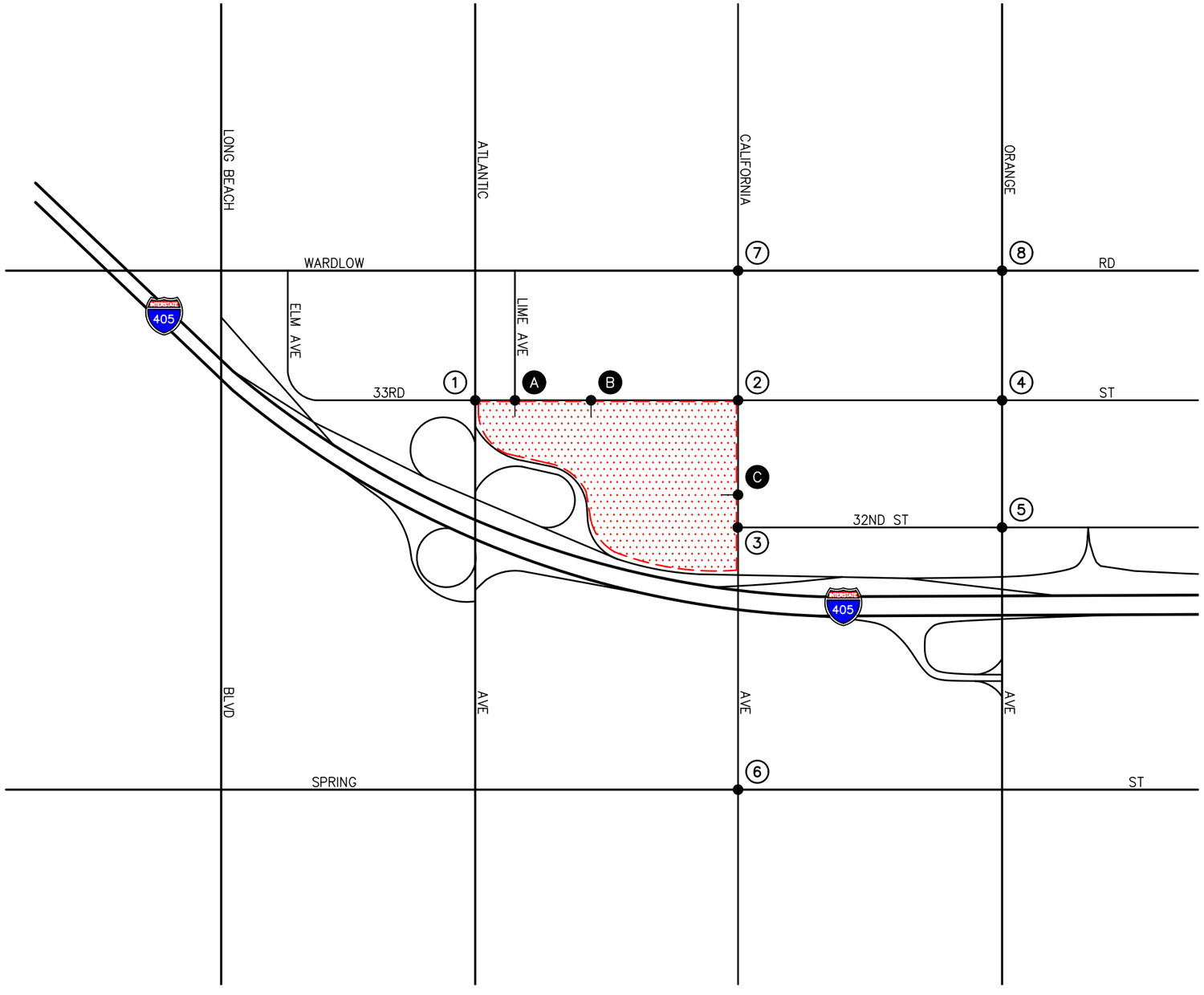
The Cities of Signal Hill and Long Beach promotes bicycling as a means of mobility and a way in which to improve the quality of life within its community. The Bicycle Master Plan recognizes the needs of bicycle users and aims to create a complete and safe bicycle network throughout the City. The City of Signal Hill Bicycle Master Plan is shown on ***Figure 3-6***. The City of Long Beach Bicycle Master Plan is shown on ***Figure 3-7***.

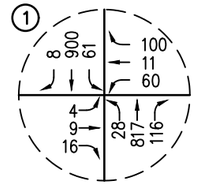
A Class II bike lane is currently provided along the north side and south side of Spring Street, south of the project site. Additionally, both the City of Long Beach and City of Signal Hill classify Orange Avenue as a Class III bikeway facility.

3.5 Existing Intersection Conditions

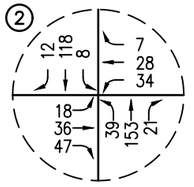
Pursuant to the City of Signal Hill guidelines, existing AM and PM peak hour operating conditions for the key study intersections were evaluated using the *Intersection Capacity Utilization* (ICU) methodology for signalized intersections and the *Highway Capacity Manual* (HCM) methodology for unsignalized intersections.

Pursuant to the City of Long Beach guidelines, existing AM and PM peak hour operating conditions for the key signalized study intersections were evaluated using the *Highway Capacity Manual* (HCM) methodology.

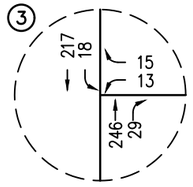




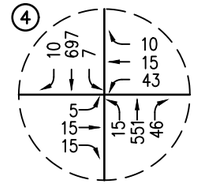
ATLANTIC AVE @
33RD ST



CALIFORNIA AVE @
33RD ST



CALIFORNIA AVE @
32ND ST



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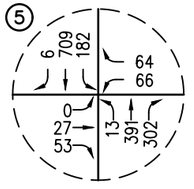

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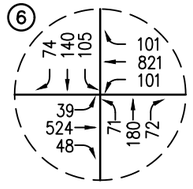
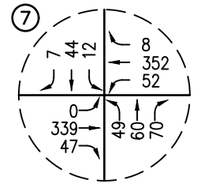
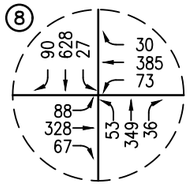


CALIFORNIA AVE @
SPRING ST



CALIFORNIA AVE @
WARDLOW RD



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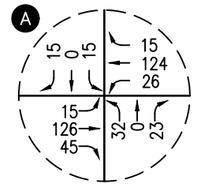
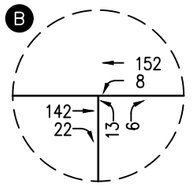
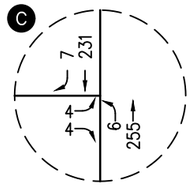
WARDLOW RD



PROJECT DWY 1 @
33RD ST



PROJECT DWY 2 @
33RD ST



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PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

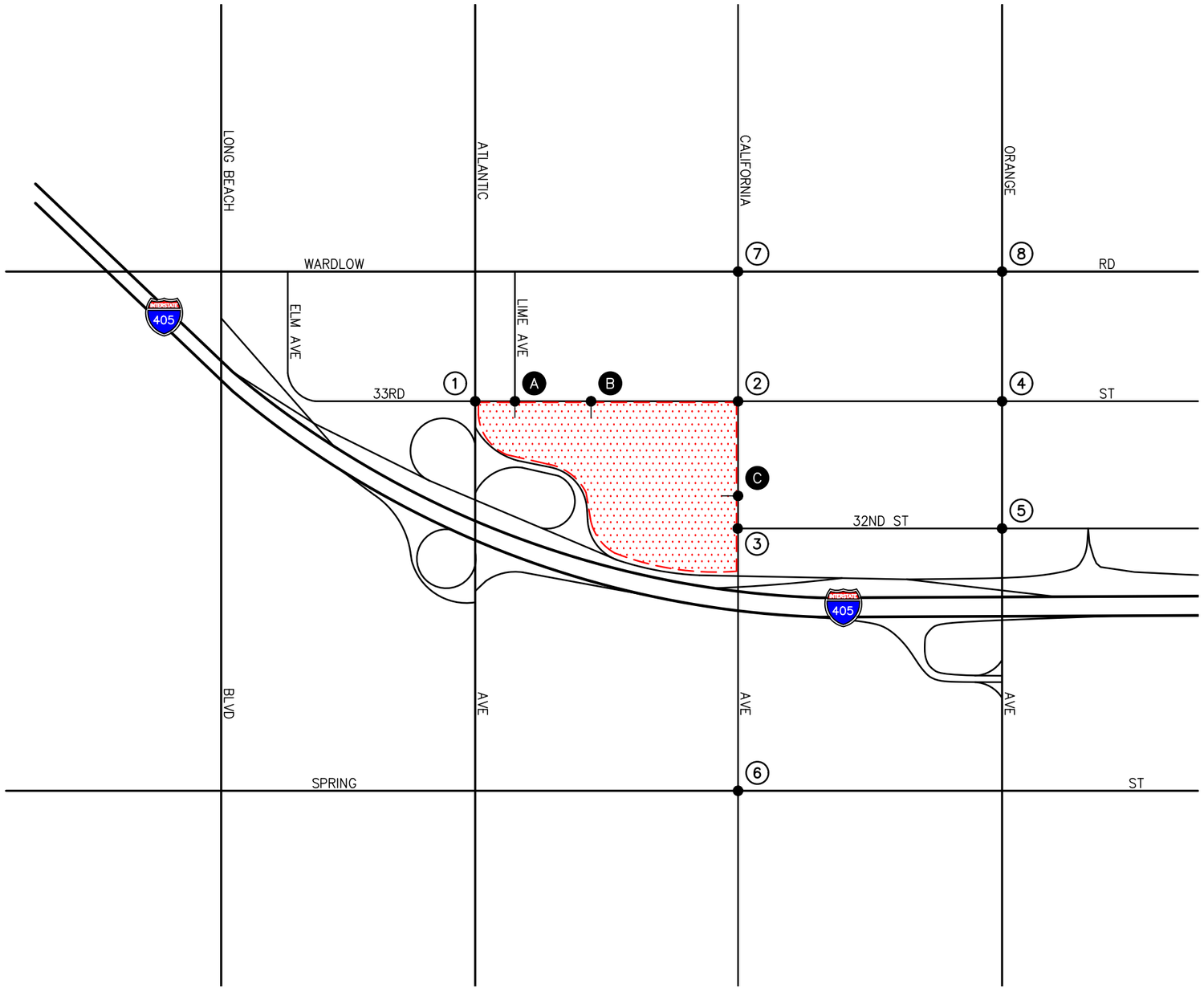
N NO SCALE

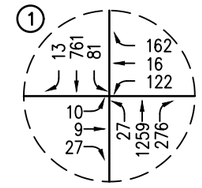
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 3-2

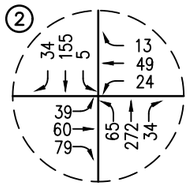
EXISTING AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

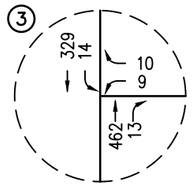




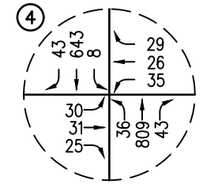
ATLANTIC AVE @ 33RD ST



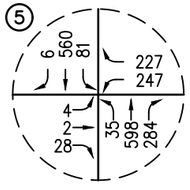
CALIFORNIA AVE @ 33RD ST



CALIFORNIA AVE @ 32ND ST



ORANGE AVE @ 33RD ST



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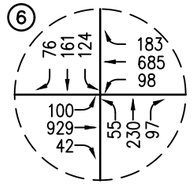

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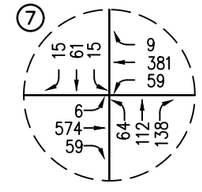
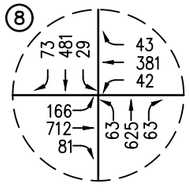


CALIFORNIA AVE @ WARDLOW RD



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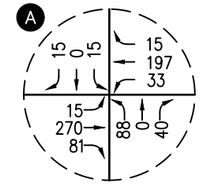
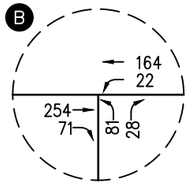
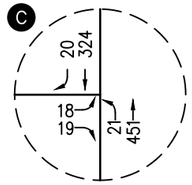


PROJECT DWY 1 @ 33RD ST



PROJECT DWY 2 @ 33RD ST



CALIFORNIA AVE @ PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

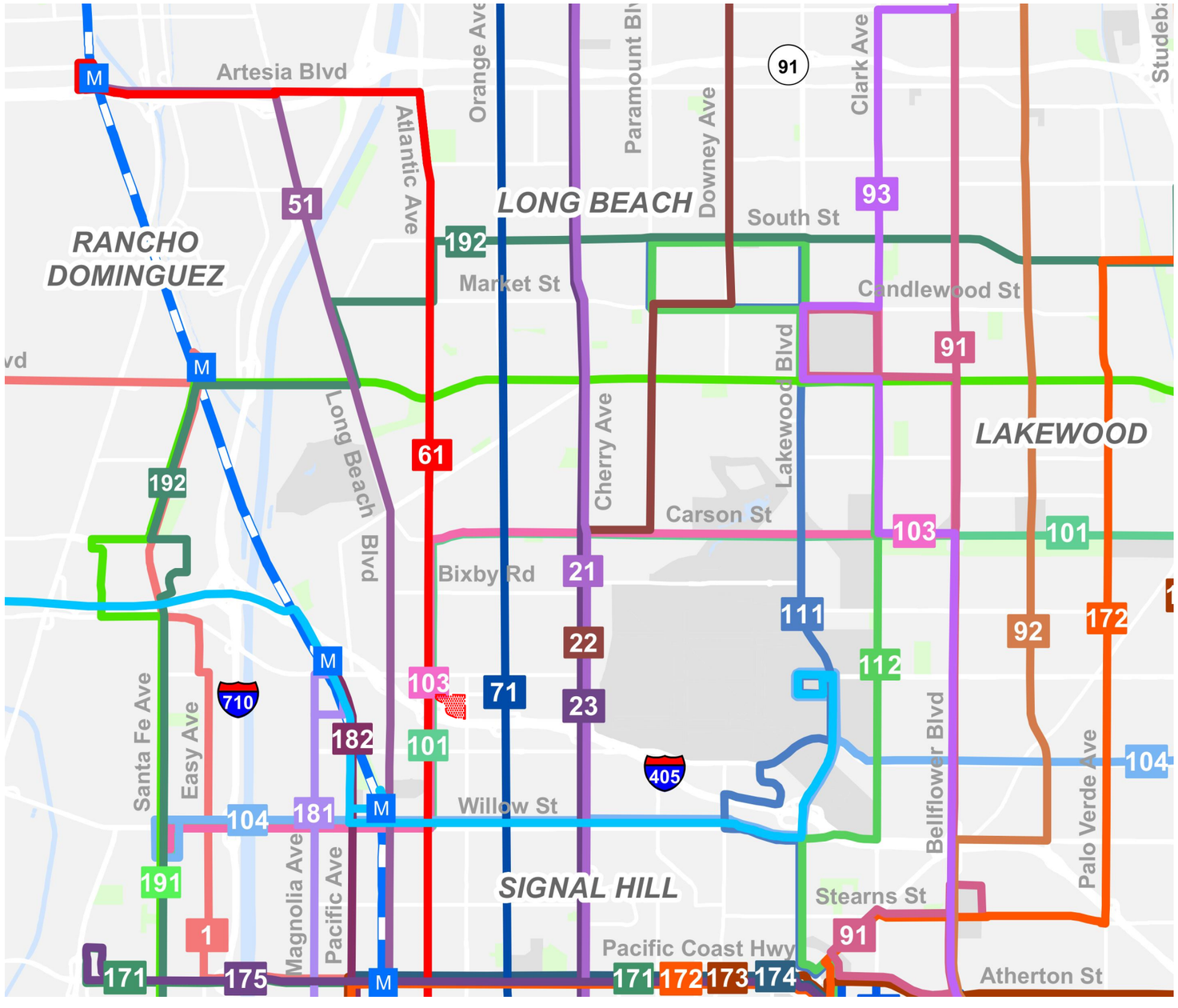
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 3-3

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: LONG BEACH TRANSIT

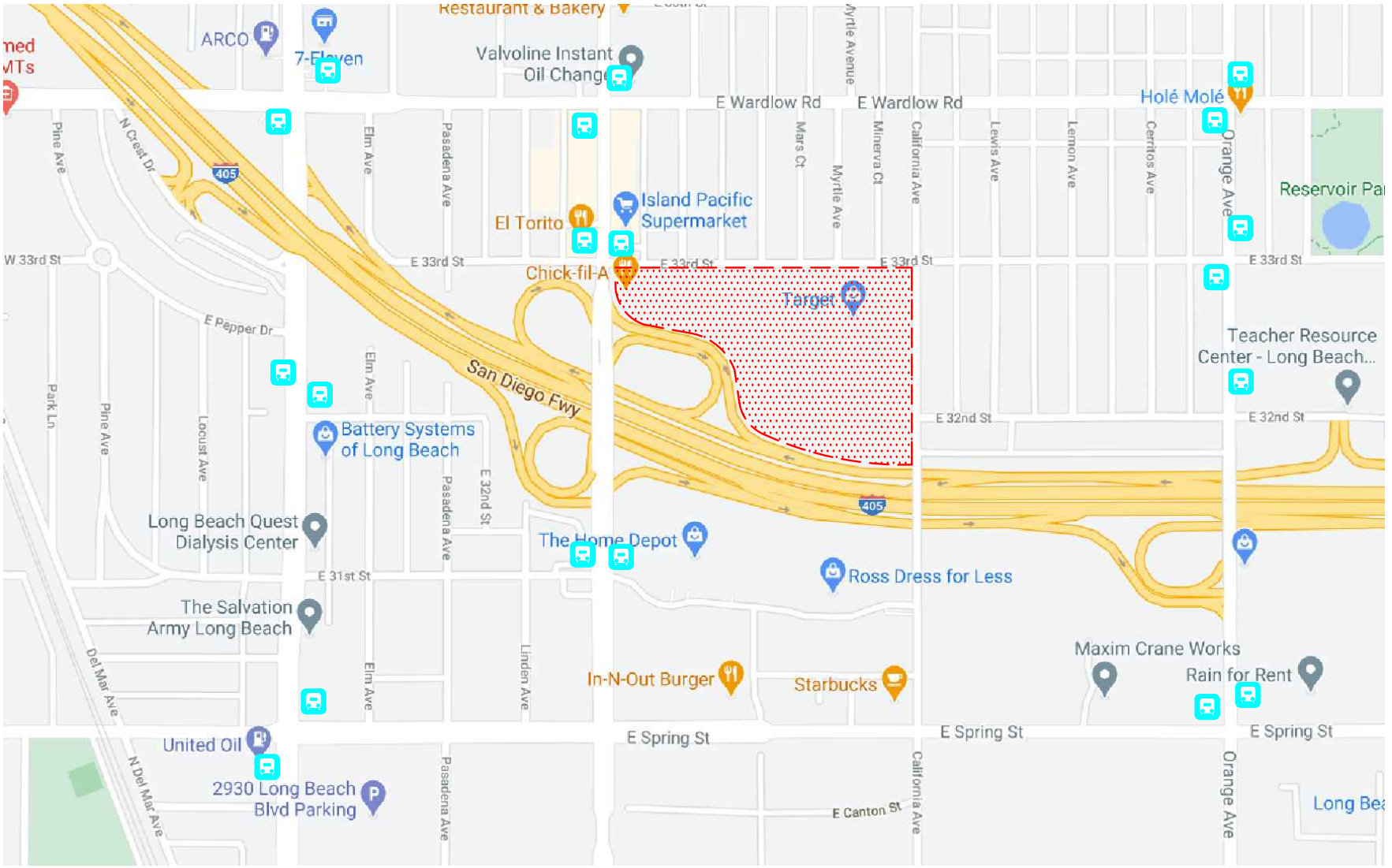
KEY

= PROJECT SITE

FIGURE 3-4

LONG BEACH TRANSIT MAP

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

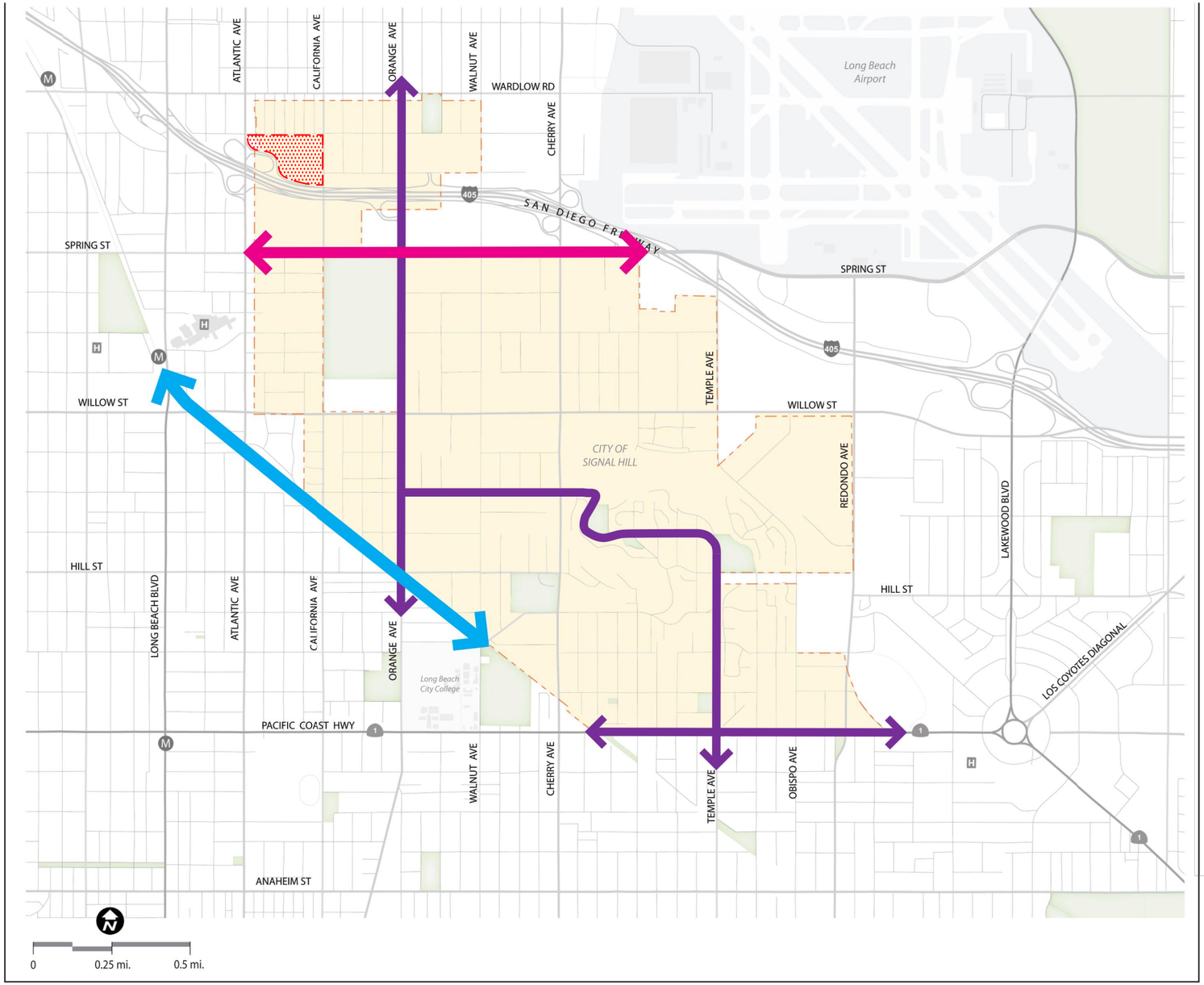
= PROJECT SITE

= TRANSIT STOP

FIGURE 3-5

TRANSIT STOP LOCATIONS

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



Class I Bike Path

Class II Bike Lane

Class III Bike Route

City of Signal Hill Boundary

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: CITY OF SIGNAL HILL

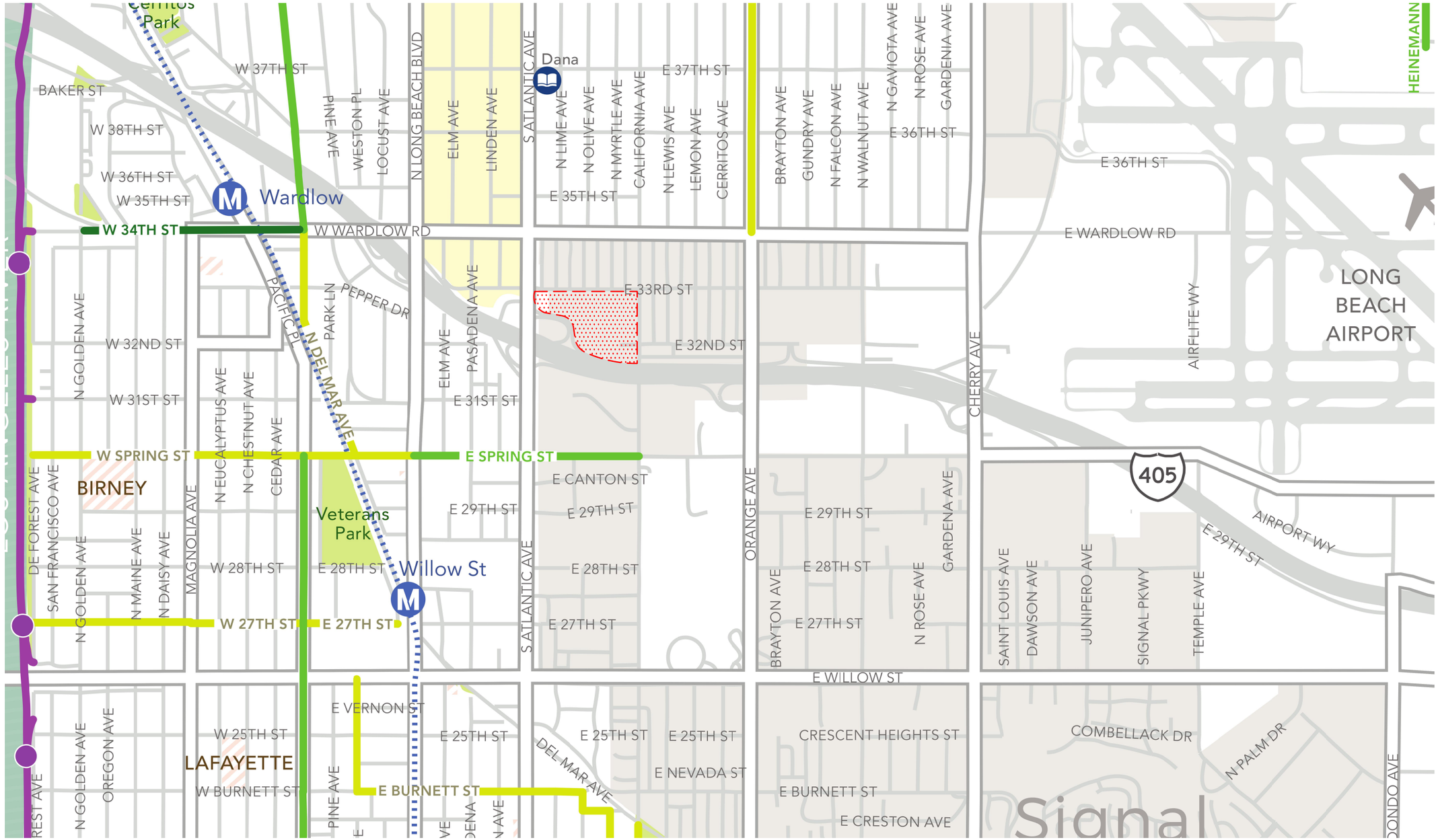
KEY

= PROJECT SITE

FIGURE 3-6

SIGNAL HILL BICYCLE MASTER PLAN

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: CITY OF LONG BEACH

KEY
= PROJECT SITE

FIGURE 3–7

LONG BEACH BICYCLE MASTER PLAN
TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

3.5.1 *Intersection Capacity Utilization (ICU) Method of Analysis*

In conformance with City of Signal Hill and LA County CMP requirements, existing weekday peak hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per LA County CMP requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left turn capacity of 2,880 vph. A clearance interval of 0.10 is also added to each Level of Service calculation.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in ***Table 3-1***. The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

3.5.2 *Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)*

In conformance with City of Long Beach requirements, existing weekday peak hour operating conditions for the key signalized study intersections were evaluated using the Highway Capacity Manual (HCM) method. Based on the HCM 6th Edition operations method of analysis, level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometries, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents and when there are no other vehicles on the road.

In the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative categories of Level of Service that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in ***Table 3-2***.

3.5.3 *Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement. For all-way stop controlled intersections, the overall average control delay measured in seconds per vehicle, and level

of service is then calculated for the entire intersection. For one-way and two-way stop-controlled (minor street stop-controlled) intersections, this methodology estimates the worst side street delay, measured in seconds per vehicle and determines the level of service for that approach. The HCM control delay value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding HCM control delay value range, as shown in ***Table 3-3***.

3.5.4 *Level of Service Criteria*

According to the Cities of Signal Hill and Long Beach, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, or the current LOS if the existing LOS is worse than LOS D (i.e. LOS E of F).

3.6 Existing Level of Service Results

Table 3-4 summarizes the existing peak hour service level calculations for the eight (8) key study intersections based on existing traffic volumes and current street geometrics. Review of *Table 3-4* indicates that all of the key study intersections currently operate at LOS D or better during the weekday AM and PM peak hours.

Appendix C contains the detailed peak hour level of service worksheets for the City of Signal Hill study intersections evaluated in this report. ***Appendix D*** contains the detailed peak hour level of service worksheets for the City of Long Beach study intersections evaluated in this report.

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (ICU) [1]

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

[1] Source: *Transportation Research Board Circular 212 - Interim Materials on Highway Capacity.*

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM)[2]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays. This level is considered by many agencies (i.e. SANBAG) to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion. This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[2] Source: *Highway Capacity Manual* (Signalized Intersections).

TABLE 3-3

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM)[3]

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

[3] Source: *Highway Capacity Manual 6th Edition*, Chapter 20 (Two-Way Stop Control).

TABLE 3-4
EXISTING (YEAR 2021) PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection		Jurisdiction	Time Period	Control Type	ICU	LOS	Delay (s/v)	LOS
1.	Atlantic Avenue at 33rd Street	Long Beach	AM	2∅ Traffic Signal	--	--	8.4	A
			PM		--	--	13.4	B
2.	California Avenue at 33rd Street	Signal Hill	AM	All-Way Stop	--	--	8.9	A
			PM		--	--	11.8	B
3.	California Avenue at 32nd Street	Signal Hill	AM	One-Way Stop	--	--	11.2	B
			PM		--	--	14.0	B
4.	Orange Avenue at 33rd Street	Signal Hill	AM	2∅ Traffic Signal	0.604	B	--	--
			PM		0.736	C	--	--
5.	Orange Avenue at 32nd Street	Signal Hill	AM	2∅ Traffic Signal	0.738	C	--	--
			PM		0.878	D	--	--
6.	California Avenue at Spring Street	Signal Hill/ Long Beach	AM	2∅ Traffic Signal	0.604	B	17.5	B
			PM		0.733	C	17.5	B
7.	California Avenue at Wardlow Road	Long Beach	AM	2∅ Traffic Signal	--	--	20.5	C
			PM		--	--	18.3	B
8.	Orange Avenue at Wardlow Road	Long Beach	AM	3∅ Traffic Signal	--	--	21.3	C
			PM		--	--	27.0	C

Notes:
- ICU = Intersection Capacity Utilization
- LOS = Level of Service, please refer to *Tables 3-1* through *3-3* for the LOS definitions
- ∅ = Phase
- s/v = seconds per vehicle (delay)

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Trip generation for the proposed Project was completed for all three project options. The trip generation potential of the proposed Project will be estimated using trip rates contained in the 10th Edition of *Trip Generation,* published by the Institute of Transportation Engineers (ITE), [Washington, D.C., 2017].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by all three options of the proposed Project. As shown in *Table 5-1*, ITE Land Use 151: Mini Warehouse, ITE Land Use 720: Medical Dental Office Building, ITE Land Use 820: Shopping Center, ITE Land Use 930: Fast Casual Restaurant, ITE Land Use 932: High-Turnover Sit-Down Restaurant, and ITE Land Use 934: Fast-Food Restaurant with Drive-Through was used to forecast the trip generation potential of the proposed Project.

It should be noted that while the 3,500 SF "Retail/Service/Medical Office" building could be occupied by either a dental office or retail use, the building has been analyzed as medical/dental office building to provide a conservative assessment. A comparison of the trip generation rates for ITE Land Use 720: Medical Dental Office Building and ITE Land Use 820: Shopping Center indicates that the AM peak hour rate for medical/dental office building would generate significantly more trips compared to the AM peak hour rate for shopping center, while the PM peak hour rates for both land uses are relatively comparable.

Table 5-2 summarizes the trip generation potential of Option 1. A review of *Table 5-2* indicates that the proposed Project is forecast to generate approximately 1,682 daily trips, with 117 trips (67 inbound, 50 outbound) produced in the AM peak hour and 115 trips (56 inbound, 59 outbound) produced in the PM peak hour on a "typical" weekday.

Table 5-3 summarizes the trip generation potential of Option 2. A review of *Table 5-3* indicates that the proposed Project is forecast to generate approximately 1,940 daily trips, with 101 trips (59 inbound, 42 outbound) produced in the AM peak hour and 119 trips (58 inbound, 61 outbound) produced in the PM peak hour on a "typical" weekday.

Table 5-4 summarizes the trip generation potential of Option 3. A review of *Table 5-4* indicates that the proposed Project is forecast to generate approximately 2,033 daily trips, with 144 trips (80 inbound, 64 outbound) produced in the AM peak hour and 130 trips (63 inbound, 67 outbound) produced in the PM peak hour on a "typical" weekday.

To provide a conservative assessment, the trip generation for Option 3 will be analyzed in the report.

TABLE 5-1
PROJECT TRIP GENERATION RATES[4]

ITE Land Use	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Rates							
▪ 151: Mini Warehouse (TE/1000 SF)	1.51	60%	40%	0.10	47%	53%	0.17
▪ 720: Medical Dental Office Building (TE/1000 SF)	34.80	78%	22%	2.78	28%	72%	3.46
▪ 820: Shopping Center (TE/1000 SF)	37.75	62%	38%	0.94	48%	52%	3.81
▪ 930: Fast Casual Restaurant (TE/1000 SF)	315.17	67%	33%	2.07	55%	45%	14.13
▪ 932: High-Turnover Sit-Down Restaurant (TE/1000 SF)	112.18	55%	45%	9.94	62%	38%	9.77
▪ 934: Fast-Food Restaurant with Drive-Through Window (TE/1000 SF)	470.95	51%	49%	40.19	52%	48%	32.67

Notes:
TE/1000 SF = Trip end per 1,000 SF

[4] Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).*

TABLE 5-2
PROJECT TRIP GENERATION FORECAST – OPTION 1[5]

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[6]	-66	-1	-1	-2	-3	-2	-5
Subtotal	500	8	4	12	24	28	52
Pass-by Reduction[7]	-50	-1	0	-1	-8	-10	-18
Total Shopping Center	**450**	**7**	**4**	**11**	**16**	**18**	**34**
▪ High Turnover Sit-Down Restaurant (2,300 SF)	258	13	10	23	14	8	22
Internal Capture[6]	-92	-1	-1	-2	-3	-4	-7
Subtotal	166	12	9	21	11	4	15
Pass-by Reduction[7]	-17	-1	-1	-2	-5	-1	-6
Total High Turnover Sit-Down Restaurant	**149**	**11**	**8**	**19**	**6**	**3**	**9**
▪ Fast-Food Restaurant with Drive-Through Window (3,300 SF)	1,554	68	65	133	56	52	108
Internal Capture[6]	-562	-7	-7	-14	-17	-22	-39
Subtotal	992	61	58	119	39	30	69
Pass-by Reduction[7]	-248	-30	-28	-58	-20	-15	-35
Total Fast-Food Restaurant with Drive-Through Window	**744**	**31**	**30**	**61**	**19**	**15**	**34**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[6]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Option 1 Project Trip Generation	**1,682**	**67**	**50**	**117**	**56**	**59**	**115**

5 Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017)*.

6 Consistent with the *Trip Generation Handbook,* published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

7 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 932: High-Turnover Sit-Down Restaurant: PM Peak Hour – 43%, Daily/AM peak hour – Assume 10%
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

TABLE 5-3
PROJECT TRIP GENERATION FORECAST – OPTION 2[8]

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[9]	-83	-1	-1	-2	-3	-2	-5
Subtotal	483	8	4	12	24	28	52
Pass-by Reduction[10]	-48	-1	0	-1	-8	-10	-18
Total Shopping Center	**435**	**7**	**4**	**11**	**16**	**18**	**34**
▪ Fast Casual Restaurant (2,300 SF)	725	3	2	5	18	14	32
Internal Capture[9]	-261	0	0	0	-5	-6	-11
Subtotal	464	3	2	5	13	8	21
Pass-by Reduction[10]	-46	0	-1	-1	-6	-3	-9
Total Fast Casual Restaurant	**418**	**3**	**1**	**4**	**7**	**5**	**12**
▪ Fast-Food Restaurant with Drive-Through Window (3,300 SF)	1,554	68	65	133	56	52	108
Internal Capture[9]	-556	-8	-8	-16	-16	-22	-38
Subtotal	998	60	57	117	40	30	70
Pass-by Reduction[10]	-250	-29	-28	-57	-20	-15	-35
Total Fast-Food Restaurant with Drive-Through Window	**748**	**31**	**29**	**60**	**20**	**15**	**35**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[9]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Option 2 Project Trip Generation	**1,940**	**59**	**42**	**101**	**58**	**61**	**119**

8 Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017)*.

9 Consistent with the *Trip Generation Handbook,* published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

10 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 930: Fast Casual Restaurant: ITE does not identify a pass-by reduction for this land use, therefore, the pass-by factors have been matched to ITE 932: High Turnover Sit Down Restaurant. PM Peak Hour – 43%, Daily/AM peak hour – Assume 10%.
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

TABLE 5-4
PROJECT TRIP GENERATION FORECAST – OPTION 3[11]

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[12]	-95	-1	-1	-2	-4	-3	-7
Subtotal	471	8	4	12	23	27	50
Pass-by Reduction[13]	-47	-1	0	-1	-8	-9	-17
Total Shopping Center	**424**	**7**	**4**	**11**	**15**	**18**	**33**
▪ Fast-Food Restaurant with Drive-Through Window (5,600 SF)	2,637	115	110	225	95	88	183
Internal Capture[12]	-943	-8	-8	-16	-28	-37	-65
Subtotal	1,694	107	102	209	67	51	118
Pass-by Reduction[13]	-424	-52	-50	-102	-34	-25	-59
Total Fast-Food Restaurant with Drive-Through Window	**1,270**	**55**	**52**	**107**	**33**	**26**	**59**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[12]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Option 3 Project Trip Generation	**2,033**	**80**	**64**	**144**	**63**	**67**	**130**

11 Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017)*.

12 Consistent with the *Trip Generation Handbook,* published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

13 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

5.2 Project Option 3 Traffic Generation Comparison

A trip generation assessment has been prepared for Project Option 3 to compare the trips identified in *Table 5-4*, which analyzes the 3,500 SF "Retail/Service/Medical Office" building as medical/dental office, to trips generated with the 3,500 SF "Retail/Service/Medical Office" building analyzed as retail shop.

Table 5-5 summarizes the alternative trip generation potential of Option 3. A review of *Table 5-5* indicates that the alternative proposed Project is forecast to generate approximately 2,081 daily trips, with 139 trips (75 inbound, 64 outbound) produced in the AM peak hour and 131 trips (67 inbound, 64 outbound) produced in the PM peak hour on a "typical" weekday.

The last row of *Table 5-5* presents a comparison of the trips generated by Project Option 3 (as shown in *Table 5-4)* and the Alternative Project Option 3. As shown, the Alternative Project Option 3 trips are forecast to generate 48 additional daily trips, with 5 fewer trips produced in the AM peak hour and 1 additional trip produced in the PM peak hour. Therefore, it can be concluded that the inclusion of 3,500 SF retail shop instead of medical/dental office would result in a nominal number of additional trips and therefore would not impact the findings of this analysis. Therefore, the trips presented in *Table 5-4* were used to forecast Project trips.

5.3 Project Traffic Distribution and Assignment

Figure 5-1 illustrates the general, directional traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- location of site access points in relation to the surrounding street system,
- the site's proximity to major traffic carriers and regional access routes,
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns,
- ingress/egress availability at the project site, plus parking layout and allocation within the subject property, and
- input from City staff.

The anticipated AM and PM peak hour traffic volumes associated with the proposed Project are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-4.*

Additionally, ***Table 5-6*** presents a summary of the project-related added peak hour traffic volumes at the eight (8) study intersections, based on the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-4,* and indicates whether the project trips exceed either the City of Signal Hill's peak hour trip threshold of 40 trips or the City of Long Beach's peak hour trip threshold of 50 trips. Review of *Table 5-6* shows that out of the eight key study intersections, only two (2) study intersections exceed the peak hour trip thresholds, which include Atlantic Avenue/33rd Street and California Avenue/33rd Street. Based on the City of Signal

Hill and City of Long Beach criteria, the remaining six (6) locations that do not meet the peak hour trip threshold for analysis. However, they have been included in this analysis per the City's requirements to fully assess the potential impact in the immediate area of the Project.

5.4 Existing Plus Project Traffic Conditions

The existing plus project traffic conditions have been generated based upon existing conditions and the estimated project traffic. These forecast traffic conditions have been prepared to assess the potential impacts of a Project upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to mitigate the direct traffic impacts of the Project, if any.

Figures 5-4 and ***5-5*** present projected AM and PM peak hour traffic volumes at the eight (8) key study intersections with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively.

TABLE 5-5
ALTERNATIVE PROJECT TRIP GENERATION FORECAST – OPTION 3[14]

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (18,500 SF)	698	11	6	17	34	36	70
Internal Capture[15]	-111	-1	-1	-2	-4	-3	-7
Subtotal	587	10	5	15	30	33	63
Pass-by Reduction[16]	-59	-1	-1	-2	-10	-11	-21
Total Shopping Center	**528**	**9**	**4**	**13**	**20**	**22**	**42**
▪ Fast-Food Restaurant with Drive-Through Window (5,600 SF)	2,637	115	110	225	95	88	183
Internal Capture[15]	-923	-7	-7	-14	-28	-36	-64
Subtotal	1,714	108	103	211	67	52	119
Pass-by Reduction[16]	-429	-53	-50	-103	-34	-26	-60
Total Fast-Food Restaurant with Drive-Through Window	**1,285**	**55**	**53**	**108**	**33**	**26**	**59**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Alternative Option 3 Project Trip Generation [A]	**2,081**	**75**	**64**	**139**	**67**	**64**	**131**
Total Option 3 Project Trip Generation (referenced from *Table 5-4*) [B]	**2,033**	**80**	**64**	**144**	**63**	**67**	**130**
Alternative Option 3 Project Trip Generation vs. Option 3 Project Trip Generation ([A] – [B])	**48**	**-5**	**0**	**-5**	**4**	**-3**	**1**

14 Source: *Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017)*.

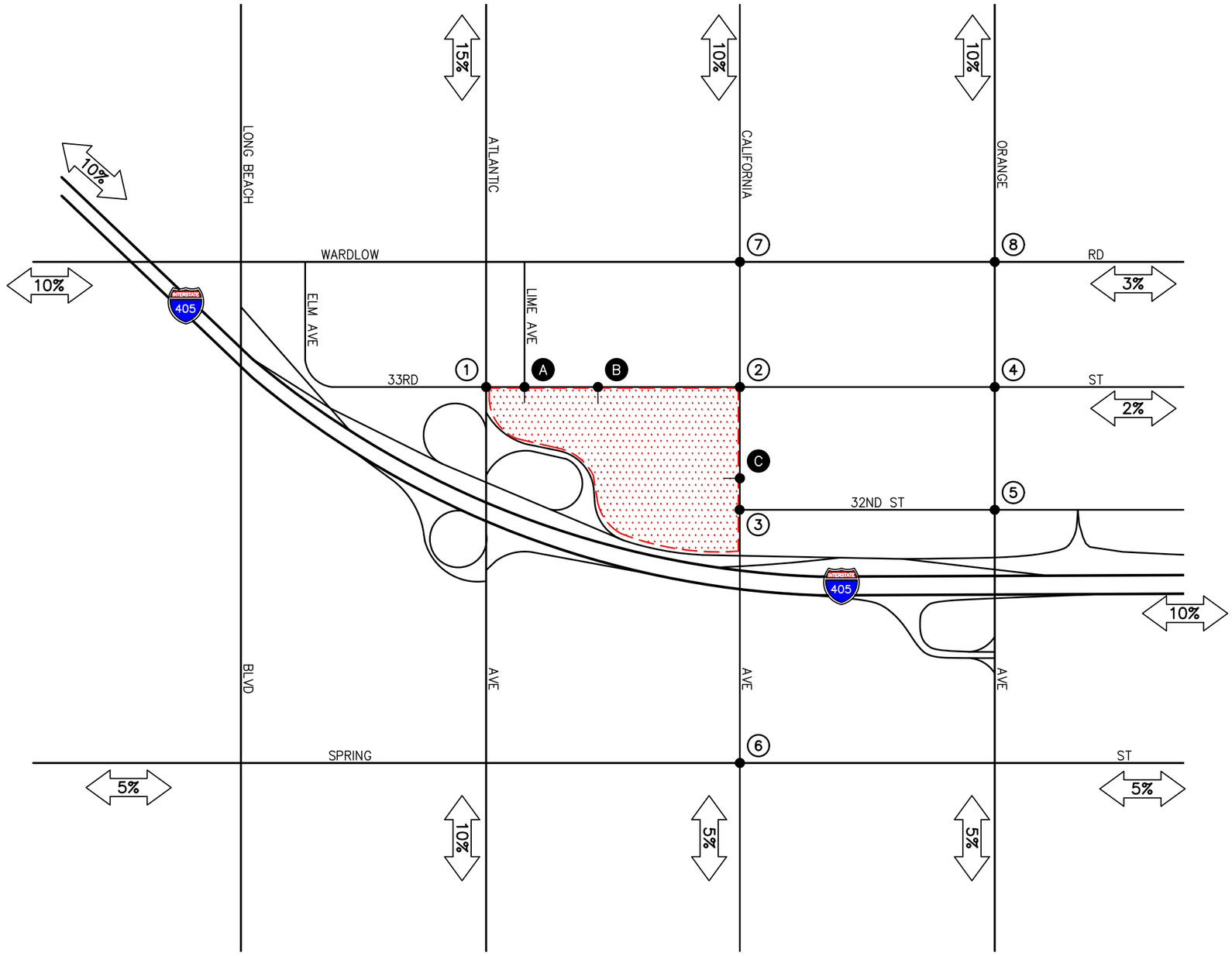
15 Consistent with the *Trip Generation Handbook,* published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

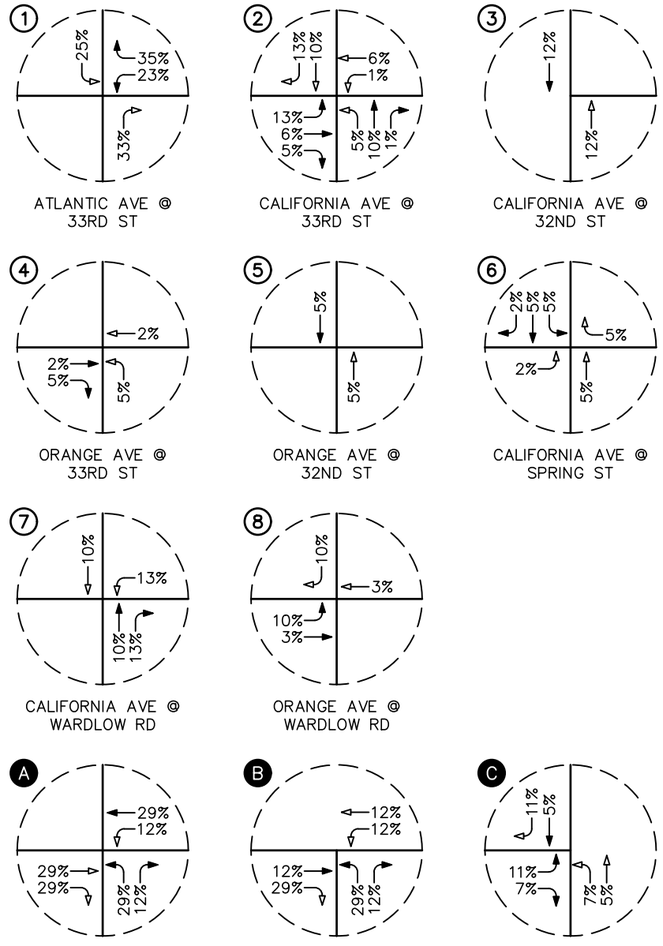
16 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

TABLE 5-6
PROJECT-RELATED ADDED PEAK HOUR TRAFFIC VOLUMES

Key Intersection	Jurisdiction	Time Period	Added Peak Hour Project Trips	Exceed City of Signal Hill "40 Peak Hour Trip" Threshold (Yes/No)	Exceed City of Long Beach "50 Peak Hour Trip" Threshold (Yes/No)
1. Atlantic Avenue at 33rd Street	Long Beach	AM	119	--	**Yes**
		PM	99	--	**Yes**
2. California Avenue at 33rd Street	Signal Hill	AM	50	**Yes**	--
		PM	45	**Yes**	--
3. California Avenue at 32nd Street	Signal Hill	AM	18	No	--
		PM	16	No	--
4. Orange Avenue at 33rd Street	Signal Hill	AM	10	No	--
		PM	8	No	--
5. Orange Avenue at 32nd Street	Signal Hill	AM	7	No	--
		PM	6	No	--
6. California Avenue at Spring Street	Signal Hill/ Long Beach	AM	17	No	No
		PM	14	No	No
7. California Avenue at Wardlow Road	Long Beach	AM	32	--	No
		PM	30	--	No
8. Orange Avenue at Wardlow Road	Long Beach	AM	18	--	No
		PM	17	--	No





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N NO SCALE

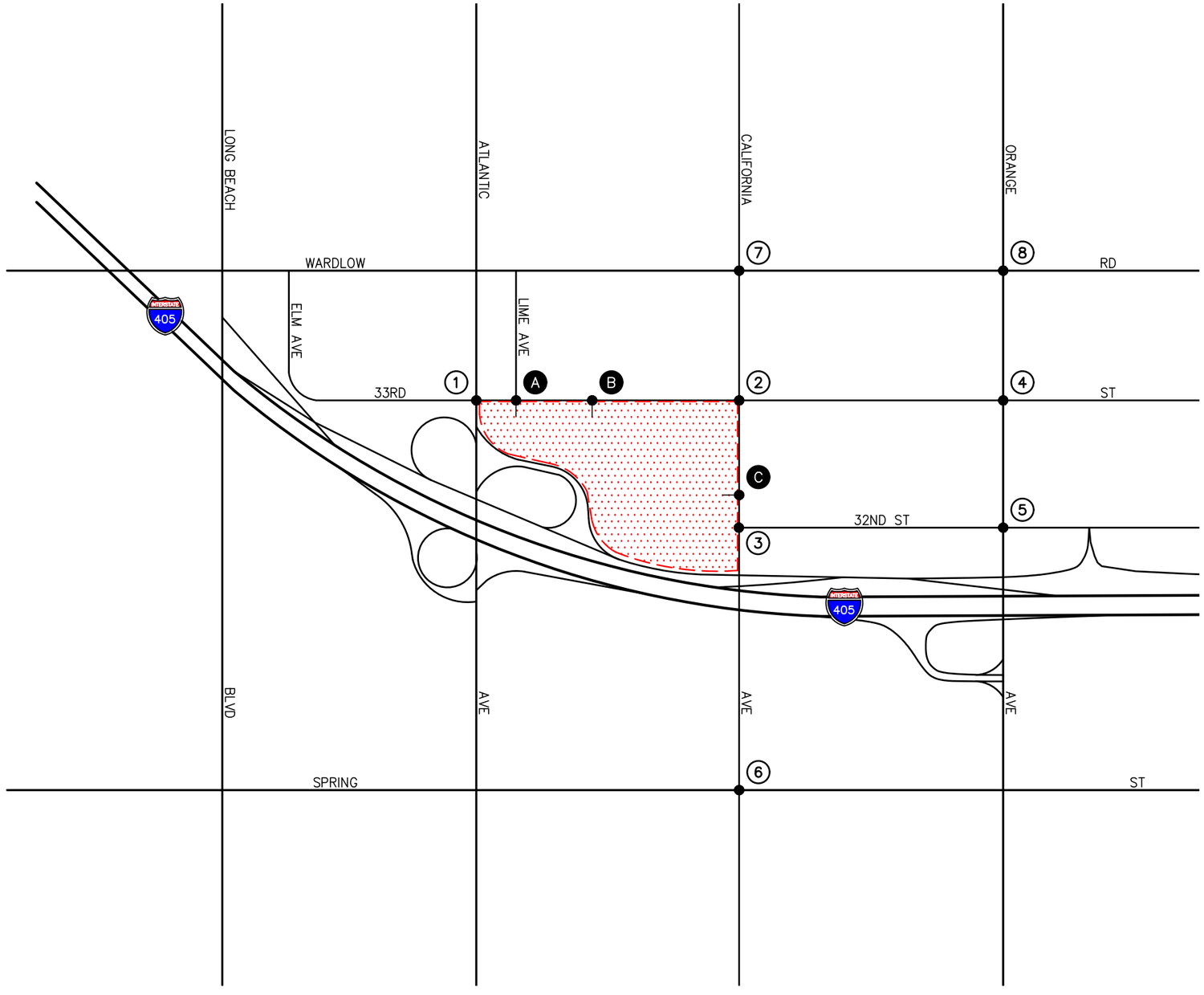
KEY

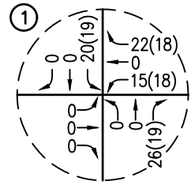
(#) = STUDY INTERSECTION
⇦ = INBOUND PERCENTAGE
⇦ = OUTBOUND PERCENTAGE
▭ = PROJECT SITE

FIGURE 5-1

PROJECT TRIP DISTRIBUTION PATTERN

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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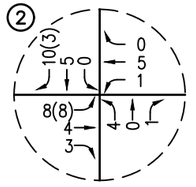

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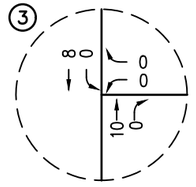

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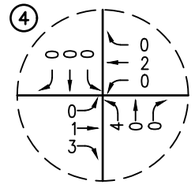

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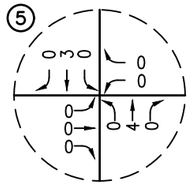

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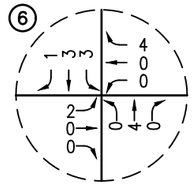

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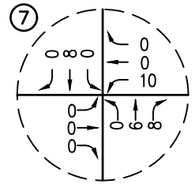

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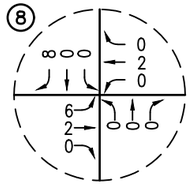

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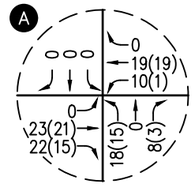

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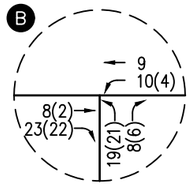

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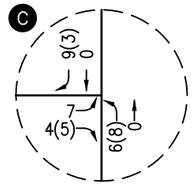

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N NO SCALE

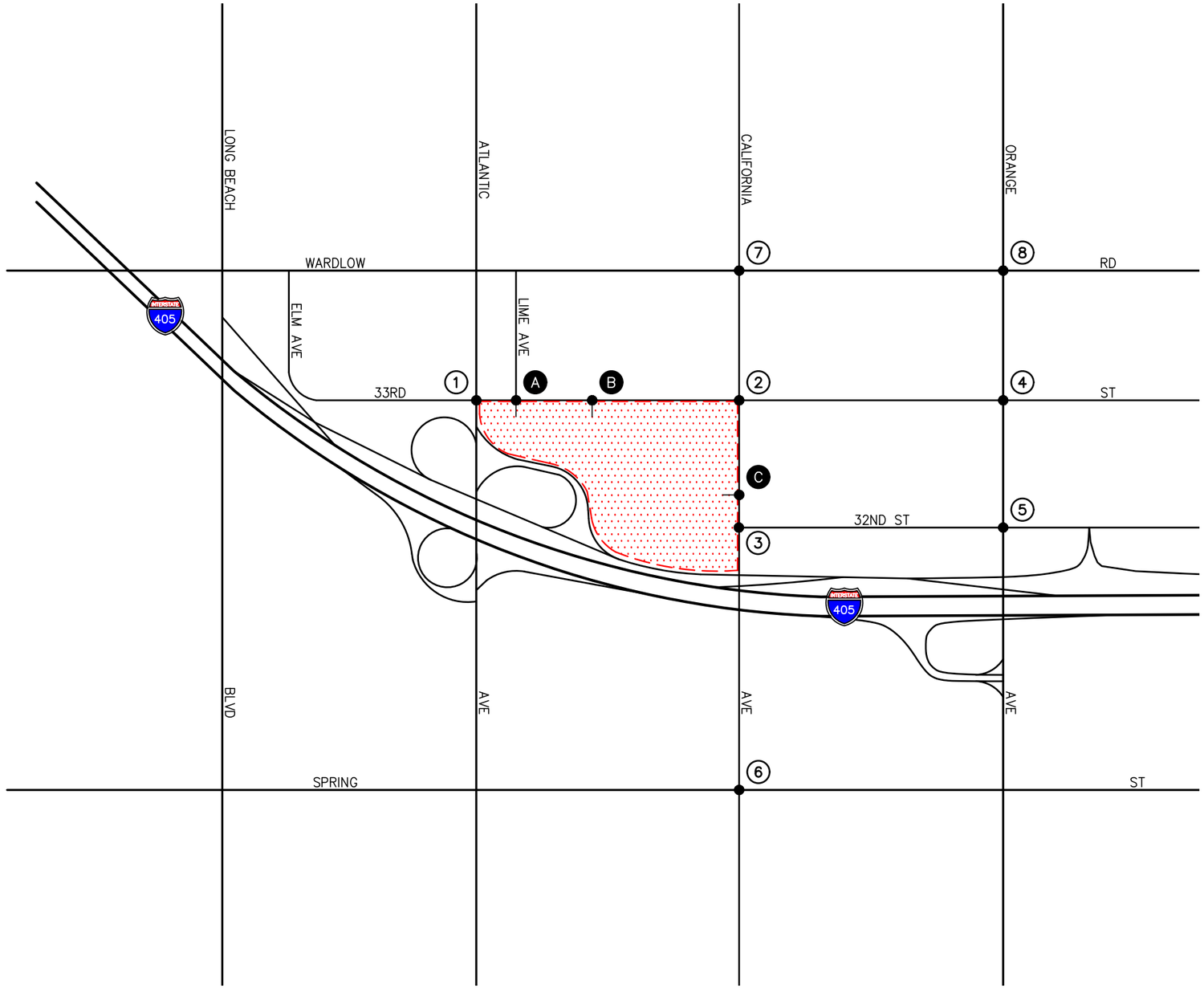
KEY

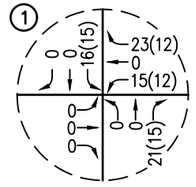
(#) = STUDY INTERSECTION
(XX) = PASS-BY TRIPS
= PROJECT SITE

FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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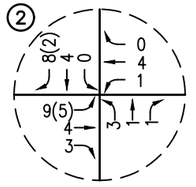

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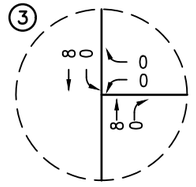

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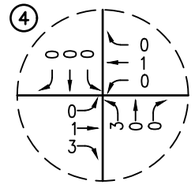

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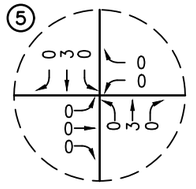

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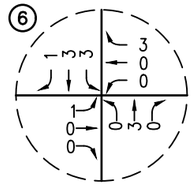

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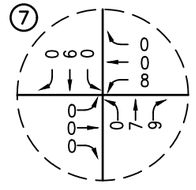

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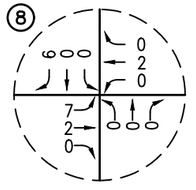

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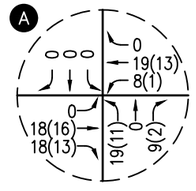

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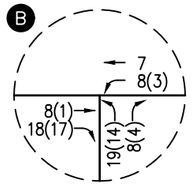

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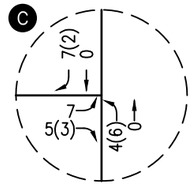

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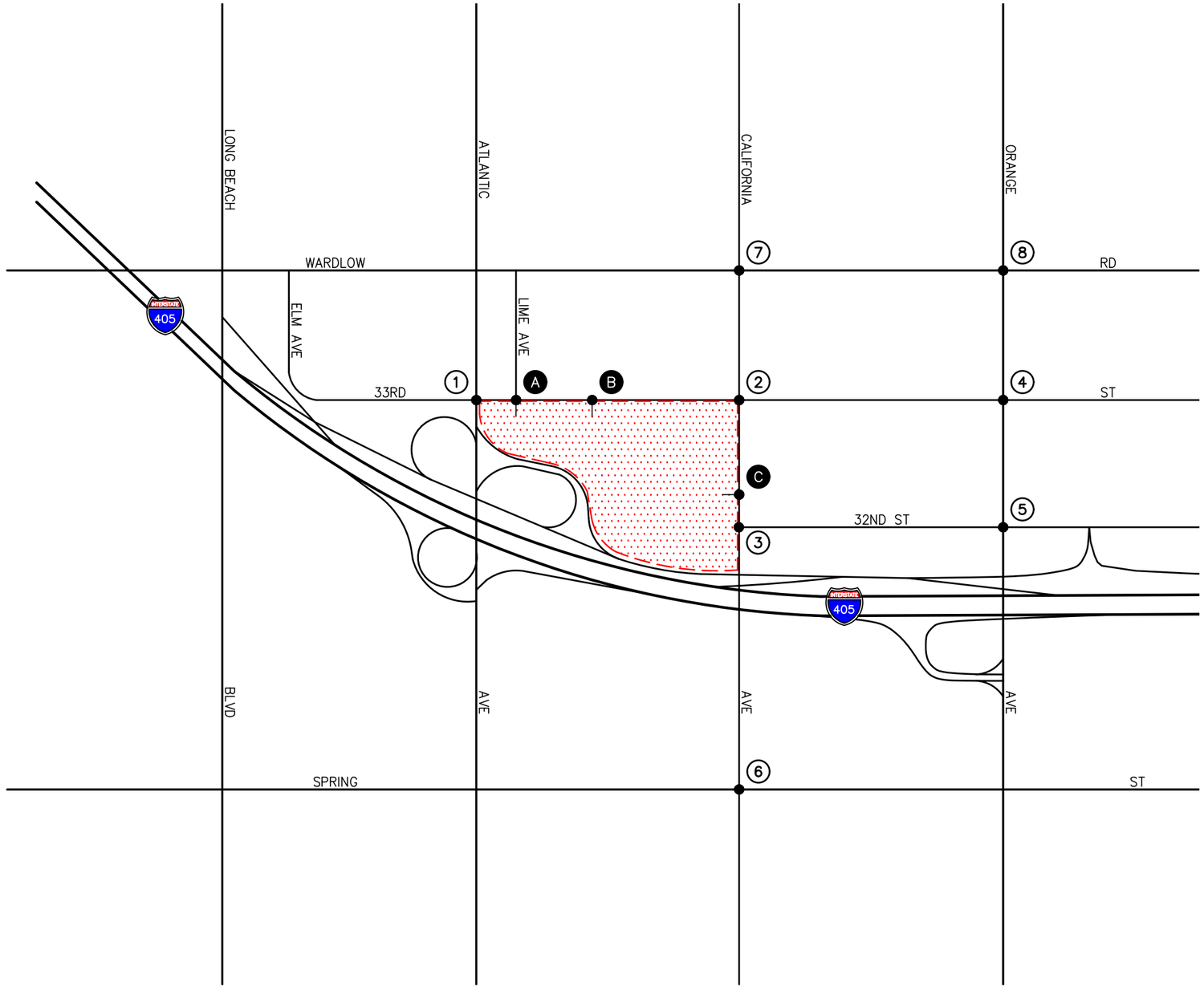
N NO SCALE

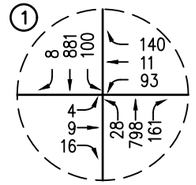
KEY
(#) = STUDY INTERSECTION
(XX) = PASS-BY TRIPS
= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR PROJECT TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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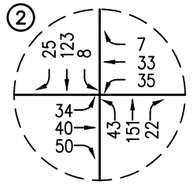

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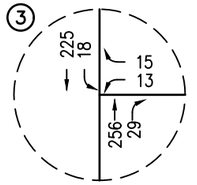

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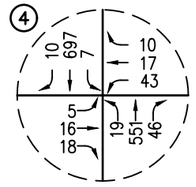

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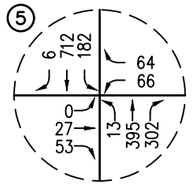

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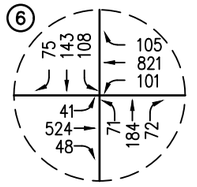

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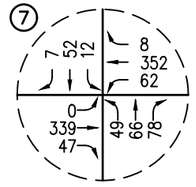

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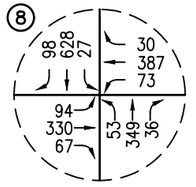

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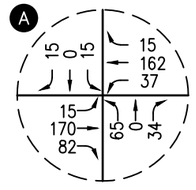

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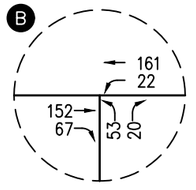

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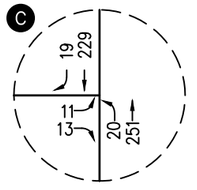

CALIFORNIA AVE @ PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

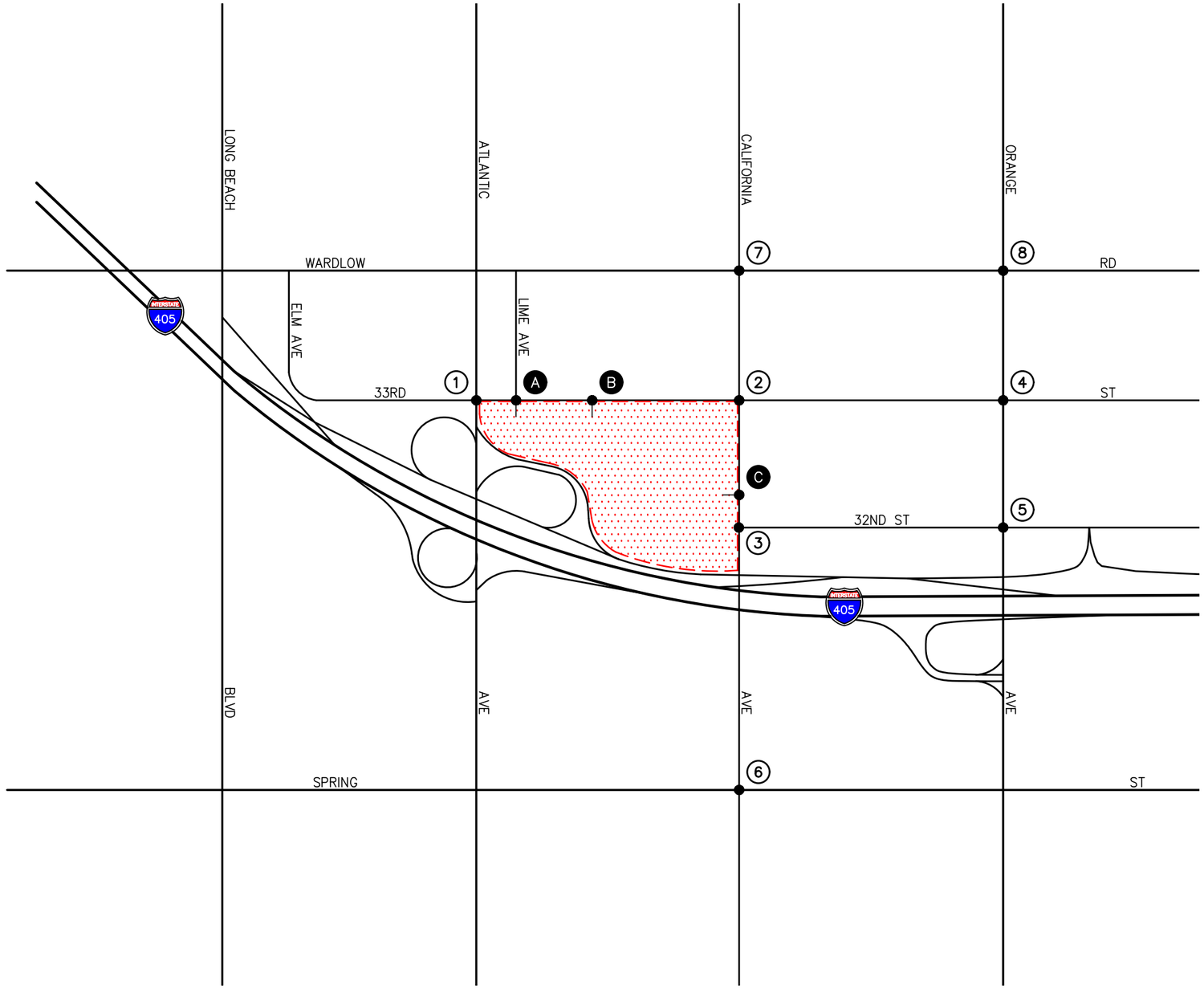
(#) = STUDY INTERSECTION

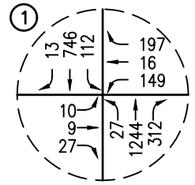
= PROJECT SITE

FIGURE 5-4

EXISTING PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





ATLANTIC AVE @
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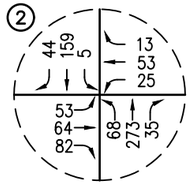

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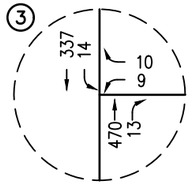

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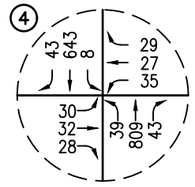

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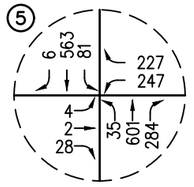

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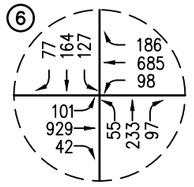

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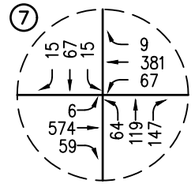
SPRING ST



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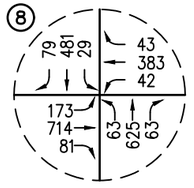

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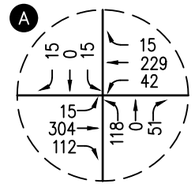

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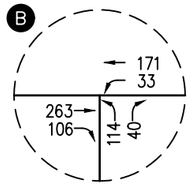

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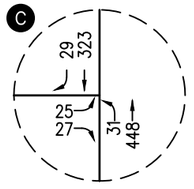

CALIFORNIA AVE @
PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 5-5

EXISTING PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

Cumulative and buildout traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at one percent (1%) per year. Applied to existing Year 2021 traffic volumes results in a three percent (3%) increase of growth in existing volumes to near-term horizon Year 2024 and a twenty percent (20%) increase of growth to long-term buildout Year 2041.

Please note that the recommended ambient growth factor is generally consistent with the background traffic growth estimates contained in the most current *Congestion Management Program for Los Angeles County*. It should be further noted that the 1.0% per year ambient growth factor was approved by City of Signal Hill staff.

6.2 Cumulative Projects Traffic Characteristics

The Cities of Signal Hill and Long Beach identified thirty-eight (38) cumulative projects within the Project study area. Cumulative projects, as defined by Section 15355 of the CEQA Guidelines, are "closely related past, present and reasonably foreseeable probable future projects". The Traffic Impact Analysis assumes that all of these cumulative projects will be developed at their proposed size and density and operational when the proposed Project is operational. This is the most conservative, worst-case approach, since the exact timing of each cumulative project is uncertain. In addition, impacts for these cumulative projects would likely be, or have been, subject to mitigation measures and/or reduced in size, which could reduce potential impacts. Under this analysis, however, those mitigation measures and/or reduction are not considered.

With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development. These thirty-eight (38) cumulative projects have been included as part of the cumulative and buildout background setting. Of the thirty-eight (38) cumulative projects, ten (10) are located in the City of Signal Hill and twenty-eight (28) are located in the City of Long Beach.

Table 6-1 provides the location and a brief description for each of the thirty-eight (38) cumulative projects. ***Figure 6-1*** graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the thirty-eight (38) cumulative projects. As shown in *Table 6-2*, the thirty-eight (38) cumulative projects are expected to generate a combined total of 26,697 daily trips, 1,930 AM peak hour trips (1,119 inbound and 811 outbound) and 2,441 PM peak hour trips (1,106 inbound and 1,335 outbound) on a typical weekday.

The AM and PM peak hour traffic volumes associated with the thirty-eight (38) cumulative projects are presented in ***Figures 6-2*** and ***6-3*** respectively.

Appendix G presents the general, directional traffic distribution patterns associated with the thirty-eight (38) cumulative projects.

6.3 Year 2024 Traffic Volumes

Figures 6-4 and ***6-5*** present future AM and PM peak hour near-term cumulative traffic volumes at the eight (8) key study intersections and three (3) project driveways for the Year 2024, respectively. Please note that the cumulative traffic volumes represent the accumulation of existing traffic, ambient growth traffic and cumulative projects traffic.

Figures 6-6 and ***6-7*** illustrate Year 2024 forecast AM and PM peak hour traffic volumes with the inclusion of the trips generated by the proposed Project, respectively.

6.4 Year 2041 Traffic Volumes

Figures 6-8 and ***6-9*** present future AM and PM peak hour long-term buildout traffic volumes at the eight (8) key study intersections and three (3) project driveways for the Year 2041, respectively. Please note that the buildout traffic volumes represent the accumulation of existing traffic, ambient growth traffic and cumulative projects traffic.

Figures 6-10 and ***6-11*** illustrate Year 2041 forecast AM and PM peak hour traffic volumes with the inclusion of the trips generated by the proposed Project, respectively.

TABLE 6-1
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[17]

No.	Description	Location/Address	Size
City of Signal Hill			
1.	2550 Orange Avenue Industrial	2550 Orange Avenue	114,354 SF High Cube Fulfillment Center Warehouse
2.	Signal Hill Heritage Square	West of Cherry Avenue, east of Rose Avenue, south of Crescent Heights Street, and north of Burnett Street.	4 DU single family residential, 199 DU apartments, 10,700 SF retail, 19,500 SF quality restaurant, 5,000 SF high-turnover sit-down restaurant, and 1,600 SF coffee shop with drive-through window
3.	Signal Hill Business Center	Bounded by Gundry Avenue to the west, Gundry Hill Apartments to the north, Gaviota Avenue to the east, and Signal Hill City Limits/Alamitos Avenue to the south	151,080 SF Business Park
4.	2351 Walnut Ave	2351 Walnut Ave	7,904 SF Warehouse 2,051 SF Office
5.	Honda Expansion	1500 Spring Street	2,364 SF Automobile Sales
6.	Mazda Dealer	1400 Spring Street	32,385 SF Automobile Sales
7.	Crescent Square	NEC Walnut Avenue and Crescent Heights Street	25 DU Single-Family Residential
8.	Zinnia	SWC Walnut Avenue and Hill Street	72 DU Affordable Living
9.	The Courtyard	1939 Temple Avenue	10 DU Multi-Family Residential
10.	2599 Pacific Coast Highway	2599 Pacific Coast Highway	7 DU Single-Family Residential
City of Long Beach			
11.	1803-11	3855 Lakewood Boulevard	20,513 SF Office
12.	1612-29	101 Pacific Coast Highway and 1814 Pine Avenue	26 DU Multi-Family Residential 5,550 SF Commercial
13.	1701-41	2515-2545 Atlantic Avenue	154 DU Senior Living
14.	1709-32	1900-1940 Long Beach Blvd.	95 DU Multi-Family Residential (5-Story) 12,400 SF Commercial
15.	1709-35	1836-1852 Locust Avenue	47 DU Affordable Living 3,600 SF Commercial
16.	Long Beach Senior Living	2400 Long Beach Boulevard	145 DU Assisted Living

[17] Source: Cities of Long Beach and Signal Hill Planning Departments.

TABLE 6-1 (CONTINUED)
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[18]

No.	Description	Location/Address	Size
City of Long Beach (Cont.)			
17.	1810-26	201 W. Pacific Coast Hwy	147 DU Multi-Family Residential 24,000 SF Commercial
18.	1902-13	2701 Atlantic Avenue	80,000 SF Office
19.	2002-07	941 E. Pacific Coast Highway	68 DU Senior Living
20.	Salvation Army Citadel Expansion	3012 Long Beach Boulevard	1 Soccer Field 24,608 SF Recreational Community Center
21.	1703-32	3426 Linden Avenue	6,000 SF Preschool Addition
22.	1706-14	3849 Atlantic Avenue	5,000 SF Commercial
23.	Harbor Freight	530 E 33rd Street	15,432 SF Commercial
24.	Spring Street Industrial	2851 Orange Avenue	160,673 SF Manufacturing
25.	1804-14	3435-3459 Long Beach Boulevard and 3464 Locust Avenue	104,227 SF Office
26.	1805-31	2035 Wardlow Road	116,877 SF Self Storage
27.	2003-024	712 Baker Street	226 DU Multi-Family Residential 7 DU Single Family Residential
28.	2004-024	3450 Long Beach Boulevard	15,200 SF Office
29.	1406-12A	4747 Daisy Avenue	131 DU Multi-Family Residential
30.	1707-10	4800 Long Beach Boulevard	20 DU Multi-Family Residential
31.	1805-03	4000 Via Oro Avenue	517,037 SF Industrial
32.	1905-29	4251 Long Beach Boulevard	8,559 SF Commercial
33.	2005-08	3701 Pacific Place	152,745 SF Self Storage
34.	Las Ventanas Apartments	1795 Long Beach Boulevard	101 DU Multi-Family Residential 4,051 SF Commercial
35.	Mendoza Project	201-245 PCH and 1827 Pacific Avenue	154 DU Multi-Family Residential 36,000 SF Commercial
36.	1807-12	901 De Forest Avenue	10,000 SF stormwater treatment facility
37.	1810-23	469 Pacific Coast Highway	39 DU Multi-Family Residential (4-Story)
38.	1910-23	2515-2545 Atlantic Avenue and 550-572 Vernon Street	154 DU Multi-Family Residential

[18] Source: Cities of Long Beach and Signal Hill Planning Departments.

TABLE 6-2
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[19]

No.	Cumulative Project Description	Daily Two-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1.	2550 Orange Avenue Industrial	801	82	20	102	54	86	140
2.	Signal Hill Heritage Square	3,064	75	98	173	144	90	234
3.	Signal Hill Business Center[20]	2,668	207	37	244	64	182	246
4.	2351 Walnut Ave	34	3	0	3	1	3	4
5.	Honda Expansion	66	3	1	4	2	4	6
6.	Mazda Dealer	902	45	16	61	32	47	79
7.	Crescent Square	236	5	14	19	16	9	25
8.	Zinnia	294	14	22	36	14	10	24
9.	The Courtyard	73	1	4	5	4	2	6
10.	2599 Pacific Coast Highway	102	1	5	6	5	3	8
11.	1803-11	200	21	3	24	4	20	24
12.	1612-29	379	6	10	16	16	13	29
13.	1701-41	570	11	20	31	22	18	40
14.	1709-32	938	15	30	45	41	32	73
15.	1709-35	397	6	14	20	20	15	35
16.	Long Beach Senior Living	600	18	8	26	21	21	42
17.	1810-26	1,891	29	60	89	81	61	142
18.	1902-13	779	80	13	93	15	77	92
19.	2002-07	252	5	9	14	10	8	18
20.	Salvation Army Citadel Expansion[21]	903	34	18	52	45	40	85
21.	1703-32	117	23	19	42	4	4	8
22.	1706-14	170	3	1	4	6	7	13
23.	Harbor Freight	583	9	6	15	28	31	59
24.	Spring Street Industrial[22]	757	93	27	120	40	90	130
25.	1804-14	1,015	104	17	121	19	101	120
26.	1805-31	176	7	5	12	9	11	20
27.	2003-024	1,720	25	84	109	84	50	134
28.	2004-024	148	15	3	18	3	14	17

[19] Unless otherwise noted, Source: *Trip Generation, 10th Editions*, Institute of Transportation Engineers (ITE) [Washington, D.C. (2017)].

[20] Source: *Signal Hill Business Center TIA*, prepared by Kunzman Associates, Inc. in July 2019.

[21] Source: *Salvation Army Long Beach Citadel Expansion Project TIA*, prepared by LLG Engineers in December 2016.

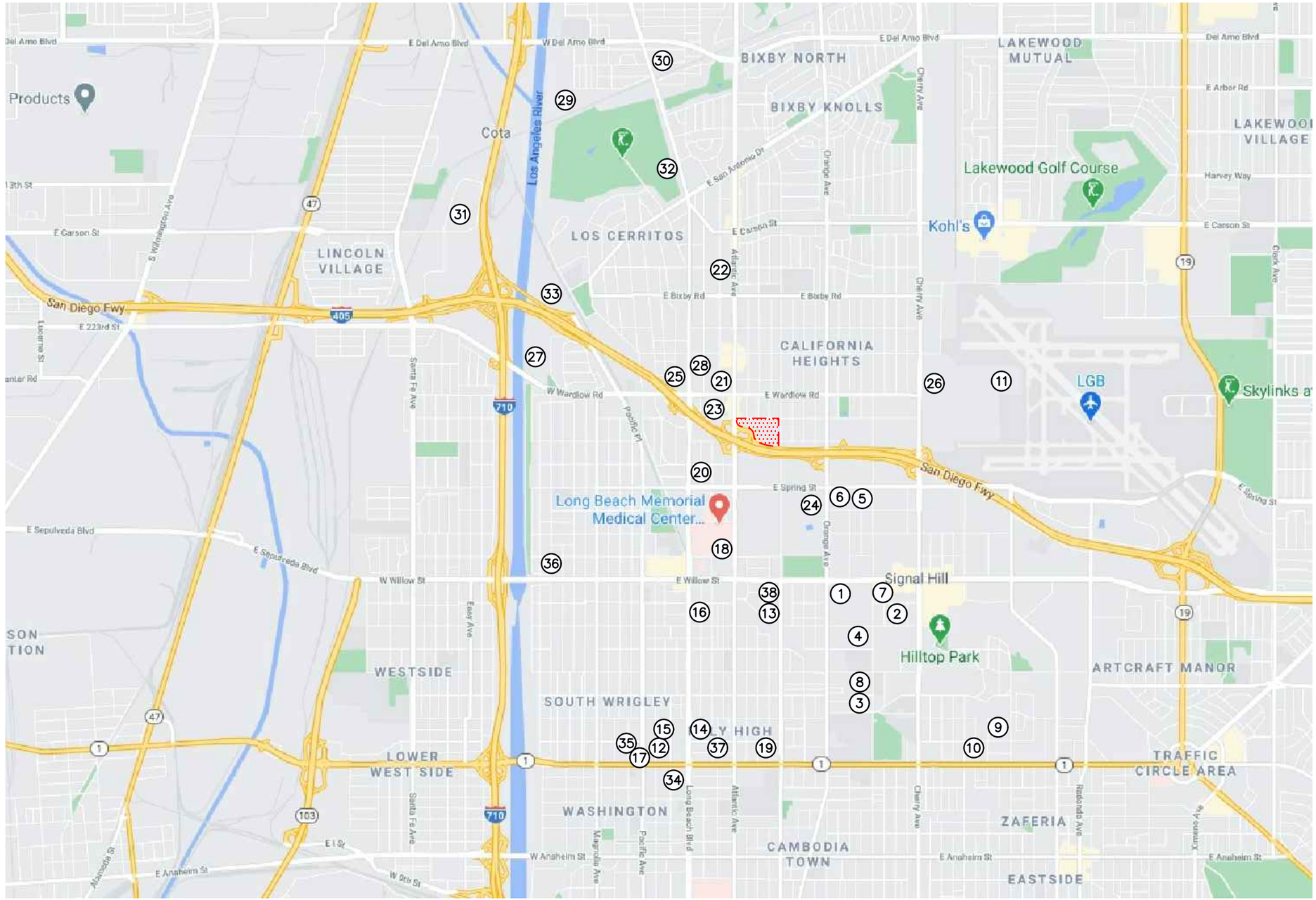
[22] Source: *Spring Street Business/Industrial Park TIA*, prepared by LLG Engineers in December 2019.

TABLE 6-2 (CONTINUED)
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[23]

No.	Cumulative Project Description	Daily Two-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
29.	1406-12A	959	14	46	60	46	27	73
30.	1707-10	146	2	7	9	7	4	11
31.	1805-03	900	68	20	88	26	72	98
32.	1905-29	291	4	3	7	11	11	22
33.	2005-08	231	9	6	15	12	14	26
34.	Las Ventanas Apartments[24]	803	11	42	53	46	28	74
35.	Mendoza Project	2,061	33	53	86	85	73	158
36.	1807-12	132	18	5	23	5	18	23
37.	1810-23	212	4	10	14	10	7	17
38.	1910-23	1,127	16	55	71	54	32	86
	Total Cumulative Projects Tip Generation Forecast	**26,697**	**1,119**	**811**	**1,930**	**1,106**	**1,335**	**2,441**

[23] Unless otherwise noted, Source: *Trip Generation, 10th Editions*, Institute of Transportation Engineers (ITE) [Washington, D.C. (2017)].

[24] Source: *1795 Long Beach Boulevard Mixed-Use Development Project TIA*, prepared by LLG Engineers in June 2017.



KEY

1. 2550 ORANGE AVENUE INDUSTRIAL
2. SIGNAL HILL HERITAGE SQUARE
3. SINGAL HILL BUSINESS CENTER
4. 2351 WALNUT AVE
5. HONDA EXPANSION
6. MAZDA DEALER
7. CRESCENT SQUARE
8. ZINNIA
9. THE COURTYARD
10. 2599 PACIFIC COAST HIGHWAY
11. 1803–11
12. 1612–29
13. 1701–41
14. 1709–32
15. 1709–35
16. LONG BEACH SENIOR LIVING
17. 1810–26
18. 1902–13
19. 2002–07
20. SALVATION ARMY CITADEL EXPANSION
21. 1703–32
22. 1706–14
23. HARBOR FREIGHT
24. SPRING STREET INDUSTRIAL
25. 1804–14
26. 1805–31
27. 2003–024
28. 2004–024
29. 1406–12A
30. 1707–10
31. 1805–03
32. 1905–29
33. 2005–08
34. LAS VENTANAS APARTMENTS
35 MEDOZA PROJECT
36. 1807–12
37. 1810–23
38. 1910–23

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

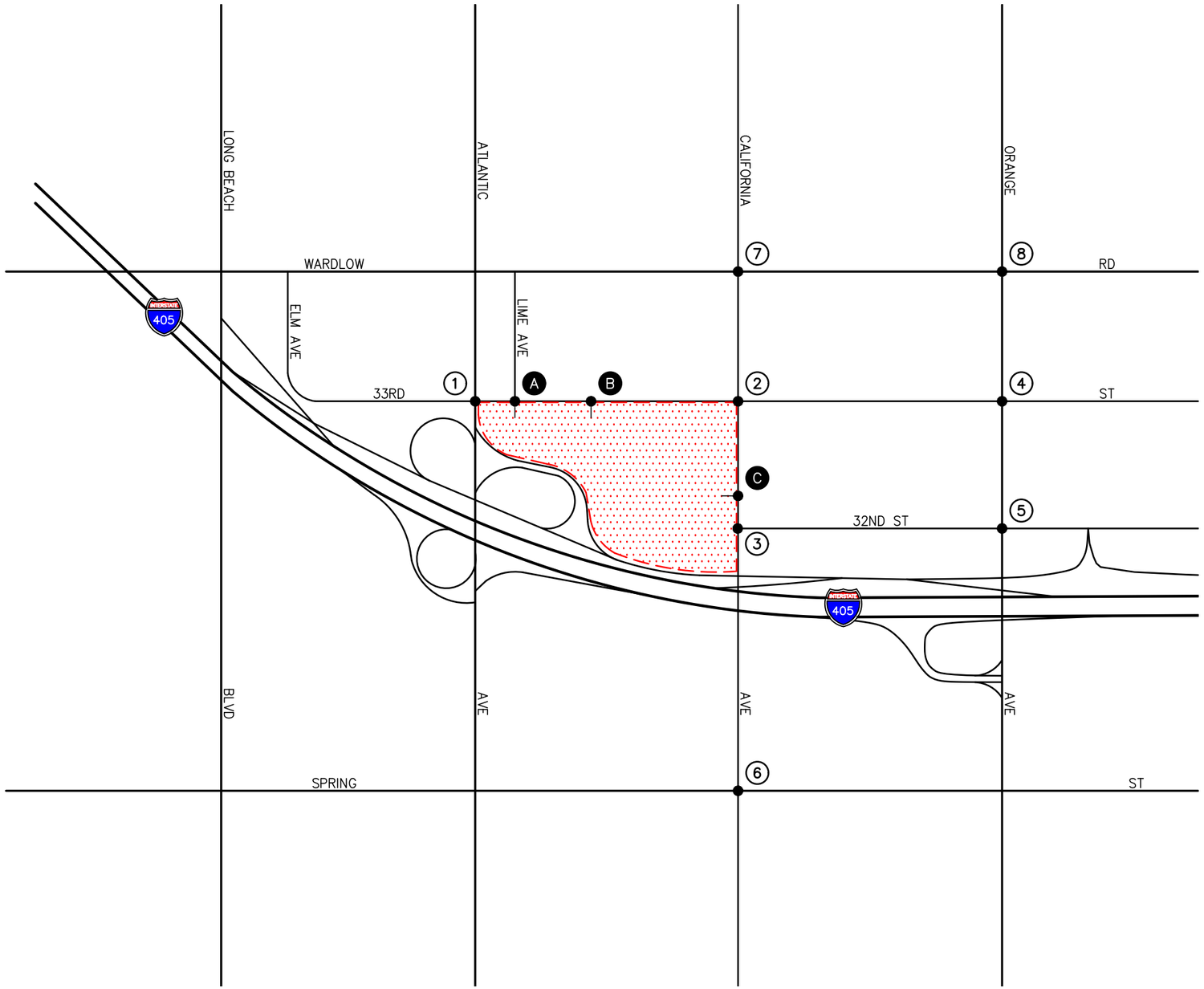
(#) = LOCATION OF CUMULATIVE PROJECT

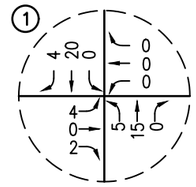
= PROJECT SITE

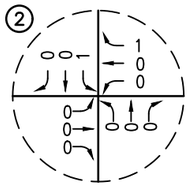
FIGURE 6–1

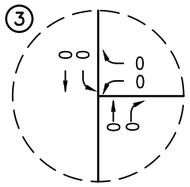
LOCATION OF CUMULATIVE PROJECTS

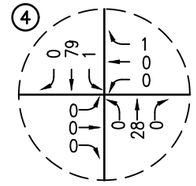
TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

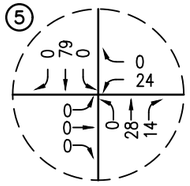


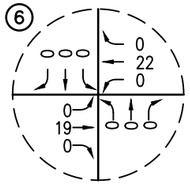


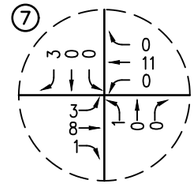


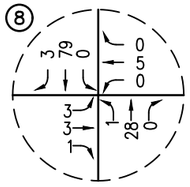


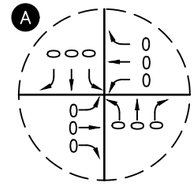


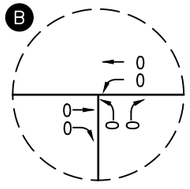


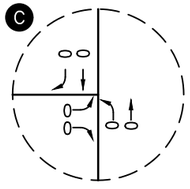












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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

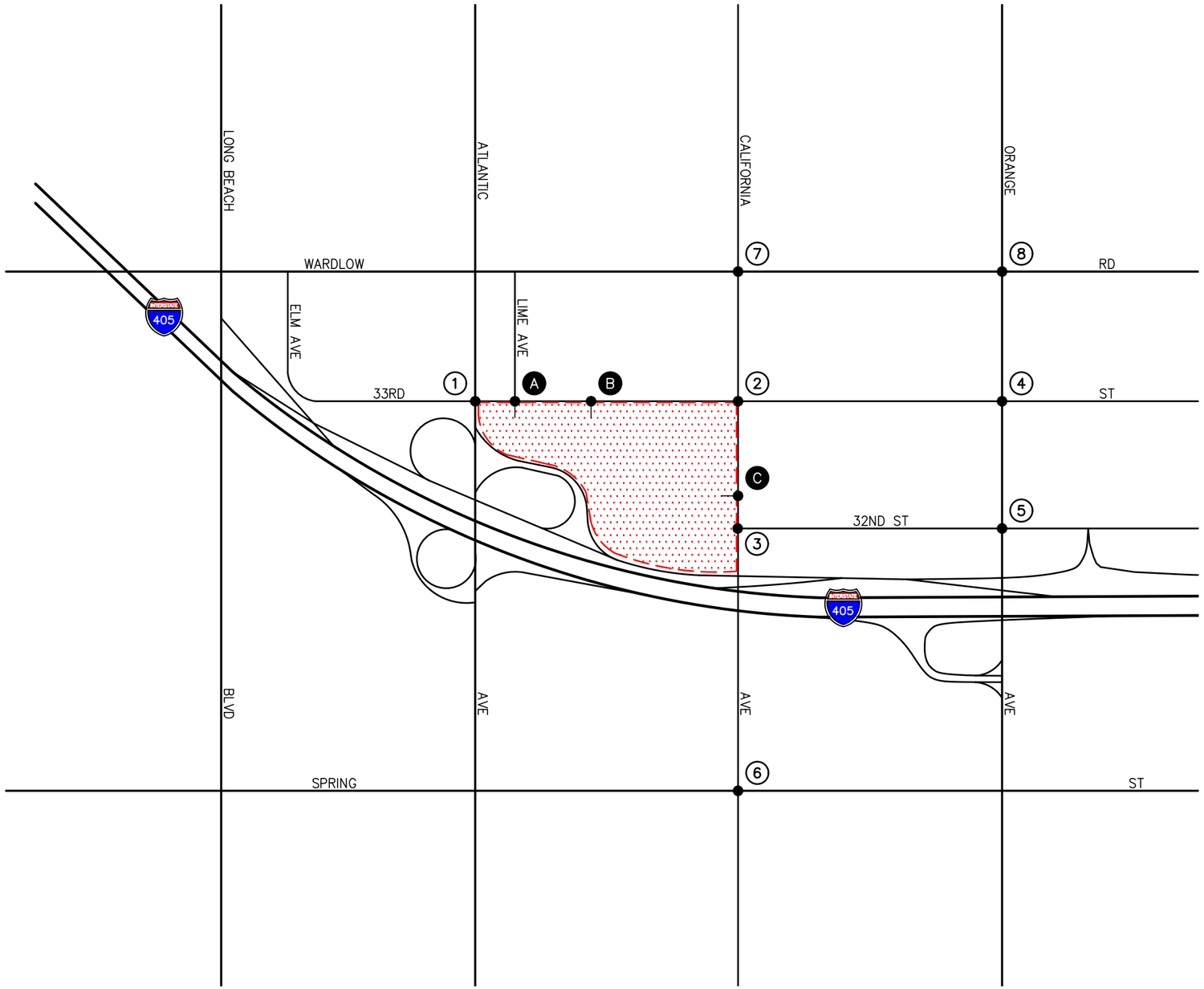
(#) = STUDY INTERSECTION

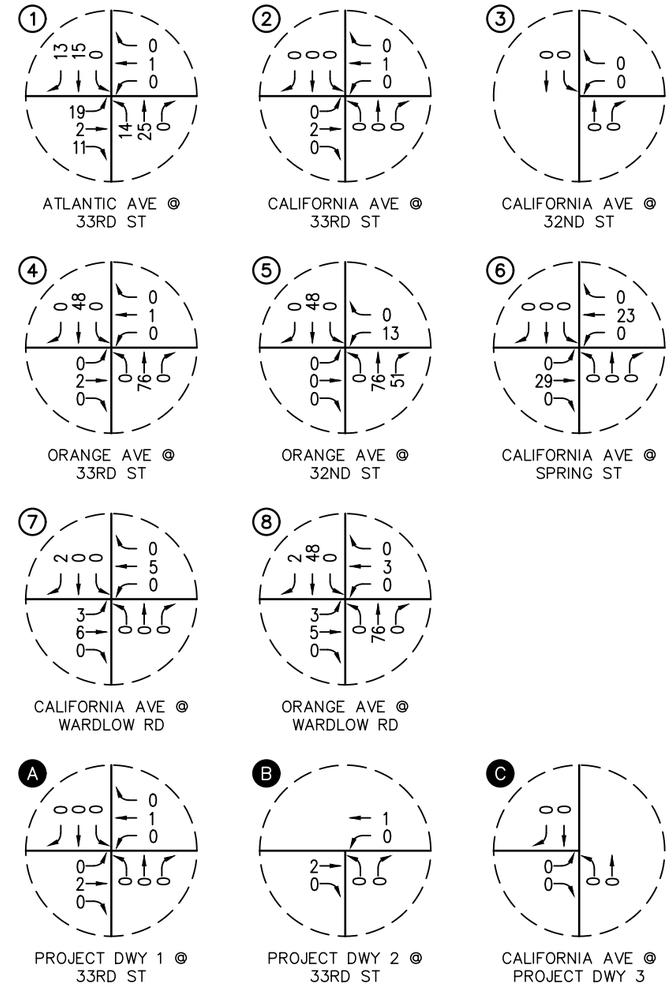
= PROJECT SITE

FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECT TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

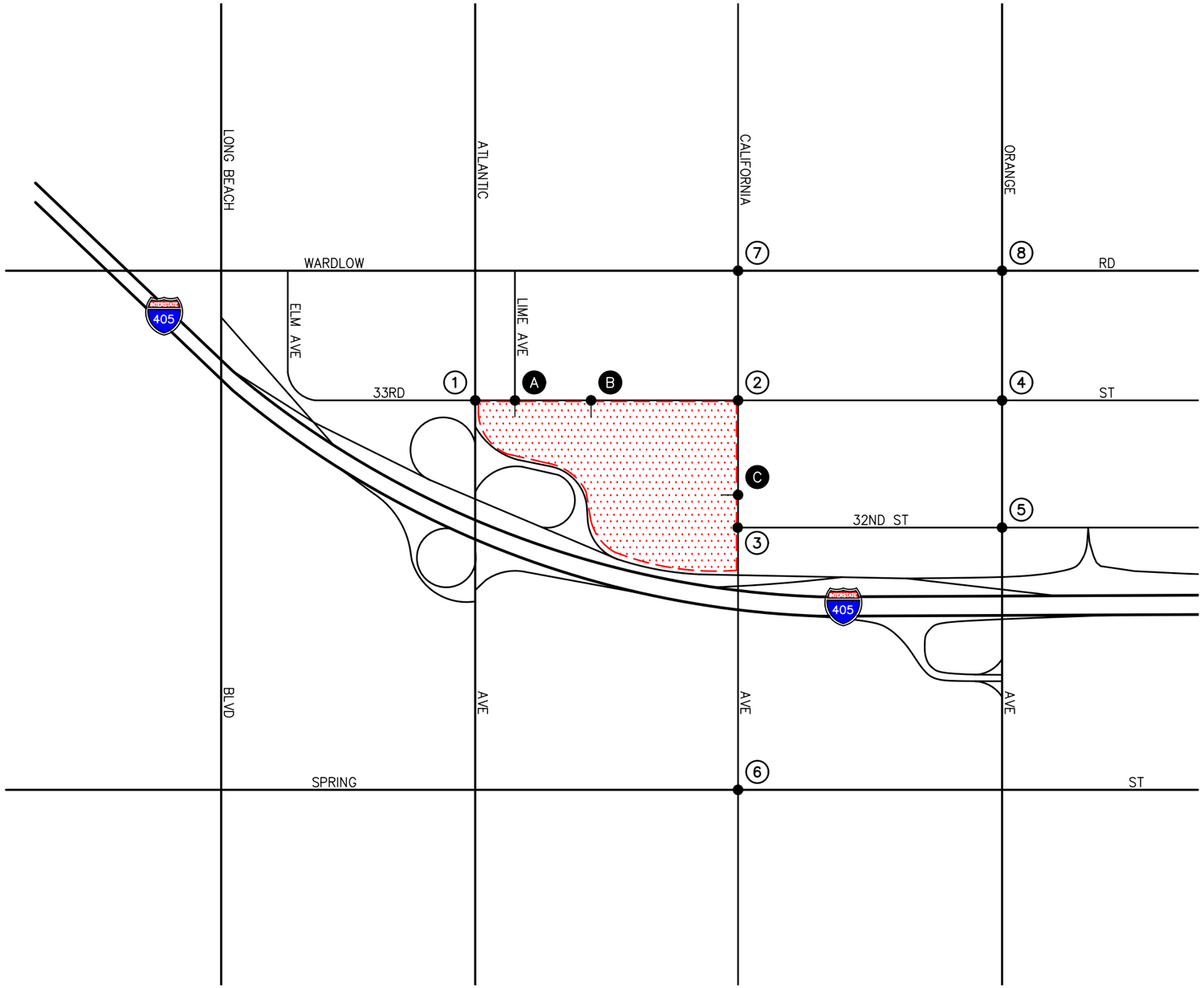
N NO SCALE

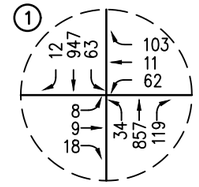
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-3

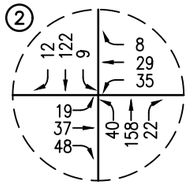
PM PEAK HOUR CUMULATIVE PROJECT TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

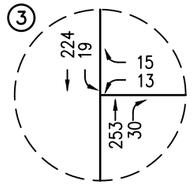




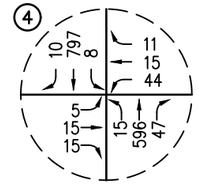
ATLANTIC AVE @
33RD ST



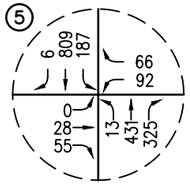
CALIFORNIA AVE @
33RD ST



CALIFORNIA AVE @
32ND ST



ORANGE AVE @
33RD ST



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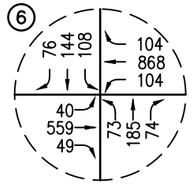
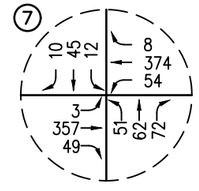
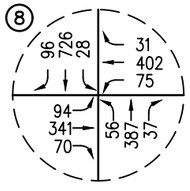


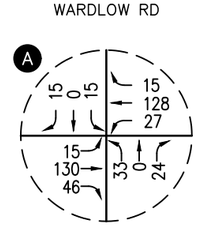
CALIFORNIA AVE @
SPRING ST



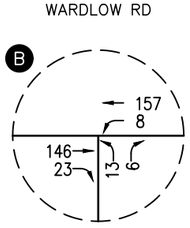
CALIFORNIA AVE @
WARDLOW RD



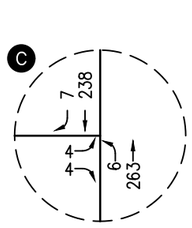
ORANGE AVE @
WARDLOW RD



PROJECT DWY 1 @
33RD ST



PROJECT DWY 2 @
33RD ST



CALIFORNIA AVE @
PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN
engineers

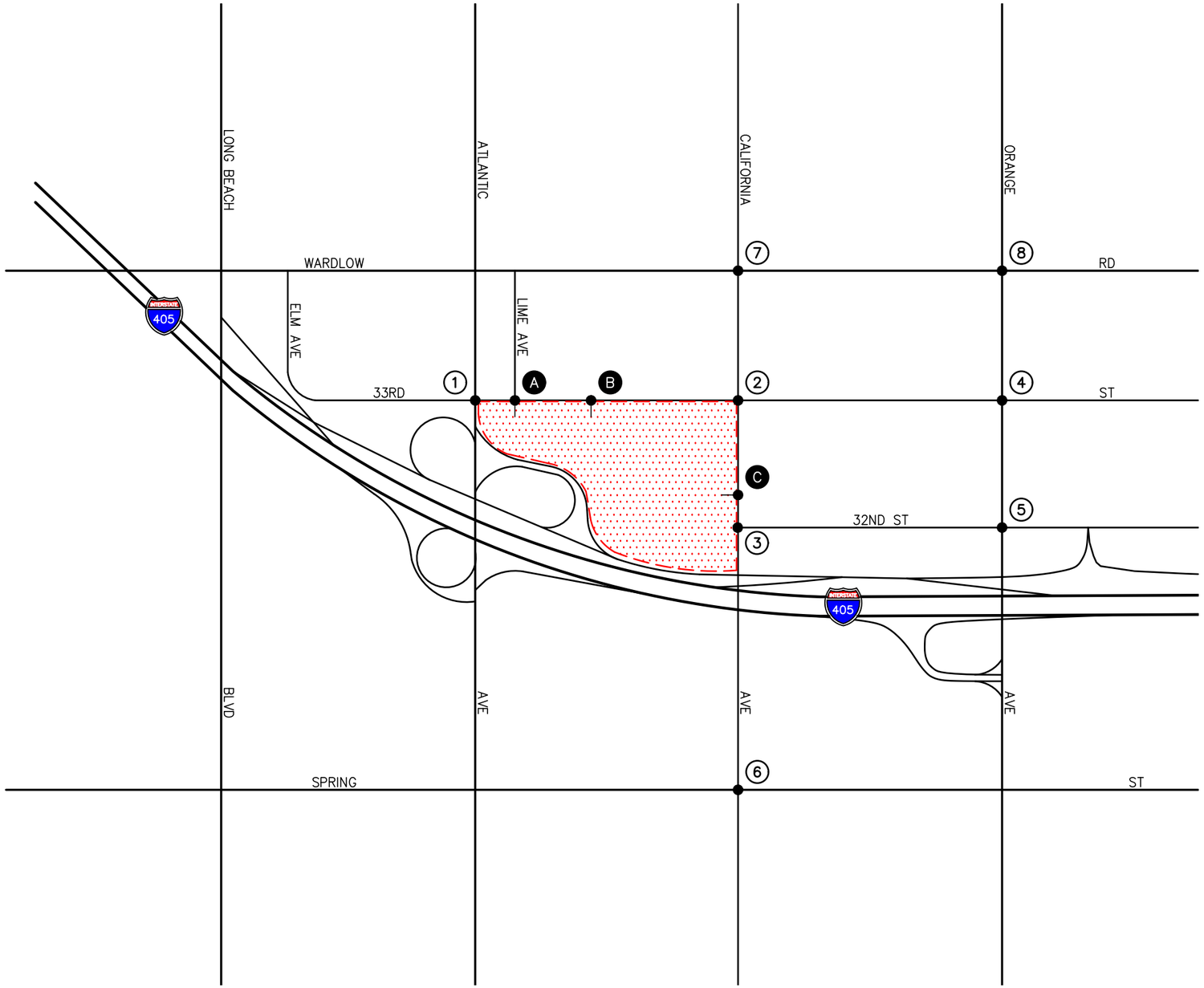
N NO SCALE

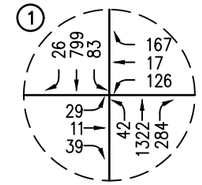
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-4

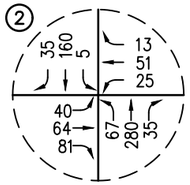
YEAR 2024 CUMULATIVE AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

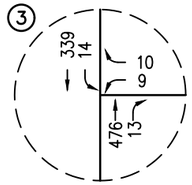




ATLANTIC AVE @
33RD ST



CALIFORNIA AVE @
33RD ST



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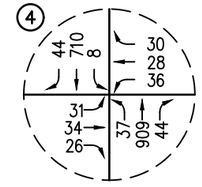
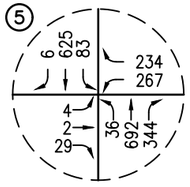
32ND ST



ORANGE AVE @
33RD ST



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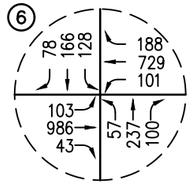
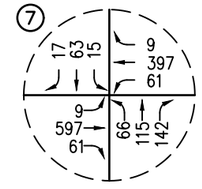
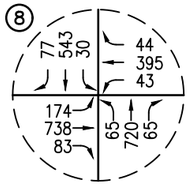
32ND ST



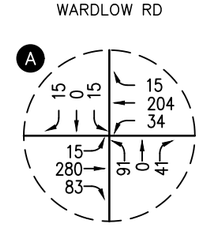
CALIFORNIA AVE @
SPRING ST



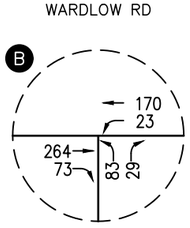
CALIFORNIA AVE @
WARDLOW RD



ORANGE AVE @
WARDLOW RD



PROJECT DWY 1 @
33RD ST



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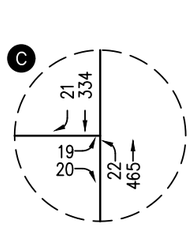

CALIFORNIA AVE @
PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

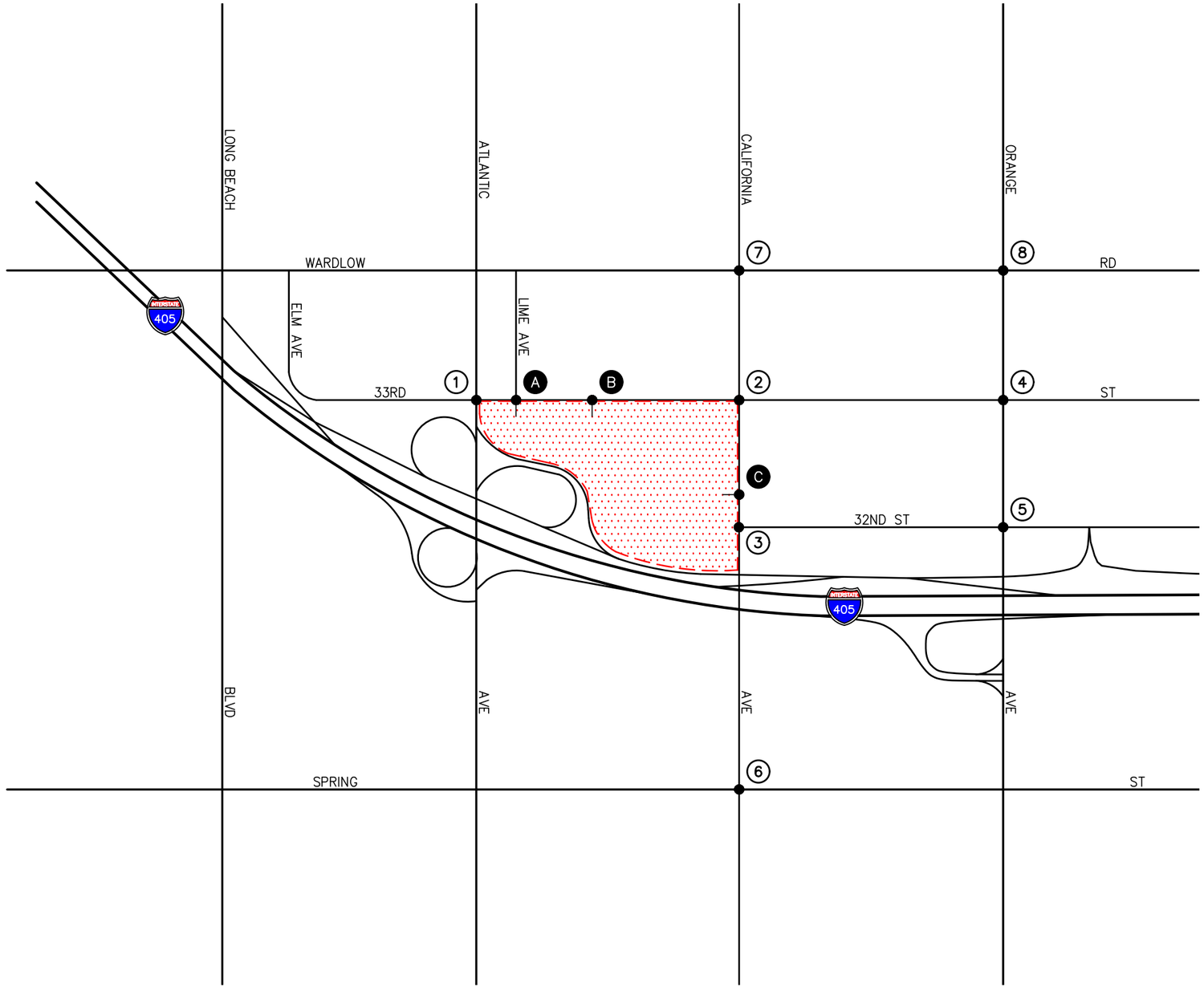
(#) = STUDY INTERSECTION

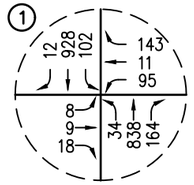
= PROJECT SITE

FIGURE 6-5

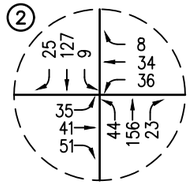
YEAR 2024 CUMULATIVE PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

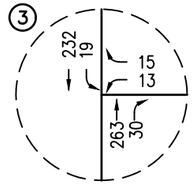




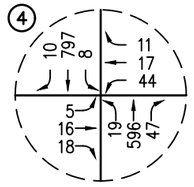
ATLANTIC AVE @
33RD ST



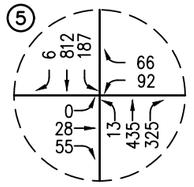
CALIFORNIA AVE @
33RD ST



CALIFORNIA AVE @
32ND ST



ORANGE AVE @
33RD ST



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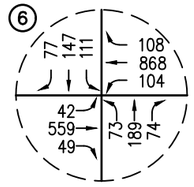
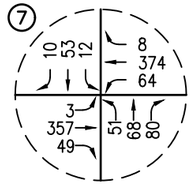
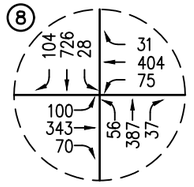


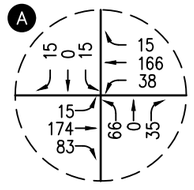
CALIFORNIA AVE @
SPRING ST



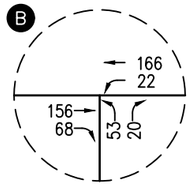
CALIFORNIA AVE @
WARDLOW RD



ORANGE AVE @
WARDLOW RD



PROJECT DWY 1 @
33RD ST



PROJECT DWY 2 @
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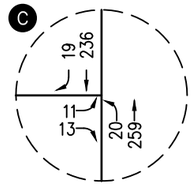

CALIFORNIA AVE @
PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

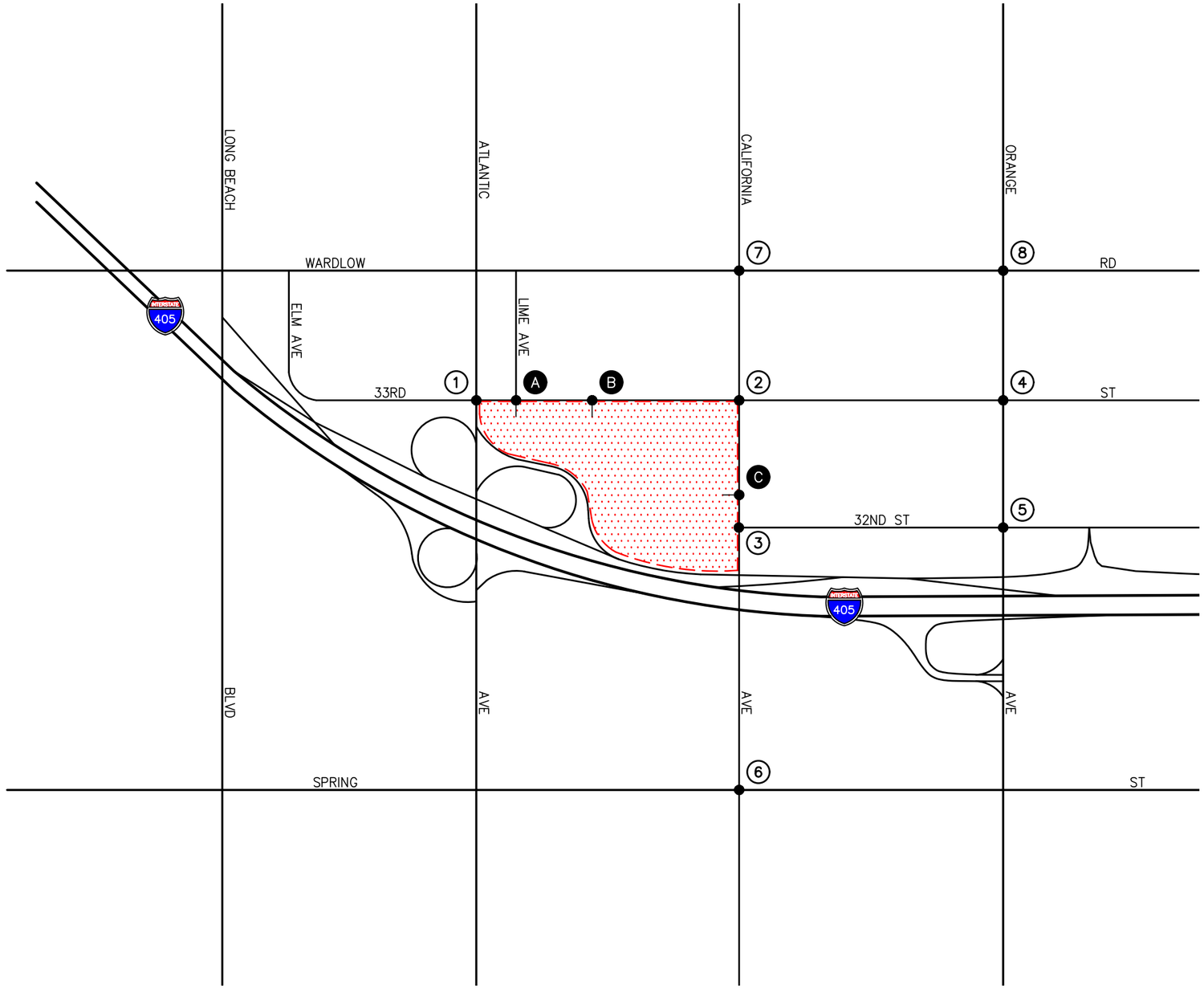
(#) = STUDY INTERSECTION

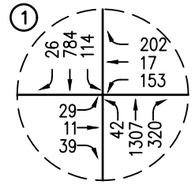
= PROJECT SITE

FIGURE 6-6

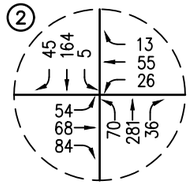
YEAR 2024 CUMULATIVE PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





ATLANTIC AVE @ 33RD ST



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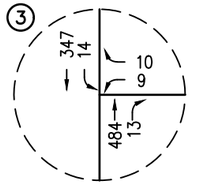

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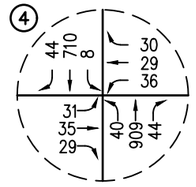

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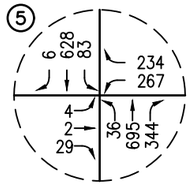

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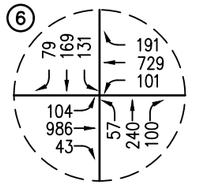
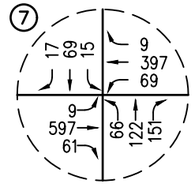


CALIFORNIA AVE @ SPRING ST



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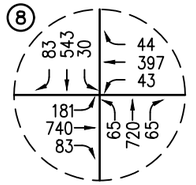

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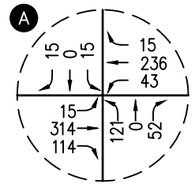
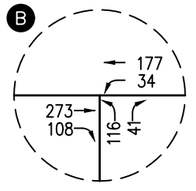


PROJECT DWY 1 @ 33RD ST



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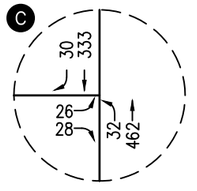

CALIFORNIA AVE @ PROJECT DWY 3

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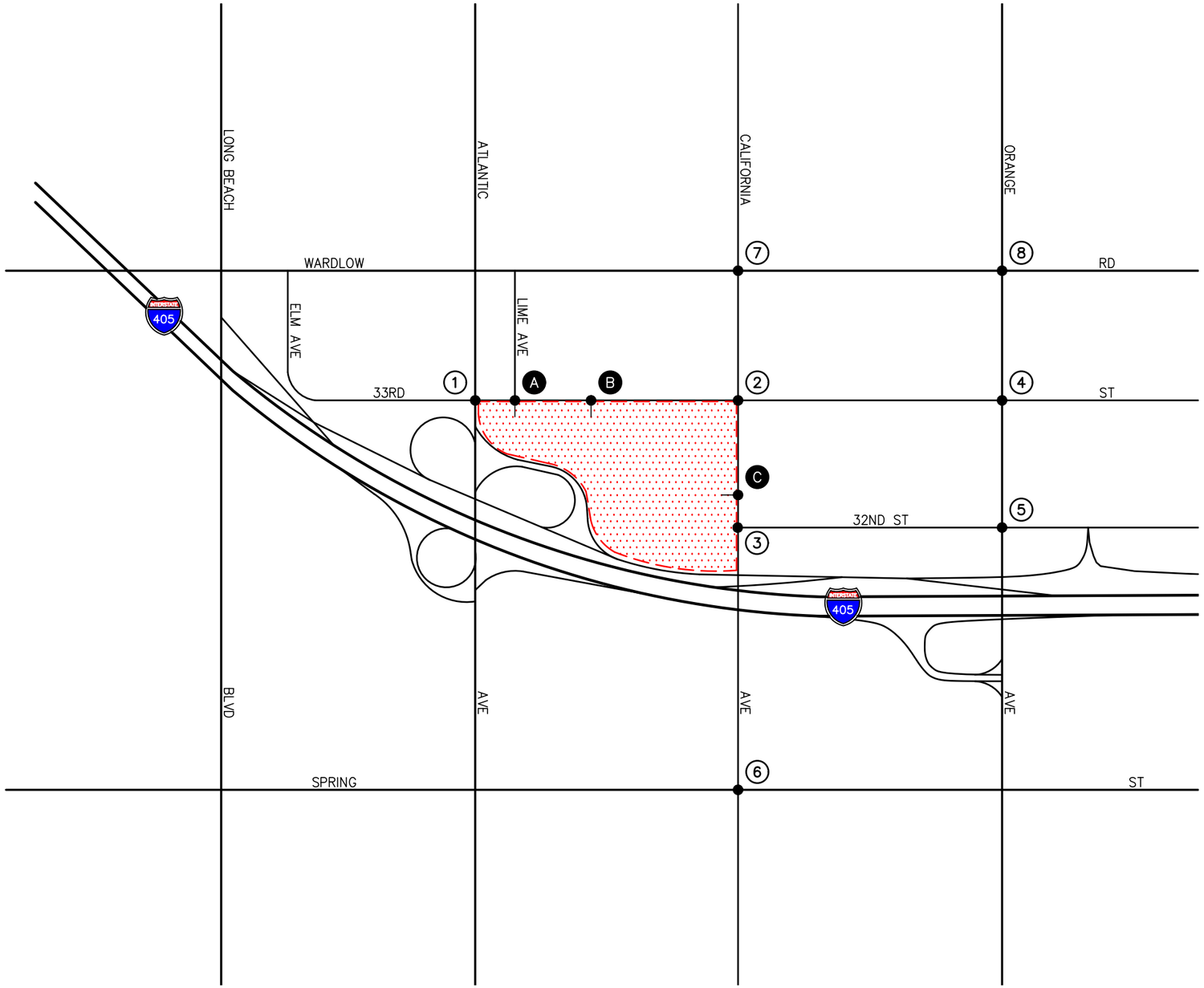
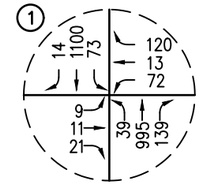
= PROJECT SITE

FIGURE 6-7

YEAR 2024 CUMULATIVE PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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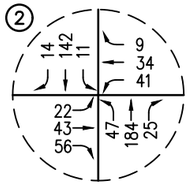

CALIFORNIA AVE @
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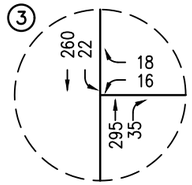
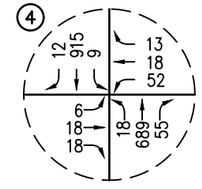


CALIFORNIA AVE @
32ND ST



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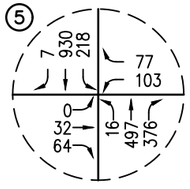

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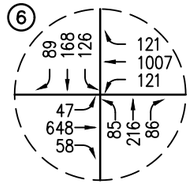

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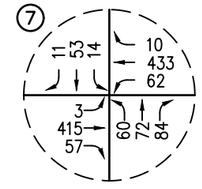
SPRING ST



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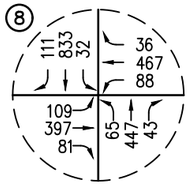
WARDLOW RD



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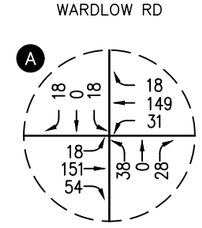

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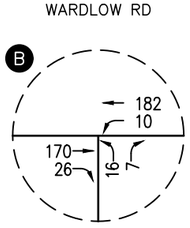

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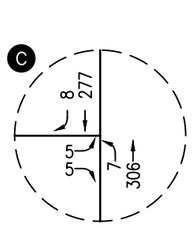

CALIFORNIA AVE @
PROJECT DWY 3

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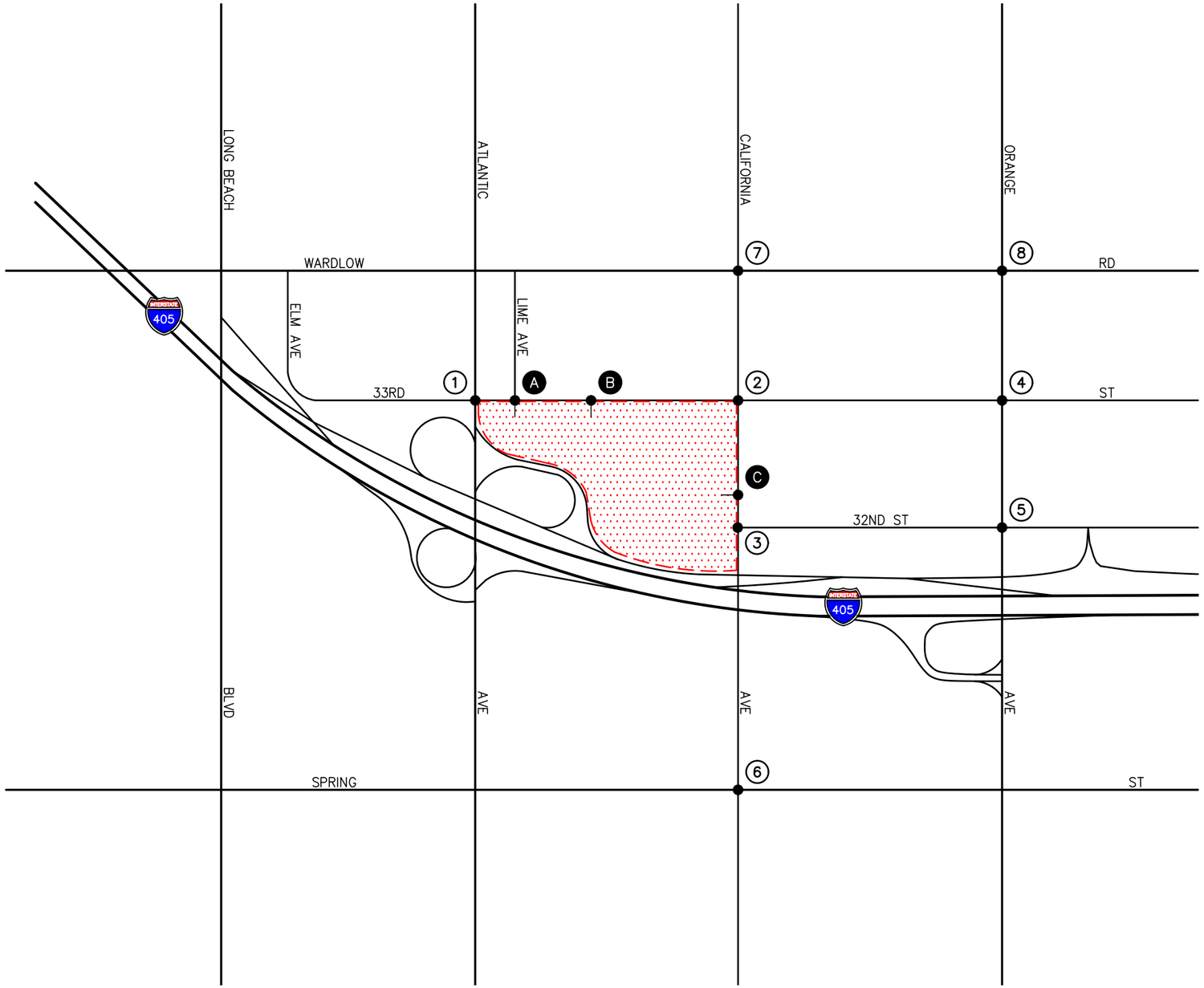
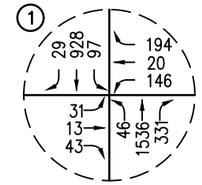
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-8

YEAR 2041 BUILDOUT AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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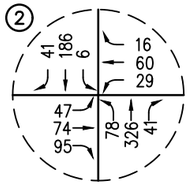

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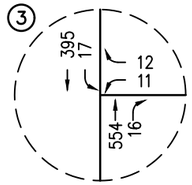

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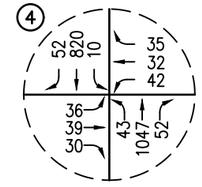

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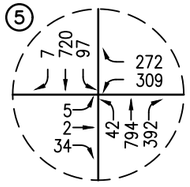

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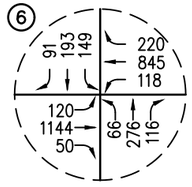

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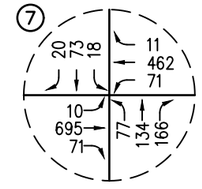
SPRING ST



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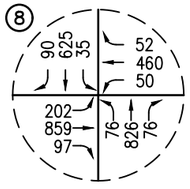

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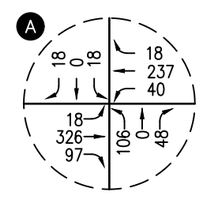

PROJECT DWY 1 @
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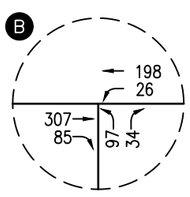

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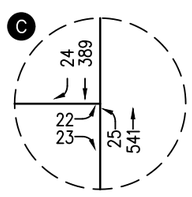

CALIFORNIA AVE @
PROJECT DWY 3

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LINSCOTT LAW & GREENSPAN
engineers

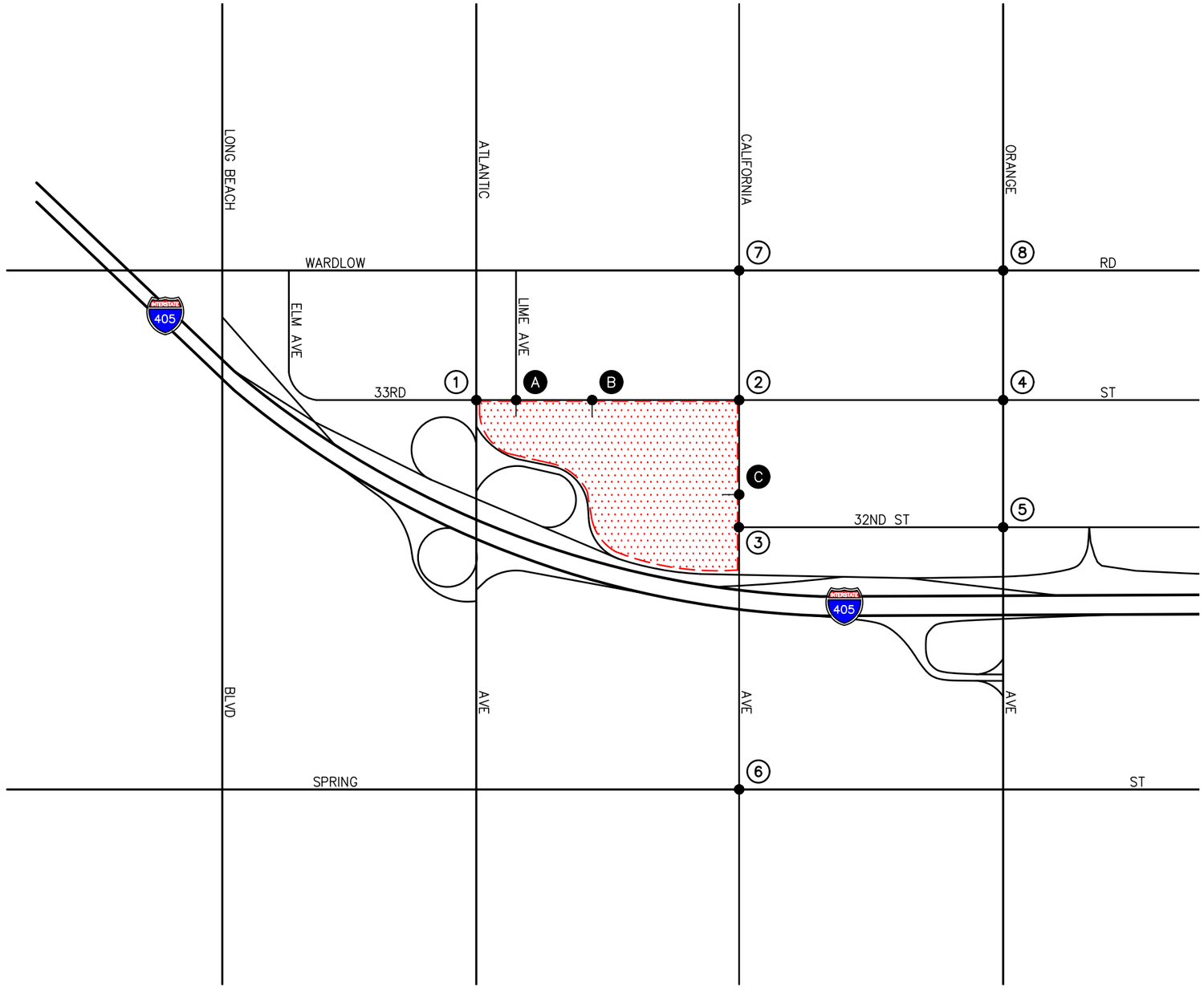
N NO SCALE

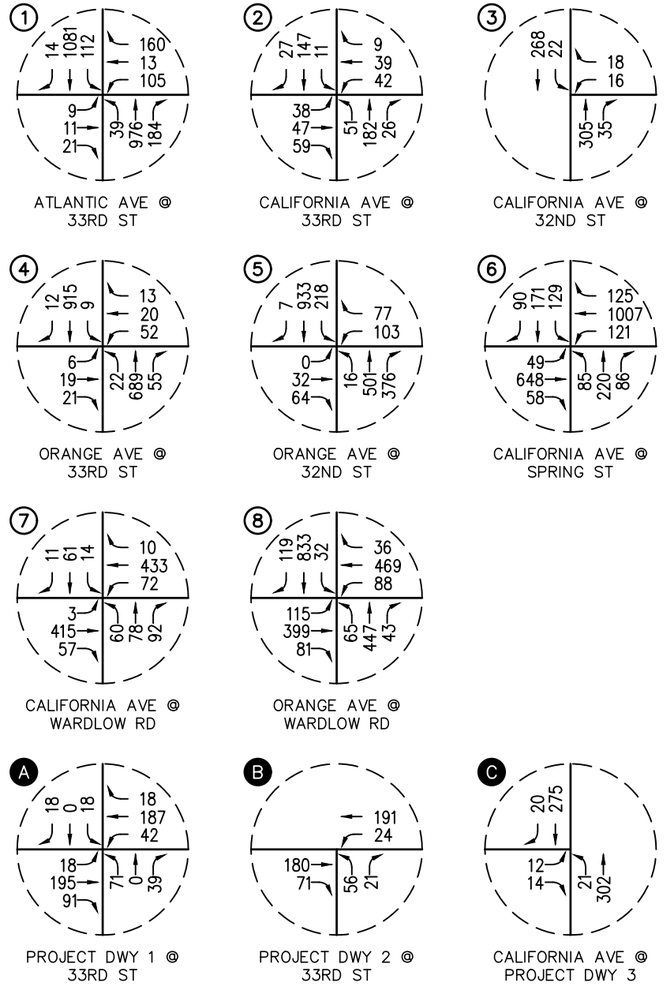
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-9

YEAR 2041 BUILDOUT PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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N NO SCALE

KEY

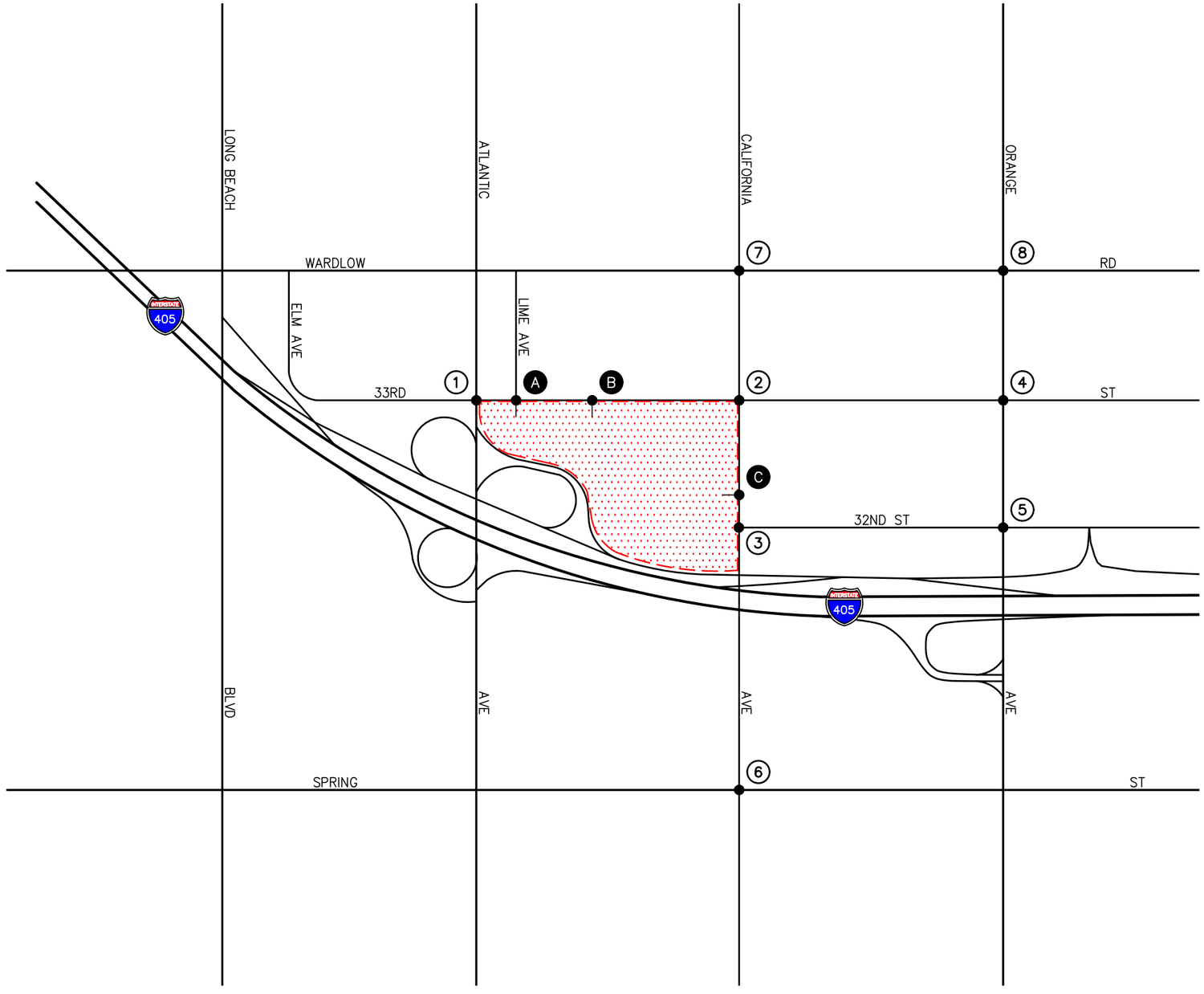
(#) = STUDY INTERSECTION

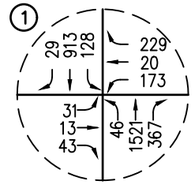
= PROJECT SITE

FIGURE 6-10

YEAR 2041 BUILDOUT PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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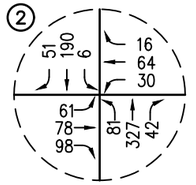

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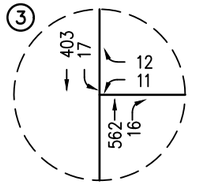

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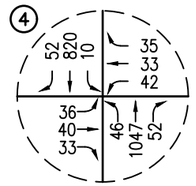

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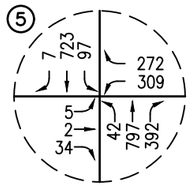

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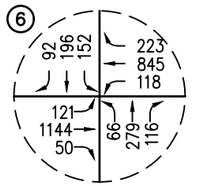
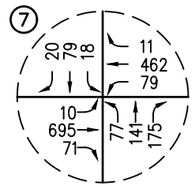
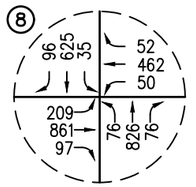


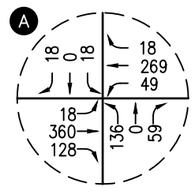
CALIFORNIA AVE @ SPRING ST



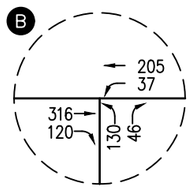
CALIFORNIA AVE @ WARDLOW RD



ORANGE AVE @ WARDLOW RD



PROJECT DWY 1 @ 33RD ST



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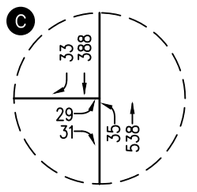

CALIFORNIA AVE @ PROJECT DWY 3

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N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-11

YEAR 2041 BUILDOUT PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

The potential impact of the added project traffic volumes generated by the proposed Project during the weekday peak hours was evaluated based on analysis of future operating conditions at the eight (8) key study intersections, without, then with, the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential impacts of the project at each key intersection was then evaluated using the following traffic impact criteria.

7.1.1 *City of Signal Hill*

According to the City of Signal Hill significant impact criteria, impacts to local and regional transportation systems are considered significant if:

Signalized Intersections:

- Intersection with more than 40 project trips, and
- An unacceptable peak hour LOS (i.e. LOS E or F) at any of the key study intersections is projected. The City of Signal Hill considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections, and
- The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901).
- Intersection left-turn queue lengths exceed the existing storage lengths.

Unsignalized Intersections:

- The project causes an intersection operating at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a traffic signal is justified.

7.1.2 *City of Long Beach*

According to the City of Long Beach significant impact criteria, impacts to local and regional transportation systems are considered significant if:

Signalized Intersections:

- The project causes a study intersection to deteriorate from Level of Service (LOS) D to LOS E or F. The City of Long Beach considers LOS D to be the minimum acceptable LOS for all intersections; or
- The project increases average control delay at the study intersection by 2.5 seconds or more when an intersection is operating at LOS E or F in the baseline condition.
- The 95th percentile queue length exceeds the available storage length at any turn bay under project conditions.

Unsignalized Intersections:

- The intersection operates at LOS E or F, and the intersection meets the peak-hour traffic signal warrant after the addition of project traffic.

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which intersection capacity calculations have been performed using the ICU/HCM methodologies:

A. Existing Traffic Conditions;
B. Existing Plus Project Traffic Conditions;
C. Scenario (B) with Improvements, if necessary;
D. Year 2024 Cumulative Traffic Conditions;
E. Year 2024 Cumulative Plus Project Traffic Conditions;
F. Scenario (E) with Improvements, if necessary;
G. Year 2041 Buildout Traffic Conditions;
H. Year 2041 Buildout Plus Project Traffic Conditions; and
I. Scenario (H) with Improvements, if necessary.

8.0 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Existing Plus Project Traffic Conditions

Table 8-1 summarizes the peak hour Level of Service results at the eight (8) key study intersections for existing plus project traffic conditions. The first column (1) of ICU/HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-4*). The second column (2) lists existing plus project traffic conditions with current intersection geometry/lane configurations. The third column (3) shows the increase in ICU/HCM value due to the added peak hour project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria defined in this report. The fourth column (4) indicates the anticipated level of service with improvements, if any.

8.1.1 *Existing Traffic Conditions*

As previously presented in *Table 3-4*, review of column 1 indicates that all of the key study intersections currently operate at LOS D or better during the weekday AM and PM peak hours.

8.1.2 *Existing Plus Project Traffic Conditions*

Review of columns 2 and 3 of *Table 8-1* indicates that all of the key study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours under Existing Plus Project traffic conditions.

Appendix C contains the detailed peak hour level of service worksheets for the City of Signal Hill study intersections evaluated in this report. *Appendix D* contains the detailed peak hour level of service worksheets for the City of Long Beach study intersections evaluated in this report.

TABLE 8-1
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Jurisdiction	Time Period	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions				(3) Significant Impact				(4) Existing Plus Project Traffic Conditions with Improvements			
			ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS	ICU Increase	Yes/No	Delay Increase (s/v)	Yes/No	ICU	LOS	Delay (s/v)	LOS
1. Atlantic Avenue at 33rd Street	Long Beach	AM	--	--	8.4	A	--	--	11.6	B	--	--	3.2	No	--	--	--	--
		PM	--	--	13.4	B	--	--	16.5	B	--	--	3.1	No	--	--	--	--
2. California Avenue at 33rd Street	Signal Hill	AM	--	--	8.9	A	--	--	9.2	A	--	--	0.3	No	--	--	--	--
		PM	--	--	11.8	B	--	--	12.3	B	--	--	0.5	No	--	--	--	--
3. California Avenue at 32nd Street	Signal Hill	AM	--	--	11.2	B	--	--	11.4	B	--	--	0.2	No	--	--	--	--
		PM	--	--	14.0	B	--	--	14.2	B	--	--	0.2	No	--	--	--	--
4. Orange Avenue at 33rd Street	Signal Hill	AM	0.604	B	--	--	0.609	B	--	--	0.005	No	--	--	--	--	--	--
		PM	0.736	C	--	--	0.740	C	--	--	0.004	No	--	--	--	--	--	--
5. Orange Avenue at 32nd Street	Signal Hill	AM	0.738	C	--	--	0.741	C	--	--	0.003	No	--	--	--	--	--	--
		PM	0.878	D	--	--	0.879	D	--	--	0.001	No	--	--	--	--	--	--
6. California Avenue at Spring Street	Signal Hill/ Long Beach	AM	0.604	B	17.5	B	0.610	B	17.5	B	0.006	No	0.0	No	--	--	--	--
		PM	0.733	C	17.5	B	0.737	C	17.6	B	0.004	No	0.1	No	--	--	--	--
7. California Avenue at Wardlow Road	Long Beach	AM	--	--	20.5	C	--	--	21.0	C	--	--	0.5	No	--	--	--	--
		PM	--	--	18.3	B	--	--	19.2	B	--	--	0.9	No	--	--	--	--
8. Orange Avenue at Wardlow Road	Long Beach	AM	--	--	21.3	C	--	--	21.7	C	--	--	0.4	No	--	--	--	--
		PM	--	--	27.0	C	--	--	27.3	C	--	--	0.3	No	--	--	--	--

Notes:

- s/v = seconds per vehicle (delay)

8.2 Year 2024 Traffic Conditions

Table 8-2 summarizes the peak hour Level of Service results at the eight (8) key study intersections for the Year 2024 horizon year. The first column (1) of ICU/HCM/LOS values in *Table 8-2* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Tables 3-4* and *8-1*). The second column (2) lists future Year 2024 cumulative traffic conditions (existing plus ambient growth traffic plus cumulative projects traffic), without any traffic generated by the proposed Project. The third column (3) presents future forecast traffic conditions with the addition of traffic generated by the proposed Project. The fourth column (4) shows the increase in ICU/HCM value due to the added peak hour project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report. The fifth column (5) indicates the anticipated level of service with improvements, if any.

8.2.1 *Year 2024 Cumulative Traffic Conditions*

Review of Column 2 of *Table 8-2* indicates that one (1) key study intersection is forecast to operate adversely under Year 2024 Cumulative traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours. The intersection operating adversely includes the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
5. Orange Avenue at 32nd Street	--	--	--	--	0.988	E	--	--

8.2.2 *Year 2024 Cumulative Plus Project Traffic Conditions*

Review of column 3 of *Table 8-2* indicates that one (1) key study intersection is forecast to operate adversely under Year 2024 Cumulative Plus Project traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours with the addition of project traffic. The intersection operating adversely includes the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
5. Orange Avenue at 32nd Street	--	--	--	--	0.990	E	--	--

Although the intersection of Orange Avenue/32nd Street is forecast to operate adversely, review of column 4 indicates that the project increment adds less than 0.020 to the ICU value and hence the Project's impact is considered insignificant based on the LOS standards and significance criteria defined in this report. In addition to not meeting the significant impact criteria, the intersection of Orange Avenue/32nd Street has Project peak hour trips that are less than the 40 trip threshold required for analysis.

Appendix C contains the detailed peak hour level of service worksheets for the City of Signal Hill study intersections evaluated in this report. *Appendix D* contains the detailed peak hour level of service worksheets for the City of Long Beach study intersections evaluated in this report.

TABLE 8-2
YEAR 2024 CUMULATIVE PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Jurisdiction	Time Period	(1) Existing Traffic Conditions				(2) Year 2024 Cumulative Traffic Conditions				(3) Year 2024 Cumulative Plus Project Traffic Conditions				(4) Significant Impact				(5) Year 2024 Cumulative Plus Project Traffic Conditions with Improvements			
			ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS	ICU Increase	Yes/No	Delay Increase (s/v)	Yes/No	ICU	LOS	Delay (s/v)	LOS
1. Atlantic Avenue at 33rd Street	Long Beach	AM	--	--	8.4	A	--	--	8.4	A	--	--	11.6	B	--	--	3.2	No	--	--	--	--
		PM	--	--	13.4	B	--	--	13.8	B	--	--	16.5	B	--	--	2.7	No	--	--	--	--
2. California Avenue at 33rd Street	Signal Hill	AM	--	--	8.9	A	--	--	9.0	A	--	--	9.3	A	--	--	0.3	No	--	--	--	--
		PM	--	--	11.8	B	--	--	12.2	B	--	--	12.8	B	--	--	0.6	No	--	--	--	--
3. California Avenue at 32nd Street	Signal Hill	AM	--	--	11.2	B	--	--	11.3	B	--	--	11.5	B	--	--	0.2	No	--	--	--	--
		PM	--	--	14.0	B	--	--	14.3	B	--	--	14.4	B	--	--	0.1	No	--	--	--	--
4. Orange Avenue at 33rd Street	Signal Hill	AM	0.604	B	--	--	0.668	B	--	--	0.673	B	--	--	0.005	No	--	--	--	--	--	--
		PM	0.736	C	--	--	0.803	D	--	--	0.808	D	--	--	0.005	No	--	--	--	--	--	--
5. Orange Avenue at 32nd Street	Signal Hill	AM	0.738	C	--	--	0.799	C	--	--	0.801	D	--	--	0.002	No	--	--	--	--	--	--
		PM	0.878	D	--	--	**0.988**	**E**	--	--	**0.990**	**E**	--	--	0.002	No	--	--	--	--	--	--
6. California Avenue at Spring Street	Signal Hill/ Long Beach	AM	0.604	B	17.5	B	0.626	B	17.5	B	0.631	B	17.5	B	0.005	No	0.0	No	--	--	--	--
		PM	0.733	C	17.5	B	0.762	C	18.0	B	0.766	C	18.0	B	0.004	No	0.0	No	--	--	--	--
7. California Avenue at Wardlow Road	Long Beach	AM	--	--	20.5	C	--	--	21.4	C	--	--	22.7	B	--	--	1.3	No	--	--	--	--
		PM	--	--	18.3	B	--	--	18.9	B	--	--	19.0	B	--	--	0.1	No	--	--	--	--
8. Orange Avenue at Wardlow Road	Long Beach	AM	--	--	21.3	C	--	--	27.2	C	--	--	28.6	C	--	--	1.4	No	--	--	--	--
		PM	--	--	27.0	C	--	--	30.6	C	--	--	31.2	C	--	--	0.6	No	--	--	--	--

Notes:

- s/v = seconds per vehicle (delay)

8.3 Year 2041 Traffic Conditions

Table 8-3 summarizes the peak hour Level of Service results at the eight (8) key study intersections for the Year 2041 buildout year. The first column (1) of ICU/HCM/LOS values in *Table 8-4* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Tables 3-4, 8-1, and 8-2*). The second column (2) lists future Year 2041 buildout traffic conditions (existing plus ambient growth traffic plus cumulative projects traffic), without any traffic generated by the proposed Project. The third column (3) presents future forecast traffic conditions with the addition of traffic generated by the proposed Project. The fourth column (4) shows the increase in ICU/HCM value due to the added peak hour project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report. The fifth column (5) indicates the anticipated level of service with improvements, if any.

8.3.1 *Year 2041 Buildout Traffic Conditions*

Review of Column 2 of *Table 8-3* indicates that two (2) key study intersections are forecast to operate adversely under Year 2041 Buildout traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours. The intersections operating adversely include the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
4. Orange Avenue at 33rd Street	--	--	--	--	0.912	E	--	--
5. Orange Avenue at 32nd Street	0.906	E	--	--	1.121	F	--	--

8.3.2 *Year 2041 Buildout Plus Project Traffic Conditions*

Review of column 3 of *Table 8-3* indicates that two (2) key study intersection are forecast to operate adversely under Year 2041 Buildout Plus Project traffic conditions. The remaining study intersections are forecast to operate at acceptable LOS D or better during the weekday AM and PM peak hours with the addition of project traffic. The intersections operating adversely include the following:

	AM Peak Hour				PM Peak Hour			
Key Intersection	**ICU**	**LOS**	**Delay (s/v)**	**LOS**	**ICU**	**LOS**	**Delay (s/v)**	**LOS**
4. Orange Avenue at 33rd Street	--	--	--	--	0.916	E	--	--
5. Orange Avenue at 32nd Street	0.909	E	--	--	1.123	F	--	--

Although the intersections of Orange Avenue/33rd Street and Orange Avenue/32nd Street are forecast to operate adversely, review of column 4 indicates that the project increment adds less than 0.020 to the ICU value and hence the Project's impact is considered insignificant based on the LOS standards and significance criteria defined in this report. In addition to not meeting the significant impact criteria, the intersection of Orange Avenue/33rd Street and Orange Avenue/32nd Street has Project peak hour trips that are less than the 40 trip threshold required for analysis.

Appendix C contains the detailed peak hour level of service worksheets for the City of Signal Hill study intersections evaluated in this report. *Appendix D* contains the detailed peak hour level of service worksheets for the City of Long Beach study intersections evaluated in this report.

TABLE 8-3
YEAR 2041 BUILDOUT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Jurisdiction	Time Period	(1) Existing Traffic Conditions				(2) Year 2041 Buildout Traffic Conditions				(3) Year 2041 Buildout Plus Project Traffic Conditions				(4) Significant Impact				(5) Year 2041 Buildout Plus Project Traffic Conditions with Improvements			
			ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS	ICU	LOS	Delay (s/v)	LOS	ICU Increase	Yes/No	Delay Increase (s/v)	Yes/No	ICU	LOS	Delay (s/v)	LOS
1. Atlantic Avenue at 33rd Street	Long Beach	AM	--	--	8.4	A	--	--	9.2	A	--	--	12.4	B	--	--	3.2	No	--	--	--	--
		PM	--	--	13.4	B	--	--	18.6	B	--	--	24.7	C	--	--	6.1	No	--	--	--	--
2. California Avenue at 33rd Street	Signal Hill	AM	--	--	8.9	A	--	--	9.6	A	--	--	9.9	A	--	--	0.3	No	--	--	--	--
		PM	--	--	11.8	B	--	--	15.2	C	--	--	16.4	C	--	--	1.2	No	--	--	--	--
3. California Avenue at 32nd Street	Signal Hill	AM	--	--	11.2	B	--	--	12.2	B	--	--	12.3	B	--	--	0.1	No	--	--	--	--
		PM	--	--	14.0	B	--	--	16.5	C	--	--	16.8	C	--	--	0.3	No	--	--	--	--
4. Orange Avenue at 33rd Street	Signal Hill	AM	0.604	B	--	--	0.755	C	--	--	0.760	C	--	--	0.005	No	--	--	--	--	--	--
		PM	0.736	C	--	--	**0.912**	**E**	--	--	**0.916**	**E**	--	--	0.004	No	--	--	--	--	--	--
5. Orange Avenue at 32nd Street	Signal Hill	AM	0.738	C	--	--	**0.906**	**E**	--	--	**0.909**	**E**	--	--	0.003	No	--	--	--	--	--	--
		PM	0.878	D	--	--	**1.121**	**F**	--	--	**1.123**	**F**	--	--	0.002	No	--	--	--	--	--	--
6. California Avenue at Spring Street	Signal Hill/ Long Beach	AM	0.604	B	17.5	B	0.712	C	20.9	C	0.717	C	21.6	C	0.005	No	0.7	No	--	--	--	--
		PM	0.733	C	17.5	B	0.869	D	22.0	C	0.873	D	22.1	C	0.004	No	0.1	No	--	--	--	--
7. California Avenue at Wardlow Road	Long Beach	AM	--	--	20.5	C	--	--	26.2	C	--	--	27.9	C	--	--	1.7	No	--	--	--	--
		PM	--	--	18.3	B	--	--	24.1	C	--	--	24.8	C	--	--	0.7	No	--	--	--	--
8. Orange Avenue at Wardlow Road	Long Beach	AM	--	--	21.3	C	--	--	31.4	C	--	--	33.0	C	--	--	1.6	No	--	--	--	--
		PM	--	--	27.0	C	--	--	42.9	D	--	--	43.5	D	--	--	0.6	No	--	--	--	--

Notes:

- s/v = seconds per vehicle (delay)

9.0 INTERSECTION VEHICLE QUEUEING ANALYSES

9.1 City of Signal Hill Intersection Left-Turn Vehicle Queueing Analysis

Excessive left-turn vehicle queuing which extends into and/or blocks adjacent through travel lanes may have detrimental effects on intersection operations and the roadway network as a whole in ways not otherwise accounted for by the ICU methodology. Therefore, left-turn vehicle queuing at the signalized study intersections within the City of Signal Hill were evaluated in order to identify the effects of project traffic on left-turn queuing at the intersections.

The left-turn vehicle queuing analysis was prepared utilizing the HCM methodology for signalized intersections using Synchro 10.0 software. The HCM methodology considers traffic volume data, lane configurations, and traffic signal phasing in order to calculate the 85th percentile queues for the respective traffic movements. The 85th percentile queue represents the maximum back of vehicle queue with 85th percentile traffic volumes (i.e., actual traffic volumes will exceed the 85th percentile volumes 15 percent of the time) and is commonly used for design purposes.

The left-turn vehicle queuing analysis was based on the forecast weekday AM and PM intersection turning movement volumes utilized in the level of service analyses. The existing left-turn lane configurations and storage lengths were determined based on a review of aerial maps of the subject intersections obtained from Google Earth and on field reviews conducted by LLG Engineers. An average vehicle length of 25 feet is assumed for purposes of this analysis.

9.1.1 *Existing Traffic Conditions*

Table 9-1 presents the left-turn queueing analyses results for the three (3) signalized study intersections in the City of Signal Hill. Column 1 presents the queuing results for existing traffic conditions. Column 2 presents the results for existing plus project traffic conditions.

Existing Traffic Conditions

Review of Column 1 of *Table 9-1* indicates that one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under existing traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Westbound left-turn – PM peak hour

Existing Plus Project Traffic Conditions

Review of Column 2 of *Table 9-1* indicates that same one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Westbound left-turn – PM peak hour

The addition of project traffic does not contribute to the westbound left-turn movement at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under existing conditions. ***Appendix E*** presents the queuing worksheets for the City of Signal Hill signalized study intersections.

9.1.2 *Year 2024 Cumulative Traffic Conditions*

Table 9-2 presents the left-turn queueing analyses results for the three (3) signalized study intersections in the City of Signal Hill. Column 1 presents the queuing results for Year 2024 Cumulative traffic conditions. Column 2 presents the results for Year 2024 Cumulative Plus Project traffic conditions.

Year 2024 Cumulative Traffic Conditions

Review of Column 1 of *Table 9-2* indicates that one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under Year 2024 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Westbound left-turn – PM peak hour

Year 2024 Cumulative Plus Project Traffic Conditions

Review of Column 2 of *Table 9-2* indicates that same one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Westbound left-turn – PM peak hour

The addition of project traffic does not contribute to the westbound left-turn movement at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2024 cumulative conditions. *Appendix E* presents the queuing worksheets for the City of Signal Hill signalized study intersections.

9.1.3 *Year 2041 Buildout Traffic Conditions*

Table 9-3 presents the left-turn queueing analyses results for the three (3) signalized study intersections in the City of Signal Hill. Column 1 presents the queuing results for Year 2041 Buildout traffic conditions. Column 2 presents the results for Year 2041 Buildout Plus Project traffic conditions.

Year 2041 Buildout Traffic Conditions

Review of Column 1 of *Table 9-3* indicates that one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach under Year 2041 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Southbound left-turn – PM peak hour
  - Westbound left-turn – PM peak hour

Year 2041 Buildout Plus Project Traffic Conditions

Review of Column 2 of *Table 9-3* indicates that same one (1) key study intersection has left-turn queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 5: Orange Avenue at 32nd Street
  - Southbound left-turn – PM peak hour
  - Westbound left-turn – PM peak hour

The addition of project traffic does not contribute to the southbound or westbound left-turn movements at the intersection of Orange Avenue/32nd Street and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2041 buildout conditions. *Appendix E* presents the queuing worksheets for the City of Signal Hill signalized study intersections.

TABLE 9-1

CITY OF SIGNAL HILL – EXISTING PLUS PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS[25]

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
4. Orange Avenue at 33rd Street									
Northbound Left/Through/Right	585’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left/Through/Right	575’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Eastbound Left/Through/Right	1,250’	40’	Yes	93’	Yes	43’	Yes	98’	Yes
Westbound Left/Through/Right	1,250’	78’	Yes	98’	Yes	80’	Yes	98’	Yes
5. Orange Avenue at 32nd Street									
Northbound Left-Turn	100’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left-Turn	200’[26]	33’	Yes	70’	Yes	33’	Yes	73’	Yes
Eastbound Left/Through/Right	1,240’	83’	Yes	28’	Yes	83’	Yes	28’	Yes
Westbound Left-Turn	240’[26]	75’	Yes	**243’**	**No**	75’	Yes	**243’**	**No**
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[26]	35’	Yes	28’	Yes	35’	Yes	28’	Yes
Southbound Left-Turn	175’[26]	63’	Yes	78’	Yes	63’	Yes	83’	Yes
Eastbound Left-Turn	160’[26]	33’	Yes	85’	Yes	33’	Yes	85’	Yes
Westbound Left-Turn	160’[26]	73’	Yes	98’	Yes	73’	Yes	98’	Yes

[25] Queues are based on HCM 85th Percentile methodology.

[26] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-2

CITY OF SIGNAL HILL – YEAR 2024 CUMULATIVE PEAK HOUR INTERSECTION QUEUING ANALYSIS[27]

Key Intersection	Storage Provided (feet)	(1) Year 2024 Cumulative Traffic Conditions				(2) Year 2024 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
4. Orange Avenue at 33rd Street									
Northbound Left/Through/Right	585’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left/Through/Right	575’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Eastbound Left/Through/Right	1,250’	43’	Yes	108’	Yes	48’	Yes	110’	Yes
Westbound Left/Through/Right	1,250’	88’	Yes	110’	Yes	90’	Yes	110’	Yes
5. Orange Avenue at 32nd Street									
Northbound Left-Turn	100’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left-Turn	200’[28]	65’	Yes	110’	Yes	65’	Yes	110’	Yes
Eastbound Left/Through/Right	1,240’	90’	Yes	35’	Yes	90’	Yes	35’	Yes
Westbound Left-Turn	240’[28]	108’	Yes	**388’**	**No**	108’	Yes	**388’**	**No**
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[28]	35’	Yes	28’	Yes	35’	Yes	28’	Yes
Southbound Left-Turn	175’[28]	65’	Yes	83’	Yes	65’	Yes	85’	Yes
Eastbound Left-Turn	160’[28]	33’	Yes	90’	Yes	35’	Yes	90’	Yes
Westbound Left-Turn	160’[28]	78’	Yes	105’	Yes	78’	Yes	105’	Yes

[27] Queues are based on HCM 85th Percentile methodology.

[28] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-3

CITY OF SIGNAL HILL – YEAR 2041 BUILDOUT PEAK HOUR INTERSECTION QUEUING ANALYSIS[29]

Key Intersection	Storage Provided (feet)	(1) Year 2041 Buildout Traffic Conditions				(2) Year 2041 Buildout Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
4. Orange Avenue at 33rd Street									
Northbound Left/Through/Right	585’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left/Through/Right	575’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Eastbound Left/Through/Right	1,250’	58’	Yes	103’	Yes	63’	Yes	108’	Yes
Westbound Left/Through/Right	1,250’	108’	Yes	108’	Yes	110’	Yes	108’	Yes
5. Orange Avenue at 32nd Street									
Northbound Left-Turn	100’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Southbound Left-Turn	200’[30]	145’	Yes	**220’**	**No**	148’	Yes	**220’**	**No**
Eastbound Left/Through/Right	1,240’	110’	Yes	33’	Yes	110’	Yes	33’	Yes
Westbound Left-Turn	240’[30]	128’	Yes	**460’**	**No**	128’	Yes	**460’**	**No**
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[30]	85’	Yes	50’	Yes	85’	Yes	50’	Yes
Southbound Left-Turn	175’[30]	138’	Yes	145’	Yes	140’	Yes	148’	Yes
Eastbound Left-Turn	160’[30]	50’	Yes	113’	Yes	55’	Yes	113’	Yes
Westbound Left-Turn	160’[30]	108’	Yes	138’	Yes	108’	Yes	138’	Yes

[29] Queues are based on HCM 85th Percentile methodology.

[30] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

9.2 City of Long Beach Intersection Vehicle Queueing Analysis

A vehicle queueing analysis was conducted at each signalized study intersection in the City of Long Beach in addition to the intersection level of service analyses. The queueing analysis was prepared for each intersection lane group and was based on the 95th percentile queues utilizing HCM methodology for signalized intersections.

The queuing analysis was based on the forecast weekday AM and PM intersection turning movement volumes utilized in the level of service analyses. The existing lane configurations and storage lengths were determined based on a review of aerial maps of the subject intersections obtained from Google Earth and on field reviews conducted by LLG Engineers. An average vehicle length of 25 feet is assumed for purposes of this analysis.

9.2.1 *Existing Traffic Conditions*

Table 9-4 presents the queueing analyses results for the four (4) signalized study intersections in the City of Long Beach. Column 1 presents the queuing results for existing traffic conditions. Column 2 presents the results for existing plus project traffic conditions.

Existing Traffic Conditions

Review of Column 1 of *Table 9-4* indicates that one (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach under existing traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 8: Orange Avenue at Wardlow Road
  - Eastbound left-turn – PM peak hour

Existing Plus Project Traffic Conditions

Review of Column 2 of *Table 9-4* indicates that same one (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 8: Orange Avenue at Wardlow Road
  - Eastbound left-turn – AM peak hour & PM peak hour

The addition of project traffic contributes to the eastbound left-turn movement at the intersection of Orange Avenue/Wardlow Road. Although the eastbound left-turn experiences pre-project storage deficiencies in the PM peak hour, the proposed Project contributes to the storage deficiencies in the AM peak hour. The Project adds a fraction of a vehicle to the projected queues and therefore is not

considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, Orange Avenue at Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

Appendix D presents the queuing information for the City of Long Beach signalized study intersections.

9.2.2 *Year 2024 Cumulative Traffic Conditions*

Table 9-5 presents the queueing analyses results for the four (4) signalized study intersections in the City of Long Beach. Column 1 presents the queuing results for Year 2024 cumulative traffic conditions. Column 2 presents the results for Year 2024 Cumulative Plus Project traffic conditions.

Year 2024 Cumulative Traffic Conditions

Review of Column 1 of *Table 9-5* indicates that one (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach under Year 2024 cumulative traffic conditions. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 8: Orange Avenue at Wardlow Road
  - Northbound left-turn – AM peak hour & PM peak hour
  - Northbound through/right – PM peak hour
  - Eastbound left-turn – AM peak hour & PM peak hour

Year 2024 Cumulative Plus Project Traffic Conditions

Review of Column 2 of *Table 9-5* indicates that same one (1) key study intersection has queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersections have queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 8: Orange Avenue at Wardlow Road
  - Northbound left-turn – AM peak hour & PM peak hour
  - Northbound through/right – PM peak hour
  - Eastbound left-turn – AM peak hour & PM peak hour

The addition of project traffic does not contribute to the northbound left-turn or northbound through/right movements at the intersection of Orange Avenue/Wardlow Road and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2024 cumulative conditions.

The addition of project traffic contributes to the eastbound left-turn movement at the intersection of Orange Avenue/Wardlow Road. The Project adds a fraction of a vehicle to the projected queues and therefore is not considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, Orange Avenue at Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

Appendix D presents the queuing information for the City of Long Beach signalized study intersections.

9.2.3 *Year 2041 Buildout Traffic Conditions*

Table 9-6 presents the queueing analyses results for the four (4) signalized study intersections in the City of Long Beach. Column 1 presents the queuing results for Year 2041 buildout traffic conditions. Column 2 presents the results for Year 2041 Buildout Plus Project traffic conditions.

Year 2041 Buildout Traffic Conditions

Review of Column 1 of *Table 9-6* indicates that three (3) key study intersections have queues which exceed the existing storage capacity for one or more intersection approach under Year 2041 buildout traffic conditions. The remaining key study intersection has queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 1: Atlantic Avenue at 33rd Street
  - Southbound left-turn – PM peak hour
- Intersection No. 6: California Avenue at Spring Street
  - Southbound left-turn – PM peak hour
- Intersection No. 8: Orange Avenue at Wardlow Road
  - Northbound left-turn – AM peak hour & PM peak hour
  - Northbound through/right – PM peak hour
  - Eastbound left-turn – AM peak hour & PM peak hour
  - Westbound left-turn – AM peak hour

Year 2041 Buildout Plus Project Traffic Conditions

Review of Column 2 of *Table 9-6* indicates that same three (3) key study intersection have queues which exceed the existing storage capacity for one or more intersection approach with the addition of project traffic. The remaining key study intersection has queues that are adequately accommodated by the existing storage space. The intersections/approaches with storage deficiencies include the following:

- Intersection No. 1: Atlantic Avenue at 33rd Street
  - Southbound left-turn – PM peak hour
- Intersection No. 6: California Avenue at Spring Street
  - Southbound left-turn – PM peak hour
- Intersection No. 8: Orange Avenue at Wardlow Road
  - Northbound left-turn – AM peak hour & PM peak hour
  - Northbound through/right – PM peak hour
  - Eastbound left-turn – AM peak hour & PM peak hour
  - Westbound left-turn – AM peak hour

The addition of project traffic does not contribute to the northbound left-turn, northbound through/right, or westbound left-turn movements at the intersection of Orange Avenue/Wardlow Road and therefore does not contribute to additional vehicle queueing beyond that reported under Year 2041 buildout conditions.

The addition of project traffic contributes to the southbound left-turn and eastbound left-turn movements at the intersections of California Avenue/Spring Street and Orange Avenue/Wardlow Road, respectively, however, this approach has pre-project storage deficiencies as reported under Year 2041 buildout conditions. The Project adds a fraction of a vehicle to the projected queues and therefore is not considered a significant impact. In addition, it should be noted that the City of Long Beach determines study intersections based on a 50 peak hour trips threshold. As such, California Avenue/Spring Street and Orange Avenue/Wardlow Road would not be required for analysis based on the City of Long Beach guidelines. The queuing results are provided for informational purposes only.

The addition of project traffic also contributes to the southbound left-turn movement at the intersection of Atlantic Avenue/33rd Street, however, this approach has pre-project storage deficiencies as reported under Year 2041 buildout conditions. It should be noted that the City of Long Beach guidelines do not require a long-term analysis to be performed. The queuing results are provided for informational purposes only. However, based on the queuing results it is recommended to lengthen the southbound left-turn pocket in order to accommodate the queues. As an alternative improvement, modifying the existing signal to include protected-permissive phasing for the southbound direction minimize queues.

Appendix D presents the queuing information for the City of Long Beach signalized study intersections.

TABLE 9-4

CITY OF LONG BEACH – EXISTING PLUS PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS[31]

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
1. Atlantic Avenue at 33rd Street									
Northbound Left-Turn	40’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Northbound Through	1,245’	121’	Yes	323’	Yes	197’	Yes	368’	Yes
Northbound Through/Right	1,245’	116’	Yes	321’	Yes	189’	Yes	368’	Yes
Southbound Left-Turn	165’[32]	25’	Yes	79’	Yes	63’	Yes	155’	Yes
Southbound Through	580’	111’	Yes	139’	Yes	168’	Yes	154’	Yes
Southbound Through/Right	580’	110’	Yes	138’	Yes	168’	Yes	153’	Yes
Eastbound Left/Through/Right	590’	38’	Yes	55’	Yes	31’	Yes	52’	Yes
Westbound Left/Through	1,235’	96’	Yes	163’	Yes	131’	Yes	197’	Yes
Westbound Through/Right	1,235’	131’	Yes	165’	Yes	153’	Yes	200’	Yes
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[32]	46’	Yes	36’	Yes	46’	Yes	36’	Yes
Northbound Through/Right	2,540’	156’	Yes	210’	Yes	160’	Yes	213’	Yes
Southbound Left-Turn	175’[32]	70’	Yes	107’	Yes	74’	Yes	110’	Yes
Southbound Through	1,870’	63’	Yes	83’	Yes	64’	Yes	85’	Yes
Southbound Right-Turn	110’[32]	32’	Yes	38’	Yes	33’	Yes	38’	Yes

[31] Queues are based on HCM 95th Percentile methodology.

[32] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-4 (CONTINUED)
CITY OF LONG BEACH – EXISTING PLUS PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS[33]

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
6. *California Avenue at Spring Street (Continued)*									
Eastbound Left-Turn	160'[34]	37'	Yes	79'	Yes	38'	Yes	80'	Yes
Eastbound Through	565'	166'	Yes	272'	Yes	166'	Yes	272'	Yes
Eastbound Right-Turn	100'	26'	Yes	25'	Yes	26'	Yes	25'	Yes
Westbound Left-Turn	160'[34]	89'	Yes	94'	Yes	89'	Yes	94'	Yes
Westbound Through	1,210'	281'	Yes	198'	Yes	280'	Yes	198'	Yes
Westbound Right-Turn	195'[34]	60'	Yes	98'	Yes	62'	Yes	99'	Yes
7. California Avenue at Wardlow Road									
Northbound Left/Through/Right	585'	48'	Yes	167'	Yes	62'	Yes	162'	Yes
Southbound Left/Through/Right	1,110'	25'	Yes	41'	Yes	25'	Yes	40'	Yes
Eastbound Left/Through	1,240'	152'	Yes	233'	Yes	159'	Yes	243'	Yes
Eastbound Through/Right	1,240'	136'	Yes	213'	Yes	142'	Yes	225'	Yes
Westbound Left/Through	1,245'	134'	Yes	102'	Yes	140'	Yes	115'	Yes
Westbound Through/Right	1,245'	187'	Yes	209'	Yes	204'	Yes	214'	Yes

[33] Queues are based on HCM 95th Percentile methodology.

[34] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-4 (CONTINUED)

CITY OF LONG BEACH – EXISTING PLUS PROJECT PEAK HOUR INTERSECTION QUEUING ANALYSIS[35]

Key Intersection	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
8. Orange Avenue at Wardlow Road									
Northbound Left-Turn	70'[36]	54'	Yes	65'	Yes	56'	Yes	66'	Yes
Northbound Through/Right	575'	197'	Yes	495'	Yes	198'	Yes	495'	Yes
Southbound Left-Turn	75'	25'	Yes	34'	Yes	25'	Yes	34'	Yes
Southbound Through/Right	1,105'	430'	Yes	407'	Yes	445'	Yes	414'	Yes
Eastbound Left-Turn	85'[36]	82'	Yes	**195'**	**No**	**87'**	**No**	**206'**	**No**
Eastbound Through	1,240'	157'	Yes	326'	Yes	157'	Yes	327'	Yes
Eastbound Through/Right	1,240'	150'	Yes	317'	Yes	150'	Yes	318'	Yes
Westbound Left-Turn	85'[36]	38'	Yes	32'	Yes	38'	Yes	32'	Yes
Westbound Through	1,245'	131'	Yes	198'	Yes	130'	Yes	198'	Yes
Westbound Through/Right	1,245'	128'	Yes	193'	Yes	127'	Yes	194'	Yes

[35] Queues are based on HCM 95th Percentile methodology.

[36] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-5

CITY OF LONG BEACH – YEAR 2024 CUMULATIVE PEAK HOUR INTERSECTION QUEUING ANALYSIS[37]

Key Intersection	Storage Provided (feet)	(1) Year 2024 Cumulative Traffic Conditions				(2) Year 2024 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
1. Atlantic Avenue at 33rd Street									
Northbound Left-Turn	40’	25’	Yes	25’	Yes	25’	Yes	25’	Yes
Northbound Through	1,245’	119’	Yes	328’	Yes	201’	Yes	362’	Yes
Northbound Through/Right	1,245’	115’	Yes	331’	Yes	193’	Yes	368’	Yes
Southbound Left-Turn	165’[38]	25’	Yes	86’	Yes	65’	Yes	164’	Yes
Southbound Through	580’	110’	Yes	143’	Yes	176’	Yes	153’	Yes
Southbound Through/Right	580’	110’	Yes	142’	Yes	175’	Yes	152’	Yes
Eastbound Left/Through/Right	590’	47’	Yes	118’	Yes	41’	Yes	119’	Yes
Westbound Left/Through	1,235’	99’	Yes	167’	Yes	144’	Yes	210’	Yes
Westbound Through/Right	1,235’	139’	Yes	175’	Yes	174’	Yes	208’	Yes
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[38]	49’	Yes	38’	Yes	50’	Yes	38’	Yes
Northbound Through/Right	2,540’	169’	Yes	217’	Yes	172’	Yes	219’	Yes
Southbound Left-Turn	175’[38]	77’	Yes	113’	Yes	80’	Yes	117’	Yes
Southbound Through	1,870’	67’	Yes	86’	Yes	69’	Yes	88’	Yes
Southbound Right-Turn	110’[38]	34’	Yes	39’	Yes	35’	Yes	39’	Yes

[37] Queues are based on HCM 95th Percentile methodology.

[38] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-5 (CONTINUED)
CITY OF LONG BEACH – YEAR 2024 CUMULATIVE PEAK HOUR INTERSECTION QUEUING ANALYSIS[39]

Key Intersection	Storage Provided (feet)	(1) Year 2024 Cumulative Traffic Conditions				(2) Year 2024 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
6. *California Avenue at Spring Street (Continued)*									
Eastbound Left-Turn	160'[40]	38'	Yes	85'	Yes	39'	Yes	86'	Yes
Eastbound Through	565'	174'	Yes	292'	Yes	173'	Yes	292'	Yes
Eastbound Right-Turn	100'	26'	Yes	25'	Yes	26'	Yes	25'	Yes
Westbound Left-Turn	160'[40]	92'	Yes	99'	Yes	91'	Yes	99'	Yes
Westbound Through	1,210'	292'	Yes	210'	Yes	291'	Yes	210'	Yes
Westbound Right-Turn	195'[40]	60'	Yes	100'	Yes	62'	Yes	102'	Yes
7. California Avenue at Wardlow Road									
Northbound Left/Through/Right	585'	59'	Yes	165'	Yes	68'	Yes	175'	Yes
Southbound Left/Through/Right	1,110'	25'	Yes	42'	Yes	25'	Yes	44'	Yes
Eastbound Left/Through	1,240'	167'	Yes	249'	Yes	184'	Yes	250'	Yes
Eastbound Through/Right	1,240'	156'	Yes	228'	Yes	166'	Yes	231'	Yes
Westbound Left/Through	1,245'	144'	Yes	112'	Yes	162'	Yes	118'	Yes
Westbound Through/Right	1,245'	212'	Yes	218'	Yes	227'	Yes	220'	Yes

[39] Queues are based on HCM 95th Percentile methodology.

[40] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-5 (CONTINUED)

CITY OF LONG BEACH – YEAR 2024 CUMULATIVE PEAK HOUR INTERSECTION QUEUING ANALYSIS[41]

Key Intersection	Storage Provided (feet)	(1) Year 2024 Cumulative Traffic Conditions				(2) Year 2024 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
8. Orange Avenue at Wardlow Road									
Northbound Left-Turn	70'[42]	**79'**	**No**	**73'**	**No**	**83'**	**No**	**74'**	**No**
Northbound Through/Right	575'	224'	Yes	**618'**	**No**	225'	Yes	**618'**	**No**
Southbound Left-Turn	75'	25'	Yes	41'	Yes	25'	Yes	41'	Yes
Southbound Through/Right	1,105'	621'	Yes	468'	Yes	655'	Yes	477'	Yes
Eastbound Left-Turn	85'[42]	**87'**	**No**	**219'**	**No**	**93'**	**No**	**239'**	**No**
Eastbound Through	1,240'	161'	Yes	350'	Yes	161'	Yes	351'	Yes
Eastbound Through/Right	1,240'	153'	Yes	341'	Yes	153'	Yes	342'	Yes
Westbound Left-Turn	85'[42]	38'	Yes	33'	Yes	38'	Yes	33'	Yes
Westbound Through	1,245'	134'	Yes	207'	Yes	133'	Yes	208'	Yes
Westbound Through/Right	1,245'	131'	Yes	203'	Yes	131'	Yes	204'	Yes

41 Queues are based on HCM 95th Percentile methodology.

42 Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-6

CITY OF LONG BEACH – YEAR 2041 BUILDOUT PEAK HOUR INTERSECTION QUEUING ANALYSIS[43]

Key Intersection	Storage Provided (feet)	(1) Year 2041 Buildout Traffic Conditions				(2) Year 2041 Buildout Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
1. Atlantic Avenue at 33rd Street									
Northbound Left-Turn	40’	25’	Yes	27’	Yes	25’	Yes	28’	Yes
Northbound Through	1,245’	183’	Yes	511’	Yes	252’	Yes	542’	Yes
Northbound Through/Right	1,245’	177’	Yes	550’	Yes	243’	Yes	590’	Yes
Southbound Left-Turn	165’[44]	38’	Yes	**187’**	**No**	88’[45]	Yes	**293’[45]**	**No**
Southbound Through	580’	174’	Yes	205’	Yes	229’	Yes	208’	Yes
Southbound Through/Right	580’	173’	Yes	203’	Yes	228’	Yes	207’	Yes
Eastbound Left/Through/Right	590’	52’	Yes	128’	Yes	48’	Yes	145’	Yes
Westbound Left/Through	1,235’	124’	Yes	254’	Yes	176’	Yes	315’	Yes
Westbound Through/Right	1,235’	167’	Yes	251’	Yes	205’	Yes	314’	Yes
6. California Avenue at Spring Street									
Northbound Left-Turn	150’[44]	56’	Yes	66’	Yes	56’	Yes	66’	Yes
Northbound Through/Right	2,540’	194’	Yes	258’	Yes	190’	Yes	361’	Yes
Southbound Left-Turn	175’[44]	102’	Yes	**214’**	**No**	104’	Yes	**219’**	**No**
Southbound Through	1,870’	97’	Yes	172’	Yes	95’	Yes	175’	Yes
Southbound Right-Turn	110’[44]	50’	Yes	77’	Yes	48’	Yes	78’	Yes

[43] Queues are based on HCM 95th Percentile methodology.

[44] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

[45] For informational purposes, queues with the implementation of protected/permissive phasing for the southbound left-turn movement consist of: *AM peak hour = 28’; PM peak hour = 70’*

TABLE 9-6 (CONTINUED)
CITY OF LONG BEACH – YEAR 2041 BUILDOUT PEAK HOUR INTERSECTION QUEUING ANALYSIS[46]

Key Intersection	Storage Provided (feet)	(1) Year 2041 Buildout Traffic Conditions				(2) Year 2041 Buildout Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
6. *California Avenue at Spring Street (Continued)*									
Eastbound Left-Turn	160'[47]	51'	Yes	121'	Yes	54'	Yes	122'	Yes
Eastbound Through	565'	226'	Yes	384'	Yes	233'	Yes	384'	Yes
Eastbound Right-Turn	100'	36'	Yes	28'	Yes	37'	Yes	28'	Yes
Westbound Left-Turn	160'[47]	122'	Yes	153'	Yes	121'	Yes	153'	Yes
Westbound Through	1,210'	363'	Yes	270'	Yes	375'	Yes	270'	Yes
Westbound Right-Turn	195'[47]	78'	Yes	137'	Yes	84'	Yes	139'	Yes
7. California Avenue at Wardlow Road									
Northbound Left/Through/Right	585'	86'	Yes	231'	Yes	94'	Yes	257'	Yes
Southbound Left/Through/Right	1,110'	28'	Yes	58'	Yes	32'	Yes	66'	Yes
Eastbound Left/Through	1,240'	216'	Yes	322'	Yes	232'	Yes	333'	Yes
Eastbound Through/Right	1,240'	203'	Yes	303'	Yes	213'	Yes	310'	Yes
Westbound Left/Through	1,245'	193'	Yes	164'	Yes	214'	Yes	172'	Yes
Westbound Through/Right	1,245'	292'	Yes	329'	Yes	308'	Yes	346'	Yes

[46] Queues are based on HCM 95th Percentile methodology.

[47] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

TABLE 9-6 (CONTINUED)

CITY OF LONG BEACH – YEAR 2041 BUILDOUT PEAK HOUR INTERSECTION QUEUING ANALYSIS[48]

Key Intersection	Storage Provided (feet)	(1) Year 2041 Buildout Traffic Conditions				(2) Year 2041 Buildout Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes/No)
8. Orange Avenue at Wardlow Road									
Northbound Left-Turn	70'[49]	**101'**	**No**	**111'**	**No**	**109'**	**No**	**113'**	**No**
Northbound Through/Right	575'	287'	Yes	**990'**	**No**	299'	Yes	**991'**	**No**
Southbound Left-Turn	75'	25'	Yes	69'	Yes	26'	Yes	69'	Yes
Southbound Through/Right	1,105'	780'	Yes	617'	Yes	833'	Yes	626'	Yes
Eastbound Left-Turn	85'[49]	**174'**	**No**	**329'**	**No**	**195'**	**No**	**352'**	**No**
Eastbound Through	1,240'	274'	Yes	547'	Yes	285'	Yes	549'	Yes
Eastbound Through/Right	1,240'	263'	Yes	534'	Yes	274'	Yes	536'	Yes
Westbound Left-Turn	85'[49]	**86'**	**No**	44'	Yes	**90'**	**No**	44'	Yes
Westbound Through	1,245'	265'	Yes	248'	Yes	274'	Yes	249'	Yes
Westbound Through/Right	1,245'	260'	Yes	242'	Yes	270'	Yes	243'	Yes

[48] Queues are based on HCM 95th Percentile methodology.

[49] Existing storage capacity includes the striped turn pocket as well as the storage space upstream of the turn lane.

10.0 AREA-WIDE TRAFFIC IMPROVEMENTS

10.1 Recommended Improvements

For those intersections where projected traffic volumes are expected to result in poor operating conditions, this report identifies roadway improvements that are expected to:

- Mitigate the impact of existing traffic, Project traffic and future non-project (ambient growth and cumulative project) traffic; and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

10.1.1 *Existing Plus Project Traffic Conditions*

The results of the intersection capacity and queueing analyses presented previously in *Tables 8-1, 9-1 and 9-4* indicates that the proposed Project will not impact any of the eight key study intersections under the "Existing Plus Project" traffic scenario. Therefore, no improvements are recommended.

10.1.2 *Year 2024 Cumulative Plus Project Traffic Conditions*

The results of the intersection capacity and queueing analyses presented previously in *Tables 8-2, 9-2 and 9-5* indicates that the proposed Project will not impact any of the eight key study intersections under the "Year 2024 Cumulative Plus Project" traffic scenario. Therefore, no improvements are recommended.

10.1.3 *Year 2041 Buildout Plus Project Traffic Conditions*

The results of the intersection capacity and queueing analyses presented previously in *Tables 8-3, 9-3 and 9-6* indicates that the proposed Project will impact one (1) of the eight key study intersections under the "Year 2041 Buildout Plus Project" traffic scenario. The recommended improvements include the following:

- **Intersection 1 – Atlantic Avenue at 33rd Street:** Restripe the southbound leg to lengthen the southbound left-turn pocket storage. These improvements are subject to the approval of the City of Long Beach.

  As an alternative improvement, modifying the existing signal to include protected-permissive phasing for the southbound direction to help reduce the southbound left-turn queue and thus would reduce the amount of on-street parking to be removed.

10.2 Project-Related Fair Share Contribution

The transportation impacts associated with the development of the Project were determined based on the Existing Plus Project, Year 2024 and Year 2041 traffic analyses. As summarized in Section 10.1, the development of the Project is anticipated to have an impact at one (1) location under Year 2041 Plus Project traffic conditions. As such, the Project can be expected to pay its fair share of the improvement costs for the impacted intersection.

10.2.1 *Year 2041 Buildout Project-Related Fair Share Contribution*

Table 10-1 presents the peak hour percentage of net traffic impact at the intersection of Orange Avenue/Wardlow Road for Year 2041 buildout traffic conditions. As presented in this table, the first column (1) presents a total of all intersection peak hour movements for existing traffic conditions. The second column (2) presents project only traffic conditions. The third column (3) presents future Year 2041 buildout traffic conditions with project traffic. The fourth column (4) represents what percentage of total intersection peak hour traffic is project-related traffic.

Review of *Table 10-1* shows that the Project's traffic percentage at the intersection of Atlantic Avenue/33rd Street totals 20.0% under Year 2041 buildout traffic conditions.

TABLE 10-1
YEAR 2041 BUILDOUT PROJECT FAIR SHARE CONTRIBUTION

	Key Intersection	Impacted Time Period	(1) Existing Traffic	(2) Project Only Traffic	(3) Year 2041 Buildout Plus Project Traffic	(4) Net Project Percent Increase
1.	Atlantic Avenue at	**AM**	**2,130**	**119**	**2,725**	**20.0%**
	33rd Street	PM	2,763	99	3,513	13.2%

Notes:
- Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

11.0 SITE ACCESS EVALUATION

Vehicular access to the Project site will be provided via two (2) existing full access unsignalized driveways (Project Driveway A and Project Driveway B) located on E. 33rd Street and one (1) existing full access unsignalized driveway (Project Driveway C) located on California Avenue. A second access driveway on California Avenue is proposed. However, this access, which will be gated, will only be used on the occasion that an RV is to exit the facility.

11.1 Project Driveway Level of Service Analysis

Table 11-1 summarizes the intersection operations at the proposed driveways for Year 2024 cumulative Year 2041 buildout traffic conditions upon completion and full occupancy of the proposed Project. Review of *Table 11-1* indicates that the proposed driveways are forecast to operate at acceptable LOS D or better a during both the AM and PM peak hours. Therefore, access to the project site is considered adequate and the current/proposed driveway configuration can accommodate forecast traffic volumes entering and exiting the Project site.

Appendix F presents the level of service calculation worksheets for the proposed Project driveways.

TABLE 11-1

PROJECT DRIVEWAY PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Project Driveway		Time Period	Intersection Control	(1) Year 2024 Cumulative Plus Project Traffic Conditions		(2) Year 2041 Buildout Plus Project Traffic Conditions	
				Delay (s/v)	LOS	Delay (s/v)	LOS
A.	Project Driveway 1/Lime Avenue at 33rd Street	AM	Two-Way Stop	12.6	B	13.6	B
		PM		20.7	C	28.6	D
B.	Project Driveway 2 at 33rd Street	AM	One-Way Stop	10.9	B	11.4	B
		PM		14.7	B	17.0	C
C.	California Avenue at Project Driveway 3	AM	One-Way Stop	11.3	B	12.0	B
		PM		15.2	C	17.7	C

Notes:

- s/v = seconds per vehicle (delay)

12.0 CONGESTION MANAGEMENT PROGRAM COMPLIANCE ASSESSMENT

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority (LACMTA). The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprises the CMP system.

For purposes of the CMP, a significant impact occurs when the proposed Project increases traffic demand on a CMP facility by two percent of capacity ($V/C \geq 0.02$), causing LOS F ($V/C > 1.00$). If the facility is already at LOS F, a significant impact occurs when the proposed Project increases traffic demand on a CMP facility by two percent of capacity ($V/C \geq 0.02$).

12.1 Traffic Impact Review

As required by the current *Congestion Management Program for Los Angeles County*, a review has been made of designated monitoring locations on the CMP highway system for potential impact analysis. Per CMP TIA criteria, the geographic area examined in the TIA must include the following, at a minimum:

- All CMP arterial monitoring intersections, including freeway on and off-ramp intersections, where the project will add 50 or more trips during either the AM or PM weekday peak hours.

- Mainline freeway-monitoring stations where the project will add 150 or more trips, in either direction, during the AM or PM weekday peak hours.

12.1.1 *Intersections*

The following CMP intersection monitoring locations in the project vicinity have been identified:

CMP Station	Intersection/Jurisdiction
No. 37	Pacific Coast Highway at Orange Avenue

As stated earlier, the CMP guidelines require that arterial monitoring intersection locations must be examined if the proposed Project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic) at CMP monitoring intersections. Based on the proposed Project's trip generation potential, trip distribution and trip assignment, the Project will not add more than 50 trips at the identified CMP intersections during the weekday AM peak hour or PM peak hour. Therefore, a CMP intersection traffic impact analysis is not required.

12.1.2 *Freeways*

The following CMP freeway monitoring locations in the project vicinity have been identified:

CMP Station	Intersection/Jurisdiction
No. 1078	SR-710, north of Willow Street

As stated earlier, the CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed Project will add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. Based on the project's trip generation potential and distribution pattern, the proposed Project will not add more than 150 trips during the AM or PM peak hour at this CMP mainline freeway-monitoring location. Therefore, a CMP freeway traffic impact analysis is not required.

12.2 Transit Impact Review

As required by the current *Congestion Management Program for Los Angeles County*, a review has been made of the potential impacts of the project on transit service. As previously discussed, and shown in *Figure 3-4*, a number of transit services exist in the project area, necessitating the following transit impact review.

The project trip generation, as shown in *Table 5-4*, was adjusted by values set forth in the CMP (i.e. person trips equal 1.4 times vehicle trips, and transit trips equal 7 percent of the total person trips) to estimate project-related transit trip generation. Pursuant to the CMP guidelines, the proposed Project is forecast to generate 14 transit trips (8 inbound and 6 outbound) during the AM peak hour and 13 transit trips (6 inbound and 7 outbound) during the PM peak hour. Over a 24-hour period the proposed Project is forecasted to generate 199 daily weekday transit trips.

It is anticipated that the existing transit service in the project area would be able to accommodate the project generated transit trips. Therefore, given the number of transit trips generated by the project and the existing transit routes in the project vicinity, it is concluded that the existing public transit system would not be significantly impacted by the proposed Project.

13.0 VEHICLE MILES TRAVELED (VMT) ANALYSIS

13.1 SB743 Compliance VMT Screening Assessment

The purpose of this Vehicle Miles Traveled (VMT) analysis is to evaluate the Project based on Senate Bill 743 (SB 743) requirements consistent with the *Technical Advisory on Evaluating Transportation Impacts In California Environmental Quality Act* (CEQA), December 2018, prepared by the State of California Governor's Office of Planning and Research (OPR). The OPR Technical Advisory provides project screening criteria and guidance for analysis of VMT assessments under SB 743. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled. Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3.

The City of Signal Hill has yet to adopt criteria for evaluating VMT impacts under CEQA. However, it is our understanding that the City of Signal Hill may likely utilize criteria consistent with the OPR Technical Advisory, and may be open to considering the criteria which has been adopted by neighboring jurisdiction of the City of Long Beach.

For the VMT screening analysis, the presumption of less than significant impact near Transit Stations was applied to the proposed Project. Proposed CEQA Guideline Section 5064.3, subdivision (b), states that "generally, [land use] projects within one-half mile of either an existing major transit stop or an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact". A high-quality transit corridor is defined as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. Review of the Long Beach Transit Priority Areas Map from the *City of Long Beach Traffic Impact Analysis Guidelines dated June 2020* shows the area between Atlantic Avenue and Orange Avenue within the City of Long Beach and Signal Hill as falling within half a mile from high quality transit corridor or major transit stop. Since the proposed Project is considered to be located within half a mile of an existing high-quality transit corridor, this project can be screened from further VMT analysis and can be presumed to have a less than significant impact on VMT.

In addition, screening for small projects and retail developments was also applied to the proposed Project. Consistent with the OPR Technical Advisory Section E.1 *Threshold for Small Projects*, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less than significant transportation impact. Additionally, as stated in the OPR Technical Advisory Section E.2 *Recommended Thresholds for Retail Projects*, "local serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development created less than significant transportation impact." The OPR Technical Advisory, as well as the City of Long Beach guidelines, also suggests that retail projects which do not exceed 50,000 SF may be presumed to create a less than significant transportation impact.

Retail Screening

As stated in Section 2.0, the proposed Project consists of two commercial/retail building totaling 20,600 SF which individually and collectively is less than the 50,000 SF threshold for small projects. It should be noted that if the 3,500 SF of medical/dental office use were converted to retail the commercial/retail component would consist of 24,100 SF which is less than the 50,000 SF threshold for small projects. Therefore, the commercial/retail component of the Project can be screened from further VMT analysis and the commercial/retail component can be presumed to have a less than significant impact on VMT.

Medical/Dental Office Screening

Review of the trip generation estimates presented in *Table 5-4* for the proposed 3,500 SF medical/dental office component of the Project is forecast to generate 71 daily trips which is less than 110 daily trip threshold for small projects. As such the medical/dental office component of the Project, if this were to be the land use, can be screened from further VMT analysis and the medical/dental office component can be presumed to have a less than significant impact on VMT.

Self-Storage Screening

Self-storage facilities are generally meant to serve the local community and therefore can be assumed to be a local-serving development which will reduce VMT. It is our understanding that the City of Signal Hill has only a few self-storage facilities and has a need for additional facilities to better serve the community. Therefore, the self-storage component of the Project can be screened from further VMT analysis and the self-storage component can be presumed to have a less than significant impact on VMT.

In addition to the screening criteria identified above, Greenhouse Gas (GHG) emissions have been quantified and analyzed for the self-storage component of this Project based on the application of CalEEMod. SB 743 includes legislative intent to help guide the development of the new criteria for transportation impacts to align with Green House Gas (GHG) reduction. For example, Section 1 of the legislation states: "New methodologies under the California Environmental Quality Act are needed for evaluating transportation impacts that are better able to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of a multimodal transportation system, and providing clean, efficient access to destinations." Further, subdivision (b) of the new Section 21099 requires that the new criteria "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses."

The SCAQMD in its Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans recommends a screening threshold of 3,000 MT of CO_2e per year for residential and commercial sectors. Greenhouse gas (GHG) emissions, reported in terms of metric tons of carbon dioxide equivalent ($MTCO_2e$) per year, were estimated for the proposed Project using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. Based on the GHG data contained in the

CalEEMod the proposed GHG emissions based on the VMT for the self-storage component of the Project is approximately 502.5 MTCO2e annually from VMT.

The mobile source GHG emission is 83% lower than the applicable threshold of significance for GHG for the proposed Project. Thus indicating that the self-storage component of the Project's contribution to VMT, which is directly correlated to GHG emissions, would not lead to a significant impact under CEQA. Therefore, it can be concluded that the self-storage component of the proposed Project would not generate GHG emissions that would have a significant impact on the environment. As a result, this Project clearly complies with the state's goals of reducing greenhouse gas emissions, traffic-related air pollution and the intent of SB 743.

APPENDIX A

TRAFFIC STUDY SCOPE OF WORK

MEMORANDUM

To: Mr. William Zimmerman, P.E., T.E., P.T.O.E.
City Traffic Engineer – City of Signal Hill

Date: December 15, 2020

From: Richard E. Barretto, P.E., Principal
Linscott, Law & Greenspan, Engineers

LLG Ref: 2.20.4277.1

Subject: ***Traffic Study Scope of Work for Target Center Retail Expansion and Self-Storage Facility Signal Hill, California***

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Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the following Traffic Study Scope of Work for the proposed Target Center Retail Expansion and Self-Storage Facility Project in the City of Signal Hill for the City's review and approval.

Traffic Study Scope of Work

The Traffic Study for the proposed Target Center Retail Expansion and Self-Storage Facility Project (herein referred to as "Project") will be prepared according to and satisfy the traffic impact requirements of the City of Signal Hill as included in a Traffic Memorandum titled *950 East 33rd Street Target Center Expansion Parking Study/Circulation Analysis and Traffic Impact Study*, dated April 30, 2020 and will be consistent with the requirements and procedures outlined in the most current *Congestion Management Program (CMP) for Los Angeles County.*

A. Project Location: The existing Target Center (Store T2319), addressed at 950 E. 33rd Street, is located south of E. 33rd Street, between Atlantic Avenue and California Avenue, and north of the San Diego (I-405) Freeway in the City of Signal Hill, California. The Project site consists two (2) parcels with a total land area of 15.5± acres, of which 10.1± acres is currently developed with a 135,811 square-foot (SF) free-standing discount store and surface parking supply of 543 spaces. The remaining 4.4± acres, which is generally located on the west side of California Avenue, south of the existing Target and north of the I-405 Freeway, is currently vacant. ***Figure 1-1*** presents a Vicinity Map that illustrates the general location of the Project and surrounding street system. ***Figure 2-1*** displays the existing sites aerial.

B. Project Description: The proposed Project, all of which will be constructed on existing surface parking and/or vacant land, includes development of up to 23,500 SF of retail/restaurant and medical/dental office space within three (3) buildings and a three-story self-storage facility totaling 177,345 SF, inclusive of a lobby/guest services area. There are no plans to expand the existing Target.

The "Drive-Thru" building is a proposed 5,000 SF restaurant pad with drive-thru that would contain one or more restaurant/food uses of which one would operate

the drive-thru. The "Retail/Other" building totals 15,000 SF and would be occupied by a single tenant or a various mix retail tenant which may include "take-out" food uses, whereas the "Medical Office" is a 3,500 SF building that would be occupied by a dental office; the amount of potential outdoor dining area that the Project will provide for the "Drive-Thru" is not known at this time. To provide a conservative assessment, up to 600 SF of outdoor dining area is assumed to be provided.

The proposed three-story, 177,345 SF self-storage facility also includes the provision of up to 25 RV covered storage spaces in the gated storage yard. The proposed self-storage facility leasing office is expected to operate Monday-Friday from 9:30 am-6:00 pm, Saturday from 9:00 am-5:30 pm, and Sunday between 10:00 am-4:00 pm; access to the storage units will be available to customers/tenants Monday-Sunday, between 6:00 am-10:00 pm. Access to the gated yard for employees and tenants will be provided via gate access, Monday-Sunday, between 6:00 am-10:00 pm.

Figure 2-2 presents the Project's Conceptual Site Plan, inclusive of the existing Chick-fil-A, prepared by Kimley Horn & Associates, Inc. dated September 10, 2020. ***Table 2-1*** presents the existing and proposed development tabulation/tenant mix and associated floor areas for the Project. A review of *Table 2-1* indicates the Project's total floor area will consist of the following:

- 135,811 SF Target store,
- 15,000 SF of retail/other uses,
- 3,500 SF of medical/dental space,
- 5,000 SF of restaurant uses, and
- 177,345 SF of self-storage space

Alternative Restaurant Tenant Mix

Since a tenant mix has not been identified for the Project's 5,000 SF of restaurant floor area and up to 600 SF of outdoor dining area, the following mix/type of restaurant has been assumed and is evaluated in this study to allow for flexibility in future tenancies, along with the proposed retail and self-storage space:

Alternative	Retail Shop	Fine/ Casual Dining/ Outdoor Dining	QSR/Fast-Casual/ Outdoor Dining	Fast-Food w/ Drive-Thru/ Outdoor Dining	Medical/ Dental Office	Self-Storage
❑ Alternative 1	15,000 SF	2,000 SF/ 300 SF	--	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Alternative 2	15,000 SF	--	2,000 SF/ 300 SF	3,000 SF/ 300 SF	3,500 SF	177,345 SF
❑ Alternative 3	15,000 SF	--	--	5,000 SF/ 600 SF	3,500 SF	177,345 SF

C. Potential Traffic Study Locations: The following eight (8) intersections listed below have been identified by the City for which the Project's potential traffic impact is to be assessed.

1. *Atlantic Avenue and 33rd Street*
2. *California Avenue and 33rd Street*
3. *California Avenue and 32nd Street*
4. Orange Avenue and 33rd Street
5. Orange Avenue and 32nd Street
6. California Avenue and Spring Street
7. California Avenue and Wardlow Street
8. Orange Avenue and Wardlow Street

However, inconsideration of the City's "40 peak hour trip" threshold, only two (2) of the potential study locations, Atlantic Avenue at 33rd Street (No. 1) and California Avenue at 33rd Street (No. 2), meet this criteria and hence would warrant evaluation. Given the proximity of California Avenue at 32nd Street (No. 3), it is recommended that this location be evaluated as well. The remaining five (5) locations do not meet the "40 peak hour trip" threshold and would not warrant analysis, subject to review/confirmation by City staff (See ***Table 5-5*** for added project-related traffic volumes).

D. Traffic Counts: Due to COVID-19 the ability to collect traffic counts to establish baseline conditions is not possible. As such, to establish "baseline" traffic conditions, pre-COVID-19, LLG has researched historic data and was able to obtain Year 2018 counts at the intersection of Atlantic Avenue/33rd Street. Given the availability of this historic data, LLG proposes the following to establish pre-COVID-19 traffic conditions:

(1) Historic data is available at the intersection of Atlantic Avenue/33rd Street (Intersection #1) for Year 2018.

(2) Given data is not available at two study locations (Intersections #2 and #3), LLG will collect Year 2020 COVID-19 traffic counts at all three study locations for use in establishing traffic counts/turning movement percentages.

(3) Using information from (1) and (2), compare 2018 to 2020 to establish change in traffic counts due to current COVID-19 environment.

(4) Apply the rate calculated in (3) to the 2020 COVID-19 traffic counts and forecast 2018 traffic conditions for Intersections #2 and #3.

(5) Lastly, apply an annual growth factor of 1% per year for two years to the Year 2018 traffic conditions to establish Year 2020 pre-COVID-19 baseline traffic conditions.

E. Traffic Generation: Trip generation for the proposed Project was completed for all three project alternatives. The trip generation potential of the proposed Project will be estimated using trip rates contained in the 10th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE), [Washington, D.C., 2017].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by all three alternatives of the proposed Project. As shown in *Table 5-1*, ITE Land Use 151: Mini Warehouse, ITE Land Use 720: Medical Dental Office Building, ITE Land Use 820: Shopping Center, ITE Land Use 930: Fast Casual Restaurant, ITE Land Use 932: High-Turnover Sit-Down Restaurant, and ITE Land Use 934: Fast-Food Restaurant with Drive-Through was used to forecast the trip generation potential of the proposed Project.

Table 5-2 summarizes the trip generation potential of Alternative 1. A review of *Table 5-2* indicates that the proposed Project is forecast to generate approximately 1,682 daily trips, with 117 trips (67 inbound, 50 outbound) produced in the AM peak hour and 115 trips (56 inbound, 59 outbound) produced in the PM peak hour on a "typical" weekday.

Table 5-3 summarizes the trip generation potential of Alternative 2. A review of *Table 5-3* indicates that the proposed Project is forecast to generate approximately 1,940 daily trips, with 101 trips (59 inbound, 42 outbound) produced in the AM peak hour and 119 trips (58 inbound, 61 outbound) produced in the PM peak hour on a "typical" weekday.

Table 5-4 summarizes the trip generation potential of Alternative 3. A review of *Table 5-4* indicates that the proposed Project is forecast to generate approximately 2,033 daily trips, with 144 trips (80 inbound, 64 outbound) produced in the AM peak hour and 130 trips (63 inbound, 67 outbound) produced in the PM peak hour on a "typical" weekday.

To provide a conservative assessment, the trip generation for Alternative 3 will be analyzed in the report.

F. Trip Distribution: See attached ***Figure 5-1*** for the project trip distribution pattern. Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- location of site access points in relation to the surrounding street system,
- the site's proximity to major traffic carriers and regional access routes,
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns,
- ingress/egress availability at the project site, plus parking layout and allocation within the subject property.

Table 5-5 summarizes the added Project-related AM peak hour and PM peak hour traffic volumes at the eight (8) potential study locations.

G. Near-Term Background Traffic:

- Project Completion: 2024, to be confirmed with project applicant.
- Ambient Growth Rate: 1.0% per year
- Cumulative Projects: Planned and/or approved projects within a two-mile radius and in the vicinity of the Project site may contribute traffic to the Project study area will be researched at the Cities of Long Beach, Signal Hill and Lakewood.

H. Long-Term Background Traffic:

- Buildout Year: 2040
- Ambient Growth Rate: 1.0% per year
- Cumulative Projects: Planned and/or approved projects within a two-mile radius and in the vicinity of the Project site may contribute traffic to the Project study area will be researched at the Cities of Long Beach, Signal Hill and Lakewood.

LINSCOTT LAW & GREENSPAN engineers

I. Analysis Scenarios: Consistent with the City's TIA Guidelines, the following are the proposed traffic analysis scenarios.

(a) Existing traffic conditions;
(b) Existing plus Project traffic conditions;
(c) Scenario (b) with Mitigation, if necessary;
(d) Near-Term Cumulative (2024) Traffic Conditions (Existing plus Ambient Growth plus Related Projects);
(e) Near-Term Cumulative (2024) plus Project Traffic Conditions;
(f) Scenario in (e) with Mitigation, if necessary;
(g) Long-Term Buildout (2040) Traffic Conditions;
(h) Long-Term Buildout (2040) plus Project Traffic Conditions;
(i) Scenario in (g) with Mitigation, if necessary

J. LOS Methodology and Significant Impact Criteria: The LOS calculations will be based on the Intersection Capacity Utilization (ICU) method of analysis for signalized intersections and on the Highway Capacity Manual (HCM) method for unsignalized intersections.

The ICU calculations will utilize a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through and right-turn lanes, and dual left-turn capacity of 2,880 vph. Any unsignalized intersections or project driveways will be analyzed using the methodology contained in the most current Highway Capacity Manual (HCM).

The City of Signal Hill requires intersection mitigation for any of the following elements:

- Degraded LOS of 0.02 of the V/C ratio, OR
- 40 vehicles are added to an intersection, OR
- Left-turn queue lengths are greater than existing storage length.

The queuing analysis will be performed using *Synchro 10.0*.

If applicable, the City of Long Beach requirements would be considered.

K. Other Issues:

- For all Signal Hill intersections, perform left-turn queuing analysis using *Synchro 10.0* to identify if existing left-turn pockets are adequately sized,
- Conduct a CMP compliance assessment, and
- Conduct a VMT assessment. LLG will coordinate with the City for use of applicable VMT guidelines.

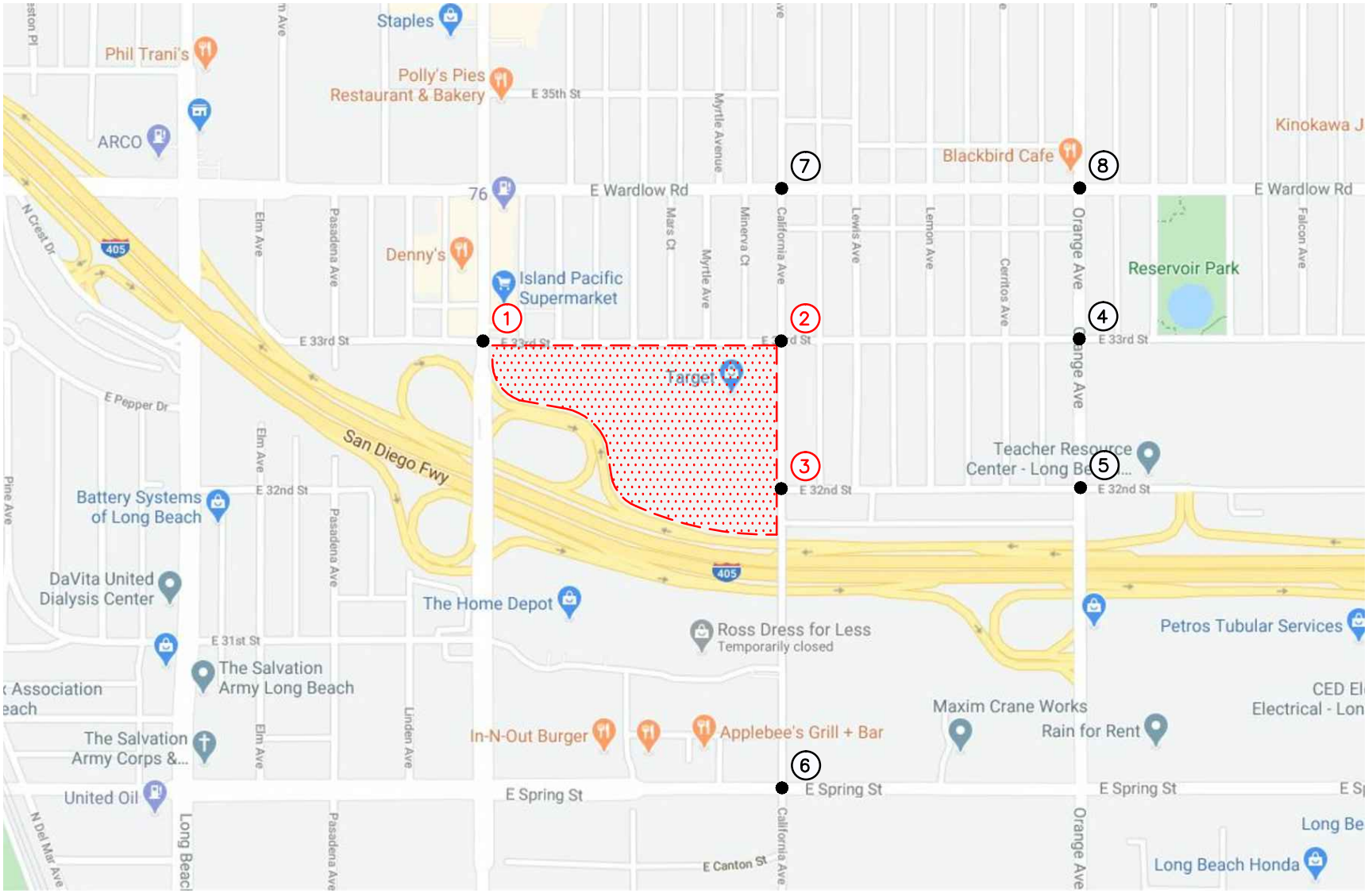
We appreciate the opportunity to provide this scope of work. Should you have any questions, please call me at (949) 825-6175. Thank You.

Approved by:

_____ _____

City of Signal Hill Date

cc: File
Shane Green, P.E., LLG



n:\4200\2204277 - target retail center & self storage, signal hill\dwg\scope of work\4277 f1-1.dwg LDP 09:36:42 12-14-2020 lam

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION PER THE W.G. ZIMMERMAN ENGINEERING, INC. TRAFFIC MEMO

(#) = RECOMMENDED STUDY INTERSECTION BASED ON 40 PEAK HOUR TRIP THRESHOLD

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

n:\4200\2204277 - target retail center & self storage, signal hill\dwg\scope of work\4277 f2-1.dwg LDP 15:24:50 12-09-2020 co

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

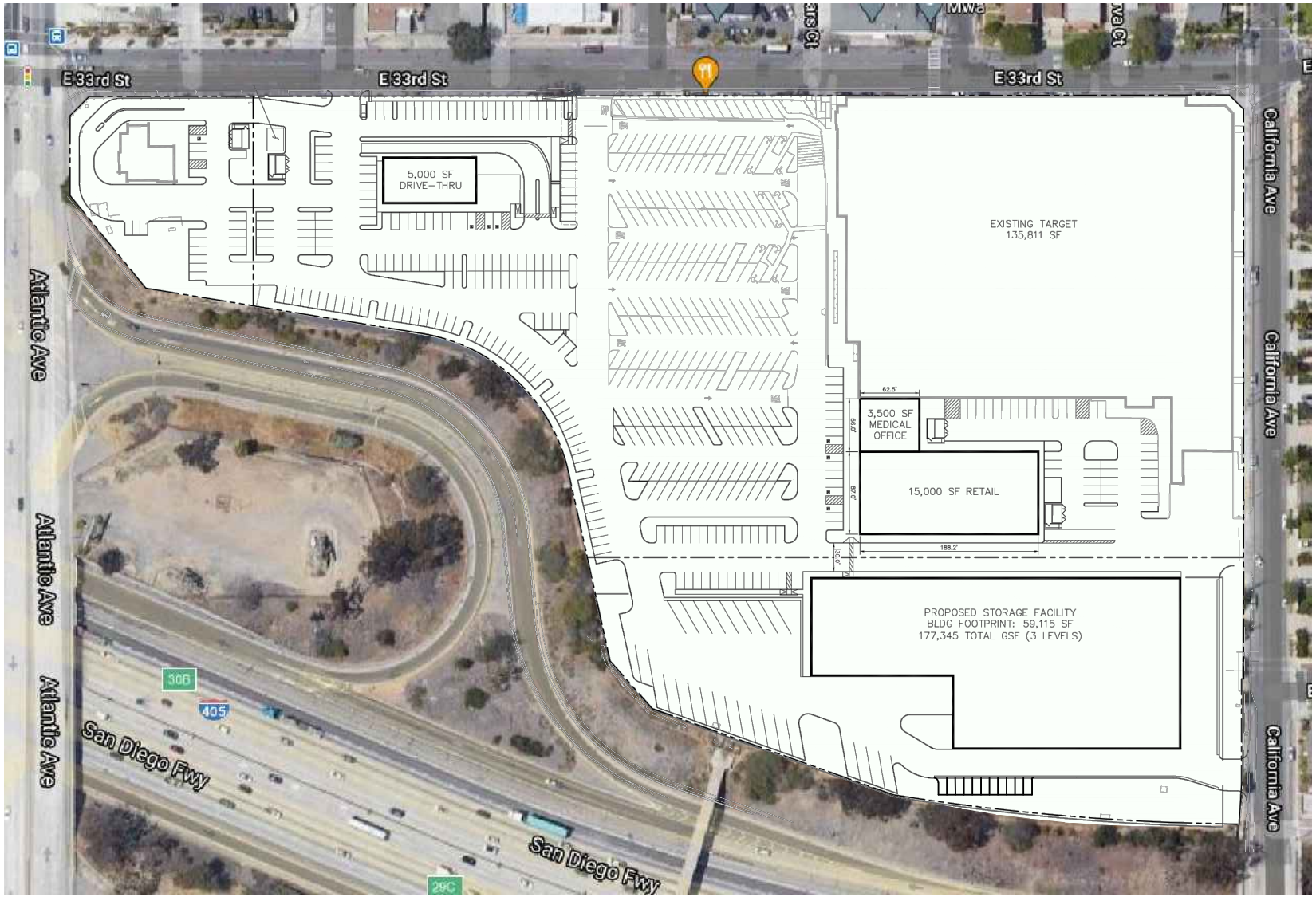
KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE AERIAL

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

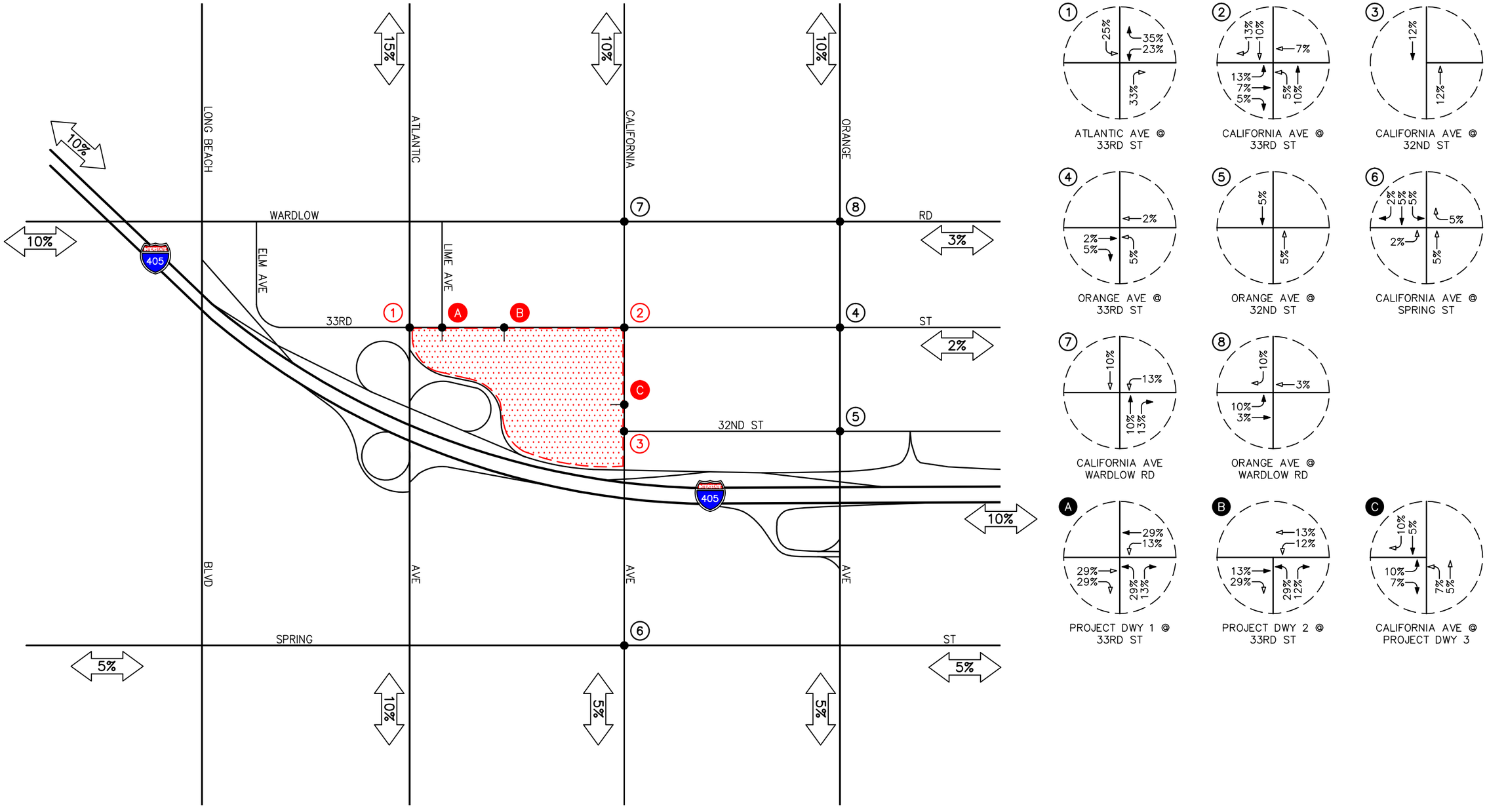
N NO SCALE

SOURCE: KIMLEY HORN & ASSOCIATES

FIGURE 2-2

PROPOSED PROJECT SITE PLAN

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



n:\4200\2204277 - target retail center & self storage, signal hill\dwg\scope of work\4277 f5-1.dwg LDP 15:13:59 12-14-2020 lam

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION PER THE W.G. ZIMMERMAN ENGINEERING, INC. TRAFFIC MEMO

(#) = RECOMMENDED STUDY INTERSECTION BASED ON 40 PEAK HOUR TRIP THRESHOLD

◁—— = INBOUND PERCENTAGE

——◀ = OUTBOUND PERCENTAGE

▭ = PROJECT SITE

FIGURE 5-1

PROJECT TRIP DISTRIBUTION PATTERN

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

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TABLE 2-1
PROPOSED DEVELOPMENT SUMMARY [1]
TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

Building / Tenant	Land Use	Retail	Fine/Casual Dining [2]	Restaurant/Fast-Casual/QSR [2]	Fast-Food with Drive-Thru [2]	Medical / Dental Office	Self Storage	Building Size (SF)
Existing Uses								
Target (T2319)	Retail	135,811	--	--	--		--	135,811 SF
	EXISTING SUBTOTAL	***135,811***	***0***	***0***	***0***		***0***	***135,811 SF***
Proposed Uses								
Restaurant Pad With Drive-Thru [3]	Restaurant		2,000	0	3,000			5,000 SF
Retail/Other Building	Retail Shops/Personal Services	15,000						15,000 SF
Medical Office Building	Medical/Dental Office					3,500		3,500 SF
Storage Facility	Self Storage						177,345	177,345 SF
	VACANT/PROPOSED SUBTOTAL	***15,000***	***2,000***	***0***	***3,000***	***3,500***	***177,345***	***200,845 SF***
	TOTAL	***150,811***	***2,000***	***0***	***3,000***	***3,500***	***177,345***	***336,656 SF***
	PERCENT LAND USE MIX	***44.8%***	***0.6%***	***0.0%***	***0.9%***	***1.0%***	***52.7%***	***100.0%***

[1] Source: Site Plan/Perspective View dated 09-10-2020 prepared by Kimley-Horn and Associates, Inc. / VenturePoint

[2] Anticipated type of restaurant/tenants are unknown at this time. Restaurant tenant mix are expected to consists of a mix of fine/casual dining, QSR/Fast-Casual, and a fast-food with drive-thru (Source: VenturePoint)
For this assesment, three (3) alternatives were evaluated for the various mix of restaurant tenants are assumed as shown in column.
See Project Description in report for details of potential tenancy options for the Project's potential restaurant uses.

[3] Potential outdoor dining area is unknown at this time. The study assumes a placeholder of 600 SF for this project component.

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TABLE 5-1

PROJECT TRAFFIC GENERATION RATES[1]

TARGET RETAIL CENTER EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

ITE Land Use	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Rates							
▪ 151: Mini Warehouse (TE/1000 SF)	1.51	60%	40%	0.10	47%	53%	0.17
▪ 720: Medical Dental Office Building (TE/1000 SF)	34.80	78%	22%	2.78	28%	72%	3.46
▪ 820: Shopping Center (TE/1000 SF)	37.75	62%	38%	0.94	48%	52%	3.81
▪ 930: Fast Casual Restaurant (TE/1000 SF)	315.17	67%	33%	2.07	55%	45%	14.13
▪ 932: High-Turnover Sit-Down Restaurant (TE/1000 SF)	112.18	55%	45%	9.94	62%	38%	9.77
▪ 934: Fast-Food Restaurant with Drive-Through Window (TE/1000 SF)	470.95	51%	49%	40.19	52%	48%	32.67

Notes:
TE/1000 SF = Trip ends per 1,000 SF of development

[1] Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

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TABLE 5-2

ALTERNATIVE 1 PROJECT TRAFFIC GENERATION FORECAST[2]

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[3]	-66	-1	-1	-2	-3	-2	-5
Subtotal	500	8	4	12	24	28	52
Pass-by Reduction[4]	-50	-1	0	-1	-8	-10	-18
Total Shopping Center	**450**	**7**	**4**	**11**	**16**	**18**	**34**
▪ High Turnover Sit-Down Restaurant (2,300 SF)	258	13	10	23	14	8	22
Internal Capture[3]	-92	-1	-1	-2	-3	-4	-7
Subtotal	166	12	9	21	11	4	15
Pass-by Reduction[4]	-17	-1	-1	-2	-5	-1	-6
Total High Turnover Sit-Down Restaurant	**149**	**11**	**8**	**19**	**6**	**3**	**9**
▪ Fast-Food Restaurant with Drive-Through Window (3,300 SF)	1,554	68	65	133	56	52	108
Internal Capture[3]	-562	-7	-7	-14	-17	-22	-39
Subtotal	992	61	58	119	39	30	69
Pass-by Reduction[4]	-248	-30	-28	-58	-20	-15	-35
Total Fast-Food Restaurant with Drive-Through Window	**744**	**31**	**30**	**61**	**19**	**15**	**34**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[3]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Project Trip Generation	**1,682**	**67**	**50**	**117**	**56**	**59**	**115**

2 Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

3 Consistent with the *Trip Generation Handbook*, published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center, and the interaction between this existing use and the proposed Project uses.

4 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 932: High-Turnover Sit-Down Restaurant: PM Peak Hour – 43%, Daily/AM peak hour – Assume 10%
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

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TABLE 5-3

ALTERNATIVE 2 PROJECT TRAFFIC GENERATION FORECAST[5]

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[6]	-83	-1	-1	-2	-3	-2	-5
Subtotal	483	8	4	12	24	28	52
Pass-by Reduction[7]	-48	-1	0	-1	-8	-10	-18
Total Shopping Center	**435**	**7**	**4**	**11**	**16**	**18**	**34**
▪ Fast Casual Restaurant (2,300 SF)	725	3	2	5	18	14	32
Internal Capture[6]	-261	0	0	0	-5	-6	-11
Subtotal	464	3	2	5	13	8	21
Pass-by Reduction[7]	-46	0	-1	-1	-6	-3	-9
Total Fast Casual Restaurant	**418**	**3**	**1**	**4**	**7**	**5**	**12**
▪ Fast-Food Restaurant with Drive-Through Window (3,300 SF)	1,554	68	65	133	56	52	108
Internal Capture[6]	-556	-8	-8	-16	-16	-22	-38
Subtotal	998	60	57	117	40	30	70
Pass-by Reduction[7]	-250	-29	-28	-57	-20	-15	-35
Total Fast-Food Restaurant with Drive-Through Window	**748**	**31**	**29**	**60**	**20**	**15**	**35**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[6]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Project Trip Generation	**1,940**	**59**	**42**	**101**	**58**	**61**	**119**

5 Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

6 Consistent with the *Trip Generation Handbook*, published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

7 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook,3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 930: Fast Casual Restaurant: ITE does not identify a pass-by reduction for this land use, therefore, the pass-by factors have been matched to ITE 932: High Turnover Sit Down Restaurant. PM Peak Hour – 43%, Daily/AM peak hour – Assume 10%.
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

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TABLE 5-4

ALTERNATIVE 3 PROJECT TRAFFIC GENERATION FORECAST[8]

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

Project Description	Daily 2-Way	AM Peak Hour Enter	AM Peak Hour Exit	AM Peak Hour Total	PM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Total
Trip Generation Forecast							
▪ Shopping Center (15,000 SF)	566	9	5	14	27	30	57
Internal Capture[9]	-95	-1	-1	-2	-4	-3	-7
Subtotal	471	8	4	12	23	27	50
Pass-by Reduction[10]	-47	-1	0	-1	-8	-9	-17
Total Shopping Center	**424**	**7**	**4**	**11**	**15**	**18**	**33**
▪ Fast-Food Restaurant with Drive-Through Window (5,600 SF)	2,637	115	110	225	95	88	183
Internal Capture[9]	-943	-8	-8	-16	-28	-37	-65
Subtotal	1,694	107	102	209	67	51	118
Pass-by Reduction[10]	-424	-52	-50	-102	-34	-25	-59
Total Fast-Food Restaurant with Drive-Through Window	**1,270**	**55**	**52**	**107**	**33**	**26**	**59**
▪ Medical/Dental Office (3,500 SF)	122	8	2	10	3	9	12
Internal Capture[9]	-51	-1	-1	-2	-2	-2	-4
Total Medical/Dental Office	**71**	**7**	**1**	**8**	**1**	**7**	**8**
▪ Mini Warehouse (177,345 SF)	268	11	7	18	14	16	30
Total Project Trip Generation	**2,033**	**80**	**64**	**144**	**63**	**67**	**130**

8 Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

9 Consistent with the *Trip Generation Handbook*, published by ITE (2017), Project trip generation was adjusted to account for internal capture between the retail, restaurant, and office components of the Project. It should be noted that the internal capture adjustment considers the existing Target that is currently part of the retail center and the interaction between this existing use and the proposed Project uses.

10 Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Handbook*,*3rd Edition*, ITE 2017):

- 820: Shopping Center: PM Peak Hour – 34%, Daily/AM peak hour – Assume 10%
- 934: Fast-Food Restaurant with Drive-Through Window: AM Peak Hour – 49%, PM Peak Hour – 50%, Daily – Assume 25%

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TABLE 5-5

PROJECT-RELATED ADDED PEAK HOUR TRAFFIC VOLUMES

TARGET CENTER RETAIL EXPANSION AND SELF-STORAGE FACILITY, SIGNAL HILL

Key Intersections	Jurisdiction	City Study Location Peak Hour "Threshold"	Time Period	Added Peak Hour Project Trips	Exceed "40 peak hour trip" threshold (Yes/No)
1. Atlantic Avenue at 33rd Street	Signal Hill/ Long Beach	40 peak hour trips	AM	**83**	**Yes**
			PM	**75**	**Yes**
2. California Avenue at 33rd Street	Signal Hill	40 peak hour trips	AM	**49**	**Yes**
			PM	**45**	**Yes**
3. California Avenue at 32nd Street	Signal Hill	40 peak hour trips	AM	18	No
			PM	16	No
4. Orange Avenue at 33rd Street	Signal Hill	40 peak hour trips	AM	10	No
			PM	8	No
5. Orange Avenue at 32nd Street	Signal Hill	40 peak hour trips	AM	7	No
			PM	6	No
6. California Avenue at Spring Street	Signal Hill/ Long Beach	40 peak hour trips	AM	17	No
			PM	14	No
7. California Avenue at Wardlow Street	Long Beach	40 peak hour trips	AM	32	No
			PM	30	No
8. Orange Avenue at Wardlow Street	Long Beach	40 peak hour trips	AM	18	No
			PM	17	No

APPENDIX B

EXISTING TRAFFIC COUNT DATA

Table B-1
Year 2021 Pre-COVID-19 Baseline Volume Development

Study Intersection	(1) 2018 AM Intersection Volume	(2) 2018 PM Intersection Volume	(3) 2021 COVID-19 AM Volume	(4) 2021 COVID-19 PM Volume	(5) 2021 COVID-19 AM Growth Per Year (%) [1]	(6) 2021 COVID-19 PM Growth Per Year (%) [2]	(7) 2018 Adjusted AM Intersection Volume [3]	(8) 2018 Adjusted PM Intersection Volume [4]	(9) 2018 Baseline AM Intersection Volume	(10) 2018 Baseline PM Intersection Volume	(11) 2021 Baseline AM Intersection Volume by applying 1% per year to Column 9	(12) 2021 Baseline PM Intersection Volume by applying 1% per year to Column 10
1. Atlantic Avenue at 33rd Street	2,069	2,683	1,375	2,321	-16.8%	-5.2%	--	--	2,069	2,683	2,131	2,763
2. California Avenue at 33rd Street	--	--	305	637	--	--	506	805	506	805	521	829
3. California Avenue at 32nd Street	--	--	315	643	--	--	523	813	523	813	539	837
4. Orange Avenue at 33rd Street	--	--	837	1,350	--	--	1,389	1,706	1,389	1,706	1,431	1,757
5. Orange Avenue at 32nd Street	1,760	2,015	1,200	1,689	-15.6%	-6.4%	--	--	1,760	2,015	1,813	2,075
6. California Avenue at Spring Street	2,211	2,698	1,134	1,929	-31.7%	-13.3%	--	--	2,211	2,698	2,277	2,779
7. California Avenue at Wardlow Road	--	--	609	1,148	--	--	1,011	1,451	1,011	1,451	1,041	1,495
8. California Avenue at Wardlow Road	2,090	2,679	1,221	2,046	-23.7%	-10.3%	--	--	2,090	2,679	2,153	2,759
Average Growth Rate Per Year					**-22.0%**	**-8.8%**						

Notes:
[1] [(Column 3 - Column 1)/Column 3] / (2021-2018)
[2] [(Column 4 - Column 2)/Column 4] / (2021-2018)
[3] 2018 Adjusted Volumes were developed by applying the average growth rate per year calculated in Column 5.
Column 3 + [Column 3 × (22.0% × (2021 - 2018))]
[4] 2018 Adjusted Volumes were developed by applying the average growth rate per year calculated in Column 6.
Column 4 + [Column 4 × (8.8% × (2021 - 2018))]

National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & 33rd St
City: Long Beach
Control: Signalized

Project ID: Historical
Date: 11/1/2018

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				33rd St				33rd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	94	13	0	1	171	1	0	0	1	4	0	5	1	10	0	305
7:15 AM	5	129	15	0	8	229	1	0	0	1	8	0	6	1	6	0	409
7:30 AM	11	123	11	1	5	253	1	0	0	1	4	0	11	3	4	0	428
7:45 AM	1	193	23	0	12	246	0	0	2	1	4	0	4	4	11	0	501
8:00 AM	8	224	22	2	10	210	2	0	2	1	8	0	10	1	21	0	521
8:15 AM	2	178	33	1	18	235	1	0	0	2	2	0	14	2	29	0	517
8:30 AM	4	191	25	1	15	223	4	0	1	4	3	0	8	5	19	0	503
8:45 AM	8	200	33	1	16	206	1	0	1	2	3	0	26	3	28	0	528
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	1332	175	6	85	1773	11	0	6	13	36	0	84	20	128	0	3712
APPROACH %'s :	2.76%	85.60%	11.25%	0.39%	4.55%	94.86%	0.59%	0.00%	10.91%	23.64%	65.45%	0.00%	36.21%	8.62%	55.17%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	22	793	113	5	59	874	8	0	4	9	16	0	58	11	97	0	2069
PEAK HR FACTOR :	0.688	0.885	0.856	0.625	0.819	0.930	0.500	0.000	0.500	0.563	0.500	0.000	0.558	0.550	0.836	0.000	0.980
	0.911				0.926				0.659				0.728				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	288	63	2	18	178	0	0	3	3	6	0	26	9	49	0	651
4:15 PM	3	303	45	2	18	203	5	0	4	3	5	0	35	3	34	0	663
4:30 PM	7	263	52	0	18	187	3	0	3	2	11	0	24	3	31	0	604
4:45 PM	9	311	65	0	15	170	2	0	5	3	9	0	32	1	40	0	662
5:00 PM	4	291	61	2	25	198	2	0	1	2	6	0	26	5	43	0	666
5:15 PM	6	311	72	0	20	184	6	0	4	1	8	0	36	6	43	0	697
5:30 PM	5	309	70	0	19	187	3	0	0	3	3	0	24	4	31	0	658
5:45 PM	12	325	48	0	18	149	3	0	4	3	4	0	25	2	33	0	626
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	52	2401	476	6	151	1456	24	0	24	20	52	0	228	33	304	0	5227
APPROACH %'s :	1.77%	81.81%	16.22%	0.20%	9.26%	89.27%	1.47%	0.00%	25.00%	20.83%	54.17%	0.00%	40.35%	5.84%	53.81%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	24	1222	268	2	79	739	13	0	10	9	26	0	118	16	157	0	2683
PEAK HR FACTOR :	0.667	0.982	0.931	0.250	0.790	0.933	0.542	0.000	0.500	0.750	0.722	0.000	0.819	0.667	0.913	0.000	0.962
	0.974				0.923				0.662				0.856				

Prepared by National Data & Surveying Services

Atlantic Ave & 33rd St

Peak Hour Turning Movement Count

ID: Historical
City: Long Beach

Day: Thursday
Date: 11/01/2018

PEAK HOURS
AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS
AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Atlantic Ave — SOUTHBOUND

AM	8	874	59	0	894	AM
NOON	0	0	0	0	0	NOON
PM	13	739	79	0	1389	PM
	0	2	1	0		

33rd St — EASTBOUND

AM	NOON	PM	
41	0	53	
0	0	0	0
4	0	10	0
9	0	9	1
16	0	26	0
AM	NOON	PM	

CONTROL

Signalized

TEV	2069 AM	0 NOON	2683 PM
PHF	0.98		0.96

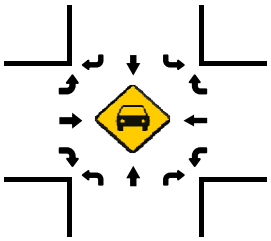
33rd St — WESTBOUND

PM	NOON	AM	
157	0	97	0
16	0	11	2
118	0	58	0
0	0	0	0
356	0	181	
PM	NOON	AM	

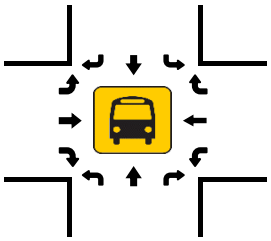
Atlantic Ave — NORTHBOUND

PM	885	2	24	1222	268	PM
NOON	0	0	0	0	0	NOON
AM	953	5	22	793	113	AM
		0	1	2	0	

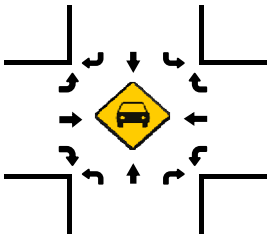
Total Vehicles (AM)



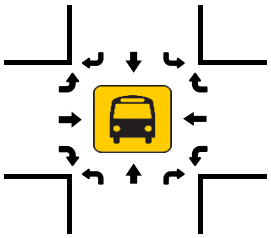
Total Vehicles (AM)



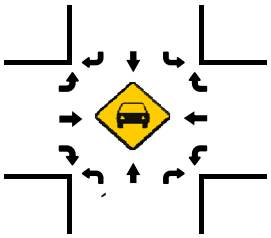
Total Vehicles (NOON)



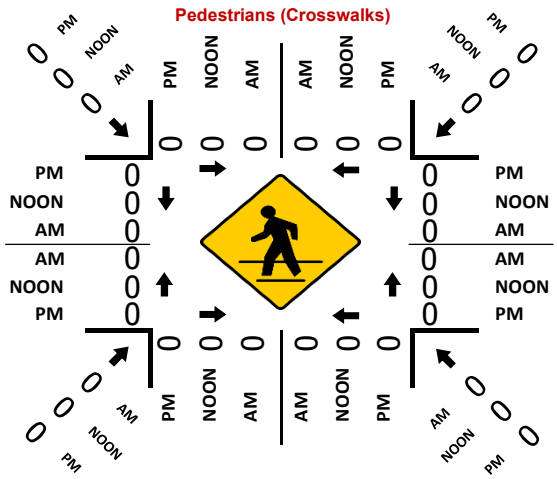
Total Vehicles (NOON)



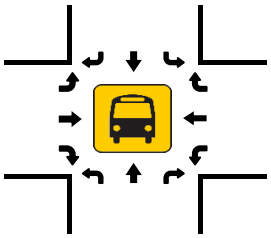
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Atlantic Ave & 33rd St
City: Signal Hill
Control: Signalized

Project ID: 21-020018-001
Date: 1/20/2021

Total

NS/EW Streets:	Atlantic Ave				Atlantic Ave				33rd St				33rd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	70	5	0	5	82	0	0	0	1	5	0	5	1	3	0	180
7:15 AM	7	101	9	0	2	96	0	0	1	0	6	0	2	0	7	0	231
7:30 AM	2	116	25	1	11	134	3	0	0	0	3	0	13	4	7	0	319
7:45 AM	5	150	27	0	12	157	3	0	0	0	3	0	7	0	6	0	370
8:00 AM	7	127	26	1	11	110	1	0	0	2	8	0	4	1	13	0	311
8:15 AM	5	152	37	2	11	130	0	0	0	1	2	0	16	0	9	0	365
8:30 AM	3	138	28	0	7	112	1	0	0	2	4	0	15	2	17	0	329
8:45 AM	6	132	27	1	14	119	0	0	1	1	4	0	17	0	16	0	338
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	38	986	184	5	73	940	8	0	2	7	35	0	79	8	78	0	2443
APPROACH %'s :	3.13%	81.29%	15.17%	0.41%	7.15%	92.07%	0.78%	0.00%	4.55%	15.91%	79.55%	0.00%	47.88%	4.85%	47.27%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	20	567	118	3	41	509	5	0	0	5	17	0	42	3	45	0	1375
PEAK HR FACTOR :	0.714	0.933	0.797	0.375	0.854	0.811	0.417	0.000	0.000	0.625	0.531	0.000	0.656	0.375	0.662	0.000	0.929
	0.903				0.807				0.550				0.662				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	213	76	1	23	189	1	0	0	0	6	0	31	6	36	0	588
4:15 PM	6	232	70	0	26	162	2	0	1	5	3	0	29	1	42	0	579
4:30 PM	3	198	43	0	21	185	5	0	3	2	6	0	41	1	27	0	535
4:45 PM	6	222	67	0	41	181	3	0	0	0	9	0	29	6	33	0	597
5:00 PM	5	215	62	0	31	181	4	0	1	2	2	0	39	5	46	0	593
5:15 PM	2	215	68	0	29	153	3	0	0	1	7	0	41	4	46	0	569
5:30 PM	3	211	61	1	32	167	1	0	1	1	9	0	37	3	35	0	562
5:45 PM	8	189	67	1	28	153	2	0	1	3	6	0	42	2	44	0	546
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	1695	514	3	231	1371	21	0	7	14	48	0	289	28	309	0	4569
APPROACH %'s :	1.73%	75.30%	22.83%	0.13%	14.23%	84.47%	1.29%	0.00%	10.14%	20.29%	69.57%	0.00%	46.17%	4.47%	49.36%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	16	863	258	1	133	682	11	0	2	4	27	0	146	18	160	0	2321
PEAK HR FACTOR :	0.667	0.972	0.949	0.250	0.811	0.942	0.688	0.000	0.500	0.500	0.750	0.000	0.890	0.750	0.870	0.000	0.972
	0.964				0.918				0.750				0.890				

Prepared by National Data & Surveying Services

Atlantic Ave & 33rd St

Peak Hour Turning Movement Count

ID: 21-020018-001
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Atlantic Ave — SOUTHBOUND

AM	5	509	41	0	612	AM
NOON	0	0	0	0	0	NOON
PM	11	682	133	0	1025	PM
	0	2	1	0		

33rd St — EASTBOUND

AM	NOON	PM	
28	0	45	
0	0	0	0
0	0	2	0
5	0	4	1
17	0	27	0
AM	NOON	PM	

CONTROL

Signalized

TEV	1375 AM	0 NOON	2321 PM
PHF	0.93		0.97

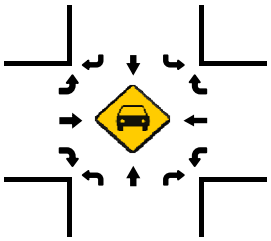
33rd St — WESTBOUND

0	160	0	45
2	18	0	3
0	146	0	42
0	0	0	0
	395	0	164
	PM	NOON	AM

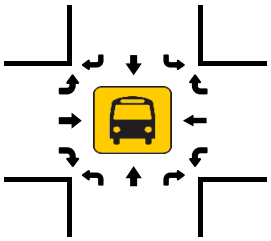
Atlantic Ave — NORTHBOUND

PM	856	1	16	863	258	PM
NOON	0	0	0	0	0	NOON
AM	571	3	20	567	118	AM
		0	1	2	0	

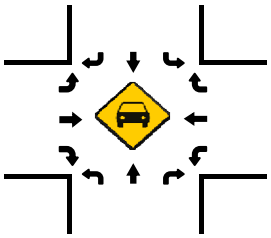
Total Vehicles (AM)



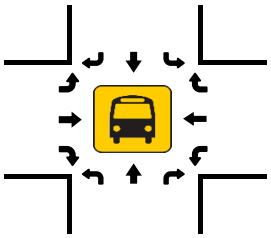
Total Vehicles (AM)



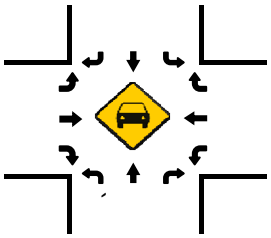
Total Vehicles (NOON)



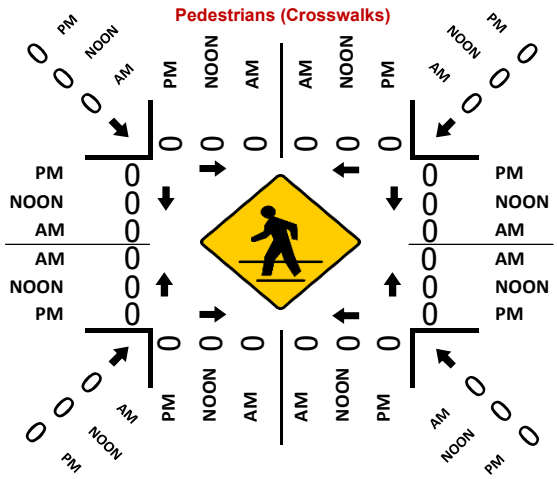
Total Vehicles (NOON)



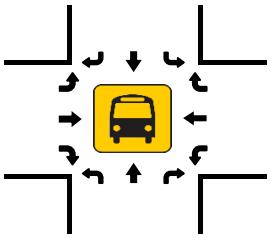
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & 33rd St
City: Signal Hill
Control: 4-Way Stop

Project ID: 21-020018-002
Date: 1/20/2021

Total

NS/EW Streets:	California Ave				California Ave				33rd St				33rd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	11	0	0	0	13	1	0	0	4	5	0	0	4	0	0	39
7:15 AM	5	15	0	0	0	11	0	0	0	1	3	0	1	2	1	0	39
7:30 AM	9	14	4	0	1	16	2	0	0	3	5	0	3	3	0	0	60
7:45 AM	3	18	0	0	0	18	2	0	0	5	10	0	2	4	0	0	62
8:00 AM	9	23	1	0	0	20	2	0	2	3	11	0	8	5	0	0	84
8:15 AM	5	16	5	0	1	20	1	0	1	10	6	0	7	1	1	0	74
8:30 AM	5	33	4	0	0	12	2	0	1	4	6	0	5	3	0	0	75
8:45 AM	4	18	2	0	4	17	2	0	6	4	5	0	0	7	3	0	72
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	148	16	0	6	127	12	0	10	34	51	0	26	29	5	0	505
APPROACH %'s :	20.00%	72.20%	7.80%	0.00%	4.14%	87.59%	8.28%	0.00%	10.53%	35.79%	53.68%	0.00%	43.33%	48.33%	8.33%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	23	90	12	0	5	69	7	0	10	21	28	0	20	16	4	0	305
PEAK HR FACTOR :	0.639	0.682	0.600	0.000	0.313	0.863	0.875	0.000	0.417	0.525	0.636	0.000	0.625	0.571	0.333	0.000	0.908
	0.744				0.880				0.868				0.769				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	45	9	0	0	29	7	0	0	11	15	0	2	12	3	0	141
4:15 PM	10	44	2	1	1	24	4	0	9	12	20	0	5	7	3	0	142
4:30 PM	13	28	6	0	0	22	3	0	7	11	18	0	7	6	2	0	123
4:45 PM	8	51	5	0	1	32	9	0	13	8	16	0	6	10	6	0	165
5:00 PM	15	63	6	0	0	31	8	1	6	13	16	0	6	10	0	0	175
5:15 PM	14	54	8	0	2	31	2	0	5	15	6	0	1	10	0	0	148
5:30 PM	13	41	7	0	0	25	7	0	6	10	23	0	5	8	4	0	149
5:45 PM	15	28	3	0	1	20	9	0	9	9	20	0	5	10	3	0	132
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	354	46	1	5	214	49	1	55	89	134	0	37	73	21	0	1175
APPROACH %'s :	19.32%	71.23%	9.26%	0.20%	1.86%	79.55%	18.22%	0.37%	19.78%	32.01%	48.20%	0.00%	28.24%	55.73%	16.03%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	50	209	26	0	3	119	26	1	30	46	61	0	18	38	10	0	637
PEAK HR FACTOR :	0.833	0.829	0.813	0.000	0.375	0.930	0.722	0.250	0.577	0.767	0.663	0.000	0.750	0.950	0.417	0.000	0.910
	0.848				0.887				0.878				0.750				

Prepared by National Data & Surveying Services

California Ave & 33rd St

Peak Hour Turning Movement Count

ID: 21-020018-002
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

California Ave — SOUTHBOUND

AM	7	69	5	0	104	AM
NOON	0	0	0	0	0	NOON
PM	26	119	3	1	250	PM

33rd St — EASTBOUND

AM	NOON	PM		
46	0	114		
0	0	0	0	
10	0	30	0	
21	0	46	1	
28	0	61	1	
AM	NOON	PM		

33rd St — WESTBOUND

PM	NOON	AM	
10	0	4	0
38	0	16	1
18	0	20	0
0	0	0	0
75	0	38	
PM	NOON	AM	

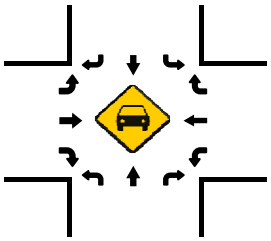
California Ave — NORTHBOUND

PM	198	0	50	209	26	PM
NOON	0	0	0	0	0	NOON
AM	117	0	23	90	12	AM

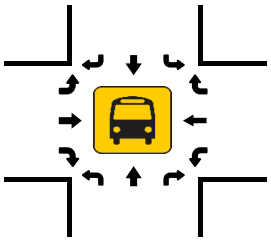
CONTROL: 4-Way Stop

	AM	NOON	PM
TEV	305	0	637
PHF	0.91		0.91

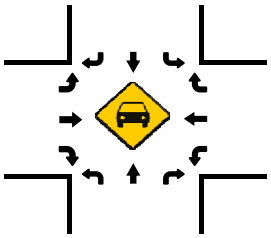
Total Vehicles (AM)



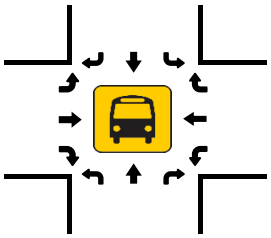
Total Vehicles (AM)



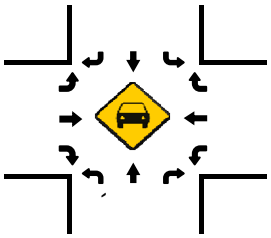
Total Vehicles (NOON)



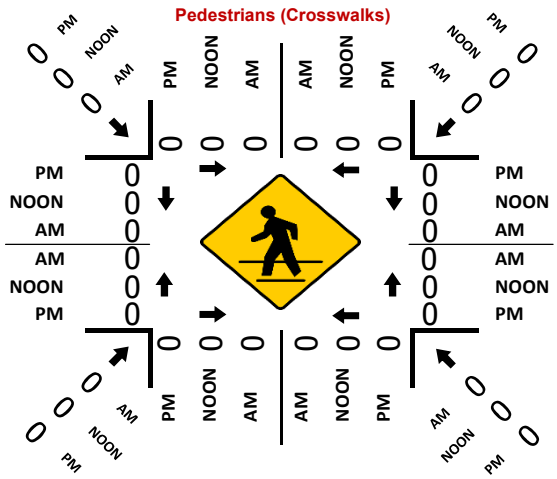
Total Vehicles (NOON)



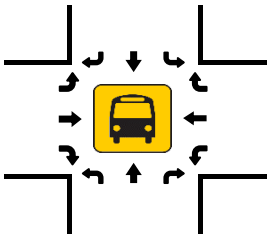
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & 32nd St
City: Signal Hill
Control: 1-Way Stop (WB)

Project ID: 21-020018-003
Date: 1/20/2021

Total

NS/EW Streets:	California Ave				California Ave				32nd St				32nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	11	0	0	0	19	0	0	0	0	0	0	0	0	0	1	31
7:15 AM	0	22	1	0	0	14	0	0	0	0	0	0	3	0	1	0	41
7:30 AM	0	29	3	0	0	24	0	0	0	0	0	0	0	0	3	0	59
7:45 AM	0	22	2	0	0	30	0	0	0	0	0	0	0	0	0	0	54
8:00 AM	0	37	6	0	3	37	0	0	0	0	0	0	3	0	2	0	88
8:15 AM	0	28	3	0	5	31	0	0	0	0	0	0	1	0	3	0	71
8:30 AM	0	53	1	0	0	31	0	0	0	0	0	0	3	0	1	1	90
8:45 AM	0	26	7	0	2	28	0	0	0	0	0	0	0	0	3	0	66
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	228	23	0	10	214	0	0	0	0	0	0	10	0	13	2	500
APPROACH %'s :	0.00%	90.84%	9.16%	0.00%	4.46%	95.54%	0.00%	0.00%					40.00%	0.00%	52.00%	8.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	144	17	0	10	127	0	0	0	0	0	0	7	0	9	1	315
PEAK HR FACTOR :	0.000	0.679	0.607	0.000	0.500	0.858	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.750	0.250	0.875
		0.745				0.856								0.850			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	71	2	0	3	56	0	0	0	0	0	0	2	0	3	0	137
4:15 PM	0	61	3	0	4	66	0	0	0	0	0	0	3	0	3	0	140
4:30 PM	0	62	1	0	3	60	0	0	0	0	0	0	3	0	3	0	132
4:45 PM	0	83	2	0	3	65	0	0	0	0	0	0	2	0	2	0	157
5:00 PM	0	98	2	0	3	65	0	0	0	0	0	0	1	0	0	0	169
5:15 PM	0	99	3	0	1	57	0	0	0	0	0	0	3	0	1	0	164
5:30 PM	0	75	3	0	3	65	0	1	0	0	0	0	1	0	5	0	153
5:45 PM	0	56	5	0	1	66	0	0	0	0	0	0	2	0	1	0	131
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	605	21	0	21	500	0	1	0	0	0	0	17	0	18	0	1183
APPROACH %'s :	0.00%	96.65%	3.35%	0.00%	4.02%	95.79%	0.00%	0.19%					48.57%	0.00%	51.43%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	355	10	0	10	252	0	1	0	0	0	0	7	0	8	0	643
PEAK HR FACTOR :	0.000	0.896	0.833	0.000	0.833	0.969	0.000	0.250	0.000	0.000	0.000	0.000	0.583	0.000	0.400	0.000	0.951
		0.895				0.953								0.625			

Prepared by National Data & Surveying Services

California Ave & 32nd St

Peak Hour Turning Movement Count

ID: 21-020018-003
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

California Ave — SOUTHBOUND

AM	0	127	10	0	153	AM
NOON	0	0	0	0	0	NOON
PM	0	252	10	1	364	PM

32nd St — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

32nd St — WESTBOUND

PM	NOON	AM	
8	0	9	0
0	0	0	1
7	0	7	0
0	0	1	0
20	0	28	
PM	NOON	AM	

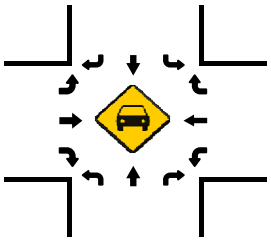
CONTROL: 1-Way Stop (WB)

TEV	315 AM	0 NOON	643 PM
PHF	0.88		0.95

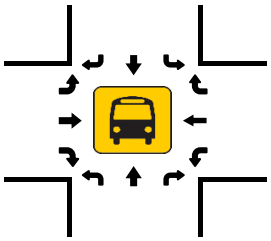
California Ave — NORTHBOUND

PM	259	0	0	355	10	PM
NOON	0	0	0	0	0	NOON
AM	134	0	0	144	17	AM

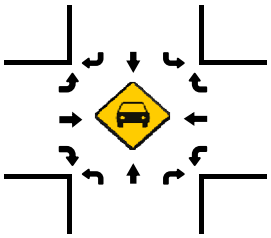
Total Vehicles (AM)



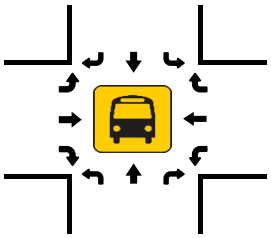
Total Vehicles (AM)



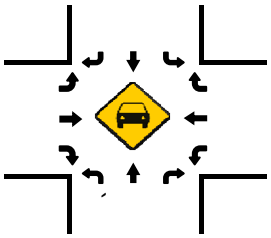
Total Vehicles (NOON)



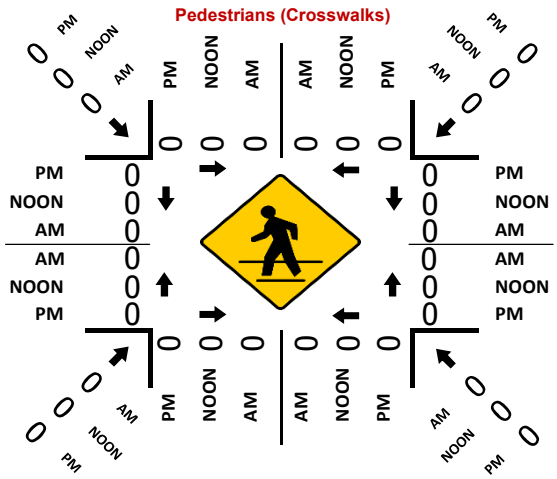
Total Vehicles (NOON)



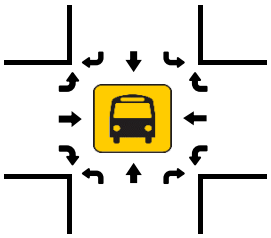
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Orange Ave & 33rd St
City: Signal Hill
Control: Signalized

Project ID: 21-020018-004
Date: 1/20/2021

Total

NS/EW Streets:	Orange Ave				Orange Ave				33rd St				33rd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	33	7	0	1	86	0	0	1	0	3	0	2	0	2	0	136
7:15 AM	4	49	13	0	1	87	3	0	1	1	4	0	2	1	0	0	166
7:30 AM	4	85	8	0	0	110	1	0	1	4	4	0	10	2	0	0	229
7:45 AM	2	97	4	0	2	109	3	0	0	3	1	0	5	2	2	0	230
8:00 AM	0	64	10	0	2	99	1	0	0	1	3	0	5	3	3	0	191
8:15 AM	3	76	5	0	0	90	1	0	2	1	1	0	5	2	1	0	187
8:30 AM	3	75	3	0	3	87	5	0	1	3	6	0	3	3	3	0	195
8:45 AM	2	85	10	0	0	81	6	0	3	7	3	0	5	0	0	0	202
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	564	60	0	9	749	20	0	9	20	25	0	37	13	11	0	1536
APPROACH %'s :	2.95%	87.71%	9.33%	0.00%	1.16%	96.27%	2.57%	0.00%	16.67%	37.04%	46.30%	0.00%	60.66%	21.31%	18.03%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	322	27	0	4	408	6	0	3	9	9	0	25	9	6	0	837
PEAK HR FACTOR :	0.563	0.830	0.675	0.000	0.500	0.927	0.500	0.000	0.375	0.563	0.563	0.000	0.625	0.750	0.500	0.000	0.910
	0.869				0.917				0.583				0.833				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	161	5	0	0	131	2	0	7	4	4	0	9	3	4	0	341
4:15 PM	5	157	13	0	1	115	9	0	5	9	7	0	5	6	7	0	339
4:30 PM	9	156	10	0	1	122	13	0	4	5	2	0	3	6	4	0	335
4:45 PM	3	147	5	0	4	126	9	0	7	6	6	0	10	5	7	0	335
5:00 PM	13	145	6	0	1	134	7	0	7	6	5	0	4	6	6	0	340
5:15 PM	18	141	8	0	2	114	5	0	6	7	8	0	10	2	5	0	326
5:30 PM	5	127	7	0	1	108	3	0	3	2	5	0	7	7	3	0	278
5:45 PM	10	110	8	0	1	75	6	0	1	6	2	0	6	8	4	0	237
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	74	1144	62	0	11	925	54	0	40	45	39	0	54	43	40	0	2531
APPROACH %'s :	5.78%	89.38%	4.84%	0.00%	1.11%	93.43%	5.45%	0.00%	32.26%	36.29%	31.45%	0.00%	39.42%	31.39%	29.20%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	28	621	33	0	6	494	33	0	23	24	19	0	27	20	22	0	1350
PEAK HR FACTOR :	0.636	0.964	0.635	0.000	0.375	0.943	0.635	0.000	0.821	0.667	0.679	0.000	0.675	0.833	0.786	0.000	0.990
	0.963				0.959				0.786				0.784				

Prepared by National Data & Surveying Services

Orange Ave & 33rd St

Peak Hour Turning Movement Count

ID: 21-020018-004
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Orange Ave — SOUTHBOUND

AM	6	408	4	0	331	AM
NOON	0	0	0	0	0	NOON
PM	33	494	6	0	666	PM
	0	1	0	0		

EASTBOUND — 33rd St

AM	NOON	PM	
24	0	81	
0	0	0	0
3	0	23	0
9	0	24	1
9	0	19	0
AM	NOON	PM	

CONTROL

Signalized

TEV	837 AM	0 NOON	1350 PM
PHF	0.91		0.99

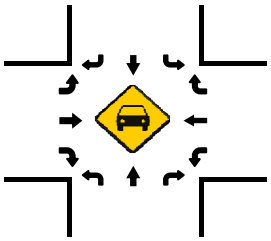
WESTBOUND — 33rd St

	PM	NOON	AM
0	22	0	6
1	20	0	9
0	27	0	25
0	0	0	0
	63	0	40

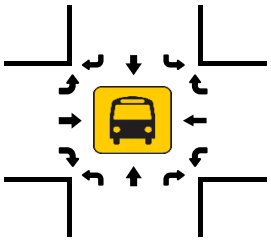
Orange Ave — NORTHBOUND

	0	0	1	0		
PM	540	0	28	621	33	PM
NOON	0	0	0	0	0	NOON
AM	442	0	9	322	27	AM

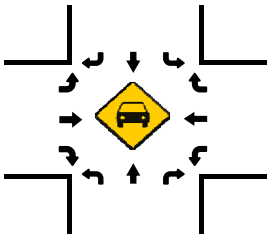
Total Vehicles (AM)



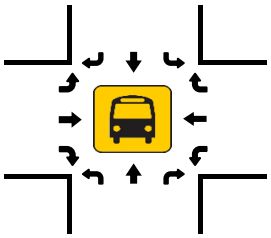
Total Vehicles (AM)



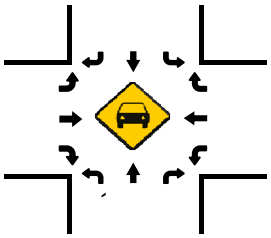
Total Vehicles (NOON)



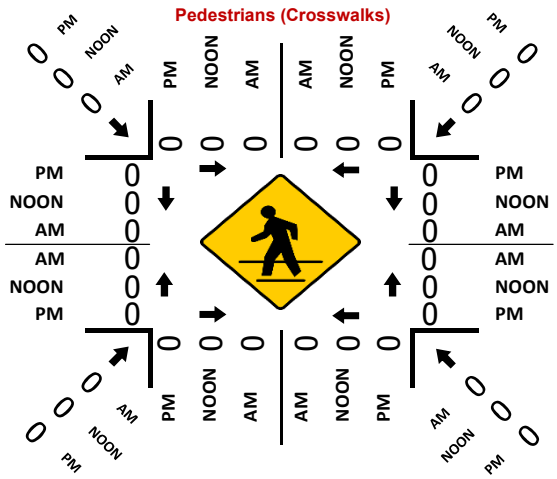
Total Vehicles (NOON)



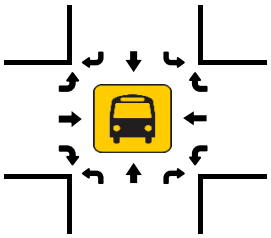
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Orange Ave & E 32nd St
City: Long Beach
Control: Signalized

Project ID: 18-05322-001
Date: 5/9/2018

Total

NS/EW Streets:	Orange Ave				Orange Ave				E 32nd St				E 32nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	65	73	0	42	115	0	0	1	0	8	0	22	0	11	0	340
7:15 AM	2	82	78	0	44	160	1	0	0	8	14	0	18	0	17	0	424
7:30 AM	3	96	78	0	46	188	1	0	0	6	14	0	19	0	13	0	464
7:45 AM	3	116	77	0	40	173	3	0	0	6	13	0	17	0	20	0	468
8:00 AM	5	86	60	0	47	167	1	0	0	6	10	0	10	0	12	0	404
8:15 AM	7	89	90	0	30	148	2	0	0	2	10	0	20	0	16	0	414
8:30 AM	4	100	71	0	33	169	1	0	2	0	8	0	15	0	20	0	423
8:45 AM	1	110	59	0	25	153	2	0	0	2	7	0	17	0	17	0	393
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	28	744	586	0	307	1273	11	0	3	30	84	0	138	0	126	0	3330
APPROACH %'s :	2.06%	54.79%	43.15%	0.00%	19.30%	80.01%	0.69%	0.00%	2.56%	25.64%	71.79%	0.00%	52.27%	0.00%	47.73%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	13	380	293	0	177	688	6	0	0	26	51	0	64	0	62	0	1760
PEAK HR FACTOR :	0.650	0.819	0.939	0.000	0.941	0.915	0.500	0.000	0.000	0.813	0.911	0.000	0.842	0.000	0.775	0.000	0.940
	0.875				0.927				0.875				0.851				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	10	119	78	0	23	183	5	0	0	1	5	0	68	0	70	0	562
4:15 PM	4	126	59	0	19	132	2	0	0	3	4	0	42	1	55	0	447
4:30 PM	6	126	65	0	16	148	2	0	0	1	2	0	39	0	43	0	448
4:45 PM	3	141	58	0	19	130	3	0	1	1	6	0	54	0	44	0	460
5:00 PM	10	161	88	0	19	148	2	0	1	0	3	0	83	0	71	0	586
5:15 PM	12	144	73	0	19	130	1	0	0	1	9	0	61	1	56	0	507
5:30 PM	9	135	57	0	22	136	0	0	2	0	9	0	42	1	49	0	462
5:45 PM	5	122	48	0	24	134	2	0	0	2	3	0	36	1	54	0	431
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	59	1074	526	0	161	1141	17	0	4	9	41	0	425	4	442	0	3903
APPROACH %'s :	3.56%	64.74%	31.71%	0.00%	12.21%	86.50%	1.29%	0.00%	7.41%	16.67%	75.93%	0.00%	48.79%	0.46%	50.75%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	34	581	276	0	79	544	6	0	4	2	27	0	240	2	220	0	2015
PEAK HR FACTOR :	0.708	0.902	0.784	0.000	0.898	0.919	0.500	0.000	0.500	0.500	0.750	0.000	0.723	0.500	0.775	0.000	0.860
	0.860				0.930				0.750				0.750				

Prepared by National Data & Surveying Services

Orange Ave & E 32nd St

Peak Hour Turning Movement Count

ID: 18-05322-001
City: Long Beach

Day: Wednesday
Date: 05/09/2018

Orange Ave

SOUTHBOUND

AM	6	688	177	0	442	AM
NOON	0	0	0	0	0	NOON
PM	6	544	79	0	805	PM

0 1 1 0

PEAK HOURS

07:15 AM - 08:15 AM	
NONE	
04:45 PM - 05:45 PM	

COUNT PERIODS

07:00 AM - 09:00 AM	
NONE	
04:00 PM - 06:00 PM	

E 32nd St — **EASTBOUND**

AM	NOON	PM	
19	0	42	
0	0	0	0
0	0	4	0
26	0	2	1
51	0	27	0
AM	NOON	PM	

CONTROL

Signalized

TEV	1760 AM	0 NOON	2015 PM
PHF	0.94		0.86

WESTBOUND — **E 32nd St**

	PM	NOON	AM
1	220	0	62
0	2	0	0
1	240	0	64
0	0	0	0
	357	0	496
	PM	NOON	AM

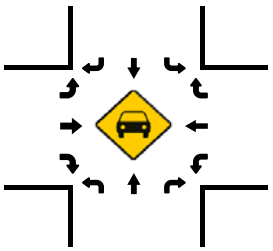
0 1 1 0

PM	811	0	34	581	276	PM
NOON	0	0	0	0	0	NOON
AM	803	0	13	380	293	AM

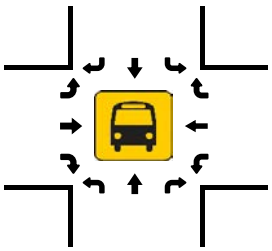
NORTHBOUND

Orange Ave

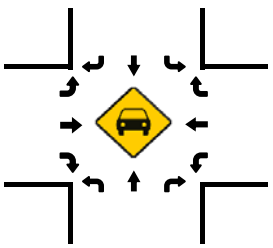
Total Vehicles (AM)



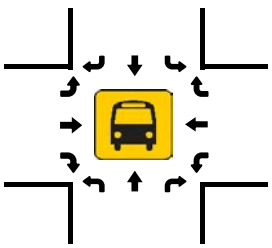
Total Vehicles (AM)



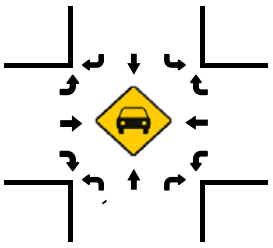
Total Vehicles (NOON)



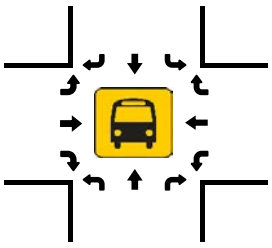
Total Vehicles (NOON)



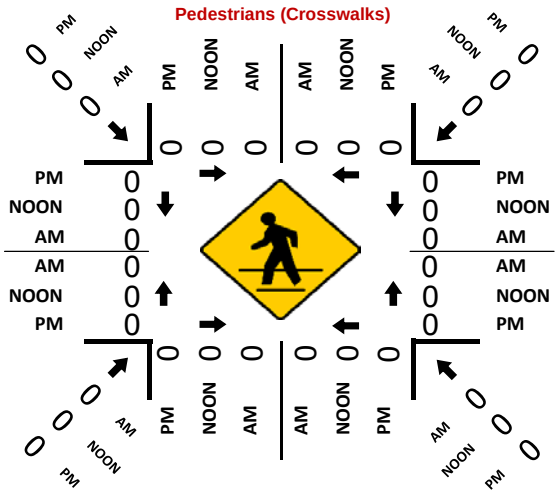
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Orange Ave & 32nd St
City: Signal Hill
Control: Signalized

Project ID: 21-020018-005
Date: 1/20/2021

Total

NS/EW Streets:	Orange Ave				Orange Ave				32nd St				32nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	34	39	0	20	75	1	0	1	3	3	0	25	0	10	0	212
7:15 AM	3	48	71	0	21	64	1	0	0	3	6	0	29	0	12	0	258
7:30 AM	2	77	51	0	33	94	1	0	1	6	7	0	32	0	22	0	326
7:45 AM	1	75	57	0	21	101	0	0	1	3	11	0	49	0	25	0	344
8:00 AM	1	46	53	0	25	80	1	0	0	0	2	0	31	0	29	0	268
8:15 AM	2	61	43	0	18	79	1	0	3	3	9	0	22	1	20	0	262
8:30 AM	2	58	39	0	20	70	3	0	1	3	4	0	38	0	20	0	258
8:45 AM	2	75	36	0	17	68	0	0	1	4	5	0	25	0	24	0	257
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	474	389	0	175	631	8	0	8	25	47	0	251	1	162	0	2185
APPROACH %'s :	1.60%	54.05%	44.36%	0.00%	21.50%	77.52%	0.98%	0.00%	10.00%	31.25%	58.75%	0.00%	60.63%	0.24%	39.13%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	259	204	0	97	354	3	0	5	12	29	0	134	1	96	0	1200
PEAK HR FACTOR :	0.750	0.841	0.895	0.000	0.735	0.876	0.750	0.000	0.417	0.500	0.659	0.000	0.684	0.250	0.828	0.000	0.872
	0.882				0.887				0.767				0.780				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	10	113	80	0	24	121	3	0	2	2	3	0	36	1	57	0	452
4:15 PM	3	117	47	0	9	106	2	0	0	2	5	0	27	0	55	0	373
4:30 PM	3	136	68	0	14	125	0	0	3	2	1	0	34	1	42	0	429
4:45 PM	2	121	58	0	20	116	2	0	0	0	5	0	46	0	39	0	409
5:00 PM	3	110	73	0	22	122	0	0	0	3	1	0	51	2	54	0	441
5:15 PM	8	118	49	0	17	117	2	0	1	2	8	0	47	3	38	0	410
5:30 PM	2	101	38	0	13	98	2	0	1	2	5	0	35	0	42	0	339
5:45 PM	7	82	41	0	12	70	1	0	0	3	1	0	40	0	48	0	305
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	38	898	454	0	131	875	12	0	7	16	29	0	316	7	375	0	3158
APPROACH %'s :	2.73%	64.60%	32.66%	0.00%	12.87%	85.95%	1.18%	0.00%	13.46%	30.77%	55.77%	0.00%	45.27%	1.00%	53.72%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	16	485	248	0	73	480	4	0	4	7	15	0	178	6	173	0	1689
PEAK HR FACTOR :	0.500	0.892	0.849	0.000	0.830	0.960	0.500	0.000	0.333	0.583	0.469	0.000	0.873	0.500	0.801	0.000	0.957
	0.905				0.967				0.591				0.834				

Prepared by National Data & Surveying Services

Orange Ave & 32nd St

Peak Hour Turning Movement Count

ID: 21-020018-005
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Orange Ave — SOUTHBOUND

AM	3	354	97	0	360	AM
NOON	0	0	0	0	0	NOON
PM	4	480	73	0	662	PM

32nd St — EASTBOUND

AM	NOON	PM		
10	0	26	⇦	
0	0	0	↶	0
5	0	4	↱	0
12	0	7	→	1
29	0	15	↳	0
AM	NOON	PM		

32nd St — WESTBOUND

PM	NOON	AM		
173	0	96	↰	1
6	0	1	←	0
178	0	134	↰	1
0	0	0	↶	0
328	0	313	⇨	
PM	NOON	AM		

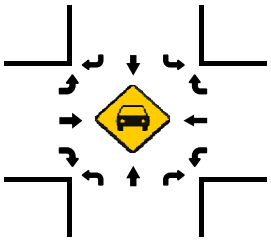
CONTROL: Signalized

TEV	1200 AM	0 NOON	1689 PM
PHF	0.87		0.96

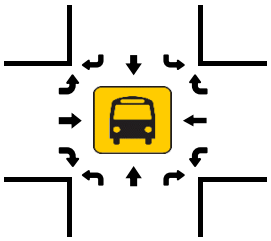
Orange Ave — NORTHBOUND

PM	673	0	16	485	248	PM
NOON	0	0	0	0	0	NOON
AM	517	0	6	259	204	AM

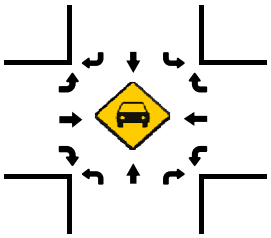
Total Vehicles (AM)



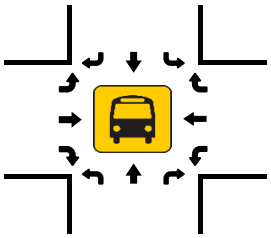
Total Vehicles (AM)



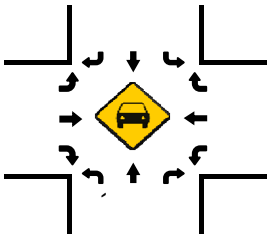
Total Vehicles (NOON)



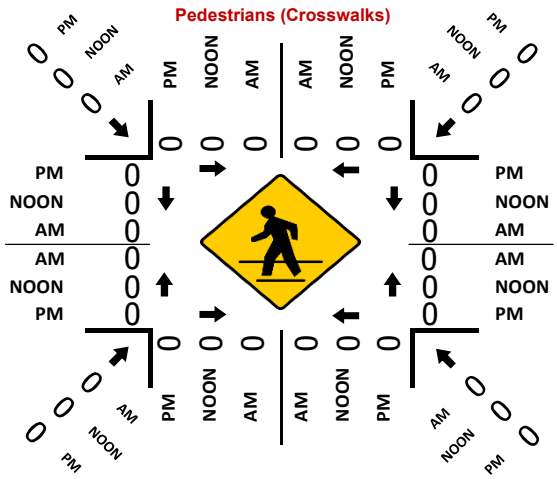
Total Vehicles (NOON)



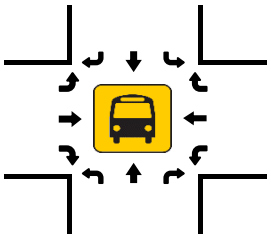
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & E Spring St
City: Long Beach
Control: Signalized

Project ID: 18-05321-011
Date: 5/9/2018

Total

NS/EW Streets:	California Ave				California Ave				E Spring St				E Spring St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	12	26	0	20	12	7	0	2	90	7	0	32	120	20	0	355
7:15 AM	16	20	26	0	15	38	7	0	7	133	10	0	23	152	28	0	475
7:30 AM	15	35	16	0	23	46	14	0	8	155	11	0	28	181	20	0	552
7:45 AM	21	59	27	0	32	38	18	0	9	149	10	0	29	193	23	0	608
8:00 AM	14	41	13	0	23	24	19	0	10	97	12	0	24	246	31	0	554
8:15 AM	19	40	14	0	24	28	21	0	11	108	14	0	17	177	24	0	497
8:30 AM	15	29	19	0	22	28	18	0	11	108	10	0	26	169	28	0	483
8:45 AM	8	39	19	0	24	28	19	0	15	101	7	0	17	164	26	0	467
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	115	275	160	0	183	242	123	0	73	941	81	0	196	1402	200	0	3991
APPROACH %'s :	20.91%	50.00%	29.09%	0.00%	33.39%	44.16%	22.45%	0.00%	6.67%	85.94%	7.40%	0.00%	10.90%	77.98%	11.12%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	69	175	70	0	102	136	72	0	38	509	47	0	98	797	98	0	2211
PEAK HR FACTOR :	0.821	0.742	0.648	0.000	0.797	0.739	0.857	0.000	0.864	0.821	0.839	0.000	0.845	0.810	0.790	0.000	0.909
	0.734				0.881				0.853				0.825				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	16	50	18	0	36	42	19	0	20	193	12	1	44	186	36	0	673
4:15 PM	11	36	28	0	31	45	14	0	23	218	9	1	26	132	37	0	611
4:30 PM	13	52	22	0	31	33	9	0	19	229	11	0	17	140	32	0	608
4:45 PM	8	50	17	0	22	33	20	0	19	214	12	0	31	169	53	0	648
5:00 PM	15	48	29	0	37	34	14	0	40	239	9	0	23	161	37	0	686
5:15 PM	17	68	30	0	29	41	18	0	22	253	9	0	29	186	46	0	748
5:30 PM	13	57	18	0	32	48	22	0	16	196	11	0	12	149	42	0	616
5:45 PM	8	43	22	0	30	36	14	0	13	194	12	0	24	154	35	0	585
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	101	404	184	0	248	312	130	0	172	1736	85	2	206	1277	318	0	5175
APPROACH %'s :	14.66%	58.64%	26.71%	0.00%	35.94%	45.22%	18.84%	0.00%	8.62%	87.02%	4.26%	0.10%	11.44%	70.91%	17.66%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	53	223	94	0	120	156	74	0	97	902	41	0	95	665	178	0	2698
PEAK HR FACTOR :	0.779	0.820	0.783	0.000	0.811	0.813	0.841	0.000	0.606	0.891	0.854	0.000	0.766	0.894	0.840	0.000	0.902
	0.804				0.858				0.903				0.898				

Prepared by National Data & Surveying Services

California Ave & E Spring St

Peak Hour Turning Movement Count

ID: 18-05321-011
City: Long Beach

Day: Wednesday
Date: 05/09/2018

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND — California Ave

AM	72	136	102	0	311	AM
NOON	0	0	0	0	0	NOON
PM	74	156	120	0	498	PM
	1	1	1	0		

EASTBOUND — E Spring St

AM	NOON	PM	
938	0	792	
0	0	0	0
38	0	97	1
509	0	902	2
47	0	41	1
AM	NOON	PM	

WESTBOUND — E Spring St

PM	NOON	AM	
178	0	98	1
665	0	797	2
95	0	98	1
0	0	0	0
1116	0	681	
PM	NOON	AM	

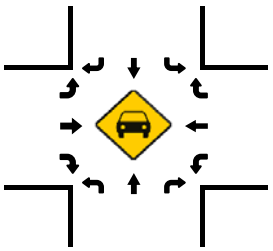
NORTHBOUND — California Ave

PM	292	0	53	223	94	PM
NOON	0	0	0	0	0	NOON
AM	281	0	69	175	70	AM
		0	1	1	0	

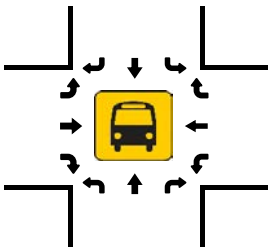
CONTROL: Signalized

TEV	2211 AM	0 NOON	2698 PM
PHF	0.91		0.90

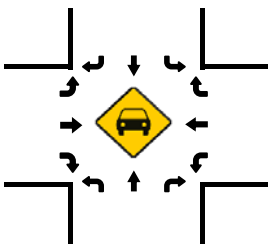
Total Vehicles (AM)



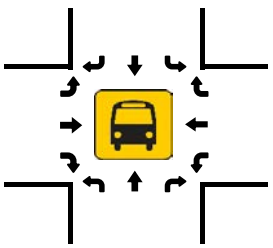
Total Vehicles (AM)



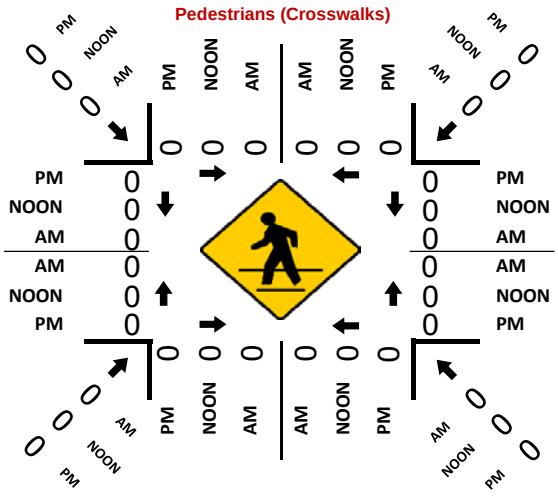
Total Vehicles (NOON)



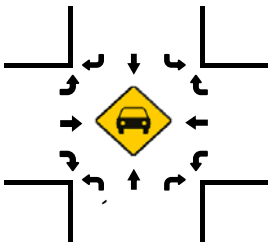
Total Vehicles (NOON)



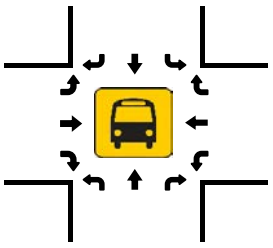
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Spring St
City: Signal Hill
Control: Signalized

Project ID: 21-020018-006
Date: 1/20/2021

Total

NS/EW Streets:	California Ave				California Ave				Spring St				Spring St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	15	14	0	9	13	2	0	2	42	10	0	13	53	11	0	195
7:15 AM	5	12	13	0	13	14	10	0	2	59	7	0	17	82	13	0	247
7:30 AM	9	17	31	0	13	10	12	0	7	69	13	0	14	87	11	0	293
7:45 AM	8	18	17	0	10	19	9	0	6	80	8	0	22	82	18	0	297
8:00 AM	16	23	12	0	15	20	10	0	5	51	10	0	24	65	19	0	270
8:15 AM	7	22	13	0	18	13	8	0	7	67	4	0	17	80	18	0	274
8:30 AM	14	37	12	0	15	23	12	0	4	51	10	0	19	54	8	0	259
8:45 AM	5	16	12	0	14	17	5	0	4	46	4	0	10	74	10	0	217
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	75	160	124	0	107	129	68	0	37	465	66	0	136	577	108	0	2052
APPROACH %'s :	20.89%	44.57%	34.54%	0.00%	35.20%	42.43%	22.37%	0.00%	6.51%	81.87%	11.62%	0.00%	16.57%	70.28%	13.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	40	80	73	0	56	62	39	0	25	267	35	0	77	314	66	0	1134
PEAK HR FACTOR :	0.625	0.870	0.589	0.000	0.778	0.775	0.813	0.000	0.893	0.834	0.673	0.000	0.802	0.902	0.868	0.000	0.955
	0.846				0.872				0.870				0.936				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	17	33	13	0	32	35	22	0	22	132	12	0	13	96	26	0	453
4:15 PM	6	27	23	0	21	48	23	0	11	113	17	0	11	109	34	0	443
4:30 PM	7	39	31	0	22	32	22	0	13	121	11	1	15	89	26	0	429
4:45 PM	13	43	20	0	30	38	19	0	14	137	17	0	30	103	35	0	499
5:00 PM	12	46	32	0	30	33	27	0	20	152	10	0	23	125	29	0	539
5:15 PM	7	42	19	0	26	39	12	0	21	122	17	0	20	103	34	0	462
5:30 PM	5	37	17	0	27	34	26	0	12	107	12	0	18	77	23	0	395
5:45 PM	11	29	14	0	29	28	15	0	8	80	10	0	12	63	27	0	326
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	78	296	169	0	217	287	166	0	121	964	106	1	142	765	234	0	3546
APPROACH %'s :	14.36%	54.51%	31.12%	0.00%	32.39%	42.84%	24.78%	0.00%	10.15%	80.87%	8.89%	0.08%	12.45%	67.05%	20.51%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	39	170	102	0	108	142	80	0	68	532	55	1	88	420	124	0	1929
PEAK HR FACTOR :	0.750	0.924	0.797	0.000	0.900	0.910	0.741	0.000	0.810	0.875	0.809	0.250	0.733	0.840	0.886	0.000	0.895
	0.864				0.917				0.901				0.893				

Prepared by National Data & Surveying Services

California Ave & Spring St

Peak Hour Turning Movement Count

ID: 21-020018-006
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

California Ave

SOUTHBOUND

AM	39	62	56	0	171	AM
NOON	0	0	0	0	0	NOON
PM	80	142	108	0	362	PM
	1	1	1	0		

EASTBOUND (Spring St)

AM	NOON	PM	
393	0	540	
0	0	1	0
25	0	68	1
267	0	532	2
35	0	55	1
AM	NOON	PM	

WESTBOUND (Spring St)

PM	NOON	AM	
124	0	66	1
420	0	314	2
88	0	77	1
0	0	0	0
742	0	396	
PM	NOON	AM	

CONTROL: Signalized

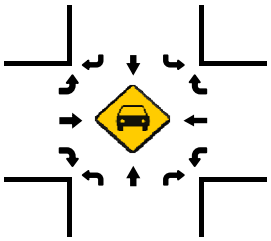
TEV	1134	0	1929
	AM	NOON	PM
PHF	0.95		0.89

NORTHBOUND

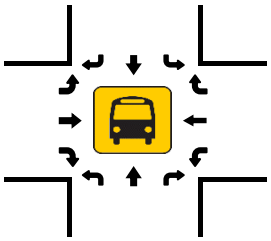
PM	285	0	39	170	102	PM
NOON	0	0	0	0	0	NOON
AM	174	0	40	80	73	AM
		0	1	1	0	

California Ave

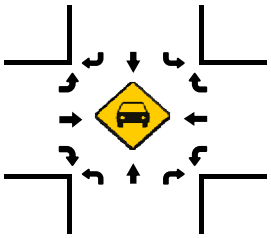
Total Vehicles (AM)



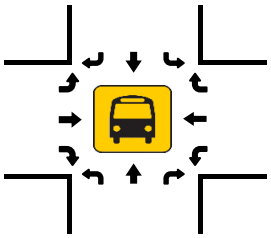
Total Vehicles (AM)



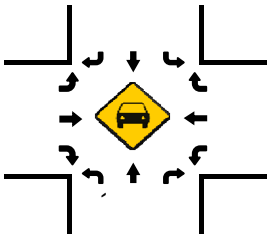
Total Vehicles (NOON)



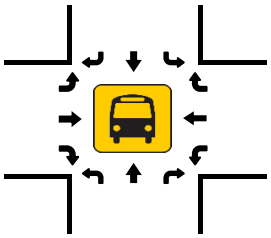
Total Vehicles (NOON)



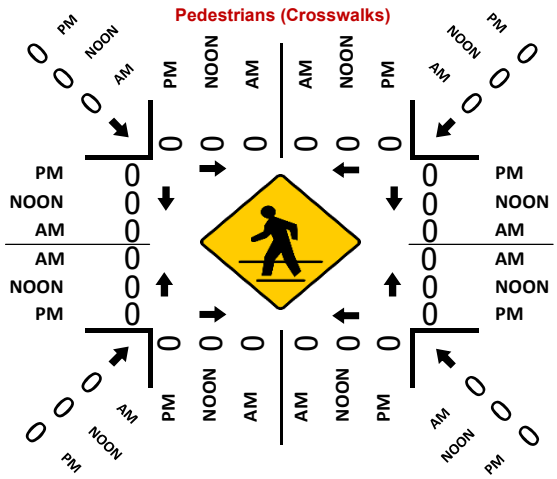
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: California Ave & Wardlow Rd
City: Signal Hill
Control: Signalized

Project ID: 21-020018-007
Date: 1/20/2021

Total

NS/EW Streets:	California Ave				California Ave				Wardlow Rd				Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	5	3	0	3	2	2	0	0	29	5	0	6	38	0	0	95
7:15 AM	3	6	10	0	1	2	2	0	0	34	4	0	6	37	0	0	105
7:30 AM	3	4	4	0	2	5	0	0	1	62	4	0	8	41	1	0	135
7:45 AM	4	4	11	0	4	8	3	0	0	61	7	0	7	58	0	0	167
8:00 AM	9	12	6	0	0	8	0	0	0	46	7	0	9	55	2	0	154
8:15 AM	3	6	11	0	2	6	2	0	0	40	6	0	10	44	0	0	130
8:30 AM	8	8	15	0	2	6	1	0	0	55	6	0	3	49	2	0	155
8:45 AM	9	9	9	0	3	6	1	0	0	57	9	0	8	58	1	0	170
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	54	69	0	17	43	11	0	1	384	48	0	57	380	6	0	1111
APPROACH %'s :	25.00%	32.93%	42.07%	0.00%	23.94%	60.56%	15.49%	0.00%	0.23%	88.68%	11.09%	0.00%	12.87%	85.78%	1.35%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	29	35	41	0	7	26	4	0	0	198	28	0	30	206	5	0	609
PEAK HR FACTOR :	0.806	0.729	0.683	0.000	0.583	0.813	0.500	0.000	0.000	0.868	0.778	0.000	0.750	0.888	0.625	0.000	0.896
	0.847				0.925				0.856				0.899				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	18	19	0	1	13	3	0	0	95	13	0	9	66	3	0	249
4:15 PM	11	22	25	0	2	5	2	0	1	105	10	0	13	72	2	0	270
4:30 PM	7	14	18	0	5	8	4	0	0	108	9	0	7	74	1	0	255
4:45 PM	8	23	33	0	1	13	3	0	1	97	16	0	12	77	3	0	287
5:00 PM	17	28	29	0	3	15	5	0	1	104	11	0	12	70	3	0	298
5:15 PM	17	21	26	0	3	11	0	0	3	132	9	0	14	72	0	0	308
5:30 PM	13	15	27	0	2	6	1	0	2	70	12	0	14	85	1	0	248
5:45 PM	9	12	18	0	2	15	1	0	2	97	6	0	9	72	0	0	243
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	91	153	195	0	19	86	19	0	10	808	86	0	90	588	13	0	2158
APPROACH %'s :	20.73%	34.85%	44.42%	0.00%	15.32%	69.35%	15.32%	0.00%	1.11%	89.38%	9.51%	0.00%	13.02%	85.09%	1.88%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	49	86	106	0	12	47	12	0	5	441	45	0	45	293	7	0	1148
PEAK HR FACTOR :	0.721	0.768	0.803	0.000	0.600	0.783	0.600	0.000	0.417	0.835	0.703	0.000	0.804	0.951	0.583	0.000	0.932
	0.814				0.772				0.852				0.938				

Prepared by National Data & Surveying Services

California Ave & Wardlow Rd

Peak Hour Turning Movement Count

ID: 21-020018-007
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

California Ave

SOUTHBOUND

AM	4	26	7	0	40	AM
NOON	0	0	0	0	0	NOON
PM	12	47	12	0	98	PM

EASTBOUND (Wardlow Rd)

AM	NOON	PM	
239	0	354	
0	0	0	0
0	0	5	0
198	0	441	2
28	0	45	0
AM	NOON	PM	

WESTBOUND (Wardlow Rd)

PM	NOON	AM	
7	0	5	0
293	0	206	2
45	0	30	0
0	0	0	0
559	0	246	
PM	NOON	AM	

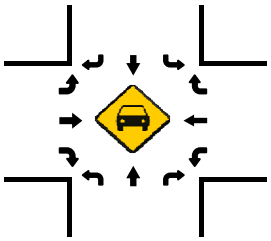
NORTHBOUND

PM	137	0	49	86	106	PM
NOON	0	0	0	0	0	NOON
AM	84	0	29	35	41	AM

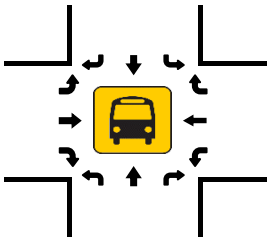
California Ave

CONTROL			
Signalized			
TEV	609 AM	0 NOON	1148 PM
PHF	0.90		0.93

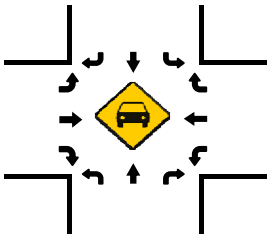
Total Vehicles (AM)



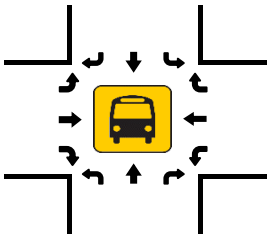
Total Vehicles (AM)



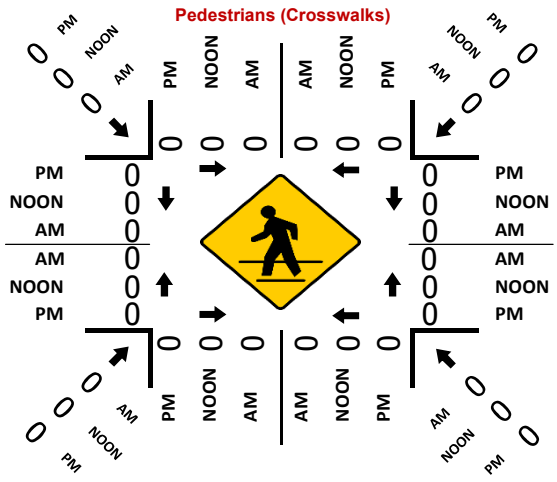
Total Vehicles (NOON)



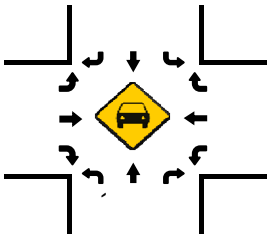
Total Vehicles (NOON)



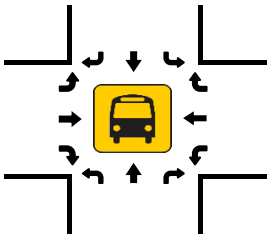
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Orange Ave & Wardlow Rd
City: Long Beach
Control: Signalized

Project ID: 18-05307-046
Date: 5/23/2018

Total

NS/EW Streets:	Orange Ave				Orange Ave				Wardlow Rd				Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	50	7	0	3	122	14	0	15	41	13	0	15	74	1	0	360
7:15 AM	5	59	6	0	13	153	22	0	9	67	21	0	23	72	7	0	457
7:30 AM	11	80	8	0	5	168	17	0	15	81	20	0	15	85	5	0	510
7:45 AM	9	98	9	0	10	157	24	0	29	92	17	0	20	101	7	0	573
8:00 AM	13	87	10	0	5	147	24	0	28	74	15	0	21	94	6	0	524
8:15 AM	18	74	8	0	6	138	22	0	13	71	13	0	15	94	11	0	483
8:30 AM	9	96	8	0	6	154	15	0	18	74	14	0	18	53	6	0	471
8:45 AM	6	94	8	0	11	160	31	0	20	64	17	0	11	76	7	0	505
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	76	638	64	0	59	1199	169	0	147	564	130	0	138	649	50	0	3883
APPROACH %'s :	9.77%	82.01%	8.23%	0.00%	4.13%	84.02%	11.84%	0.00%	17.48%	67.06%	15.46%	0.00%	16.49%	77.54%	5.97%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	51	339	35	0	26	610	87	0	85	318	65	0	71	374	29	0	2090
PEAK HR FACTOR :	0.708	0.865	0.875	0.000	0.650	0.908	0.906	0.000	0.733	0.864	0.813	0.000	0.845	0.926	0.659	0.000	0.912
	0.916				0.946				0.848				0.926				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	141	14	0	4	139	18	0	31	134	19	0	12	66	8	0	605
4:15 PM	8	157	11	0	6	120	15	0	29	147	20	0	15	84	7	0	619
4:30 PM	18	151	21	0	7	117	13	0	34	145	13	0	10	83	5	0	617
4:45 PM	10	129	15	0	7	115	22	0	49	172	23	0	10	89	9	0	650
5:00 PM	22	154	16	0	10	136	20	0	44	169	24	0	9	91	10	0	705
5:15 PM	14	160	13	0	6	93	16	0	34	176	20	0	15	119	16	0	682
5:30 PM	15	164	17	0	5	123	13	0	34	174	12	0	7	71	7	0	642
5:45 PM	13	153	16	0	4	117	19	0	36	156	14	0	9	91	6	0	634
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	119	1209	123	0	49	960	136	0	291	1273	145	0	87	694	68	0	5154
APPROACH %'s :	8.20%	83.32%	8.48%	0.00%	4.28%	83.84%	11.88%	0.00%	17.03%	74.49%	8.48%	0.00%	10.25%	81.74%	8.01%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	61	607	61	0	28	467	71	0	161	691	79	0	41	370	42	0	2679
PEAK HR FACTOR :	0.693	0.925	0.897	0.000	0.700	0.858	0.807	0.000	0.821	0.982	0.823	0.000	0.683	0.777	0.656	0.000	0.950
	0.930				0.852				0.954				0.755				

Prepared by National Data & Surveying Services

Orange Ave & Wardlow Rd

Peak Hour Turning Movement Count

ID: 18-05307-046
City: Long Beach

Day: Wednesday
Date: 05/23/2018

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Orange Ave — SOUTHBOUND

AM	87	610	26	0	453	AM
NOON	0	0	0	0	0	NOON
PM	71	467	28	0	810	PM

Wardlow Rd — EASTBOUND

AM	NOON	PM		
512	0	502		
0	0	0	0	
85	0	161	1	
318	0	691	2	
65	0	79	0	
AM	NOON	PM		

Wardlow Rd — WESTBOUND

PM	NOON	AM		
42	0	29	0	
370	0	374	2	
41	0	71	1	
0	0	0	0	
780	0	379		
PM	NOON	AM		

Orange Ave — NORTHBOUND

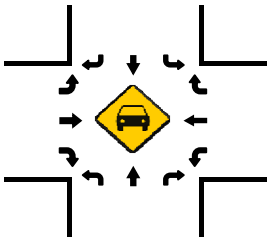
PM	587	0	61	607	61	PM
NOON	0	0	0	0	0	NOON
AM	746	0	51	339	35	AM

	0	1	1	0
	0	1	1	0

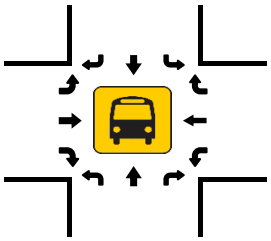
CONTROL: Signalized

TEV	2090 AM	0 NOON	2679 PM
PHF	0.91		0.95

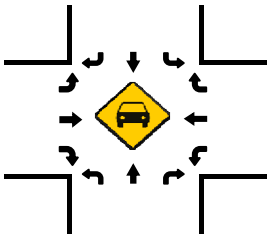
Total Vehicles (AM)



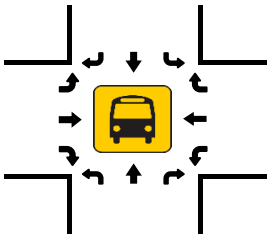
Total Vehicles (AM)



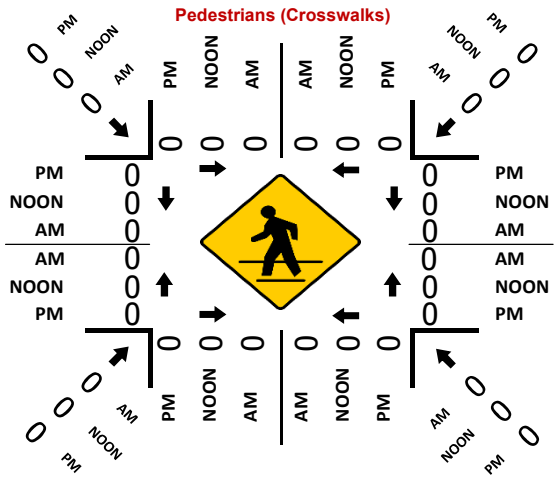
Total Vehicles (NOON)



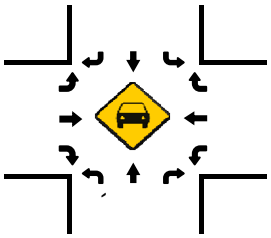
Total Vehicles (NOON)



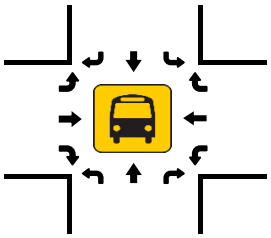
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Orange Ave & Wardlow Rd
City: Signal Hill
Control: Signalized

Project ID: 21-020018-008
Date: 1/20/2021

Total

NS/EW Streets:	Orange Ave				Orange Ave				Wardlow Rd				Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	31	4	0	3	68	5	0	4	26	8	0	4	33	1	0	189
7:15 AM	3	45	8	0	4	73	8	0	6	29	6	0	7	25	1	0	215
7:30 AM	7	62	18	0	2	93	12	0	5	54	10	0	13	38	7	0	321
7:45 AM	13	64	12	0	5	95	12	0	14	48	9	0	7	45	3	0	327
8:00 AM	8	48	10	0	9	92	16	0	9	40	3	0	9	43	5	0	292
8:15 AM	3	55	11	0	1	82	9	0	15	46	9	0	9	37	4	0	281
8:30 AM	10	55	12	0	4	69	9	0	20	40	5	0	12	46	1	0	283
8:45 AM	7	69	14	0	2	70	14	0	16	47	6	0	10	43	3	0	301
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	53	429	89	0	30	642	85	0	89	330	56	0	71	310	25	0	2209
APPROACH %'s :	9.28%	75.13%	15.59%	0.00%	3.96%	84.81%	11.23%	0.00%	18.74%	69.47%	11.79%	0.00%	17.49%	76.35%	6.16%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	31	229	51	0	17	362	49	0	43	188	31	0	38	163	19	0	1221
PEAK HR FACTOR :	0.596	0.895	0.708	0.000	0.472	0.953	0.766	0.000	0.717	0.870	0.775	0.000	0.731	0.906	0.679	0.000	0.933
	0.874				0.915				0.923				0.948				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	14	146	6	0	5	106	18	0	37	79	16	0	8	61	9	1	506
4:15 PM	8	151	11	0	7	104	9	0	24	93	11	0	6	61	7	0	492
4:30 PM	14	131	17	0	2	117	10	0	29	73	9	0	13	75	7	0	497
4:45 PM	16	126	20	0	8	119	15	0	36	96	11	0	10	67	7	0	531
5:00 PM	9	136	10	0	6	117	18	0	27	96	15	0	12	66	14	0	526
5:15 PM	17	127	11	0	5	97	13	0	37	94	15	0	9	61	5	0	491
5:30 PM	11	102	12	1	4	88	9	0	29	62	13	0	6	82	9	0	428
5:45 PM	7	102	4	0	7	68	12	0	22	93	9	0	9	52	12	0	397
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	1021	91	1	44	816	104	0	241	686	99	0	73	525	70	1	3868
APPROACH %'s :	7.94%	84.45%	7.53%	0.08%	4.56%	84.65%	10.79%	0.00%	23.49%	66.86%	9.65%	0.00%	10.91%	78.48%	10.46%	0.15%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	47	544	58	0	23	457	52	0	116	358	46	0	41	269	35	0	2046
PEAK HR FACTOR :	0.734	0.901	0.725	0.000	0.719	0.960	0.722	0.000	0.806	0.932	0.767	0.000	0.788	0.897	0.625	0.000	0.963
	0.954				0.937				0.909				0.908				

Prepared by National Data & Surveying Services

Orange Ave & Wardlow Rd

Peak Hour Turning Movement Count

ID: 21-020018-008
City: Signal Hill

Day: Wednesday
Date: 01/20/2021

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:15 PM - 05:15 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Orange Ave — SOUTHBOUND

AM	49	362	17	0	291	AM
NOON	0	0	0	0	0	NOON
PM	52	457	23	0	695	PM

Wardlow Rd — EASTBOUND

AM	NOON	PM		
243	0	368		
0	0	0	0	
43	0	116	1	
188	0	358	2	
31	0	46	0	
AM	NOON	PM		

Wardlow Rd — WESTBOUND

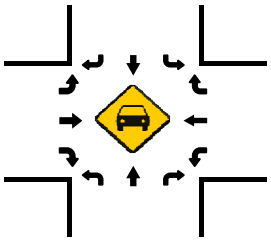
PM	NOON	AM		
35	0	19	0	
269	0	163	2	
41	0	38	1	
0	0	0	0	
439	0	256		
PM	NOON	AM		

	0	1	1	0	
PM	544	0	47	544	58
NOON	0	0	0	0	0
AM	431	0	31	229	51

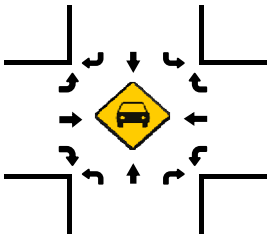
Orange Ave — NORTHBOUND

CONTROL			
Signalized			
TEV	1221 AM	0 NOON	2046 PM
PHF	0.93		0.96

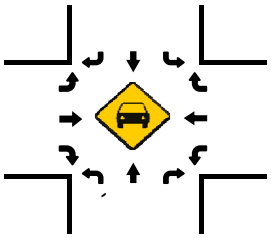
Total Vehicles (AM)



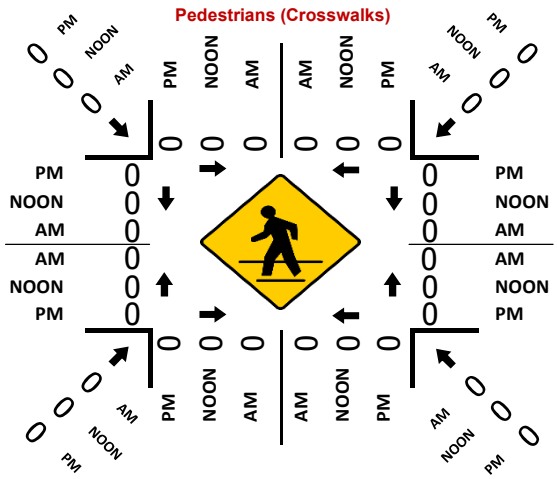
Total Vehicles (NOON)



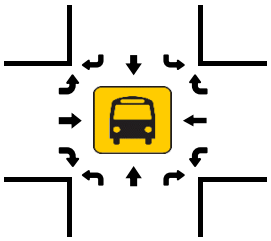
Total Vehicles (PM)



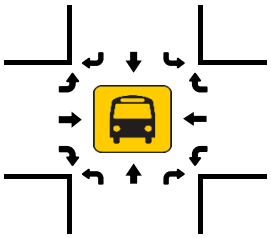
Pedestrians (Crosswalks)



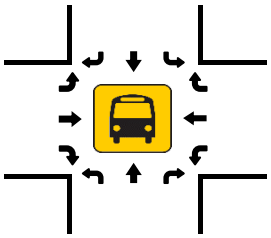
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



APPENDIX C

CITY OF SIGNAL HILL INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX C-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.283

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	39	153	21	8	118	12	18	36	47	34	28	7
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	39	153	21	8	118	12	18	36	47	34	28	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	10	40	6	2	31	3	5	9	12	9	7	2
Total Analysis Volume [veh/h]	41	161	22	8	124	13	19	38	49	36	29	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	792	780	636	751	704
Degree of Utilization, x	0.28	0.19	0.09	0.07	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.16	0.68	0.29	0.21	0.34
95th-Percentile Queue Length [ft]	29.12	17.00	7.36	5.22	8.51
Approach Delay [s/veh]	9.33	8.67	8.41		8.69
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	8.90				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

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):	0.028

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	246	29	18	217	13	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	246	29	18	217	13	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	8	5	57	3	4
Total Analysis Volume [veh/h]	259	31	19	228	14	16
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	0.00	0.00	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.87	0.00	12.60	10.02
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.14	1.14	3.88	3.88
d_A, Approach Delay [s/veh]	0.00		0.61		11.22	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	15	551	46	7	697	10	5	15	15	43	15	10
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	15	551	46	7	697	10	5	15	15	43	15	10
Peak Hour 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
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]	4	138	12	2	174	3	1	4	4	11	4	3
Total Analysis Volume [veh/h]	15	551	46	7	697	10	5	15	15	43	15	10
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.38	0.38	0.00	0.45	0.45	0.00	0.02	0.02	0.03	0.04	0.04
Intersection LOS	B											
Intersection V/C	0.604											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	13	391	302	182	709	6	0	27	53	66	0	64
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	13	391	302	182	709	6	0	27	53	66	0	64
Peak Hour 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
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]	3	98	76	46	177	2	0	7	13	17	0	16
Total Analysis Volume [veh/h]	13	391	302	182	709	6	0	27	53	66	0	64
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.43	0.43	0.11	0.45	0.45	0.00	0.05	0.05	0.04	0.00	0.04
Intersection LOS	C											
Intersection V/C	0.738											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	71	180	72	105	140	74	39	524	48	101	821	101
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	71	180	72	105	140	74	39	524	48	101	821	101
Peak Hour 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
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]	18	45	18	26	35	19	10	131	12	25	205	25
Total Analysis Volume [veh/h]	71	180	72	105	140	74	39	524	48	101	821	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.16	0.16	0.07	0.09	0.05	0.02	0.16	0.03	0.06	0.26	0.06
Intersection LOS	B											
Intersection V/C	0.604											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	65	272	34	5	155	34	39	60	79	24	49	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	65	272	34	5	155	34	39	60	79	24	49	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	72	9	1	41	9	10	16	21	6	13	3
Total Analysis Volume [veh/h]	68	286	36	5	163	36	41	63	83	25	52	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	717	692	560	653	609
Degree of Utilization, x	0.54	0.30	0.19	0.13	0.15

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.31	1.23	0.68	0.43	0.52
95th-Percentile Queue Length [ft]	82.79	30.77	16.91	10.87	13.07
Approach Delay [s/veh]	13.85	10.37	9.89		9.95
Approach LOS	B	B	A		A
Intersection Delay [s/veh]	11.78				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

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):	0.028

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	462	13	14	329	9	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	462	13	14	329	9	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	3	4	87	2	3
Total Analysis Volume [veh/h]	486	14	15	346	9	11
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	0.00	0.00	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.43	0.00	16.79	11.68
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.07	1.07	3.73	3.73
d_A, Approach Delay [s/veh]	0.00		0.35		13.98	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.736

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	36	809	43	8	643	43	30	31	25	35	26	29
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	36	809	43	8	643	43	30	31	25	35	26	29
Peak Hour 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
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]	9	202	11	2	161	11	8	8	6	9	7	7
Total Analysis Volume [veh/h]	36	809	43	8	643	43	30	31	25	35	26	29
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.56	0.56	0.01	0.43	0.43	0.02	0.05	0.05	0.02	0.06	0.06
Intersection LOS	C											
Intersection V/C	0.736											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.878

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	35	598	284	81	560	6	4	2	28	247	0	227
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	35	598	284	81	560	6	4	2	28	247	0	227
Peak Hour 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
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]	9	150	71	20	140	2	1	1	7	62	0	57
Total Analysis Volume [veh/h]	35	598	284	81	560	6	4	2	28	247	0	227
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.55	0.55	0.05	0.35	0.35	0.00	0.02	0.02	0.15	0.00	0.14
Intersection LOS	D											
Intersection V/C	0.878											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	55	230	97	124	161	76	100	929	42	98	685	183
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	55	230	97	124	161	76	100	929	42	98	685	183
Peak Hour 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
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]	14	58	24	31	40	19	25	232	11	25	171	46
Total Analysis Volume [veh/h]	55	230	97	124	161	76	100	929	42	98	685	183
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.20	0.20	0.08	0.10	0.05	0.06	0.29	0.03	0.06	0.21	0.11
Intersection LOS	C											
Intersection V/C	0.733											

APPENDIX C-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.295

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	43	151	22	8	123	25	34	40	50	35	33	7
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	43	151	22	8	123	25	34	40	50	35	33	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	11	40	6	2	32	7	9	11	13	9	9	2
Total Analysis Volume [veh/h]	45	159	23	8	129	26	36	42	53	37	35	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	771	769	620	740	689
Degree of Utilization, x	0.29	0.21	0.13	0.07	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.23	0.80	0.43	0.23	0.39
95th-Percentile Queue Length [ft]	30.75	19.99	10.73	5.77	9.66
Approach Delay [s/veh]	9.61	8.94	8.78		8.90
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	9.15				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	256	29	18	225	13	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	256	29	18	225	13	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	8	5	59	3	4
Total Analysis Volume [veh/h]	269	31	19	237	14	16
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	0.00	0.00	0.02	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.90	0.00	12.80	10.09
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.15	1.15	3.96	3.96
d_A, Approach Delay [s/veh]	0.00		0.59		11.35	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	19	551	46	7	697	10	5	16	18	43	17	10
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	19	551	46	7	697	10	5	16	18	43	17	10
Peak Hour 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
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]	5	138	12	2	174	3	1	4	5	11	4	3
Total Analysis Volume [veh/h]	19	551	46	7	697	10	5	16	18	43	17	10
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.39	0.39	0.00	0.45	0.45	0.00	0.02	0.02	0.03	0.04	0.04
Intersection LOS	B											
Intersection V/C	0.609											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.741

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	13	395	302	182	712	6	0	27	53	66	0	64
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	13	395	302	182	712	6	0	27	53	66	0	64
Peak Hour 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
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]	3	99	76	46	178	2	0	7	13	17	0	16
Total Analysis Volume [veh/h]	13	395	302	182	712	6	0	27	53	66	0	64
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.44	0.44	0.11	0.45	0.45	0.00	0.05	0.05	0.04	0.00	0.04
Intersection LOS	C											
Intersection V/C	0.741											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	71	184	72	108	143	75	41	524	48	101	821	105
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	71	184	72	108	143	75	41	524	48	101	821	105
Peak Hour 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
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]	18	46	18	27	36	19	10	131	12	25	205	26
Total Analysis Volume [veh/h]	71	184	72	108	143	75	41	524	48	101	821	105
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.16	0.16	0.07	0.09	0.05	0.03	0.16	0.03	0.06	0.26	0.07
Intersection LOS	B											
Intersection V/C	0.610											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	68	273	35	5	159	44	53	64	82	25	53	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	68	273	35	5	159	44	53	64	82	25	53	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	18	72	9	1	42	12	14	17	22	7	14	3
Total Analysis Volume [veh/h]	72	287	37	5	167	46	56	67	86	26	56	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	699	677	549	641	594
Degree of Utilization, x	0.57	0.32	0.22	0.13	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.58	1.39	0.85	0.46	0.57
95th-Percentile Queue Length [ft]	89.56	34.76	21.33	11.55	14.33
Approach Delay [s/veh]	14.67	10.82	10.34		10.23
Approach LOS	B	B	B		B
Intersection Delay [s/veh]	12.31				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	470	13	14	337	9	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	470	13	14	337	9	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	124	3	4	89	2	3
Total Analysis Volume [veh/h]	495	14	15	355	9	11
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	0.00	0.00	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.46	0.00	17.09	11.77
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.08	1.08	3.81	3.81
d_A, Approach Delay [s/veh]	0.00		0.34		14.16	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	39	809	43	8	643	43	30	32	28	35	27	29
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	39	809	43	8	643	43	30	32	28	35	27	29
Peak Hour 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
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]	10	202	11	2	161	11	8	8	7	9	7	7
Total Analysis Volume [veh/h]	39	809	43	8	643	43	30	32	28	35	27	29
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.56	0.56	0.01	0.43	0.43	0.02	0.06	0.06	0.02	0.06	0.06
Intersection LOS	C											
Intersection V/C	0.740											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.879

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	35	601	284	81	563	6	4	2	28	247	0	227
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	35	601	284	81	563	6	4	2	28	247	0	227
Peak Hour 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
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]	9	150	71	20	141	2	1	1	7	62	0	57
Total Analysis Volume [veh/h]	35	601	284	81	563	6	4	2	28	247	0	227
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.55	0.55	0.05	0.36	0.36	0.00	0.02	0.02	0.15	0.00	0.14
Intersection LOS	D											
Intersection V/C	0.879											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	55	233	97	127	164	77	101	929	42	98	685	186
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	55	233	97	127	164	77	101	929	42	98	685	186
Peak Hour 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
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]	14	58	24	32	41	19	25	232	11	25	171	47
Total Analysis Volume [veh/h]	55	233	97	127	164	77	101	929	42	98	685	186
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.21	0.21	0.08	0.10	0.05	0.06	0.29	0.03	0.06	0.21	0.12
Intersection LOS	C											
Intersection V/C	0.737											

APPENDIX C-III

YEAR 2024 CUMULATIVE TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.294

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	40	158	22	9	122	12	19	37	48	35	29	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	40	158	22	9	122	12	19	37	48	35	29	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	11	42	6	2	32	3	5	10	13	9	8	2
Total Analysis Volume [veh/h]	42	166	23	9	128	13	20	39	51	37	31	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	786	773	631	746	699
Degree of Utilization, x	0.29	0.19	0.09	0.07	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.23	0.72	0.31	0.22	0.36
95th-Percentile Queue Length [ft]	30.65	17.89	7.70	5.49	9.10
Approach Delay [s/veh]	9.47	8.77	8.48		8.77
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	9.00				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	253	30	19	224	13	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	253	30	19	224	13	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	8	5	59	3	4
Total Analysis Volume [veh/h]	266	32	20	236	14	16
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	0.00	0.00	0.02	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.90	0.00	12.79	10.07
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.21	1.21	3.95	3.95
d_A, Approach Delay [s/veh]	0.00		0.62		11.34	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.85					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	15	596	47	8	797	10	5	15	15	44	15	11
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	15	596	47	8	797	10	5	15	15	44	15	11
Peak Hour 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
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]	4	149	12	2	199	3	1	4	4	11	4	3
Total Analysis Volume [veh/h]	15	596	47	8	797	10	5	15	15	44	15	11
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.41	0.41	0.01	0.51	0.51	0.00	0.02	0.02	0.03	0.04	0.04
Intersection LOS	B											
Intersection V/C	0.668											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	13	431	325	187	809	6	0	28	55	92	0	66
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	13	431	325	187	809	6	0	28	55	92	0	66
Peak Hour 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
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]	3	108	81	47	202	2	0	7	14	23	0	17
Total Analysis Volume [veh/h]	13	431	325	187	809	6	0	28	55	92	0	66
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.47	0.47	0.12	0.51	0.51	0.00	0.05	0.05	0.06	0.00	0.04
Intersection LOS	C											
Intersection V/C	0.799											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	73	185	74	108	144	76	40	559	49	104	868	104
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	73	185	74	108	144	76	40	559	49	104	868	104
Peak Hour 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
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]	18	46	19	27	36	19	10	140	12	26	217	26
Total Analysis Volume [veh/h]	73	185	74	108	144	76	40	559	49	104	868	104
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.16	0.16	0.07	0.09	0.05	0.03	0.17	0.03	0.07	0.27	0.07
Intersection LOS	B											
Intersection V/C	0.626											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-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):	0.568

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	67	280	35	5	160	35	40	64	81	25	51	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	67	280	35	5	160	35	40	64	81	25	51	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	18	74	9	1	42	9	11	17	21	7	13	3
Total Analysis Volume [veh/h]	71	295	37	5	168	37	42	67	85	26	54	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	709	682	554	644	600
Degree of Utilization, x	0.57	0.31	0.20	0.13	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.61	1.30	0.73	0.45	0.55
95th-Percentile Queue Length [ft]	90.21	32.62	18.14	11.34	13.82
Approach Delay [s/veh]	14.54	10.60	10.07		10.12
Approach LOS	B	B	B		B
Intersection Delay [s/veh]	12.20				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	476	13	14	339	9	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	476	13	14	339	9	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	3	4	89	2	3
Total Analysis Volume [veh/h]	501	14	15	357	9	11
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	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.48	0.00	17.23	11.83
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.09	1.09	3.85	3.85
d_A, Approach Delay [s/veh]	0.00		0.34		14.26	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.45					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	37	909	44	8	710	44	31	34	26	36	28	30
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	37	909	44	8	710	44	31	34	26	36	28	30
Peak Hour 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
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]	9	227	11	2	178	11	8	9	7	9	7	8
Total Analysis Volume [veh/h]	37	909	44	8	710	44	31	34	26	36	28	30
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.62	0.62	0.01	0.48	0.48	0.02	0.06	0.06	0.02	0.06	0.06
Intersection LOS	D											
Intersection V/C	0.803											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.988

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	36	692	344	83	625	6	4	2	29	267	0	234
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	36	692	344	83	625	6	4	2	29	267	0	234
Peak Hour 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
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]	9	173	86	21	156	2	1	1	7	67	0	59
Total Analysis Volume [veh/h]	36	692	344	83	625	6	4	2	29	267	0	234
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.65	0.65	0.05	0.39	0.39	0.00	0.02	0.02	0.17	0.00	0.15
Intersection LOS	E											
Intersection V/C	0.988											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.762

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	57	237	100	128	166	78	103	986	43	101	729	188
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	57	237	100	128	166	78	103	986	43	101	729	188
Peak Hour 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
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]	14	59	25	32	42	20	26	247	11	25	182	47
Total Analysis Volume [veh/h]	57	237	100	128	166	78	103	986	43	101	729	188
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.21	0.21	0.08	0.10	0.05	0.06	0.31	0.03	0.06	0.23	0.12
Intersection LOS	C											
Intersection V/C	0.762											

APPENDIX C-IV

YEAR 2024 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.305

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	44	156	23	9	127	25	35	41	51	36	34	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	44	156	23	9	127	25	35	41	51	36	34	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	12	41	6	2	33	7	9	11	13	9	9	2
Total Analysis Volume [veh/h]	46	164	24	9	134	26	37	43	54	38	36	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	766	763	615	733	684
Degree of Utilization, x	0.31	0.22	0.13	0.07	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.29	0.84	0.45	0.24	0.41
95th-Percentile Queue Length [ft]	32.35	21.12	11.13	5.95	10.16
Approach Delay [s/veh]	9.75	9.06	8.85		8.98
Approach LOS	A	A	A		A
Intersection Delay [s/veh]	9.26				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	263	30	19	232	13	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	263	30	19	232	13	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	8	5	61	3	4
Total Analysis Volume [veh/h]	277	32	20	244	14	16
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	0.00	0.00	0.02	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.92	0.00	13.00	10.16
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.22	1.22	4.04	4.04
d_A, Approach Delay [s/veh]	0.00		0.60		11.48	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	19	596	47	8	797	10	5	16	18	44	17	11
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	19	596	47	8	797	10	5	16	18	44	17	11
Peak Hour 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
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]	5	149	12	2	199	3	1	4	5	11	4	3
Total Analysis Volume [veh/h]	19	596	47	8	797	10	5	16	18	44	17	11
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.41	0.41	0.01	0.51	0.51	0.00	0.02	0.02	0.03	0.05	0.05
Intersection LOS	B											
Intersection V/C	0.673											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	13	435	325	187	812	6	0	28	55	92	0	66
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	13	435	325	187	812	6	0	28	55	92	0	66
Peak Hour 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
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]	3	109	81	47	203	2	0	7	14	23	0	17
Total Analysis Volume [veh/h]	13	435	325	187	812	6	0	28	55	92	0	66
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.48	0.48	0.12	0.51	0.51	0.00	0.05	0.05	0.06	0.00	0.04
Intersection LOS	D											
Intersection V/C	0.801											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	73	189	74	111	147	77	42	559	49	104	868	108
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	73	189	74	111	147	77	42	559	49	104	868	108
Peak Hour 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
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]	18	47	19	28	37	19	11	140	12	26	217	27
Total Analysis Volume [veh/h]	73	189	74	111	147	77	42	559	49	104	868	108
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.16	0.16	0.07	0.09	0.05	0.03	0.17	0.03	0.07	0.27	0.07
Intersection LOS	B											
Intersection V/C	0.631											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	70	281	36	5	164	45	54	68	84	26	55	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	70	281	36	5	164	45	54	68	84	26	55	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	18	74	9	1	43	12	14	18	22	7	14	3
Total Analysis Volume [veh/h]	74	296	38	5	173	47	57	72	88	27	58	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	691	668	543	632	585
Degree of Utilization, x	0.59	0.34	0.24	0.14	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.90	1.49	0.92	0.48	0.61
95th-Percentile Queue Length [ft]	97.48	37.13	22.97	12.05	15.15
Approach Delay [s/veh]	15.45	11.11	10.55		10.41
Approach LOS	C	B	B		B
Intersection Delay [s/veh]	12.77				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	484	13	14	347	9	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	484	13	14	347	9	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	127	3	4	91	2	3
Total Analysis Volume [veh/h]	509	14	15	365	9	11
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	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.50	0.00	17.51	11.91
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.09	1.09	3.92	3.92
d_A, Approach Delay [s/veh]	0.00		0.34		14.43	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.45					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.808

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	40	909	44	8	710	44	31	35	29	36	29	30
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	40	909	44	8	710	44	31	35	29	36	29	30
Peak Hour 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
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]	10	227	11	2	178	11	8	9	7	9	7	8
Total Analysis Volume [veh/h]	40	909	44	8	710	44	31	35	29	36	29	30
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.62	0.62	0.01	0.48	0.48	0.02	0.06	0.06	0.02	0.06	0.06
Intersection LOS	D											
Intersection V/C	0.808											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.990

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	36	695	344	83	628	6	4	2	29	267	0	234
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	36	695	344	83	628	6	4	2	29	267	0	234
Peak Hour 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
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]	9	174	86	21	157	2	1	1	7	67	0	59
Total Analysis Volume [veh/h]	36	695	344	83	628	6	4	2	29	267	0	234
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.65	0.65	0.05	0.40	0.40	0.00	0.02	0.02	0.17	0.00	0.15
Intersection LOS	E											
Intersection V/C	0.990											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	57	240	100	131	169	79	104	986	43	101	729	191
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	57	240	100	131	169	79	104	986	43	101	729	191
Peak Hour 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
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]	14	60	25	33	42	20	26	247	11	25	182	48
Total Analysis Volume [veh/h]	57	240	100	131	169	79	104	986	43	101	729	191
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.21	0.21	0.08	0.11	0.05	0.07	0.31	0.03	0.06	0.23	0.12
Intersection LOS	C											
Intersection V/C	0.766											

APPENDIX C-V

YEAR 2041 BUILDOUT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.352

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	47	184	25	11	142	14	22	43	56	41	34	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	47	184	25	11	142	14	22	43	56	41	34	9
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	12	48	7	3	37	4	6	11	15	11	9	2
Total Analysis Volume [veh/h]	49	194	26	12	149	15	23	45	59	43	36	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	764	748	609	715	671
Degree of Utilization, x	0.35	0.24	0.11	0.08	0.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.59	0.91	0.37	0.27	0.45
95th-Percentile Queue Length [ft]	39.78	22.80	9.37	6.72	11.25
Approach Delay [s/veh]	10.26	9.29	8.81		9.18
Approach LOS	B	A	A		A
Intersection Delay [s/veh]	9.58				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	295	35	22	260	16	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	295	35	22	260	16	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	9	6	68	4	5
Total Analysis Volume [veh/h]	311	37	23	274	17	19
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	0.00	0.00	0.02	0.00	0.04	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	8.03	0.00	13.96	10.53
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.21	0.21
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.45	1.45	5.35	5.35
d_A, Approach Delay [s/veh]	0.00		0.62		12.15	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.91					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	18	689	55	9	915	12	6	18	18	52	18	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	18	689	55	9	915	12	6	18	18	52	18	13
Peak Hour 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
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]	5	172	14	2	229	3	2	5	5	13	5	3
Total Analysis Volume [veh/h]	18	689	55	9	915	12	6	18	18	52	18	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.48	0.48	0.01	0.59	0.59	0.00	0.03	0.03	0.03	0.05	0.05
Intersection LOS	C											
Intersection V/C	0.755											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	16	497	376	218	930	7	0	32	64	103	0	77
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	16	497	376	218	930	7	0	32	64	103	0	77
Peak Hour 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
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]	4	124	94	55	233	2	0	8	16	26	0	19
Total Analysis Volume [veh/h]	16	497	376	218	930	7	0	32	64	103	0	77
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.55	0.55	0.14	0.59	0.59	0.00	0.06	0.06	0.06	0.00	0.05
Intersection LOS	E											
Intersection V/C	0.906											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	85	216	86	126	168	89	47	648	58	121	1007	121
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	85	216	86	126	168	89	47	648	58	121	1007	121
Peak Hour 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
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]	21	54	22	32	42	22	12	162	15	30	252	30
Total Analysis Volume [veh/h]	85	216	86	126	168	89	47	648	58	121	1007	121
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.19	0.19	0.08	0.11	0.06	0.03	0.20	0.04	0.08	0.31	0.08
Intersection LOS	C											
Intersection V/C	0.712											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	78	326	41	6	186	41	47	74	95	29	60	16
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	78	326	41	6	186	41	47	74	95	29	60	16
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	21	86	11	2	49	11	12	19	25	8	16	4
Total Analysis Volume [veh/h]	82	343	43	6	196	43	49	78	100	31	63	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	671	637	521	600	555
Degree of Utilization, x	0.70	0.38	0.24	0.17	0.20

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.67	1.81	0.95	0.60	0.74
95th-Percentile Queue Length [ft]	141.85	45.22	23.75	14.88	18.52
Approach Delay [s/veh]	19.85	12.14	10.99		11.11
Approach LOS	C	B	B		B
Intersection Delay [s/veh]	15.21				
Intersection LOS	C				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.048

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	554	16	17	395	11	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	554	16	17	395	11	12
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	146	4	4	104	3	3
Total Analysis Volume [veh/h]	583	17	18	416	12	13
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	0.02	0.00	0.05	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	8.75	0.00	20.38	12.96
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.24	0.24
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.41	1.41	5.97	5.97
d_A, Approach Delay [s/veh]	0.00		0.36		16.52	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.912

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	43	1047	52	10	820	52	36	39	30	42	32	35
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	43	1047	52	10	820	52	36	39	30	42	32	35
Peak Hour 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
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]	11	262	13	3	205	13	9	10	8	11	8	9
Total Analysis Volume [veh/h]	43	1047	52	10	820	52	36	39	30	42	32	35
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.71	0.71	0.01	0.55	0.55	0.02	0.07	0.07	0.03	0.07	0.07
Intersection LOS	E											
Intersection V/C	0.912											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.121

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	42	794	392	97	720	7	5	2	34	309	0	272
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	42	794	392	97	720	7	5	2	34	309	0	272
Peak Hour 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
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]	11	199	98	24	180	2	1	1	9	77	0	68
Total Analysis Volume [veh/h]	42	794	392	97	720	7	5	2	34	309	0	272
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.74	0.74	0.06	0.45	0.45	0.00	0.03	0.03	0.19	0.00	0.17
Intersection LOS	F											
Intersection V/C	1.121											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.869

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	66	276	116	149	193	91	120	1144	50	118	845	220
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	66	276	116	149	193	91	120	1144	50	118	845	220
Peak Hour 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
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]	17	69	29	37	48	23	30	286	13	30	211	55
Total Analysis Volume [veh/h]	66	276	116	149	193	91	120	1144	50	118	845	220
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.25	0.25	0.09	0.12	0.06	0.08	0.36	0.03	0.07	0.26	0.14
Intersection LOS	D											
Intersection V/C	0.869											

APPENDIX C-VI

YEAR 2041 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.367

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	51	182	26	11	147	27	38	47	59	42	39	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	51	182	26	11	147	27	38	47	59	42	39	9
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	13	48	7	3	39	7	10	12	16	11	10	2
Total Analysis Volume [veh/h]	54	192	27	12	155	28	40	49	62	44	41	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	743	736	594	703	655
Degree of Utilization, x	0.37	0.27	0.15	0.09	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.69	1.07	0.52	0.29	0.50
95th-Percentile Queue Length [ft]	42.33	26.63	13.10	7.23	12.47
Approach Delay [s/veh]	10.63	9.65	9.20		9.41
Approach LOS	B	A	A		A
Intersection Delay [s/veh]	9.90				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	305	35	22	268	16	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	305	35	22	268	16	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	9	6	71	4	5
Total Analysis Volume [veh/h]	321	37	23	282	17	19
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	0.00	0.00	0.02	0.00	0.04	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	8.06	0.00	14.19	10.62
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.22	0.22
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.46	1.46	5.46	5.46
d_A, Approach Delay [s/veh]	0.00		0.61		12.31	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.90					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.760

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	22	689	55	9	915	12	6	19	21	52	20	13
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	22	689	55	9	915	12	6	19	21	52	20	13
Peak Hour 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
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]	6	172	14	2	229	3	2	5	5	13	5	3
Total Analysis Volume [veh/h]	22	689	55	9	915	12	6	19	21	52	20	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.48	0.48	0.01	0.59	0.59	0.00	0.03	0.03	0.03	0.05	0.05
Intersection LOS	C											
Intersection V/C	0.760											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.909

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	16	501	376	218	933	7	0	32	64	103	0	77
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	16	501	376	218	933	7	0	32	64	103	0	77
Peak Hour 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
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]	4	125	94	55	233	2	0	8	16	26	0	19
Total Analysis Volume [veh/h]	16	501	376	218	933	7	0	32	64	103	0	77
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.55	0.55	0.14	0.59	0.59	0.00	0.06	0.06	0.06	0.00	0.05
Intersection LOS	E											
Intersection V/C	0.909											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	85	220	86	129	171	90	49	648	58	121	1007	125
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	85	220	86	129	171	90	49	648	58	121	1007	125
Peak Hour 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
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]	21	55	22	32	43	23	12	162	15	30	252	31
Total Analysis Volume [veh/h]	85	220	86	129	171	90	49	648	58	121	1007	125
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.19	0.19	0.08	0.11	0.06	0.03	0.20	0.04	0.08	0.31	0.08
Intersection LOS	C											
Intersection V/C	0.717											

Intersection Level Of Service Report
Intersection 2: California Avenue at 33rd Street

Control Type:	All-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):	0.728

Intersection Setup

Name	California Ave			California Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	California Ave			California Ave			33rd St			33rd St		
Base Volume Input [veh/h]	81	327	42	6	190	51	61	78	98	30	64	16
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	81	327	42	6	190	51	61	78	98	30	64	16
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	21	86	11	2	50	13	16	21	26	8	17	4
Total Analysis Volume [veh/h]	85	344	44	6	200	54	64	82	103	32	67	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	650	619	508	585	537
Degree of Utilization, x	0.73	0.42	0.29	0.18	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.26	2.07	1.18	0.63	0.81
95th-Percentile Queue Length [ft]	156.56	51.86	29.52	15.87	20.36
Approach Delay [s/veh]	21.93	12.95	11.61		11.54
Approach LOS	C	B	B		B
Intersection Delay [s/veh]	16.37				
Intersection LOS	C				

Intersection Level Of Service Report
Intersection 3: California Avenue at 32nd Street

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name	California Ave		California Ave		32nd St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name	California Ave		California Ave		32nd St	
Base Volume Input [veh/h]	562	16	17	403	11	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	562	16	17	403	11	12
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	4	4	106	3	3
Total Analysis Volume [veh/h]	592	17	18	424	12	13
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	0.02	0.00	0.05	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	8.78	0.00	20.77	13.08
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.24	0.24
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.42	1.42	6.09	6.09
d_A, Approach Delay [s/veh]	0.00		0.36		16.77	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Orange Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name	Orange Ave			Orange Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			33rd St			33rd St		
Base Volume Input [veh/h]	46	1047	52	10	820	52	36	40	33	42	33	35
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	46	1047	52	10	820	52	36	40	33	42	33	35
Peak Hour 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
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]	12	262	13	3	205	13	9	10	8	11	8	9
Total Analysis Volume [veh/h]	46	1047	52	10	820	52	36	40	33	42	33	35
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.72	0.72	0.01	0.55	0.55	0.02	0.07	0.07	0.03	0.07	0.07
Intersection LOS	E											
Intersection V/C	0.916											

Intersection Level Of Service Report
Intersection 5: Orange Avenue at 32nd Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.123

Intersection Setup

Name	Orange Ave			Orange Ave			32nd St			32nd 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 Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Orange Ave			Orange Ave			32nd St			32nd St		
Base Volume Input [veh/h]	42	797	392	97	723	7	5	2	34	309	0	272
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	42	797	392	97	723	7	5	2	34	309	0	272
Peak Hour 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
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]	11	199	98	24	181	2	1	1	9	77	0	68
Total Analysis Volume [veh/h]	42	797	392	97	723	7	5	2	34	309	0	272
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.74	0.74	0.06	0.46	0.46	0.00	0.03	0.03	0.19	0.00	0.17
Intersection LOS	F											
Intersection V/C	1.123											

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.873

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	66	279	116	152	196	92	121	1144	50	118	845	223
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	66	279	116	152	196	92	121	1144	50	118	845	223
Peak Hour 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
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]	17	70	29	38	49	23	30	286	13	30	211	56
Total Analysis Volume [veh/h]	66	279	116	152	196	92	121	1144	50	118	845	223
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.25	0.25	0.10	0.12	0.06	0.08	0.36	0.03	0.07	0.26	0.14
Intersection LOS	D											
Intersection V/C	0.873											

APPENDIX D

CITY OF LONG BEACH INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX D-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	28	817	116	61	900	8	4	9	16	60	11	100
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	28	817	116	61	900	8	4	9	16	60	11	100
Peak Hour Factor	0.9110	0.9110	0.9110	0.9260	0.9260	0.9260	0.6590	0.6590	0.6590	0.7280	0.7280	0.7280
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]	8	224	32	16	243	2	2	3	6	21	4	34
Total Analysis Volume [veh/h]	31	897	127	66	972	9	6	14	24	82	15	137
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	29	0	0	29	0	0	61	0	0	61	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	68	68	68	68	68	68	14	14	14
g / C, Green / Cycle	0.75	0.75	0.75	0.75	0.75	0.75	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.28	0.28	0.12	0.26	0.26	0.03	0.12	0.09
s, saturation flow rate [veh/h]	573	1870	1790	551	1870	1864	1411	791	1446
c, Capacity [veh/h]	453	1409	1349	434	1409	1405	268	198	228
d1, Uniform Delay [s]	5.80	3.79	3.79	6.51	3.71	3.71	32.81	36.48	35.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	0.75	0.79	0.74	0.68	0.68	0.29	1.86	2.54
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.37	0.37	0.15	0.35	0.35	0.16	0.49	0.60
d, Delay for Lane Group [s/veh]	6.09	4.55	4.58	7.25	4.39	4.39	33.10	38.34	37.82
Lane Group LOS	A	A	A	A	A	A	C	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.23	2.68	2.58	0.54	2.46	2.45	0.84	2.13	2.91
50th-Percentile Queue Length [ft/ln]	5.72	67.06	64.53	13.57	61.45	61.27	21.04	53.18	72.74
95th-Percentile Queue Length [veh/ln]	0.41	4.83	4.65	0.98	4.42	4.41	1.52	3.83	5.24
95th-Percentile Queue Length [ft/ln]	10.29	120.71	116.16	24.43	110.61	110.29	37.88	95.73	130.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.09	4.56	4.58	7.25	4.39	4.39	33.10	33.10	33.10	38.34	38.34	37.82
Movement LOS	A	A	A	A	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	4.61			4.57			33.10			38.03		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	8.40											
Intersection LOS	A											
Intersection V/C	0.442											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.715	2.016	2.332
Crosswalk LOS	F	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1267	1267
d_b, Bicycle Delay [s]	23.47	23.47	6.05	6.05
l_b,int, Bicycle LOS Score for Intersection	2.430	2.423	1.632	1.753
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	71	180	72	105	140	74	39	524	48	101	821	101
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	71	180	72	105	140	74	39	524	48	101	821	101
Peak Hour Factor	0.7340	0.7340	0.7340	0.8810	0.8810	0.8810	0.8530	0.8530	0.8530	0.8250	0.8250	0.8250
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]	24	61	25	30	40	21	11	154	14	31	249	31
Total Analysis Volume [veh/h]	97	245	98	119	159	84	46	614	56	122	995	122
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	38	38	38	38	38	29	29	29	29	29	29
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.08	0.19	0.11	0.09	0.05	0.08	0.17	0.04	0.15	0.28	0.08
s, saturation flow rate [veh/h]	1227	1780	1037	1870	1589	566	3560	1589	808	3560	1589
c, Capacity [veh/h]	631	897	475	942	801	163	1386	619	281	1386	619
d1, Uniform Delay [s]	12.96	11.43	17.08	10.08	9.74	31.72	16.89	14.49	26.23	19.40	15.14
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.52	1.24	1.27	0.39	0.26	0.94	0.22	0.06	1.05	0.71	0.15
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	0.15	0.38	0.25	0.17	0.10	0.28	0.44	0.09	0.43	0.72	0.20
d, Delay for Lane Group [s/veh]	13.48	12.66	18.35	10.47	10.00	32.65	17.11	14.55	27.29	20.11	15.29
Lane Group LOS	B	B	B	B	B	C	B	B	C	C	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.02	3.47	1.55	1.39	0.72	0.82	3.70	0.58	1.98	6.94	1.33
50th-Percentile Queue Length [ft/ln]	25.58	86.63	38.87	34.82	17.94	20.46	92.44	14.57	49.44	173.47	33.21
95th-Percentile Queue Length [veh/ln]	1.84	6.24	2.80	2.51	1.29	1.47	6.66	1.05	3.56	11.26	2.39
95th-Percentile Queue Length [ft/ln]	46.04	155.94	69.97	62.67	32.29	36.82	166.40	26.22	88.99	281.48	59.78

Movement, Approach, & Intersection Results

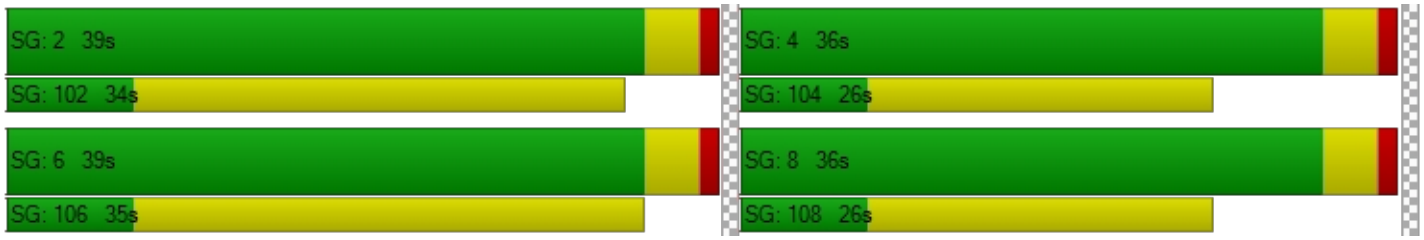
d_M, Delay for Movement [s/veh]	13.48	12.66	12.66	18.35	10.47	10.00	32.65	17.11	14.55	27.29	20.11	15.29
Movement LOS	B	B	B	B	B	B	C	B	B	C	C	B
d_A, Approach Delay [s/veh]	12.84			12.95			17.91			20.34		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	17.54											
Intersection LOS	B											
Intersection V/C	0.529											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.356	2.375	2.888	2.948
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.286	2.157	2.150	2.582
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.355

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	49	60	70	12	44	7	0	339	47	52	352	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	49	60	70	12	44	7	0	339	47	52	352	8
Peak Hour Factor	0.8470	0.8470	0.8470	0.9250	0.9250	0.9250	0.8560	0.8560	0.8560	0.8990	0.8990	0.8990
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]	14	18	21	3	12	2	0	99	14	14	98	2
Total Analysis Volume [veh/h]	58	71	83	13	48	8	0	396	55	58	392	9
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]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	42	0	0	42	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70
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	2.00	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]	45	45	17	17	17	17
g / C, Green / Cycle	0.65	0.65	0.24	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.13	0.04	0.13	0.13	0.18	0.16
s, saturation flow rate [veh/h]	1610	1703	1870	1627	1006	1692
c, Capacity [veh/h]	1107	1163	498	388	308	404
d1, Uniform Delay [s]	4.96	4.53	23.27	23.31	24.50	24.22
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	0.10	0.72	1.19	1.86	2.03
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	0.06	0.48	0.54	0.60	0.68
d, Delay for Lane Group [s/veh]	5.35	4.63	23.99	24.50	26.36	26.25
Lane Group LOS	A	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.08	0.32	3.38	3.02	2.97	4.14
50th-Percentile Queue Length [ft/ln]	26.89	7.90	84.51	75.61	74.20	103.61
95th-Percentile Queue Length [veh/ln]	1.94	0.57	6.09	5.44	5.34	7.46
95th-Percentile Queue Length [ft/ln]	48.41	14.22	152.13	136.09	133.57	186.50

Movement, Approach, & Intersection Results

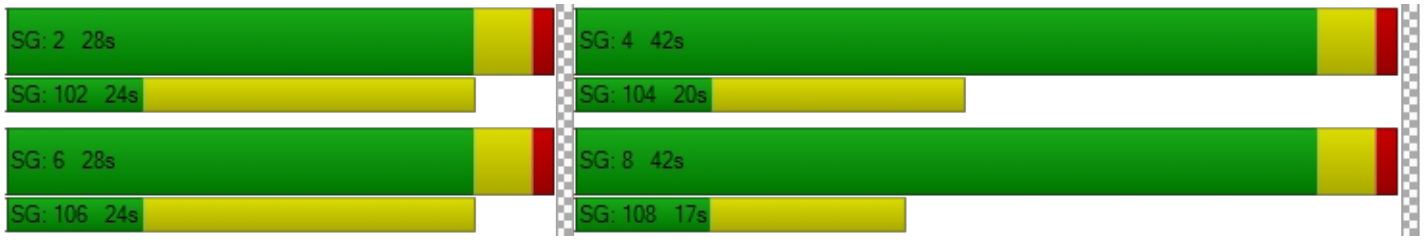
d_M, Delay for Movement [s/veh]	5.35	5.35	5.35	4.63	4.63	4.63	23.99	24.20	24.50	26.36	26.29	26.25
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.35			4.63			24.23			26.30		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	20.53											
Intersection LOS	C											
Intersection V/C	0.355											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	1.965	1.774	2.421	2.368
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	686	686	1086	1086
d_b, Bicycle Delay [s]	15.11	15.11	7.31	7.31
l_b,int, Bicycle LOS Score for Intersection	1.909	1.673	1.932	1.938
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.685

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	53	349	36	27	628	90	88	328	67	73	385	30
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	53	349	36	27	628	90	88	328	67	73	385	30
Peak Hour Factor	0.9160	0.9160	0.9160	0.9460	0.9460	0.9460	0.8480	0.8480	0.8480	0.9260	0.9260	0.9260
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]	14	95	10	7	166	24	26	97	20	20	104	8
Total Analysis Volume [veh/h]	58	381	39	29	664	95	104	387	79	79	416	32
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	27	0	0	27	0	10	38	0	10	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	38	38	38	38	20	20	20	29	25	25
g / C, Green / Cycle	0.51	0.51	0.51	0.51	0.27	0.27	0.27	0.39	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.03	0.41	0.11	0.13	0.13	0.07	0.12	0.12
s, saturation flow rate [veh/h]	706	1840	967	1830	942	1870	1762	1129	1870	1824
c, Capacity [veh/h]	184	934	416	929	239	501	472	482	622	606
d1, Uniform Delay [s]	31.29	11.79	17.31	15.55	30.32	23.05	23.08	15.26	19.01	19.03
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43	1.57	0.32	7.92	1.25	0.71	0.76	0.16	0.36	0.37
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.31	0.45	0.07	0.82	0.44	0.48	0.48	0.16	0.36	0.37
d, Delay for Lane Group [s/veh]	35.72	13.35	17.64	23.46	31.57	23.75	23.84	15.42	19.37	19.40
Lane Group LOS	D	B	B	C	C	C	C	B	B	B
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.20	4.41	0.37	11.60	1.81	3.49	3.33	0.84	2.90	2.85
50th-Percentile Queue Length [ft/ln]	29.89	110.37	9.19	289.90	45.31	87.17	83.24	21.04	72.54	71.21
95th-Percentile Queue Length [veh/ln]	2.15	7.86	0.66	17.18	3.26	6.28	5.99	1.51	5.22	5.13
95th-Percentile Queue Length [ft/ln]	53.81	196.52	16.55	429.51	81.56	156.91	149.83	37.87	130.58	128.17

Movement, Approach, & Intersection Results

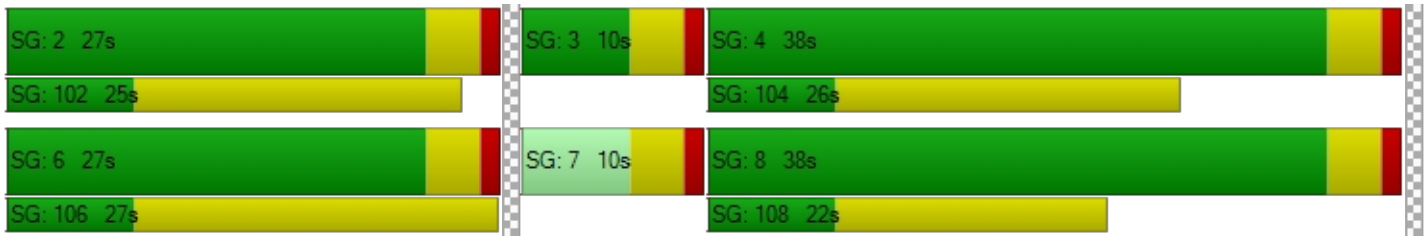
d_M, Delay for Movement [s/veh]	35.72	13.35	13.35	17.64	23.46	23.46	31.57	23.79	23.84	15.42	19.38	19.40
Movement LOS	D	B	B	B	C	C	C	C	C	B	B	B
d_A, Approach Delay [s/veh]	16.07			23.25			25.22			18.79		
Approach LOS	B			C			C			B		
d_I, Intersection Delay [s/veh]	21.28											
Intersection LOS	C											
Intersection V/C	0.685											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.386	2.502	2.594	2.523
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	613	613	907	907
d_b, Bicycle Delay [s]	18.03	18.03	11.21	11.21
l_b,int, Bicycle LOS Score for Intersection	2.348	2.860	2.030	1.994
Bicycle LOS	B	C	B	A

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	27	1259	276	81	761	13	10	9	27	122	16	162
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	27	1259	276	81	761	13	10	9	27	122	16	162
Peak Hour Factor	0.9740	0.9740	0.9740	0.9230	0.9230	0.9230	0.6620	0.6620	0.6620	0.8560	0.8560	0.8560
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]	7	323	71	22	206	4	4	3	10	36	5	47
Total Analysis Volume [veh/h]	28	1293	283	88	824	14	15	14	41	143	19	189
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	62	0	0	62	0	0	28	0	0	28	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	61	61	61	61	61	61	21	21	21
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.68	0.68	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.04	0.43	0.44	0.27	0.22	0.22	0.06	0.20	0.13
s, saturation flow rate [veh/h]	656	1870	1757	325	1870	1859	1114	826	1446
c, Capacity [veh/h]	454	1263	1186	215	1263	1256	311	270	341
d1, Uniform Delay [s]	8.70	8.31	8.47	21.08	6.12	6.12	27.66	34.20	30.23
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.15	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	2.45	2.79	5.67	0.71	0.71	0.36	2.92	1.41
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.64	0.65	0.41	0.33	0.33	0.23	0.60	0.55
d, Delay for Lane Group [s/veh]	8.96	10.75	11.27	26.76	6.82	6.83	28.02	37.12	31.64
Lane Group LOS	A	B	B	C	A	A	C	D	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.26	8.22	8.16	1.75	3.09	3.07	1.22	3.63	3.66
50th-Percentile Queue Length [ft/ln]	6.58	205.45	203.92	43.87	77.16	76.75	30.39	90.80	91.48
95th-Percentile Queue Length [veh/ln]	0.47	12.92	12.84	3.16	5.56	5.53	2.19	6.54	6.59
95th-Percentile Queue Length [ft/ln]	11.85	322.98	321.02	78.96	138.90	138.15	54.69	163.44	164.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.96	10.95	11.27	26.76	6.83	6.83	28.02	28.02	28.02	37.12	37.12	31.64
Movement LOS	A	B	B	C	A	A	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	10.97			8.72			28.02			34.17		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	13.43											
Intersection LOS	B											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.793	2.022	2.435
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1289	1289	533	533
d_b, Bicycle Delay [s]	5.69	5.69	24.20	24.20
l_b,int, Bicycle LOS Score for Intersection	2.883	2.324	1.675	1.849
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	55	230	97	124	161	76	100	929	42	98	685	183
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	55	230	97	124	161	76	100	929	42	98	685	183
Peak Hour Factor	0.8040	0.8040	0.8040	0.8580	0.8580	0.8580	0.9030	0.9030	0.9030	0.8980	0.8980	0.8980
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]	17	72	30	36	47	22	28	257	12	27	191	51
Total Analysis Volume [veh/h]	68	286	121	145	188	89	111	1029	47	109	763	204
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	35	35	35	35	35	32	32	32	32	32	32
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.15	0.10	0.06	0.16	0.29	0.03	0.20	0.21	0.13
s, saturation flow rate [veh/h]	1195	1777	978	1870	1589	703	3560	1589	548	3560	1589
c, Capacity [veh/h]	546	828	369	871	741	268	1521	679	189	1521	679
d1, Uniform Delay [s]	15.41	13.83	22.81	11.86	11.30	25.33	17.26	12.65	32.02	15.62	14.08
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.47	2.08	3.12	0.57	0.33	1.02	0.53	0.04	2.77	0.26	0.25
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	0.12	0.49	0.39	0.22	0.12	0.41	0.68	0.07	0.58	0.50	0.30
d, Delay for Lane Group [s/veh]	15.87	15.92	25.93	12.42	11.63	26.35	17.80	12.69	34.79	15.88	14.33
Lane Group LOS	B	B	C	B	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.80	4.82	2.38	1.86	0.84	1.77	6.65	0.45	2.10	4.44	2.16
50th-Percentile Queue Length [ft/ln]	19.93	120.45	59.48	46.38	21.08	44.16	166.33	11.14	52.46	111.08	54.04
95th-Percentile Queue Length [veh/ln]	1.44	8.42	4.28	3.34	1.52	3.18	10.88	0.80	3.78	7.90	3.89
95th-Percentile Queue Length [ft/ln]	35.88	210.44	107.07	83.48	37.94	79.49	272.09	20.06	94.43	197.50	97.28

Movement, Approach, & Intersection Results

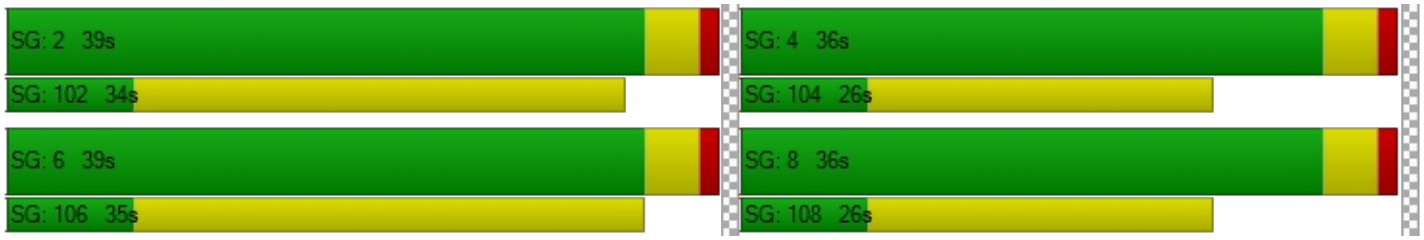
d_M, Delay for Movement [s/veh]	15.87	15.92	15.92	25.93	12.42	11.63	26.35	17.80	12.69	34.79	15.88	14.33
Movement LOS	B	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	15.91			16.90			18.39			17.50		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	17.52											
Intersection LOS	B											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.351	2.528	2.882	3.034
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.343	2.256	2.539	2.447
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	64	112	138	15	61	15	6	574	59	59	381	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	64	112	138	15	61	15	6	574	59	59	381	9
Peak Hour Factor	0.8140	0.8140	0.8140	0.7720	0.7720	0.7720	0.8520	0.8520	0.8520	0.9380	0.9380	0.9380
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]	20	34	42	5	20	5	2	168	17	16	102	2
Total Analysis Volume [veh/h]	79	138	170	19	79	19	7	674	69	63	406	10
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	47	0	0	47	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	40	40	27	27	27	27
g / C, Green / Cycle	0.54	0.54	0.36	0.36	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.24	0.07	0.21	0.21	0.27	0.21
s, saturation flow rate [veh/h]	1627	1674	1861	1645	487	1693
c, Capacity [veh/h]	933	957	710	584	244	602
d1, Uniform Delay [s]	10.31	8.55	19.80	19.83	24.84	19.63
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	0.26	0.70	1.00	1.79	0.89
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	0.12	0.56	0.60	0.53	0.58
d, Delay for Lane Group [s/veh]	11.67	8.81	20.50	20.83	26.63	20.52
Lane Group LOS	B	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.71	0.91	5.47	4.89	2.27	4.79
50th-Percentile Queue Length [ft/ln]	92.70	22.80	136.80	122.13	56.82	119.70
95th-Percentile Queue Length [veh/ln]	6.67	1.64	9.31	8.51	4.09	8.38
95th-Percentile Queue Length [ft/ln]	166.86	41.05	232.71	212.74	102.28	209.42

Movement, Approach, & Intersection Results

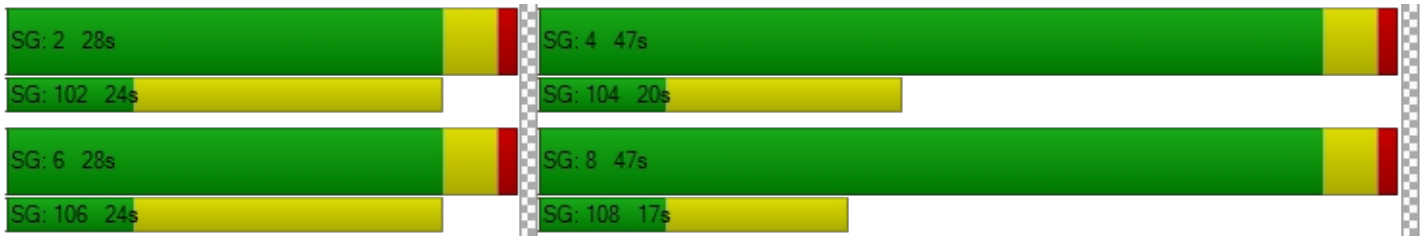
d_M, Delay for Movement [s/veh]	11.67	11.67	11.67	8.81	8.81	8.81	20.50	20.64	20.83	26.63	21.53	20.52
Movement LOS	B	B	B	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.67			8.81			20.65			22.18		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	18.27											
Intersection LOS	B											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.086	1.847	2.539	2.475
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	640	1147	1147
d_b, Bicycle Delay [s]	17.34	17.34	6.83	6.83
l_b,int, Bicycle LOS Score for Intersection	2.198	1.753	2.178	1.955
Bicycle LOS	B	A	B	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

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):	0.749

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	63	625	63	29	481	73	166	712	81	42	381	43
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	63	625	63	29	481	73	166	712	81	42	381	43
Peak Hour Factor	0.9300	0.9300	0.9300	0.8520	0.8520	0.8520	0.9540	0.9540	0.9540	0.7550	0.7550	0.7550
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]	17	168	17	9	141	21	44	187	21	14	126	14
Total Analysis Volume [veh/h]	68	672	68	34	565	86	174	746	85	56	505	57
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	49	0	0	49	0	10	31	0	10	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	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	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45	45	28	28	28	37	33	33
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.32	0.32	0.32	0.41	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.09	0.40	0.05	0.36	0.21	0.23	0.23	0.07	0.15	0.15
s, saturation flow rate [veh/h]	781	1840	719	1827	848	1870	1804	859	1870	1804
c, Capacity [veh/h]	247	924	191	918	225	588	567	334	682	658
d1, Uniform Delay [s]	30.50	18.66	33.72	17.33	38.62	27.35	27.35	18.35	21.45	21.47
k, delay calibration	0.50	0.50	0.50	0.50	0.17	0.21	0.21	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.76	7.25	2.02	4.63	8.55	3.29	3.41	0.23	0.41	0.43
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.28	0.80	0.18	0.71	0.77	0.72	0.72	0.17	0.42	0.42
d, Delay for Lane Group [s/veh]	33.25	25.91	35.74	21.96	47.17	30.64	30.76	18.58	21.86	21.89
Lane Group LOS	C	C	D	C	D	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.44	13.73	0.76	10.88	4.38	8.32	8.04	0.71	4.45	4.32
50th-Percentile Queue Length [ft/ln]	36.01	343.25	18.98	271.91	109.55	207.95	201.05	17.69	111.19	107.96
95th-Percentile Queue Length [veh/ln]	2.59	19.81	1.37	16.29	7.81	13.05	12.69	1.27	7.91	7.73
95th-Percentile Queue Length [ft/ln]	64.83	495.17	34.17	407.13	195.37	326.20	317.32	31.85	197.66	193.16

Movement, Approach, & Intersection Results

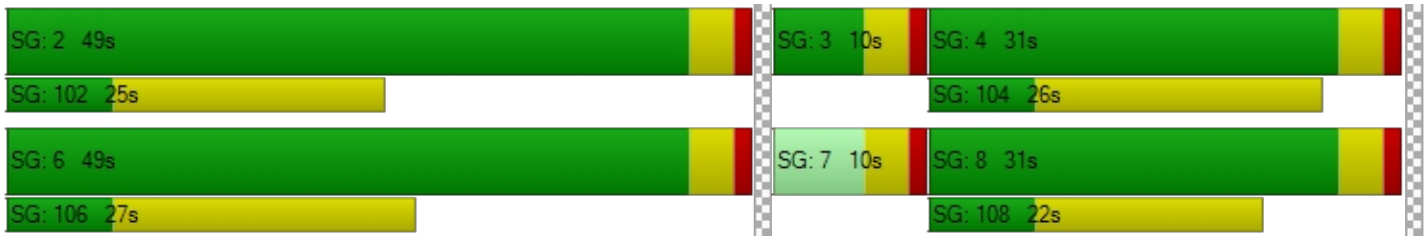
d_M, Delay for Movement [s/veh]	33.25	25.91	25.91	35.74	21.96	21.96	47.17	30.69	30.76	18.58	21.87	21.89
Movement LOS	C	C	C	D	C	C	D	C	C	B	C	C
d_A, Approach Delay [s/veh]	26.53			22.64			33.55			21.58		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.96											
Intersection LOS	C											
Intersection V/C	0.749											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.459	2.703	2.721	2.634
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	600	600
d_b, Bicycle Delay [s]	11.25	11.25	22.05	22.05
l_b,int, Bicycle LOS Score for Intersection	2.893	2.690	2.389	2.069
Bicycle LOS	C	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	28	798	161	100	881	8	4	9	16	93	11	140
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	28	798	161	100	881	8	4	9	16	93	11	140
Peak Hour Factor	0.9110	0.9110	0.9110	0.9260	0.9260	0.9260	0.6590	0.6590	0.6590	0.7280	0.7280	0.7280
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]	8	219	44	27	238	2	2	3	6	32	4	48
Total Analysis Volume [veh/h]	31	876	177	108	951	9	6	14	24	128	15	192
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]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	29	0	0	29	0	0	56	0	0	56	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	56	56	56	56	56	56	21	21	21
g / C, Green / Cycle	0.65	0.65	0.65	0.65	0.65	0.65	0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.29	0.20	0.26	0.26	0.03	0.19	0.13
s, saturation flow rate [veh/h]	585	1870	1762	536	1870	1864	1427	769	1446
c, Capacity [veh/h]	394	1224	1153	357	1224	1220	407	274	364
d1, Uniform Delay [s]	9.95	7.15	7.15	12.83	6.83	6.83	24.49	31.12	27.45
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	1.16	1.24	2.17	0.95	0.95	0.12	1.54	1.19
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.44	0.44	0.30	0.39	0.39	0.11	0.52	0.53
d, Delay for Lane Group [s/veh]	10.34	8.31	8.39	15.00	7.78	7.79	24.61	32.66	28.64
Lane Group LOS	B	A	A	B	A	A	C	C	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.31	4.42	4.19	1.39	3.73	3.72	0.68	2.90	3.40
50th-Percentile Queue Length [ft/ln]	7.80	110.43	104.75	34.80	93.33	93.05	17.03	72.53	84.88
95th-Percentile Queue Length [veh/ln]	0.56	7.86	7.54	2.51	6.72	6.70	1.23	5.22	6.11
95th-Percentile Queue Length [ft/ln]	14.03	196.59	188.54	62.65	168.00	167.50	30.66	130.55	152.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.34	8.34	8.39	15.00	7.78	7.79	24.61	24.61	24.61	32.66	32.66	28.64
Movement LOS	B	A	A	B	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	8.41			8.51			24.61			30.36		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	11.64											
Intersection LOS	B											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.723	2.013	2.436
Crosswalk LOS	F	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	588	588	1224	1224
d_b, Bicycle Delay [s]	21.18	21.18	6.41	6.41
l_b,int, Bicycle LOS Score for Intersection	2.454	2.441	1.632	1.836
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	71	184	72	108	143	75	41	524	48	101	821	105
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	71	184	72	108	143	75	41	524	48	101	821	105
Peak Hour Factor	0.7340	0.7340	0.7340	0.8810	0.8810	0.8810	0.8530	0.8530	0.8530	0.8250	0.8250	0.8250
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]	24	63	25	31	41	21	12	154	14	31	249	32
Total Analysis Volume [veh/h]	97	251	98	123	162	85	48	614	56	122	995	127
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	38	38	38	38	38	29	29	29	29	29	29
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.08	0.20	0.12	0.09	0.05	0.08	0.17	0.04	0.15	0.28	0.08
s, saturation flow rate [veh/h]	1224	1782	1032	1870	1589	566	3560	1589	808	3560	1589
c, Capacity [veh/h]	625	894	467	939	798	165	1393	622	283	1393	622
d1, Uniform Delay [s]	13.12	11.56	17.45	10.18	9.82	31.62	16.78	14.39	26.05	19.27	15.09
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.53	1.28	1.37	0.40	0.27	0.97	0.22	0.06	1.03	0.69	0.16
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	0.16	0.39	0.26	0.17	0.11	0.29	0.44	0.09	0.43	0.71	0.20
d, Delay for Lane Group [s/veh]	13.65	12.85	18.82	10.58	10.09	32.59	17.00	14.46	27.08	19.97	15.25
Lane Group LOS	B	B	B	B	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.03	3.56	1.64	1.43	0.73	0.85	3.68	0.58	1.97	6.91	1.38
50th-Percentile Queue Length [ft/ln]	25.79	89.04	40.88	35.74	18.27	21.34	92.05	14.50	49.21	172.71	34.55
95th-Percentile Queue Length [veh/ln]	1.86	6.41	2.94	2.57	1.32	1.54	6.63	1.04	3.54	11.22	2.49
95th-Percentile Queue Length [ft/ln]	46.42	160.27	73.58	64.33	32.88	38.42	165.70	26.11	88.58	280.47	62.19

Movement, Approach, & Intersection Results

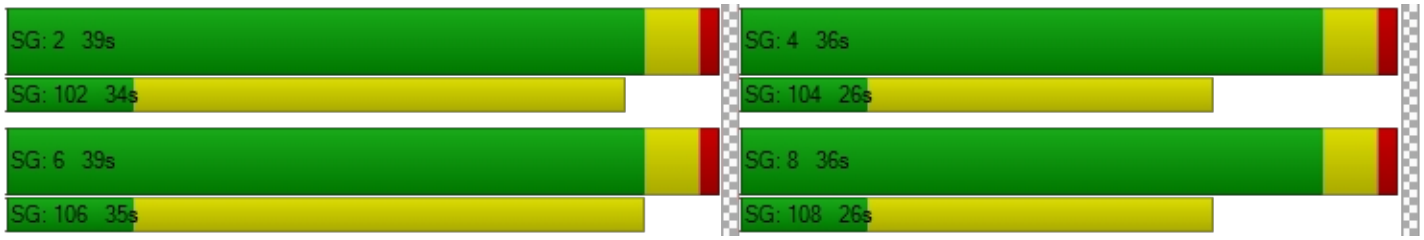
d_M, Delay for Movement [s/veh]	13.65	12.85	12.85	18.82	10.58	10.09	32.59	17.00	14.46	27.08	19.97	15.25
Movement LOS	B	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	13.02			13.21			17.84			20.18		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	17.50											
Intersection LOS	B											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.359	2.383	2.889	2.956
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.296	2.170	2.152	2.586
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.383

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	49	66	78	12	52	7	0	339	47	62	352	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	49	66	78	12	52	7	0	339	47	62	352	8
Peak Hour Factor	0.8470	0.8470	0.8470	0.9250	0.9250	0.9250	0.8560	0.8560	0.8560	0.8990	0.8990	0.8990
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]	14	19	23	3	14	2	0	99	14	17	98	2
Total Analysis Volume [veh/h]	58	78	92	13	56	8	0	396	55	69	392	9
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	47	0	0	47	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	48	48	19	19	19	19
g / C, Green / Cycle	0.63	0.63	0.26	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.14	0.04	0.13	0.13	0.20	0.17
s, saturation flow rate [veh/h]	1613	1716	1870	1627	888	1692
c, Capacity [veh/h]	1083	1145	533	422	297	439
d1, Uniform Delay [s]	5.77	5.24	23.60	23.65	26.67	24.87
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	0.11	0.60	0.92	1.95	1.74
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	0.21	0.07	0.45	0.50	0.60	0.67
d, Delay for Lane Group [s/veh]	6.21	5.35	24.20	24.57	28.62	26.61
Lane Group LOS	A	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.37	0.42	3.54	3.16	3.12	4.64
50th-Percentile Queue Length [ft/ln]	34.28	10.39	88.59	78.96	77.99	116.06
95th-Percentile Queue Length [veh/ln]	2.47	0.75	6.38	5.69	5.62	8.18
95th-Percentile Queue Length [ft/ln]	61.70	18.70	159.45	142.13	140.39	204.40

Movement, Approach, & Intersection Results

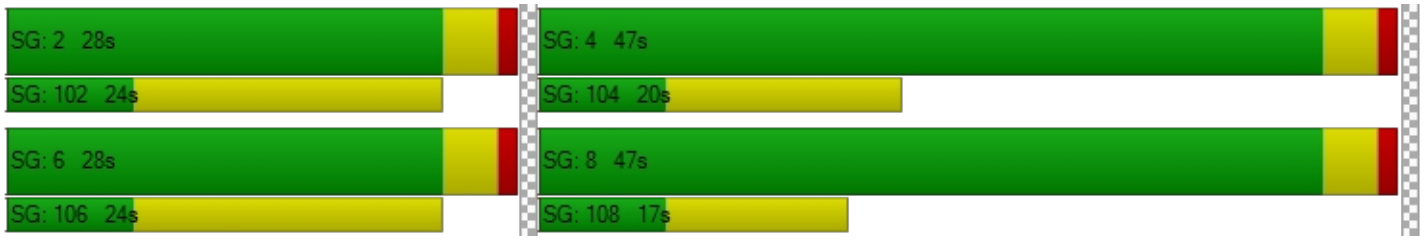
d_M, Delay for Movement [s/veh]	6.21	6.21	6.21	5.35	5.35	5.35	24.20	24.35	24.57	28.62	27.17	26.61
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	6.21			5.35			24.37			27.37		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	20.95											
Intersection LOS	C											
Intersection V/C	0.383											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.002	1.785	2.425	2.376
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	640	1147	1147
d_b, Bicycle Delay [s]	17.34	17.34	6.83	6.83
l_b,int, Bicycle LOS Score for Intersection	1.936	1.687	1.932	1.947
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	53	349	36	27	628	98	94	330	67	73	387	30
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	53	349	36	27	628	98	94	330	67	73	387	30
Peak Hour Factor	0.9160	0.9160	0.9160	0.9460	0.9460	0.9460	0.8480	0.8480	0.8480	0.9260	0.9260	0.9260
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]	14	95	10	7	166	26	28	97	20	20	104	8
Total Analysis Volume [veh/h]	58	381	39	29	664	104	111	389	79	79	418	32
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	35	0	0	35	0	10	30	0	10	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	38	38	38	38	20	20	20	29	25	25
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.27	0.27	0.27	0.39	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.03	0.42	0.12	0.13	0.13	0.07	0.12	0.12
s, saturation flow rate [veh/h]	700	1840	967	1826	940	1870	1762	1126	1870	1824
c, Capacity [veh/h]	173	927	411	921	242	507	478	485	628	613
d1, Uniform Delay [s]	32.41	11.95	17.58	15.92	30.30	22.84	22.88	15.09	18.83	18.84
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.17	1.60	0.33	8.80	1.35	0.69	0.74	0.16	0.35	0.36
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.34	0.45	0.07	0.83	0.46	0.47	0.48	0.16	0.36	0.36
d, Delay for Lane Group [s/veh]	37.59	13.55	17.91	24.72	31.65	23.53	23.62	15.24	19.18	19.21
Lane Group LOS	D	B	B	C	C	C	C	B	B	B
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.24	4.46	0.37	12.10	1.94	3.48	3.33	0.84	2.90	2.84
50th-Percentile Queue Length [ft/ln]	30.95	111.43	9.28	302.60	48.58	87.09	83.13	20.89	72.44	71.11
95th-Percentile Queue Length [veh/ln]	2.23	7.92	0.67	17.81	3.50	6.27	5.99	1.50	5.22	5.12
95th-Percentile Queue Length [ft/ln]	55.71	197.99	16.71	445.24	87.44	156.76	149.63	37.60	130.40	128.00

Movement, Approach, & Intersection Results

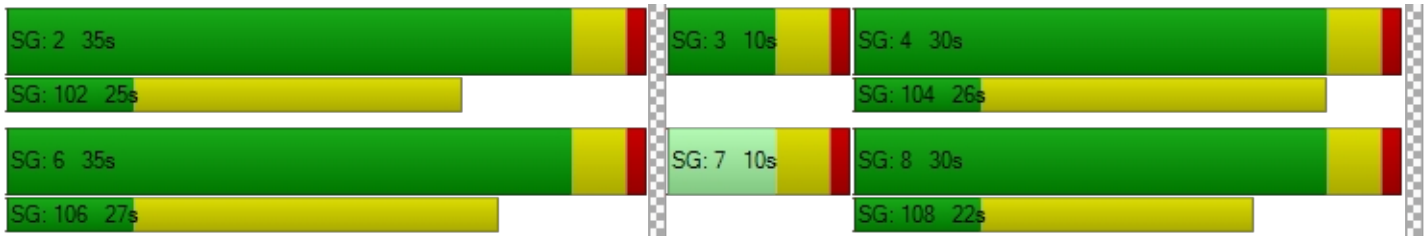
d_M, Delay for Movement [s/veh]	37.59	13.55	13.55	17.91	24.72	24.72	31.65	23.56	23.62	15.24	19.19	19.21
Movement LOS	D	B	B	B	C	C	C	C	C	B	B	B
d_A, Approach Delay [s/veh]	16.47			24.47			25.12			18.60		
Approach LOS	B			C			C			B		
d_I, Intersection Delay [s/veh]	21.72											
Intersection LOS	C											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.386	2.517	2.598	2.523
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	827	827	693	693
d_b, Bicycle Delay [s]	12.91	12.91	16.01	16.01
l_b,int, Bicycle LOS Score for Intersection	2.348	2.875	2.037	1.996
Bicycle LOS	B	C	B	A

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

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):	0.756

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	27	1244	312	112	746	13	10	9	27	149	16	197
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	27	1244	312	112	746	13	10	9	27	149	16	197
Peak Hour Factor	0.9740	0.9740	0.9740	0.9230	0.9230	0.9230	0.6620	0.6620	0.6620	0.8560	0.8560	0.8560
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]	7	319	80	30	202	4	4	3	10	44	5	58
Total Analysis Volume [veh/h]	28	1277	320	121	808	14	15	14	41	174	19	230
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	62	0	0	62	0	0	28	0	0	28	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	58	58	58	58	58	58	24	24	24
g / C, Green / Cycle	0.65	0.65	0.65	0.65	0.65	0.65	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.04	0.44	0.45	0.38	0.22	0.22	0.07	0.24	0.16
s, saturation flow rate [veh/h]	666	1870	1744	319	1870	1859	1030	780	1452
c, Capacity [veh/h]	432	1208	1126	190	1208	1200	322	284	385
d1, Uniform Delay [s]	10.45	10.00	10.24	30.99	7.24	7.24	25.75	34.07	29.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.24	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	3.02	3.55	15.32	0.77	0.78	0.34	5.76	1.58
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.67	0.70	0.64	0.34	0.34	0.22	0.66	0.61
d, Delay for Lane Group [s/veh]	10.74	13.02	13.79	46.32	8.01	8.02	26.08	39.83	30.59
Lane Group LOS	B	B	B	D	A	A	C	D	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.30	9.64	9.62	3.45	3.42	3.41	1.16	4.42	4.53
50th-Percentile Queue Length [ft/ln]	7.39	241.11	240.41	86.20	85.61	85.14	28.98	110.55	113.22
95th-Percentile Queue Length [veh/ln]	0.53	14.74	14.70	6.21	6.16	6.13	2.09	7.87	8.02
95th-Percentile Queue Length [ft/ln]	13.30	368.43	367.55	155.15	154.10	153.24	52.17	196.77	200.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.74	13.30	13.79	46.32	8.01	8.02	26.08	26.08	26.08	39.83	36.89	30.59
Movement LOS	B	B	B	D	A	A	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	13.35			12.93			26.08			34.67		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.46											
Intersection LOS	B											
Intersection V/C	0.756											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.801	2.022	2.517
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1289	1289	533	533
d_b, Bicycle Delay [s]	5.69	5.69	24.20	24.20
l_b,int, Bicycle LOS Score for Intersection	2.900	2.338	1.675	1.909
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.582

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	55	233	97	127	164	77	101	929	42	98	685	186
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	55	233	97	127	164	77	101	929	42	98	685	186
Peak Hour Factor	0.8040	0.8040	0.8040	0.8580	0.8580	0.8580	0.9030	0.9030	0.9030	0.8980	0.8980	0.8980
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]	17	72	30	37	48	22	28	257	12	27	191	52
Total Analysis Volume [veh/h]	68	290	121	148	191	90	112	1029	47	109	763	207
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	35	35	35	35	35	32	32	32	32	32	32
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.15	0.10	0.06	0.16	0.29	0.03	0.20	0.21	0.13
s, saturation flow rate [veh/h]	1192	1778	975	1870	1589	703	3560	1589	548	3560	1589
c, Capacity [veh/h]	544	828	366	871	741	268	1521	679	189	1521	679
d1, Uniform Delay [s]	15.46	13.87	23.03	11.88	11.30	25.37	17.26	12.65	32.02	15.62	14.11
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.47	2.12	3.29	0.58	0.34	1.03	0.53	0.04	2.77	0.26	0.25
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	0.13	0.50	0.40	0.22	0.12	0.42	0.68	0.07	0.58	0.50	0.30
d, Delay for Lane Group [s/veh]	15.93	15.99	26.32	12.46	11.64	26.41	17.80	12.69	34.79	15.88	14.36
Lane Group LOS	B	B	C	B	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.80	4.88	2.45	1.89	0.85	1.79	6.65	0.45	2.10	4.44	2.20
50th-Percentile Queue Length [ft/ln]	19.98	122.04	61.32	47.21	21.33	44.65	166.33	11.14	52.46	111.08	54.96
95th-Percentile Queue Length [veh/ln]	1.44	8.50	4.42	3.40	1.54	3.21	10.88	0.80	3.78	7.90	3.96
95th-Percentile Queue Length [ft/ln]	35.97	212.62	110.38	84.98	38.39	80.36	272.09	20.06	94.43	197.50	98.93

Movement, Approach, & Intersection Results

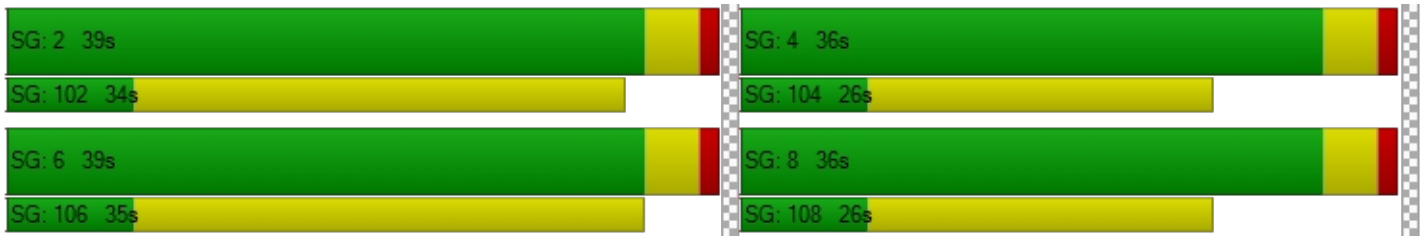
d_M, Delay for Movement [s/veh]	15.93	15.99	15.99	26.32	12.46	11.64	26.41	17.80	12.69	34.79	15.88	14.36
Movement LOS	B	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	15.98			17.07			18.41			17.50		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	17.55											
Intersection LOS	B											
Intersection V/C	0.582											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.354	2.533	2.882	3.040
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.350	2.267	2.540	2.450
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	64	119	147	15	67	15	6	574	59	67	381	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	64	119	147	15	67	15	6	574	59	67	381	9
Peak Hour Factor	0.8140	0.8140	0.8140	0.7720	0.7720	0.7720	0.8520	0.8520	0.8520	0.9380	0.9380	0.9380
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]	20	37	45	5	22	5	2	168	17	18	102	2
Total Analysis Volume [veh/h]	79	146	181	19	87	19	7	674	69	71	406	10
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	33	0	0	33	0	0	42	0	0	42	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	43	43	24	24	24	24
g / C, Green / Cycle	0.57	0.57	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.22	0.22	0.26	0.20
s, saturation flow rate [veh/h]	1631	1692	1840	1645	569	1693
c, Capacity [veh/h]	983	1015	649	536	257	552
d1, Uniform Delay [s]	9.17	7.54	21.62	21.71	24.94	21.34
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.28	0.25	0.93	1.40	1.97	1.13
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	0.12	0.61	0.66	0.57	0.62
d, Delay for Lane Group [s/veh]	10.45	7.78	22.55	23.11	26.91	22.47
Lane Group LOS	B	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.61	0.89	5.77	5.24	2.55	4.94
50th-Percentile Queue Length [ft/ln]	90.17	22.36	144.19	130.88	63.87	123.39
95th-Percentile Queue Length [veh/ln]	6.49	1.61	9.71	8.99	4.60	8.58
95th-Percentile Queue Length [ft/ln]	162.30	40.25	242.66	224.68	114.96	214.48

Movement, Approach, & Intersection Results

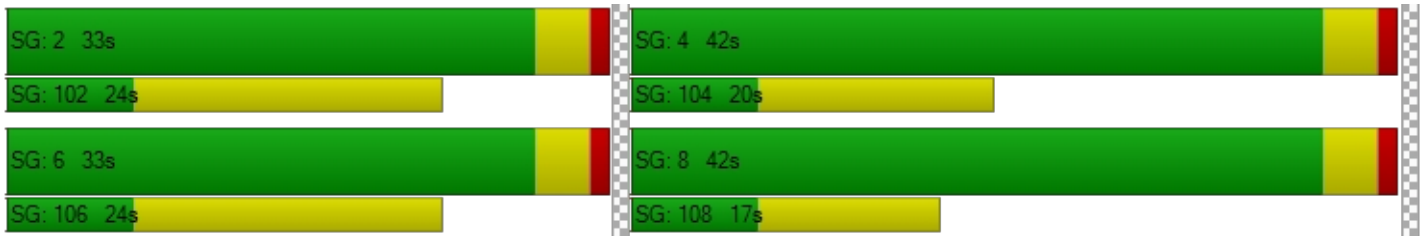
d_M, Delay for Movement [s/veh]	10.45	10.45	10.45	7.78	7.78	7.78	22.55	22.79	23.11	26.91	23.29	22.47
Movement LOS	B	B	B	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.45			7.78			22.81			23.80		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	19.18											
Intersection LOS	B											
Intersection V/C	0.566											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.114	1.855	2.539	2.480
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	773	773	1013	1013
d_b, Bicycle Delay [s]	14.11	14.11	9.13	9.13
l_b,int, Bicycle LOS Score for Intersection	2.230	1.766	2.178	1.961
Bicycle LOS	B	A	B	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	63	625	63	29	481	79	173	714	81	42	383	43
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	63	625	63	29	481	79	173	714	81	42	383	43
Peak Hour Factor	0.9300	0.9300	0.9300	0.8520	0.8520	0.8520	0.9540	0.9540	0.9540	0.7550	0.7550	0.7550
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]	17	168	17	9	141	23	45	187	21	14	127	14
Total Analysis Volume [veh/h]	68	672	68	34	565	93	181	748	85	56	507	57
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	49	0	0	49	0	10	31	0	10	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	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	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45	45	28	28	28	37	33	33
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.32	0.32	0.32	0.41	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.09	0.40	0.05	0.36	0.21	0.23	0.23	0.07	0.15	0.15
s, saturation flow rate [veh/h]	776	1840	719	1824	846	1870	1804	858	1870	1805
c, Capacity [veh/h]	241	924	191	916	224	588	567	333	682	658
d1, Uniform Delay [s]	30.94	18.66	33.74	17.45	38.90	27.36	27.36	18.36	21.46	21.48
k, delay calibration	0.50	0.50	0.50	0.50	0.19	0.22	0.22	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.90	7.26	2.02	4.83	11.20	3.34	3.46	0.24	0.41	0.43
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.28	0.80	0.18	0.72	0.81	0.72	0.72	0.17	0.42	0.42
d, Delay for Lane Group [s/veh]	33.84	25.92	35.76	22.28	50.10	30.70	30.82	18.59	21.87	21.91
Lane Group LOS	C	C	D	C	D	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.46	13.73	0.76	11.10	4.70	8.35	8.07	0.71	4.47	4.34
50th-Percentile Queue Length [ft/ln]	36.43	343.28	18.99	277.44	117.51	208.71	201.82	17.69	111.66	108.42
95th-Percentile Queue Length [veh/ln]	2.62	19.81	1.37	16.56	8.26	13.09	12.73	1.27	7.93	7.75
95th-Percentile Queue Length [ft/ln]	65.57	495.21	34.18	414.03	206.40	327.17	318.31	31.85	198.31	193.80

Movement, Approach, & Intersection Results

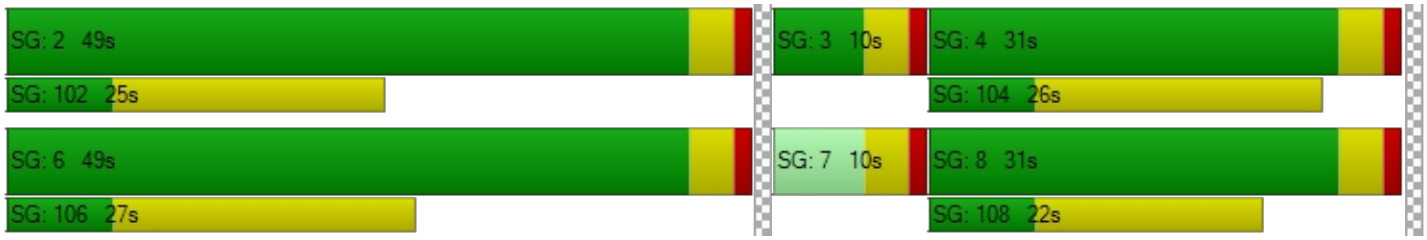
d_M, Delay for Movement [s/veh]	33.84	25.92	25.92	35.76	22.28	22.28	50.10	30.75	30.82	18.59	21.89	21.91
Movement LOS	C	C	C	D	C	C	D	C	C	B	C	C
d_A, Approach Delay [s/veh]	26.59			22.94			34.21			21.59		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	27.26											
Intersection LOS	C											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.459	2.718	2.724	2.634
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	600	600
d_b, Bicycle Delay [s]	11.25	11.25	22.05	22.05
l_b,int, Bicycle LOS Score for Intersection	2.893	2.701	2.396	2.071
Bicycle LOS	C	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-III

YEAR 2024 CUMULATIVE TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.454

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	34	857	119	63	947	12	8	9	18	62	11	103
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	34	857	119	63	947	12	8	9	18	62	11	103
Peak Hour Factor	0.9110	0.9110	0.9110	0.9260	0.9260	0.9260	0.6590	0.6590	0.6590	0.7280	0.7280	0.7280
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]	9	235	33	17	256	3	3	3	7	21	4	35
Total Analysis Volume [veh/h]	37	941	131	68	1023	13	12	14	27	85	15	141
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	59	0	0	59	0	0	31	0	0	31	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	69	69	69	69	69	69	13	13	13
g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.76	0.76	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.29	0.29	0.13	0.28	0.28	0.05	0.12	0.10
s, saturation flow rate [veh/h]	544	1870	1791	526	1870	1862	1037	828	1446
c, Capacity [veh/h]	437	1430	1370	421	1430	1424	201	195	212
d1, Uniform Delay [s]	5.72	3.52	3.52	6.37	3.45	3.45	33.98	37.10	36.33
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	0.78	0.81	0.82	0.72	0.72	0.69	2.07	3.58
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.38	0.38	0.16	0.36	0.36	0.26	0.51	0.67
d, Delay for Lane Group [s/veh]	6.10	4.30	4.34	7.19	4.16	4.17	34.67	39.18	39.91
Lane Group LOS	A	A	A	A	A	A	C	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.27	2.64	2.54	0.56	2.45	2.44	1.05	2.21	3.09
50th-Percentile Queue Length [ft/ln]	6.85	66.00	63.61	13.93	61.22	60.98	26.18	55.24	77.29
95th-Percentile Queue Length [veh/ln]	0.49	4.75	4.58	1.00	4.41	4.39	1.89	3.98	5.56
95th-Percentile Queue Length [ft/ln]	12.32	118.79	114.50	25.08	110.19	109.77	47.13	99.43	139.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.10	4.32	4.34	7.19	4.17	4.17	34.67	34.67	34.67	39.18	39.18	39.91
Movement LOS	A	A	A	A	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	4.38			4.35			34.67			39.61		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	8.39											
Intersection LOS	A											
Intersection V/C	0.454											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.745	2.031	2.338
Crosswalk LOS	F	B	B	B
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
l_b,int, Bicycle LOS Score for Intersection	2.475	2.470	1.647	1.758
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	73	185	74	108	144	76	40	559	49	104	868	104
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	73	185	74	108	144	76	40	559	49	104	868	104
Peak Hour Factor	0.7340	0.7340	0.7340	0.8810	0.8810	0.8810	0.8530	0.8530	0.8530	0.8250	0.8250	0.8250
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]	25	63	25	31	41	22	12	164	14	32	263	32
Total Analysis Volume [veh/h]	99	252	101	123	163	86	47	655	57	126	1052	126
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	37	37	37	37	37	30	30	30	30	30	30
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.49	0.40	0.40	0.40	0.40	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.08	0.20	0.12	0.09	0.05	0.09	0.18	0.04	0.16	0.30	0.08
s, saturation flow rate [veh/h]	1223	1780	1028	1870	1589	536	3560	1589	778	3560	1589
c, Capacity [veh/h]	606	871	446	915	778	161	1437	642	281	1437	642
d1, Uniform Delay [s]	13.86	12.18	18.50	10.70	10.33	31.70	16.33	13.82	25.97	18.92	14.48
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.58	1.40	1.53	0.43	0.29	0.99	0.23	0.06	1.12	0.73	0.15
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	0.16	0.41	0.28	0.18	0.11	0.29	0.46	0.09	0.45	0.73	0.20
d, Delay for Lane Group [s/veh]	14.43	13.58	20.03	11.12	10.61	32.69	16.56	13.88	27.08	19.65	14.62
Lane Group LOS	B	B	C	B	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.09	3.74	1.70	1.49	0.77	0.84	3.88	0.58	2.04	7.28	1.33
50th-Percentile Queue Length [ft/ln]	27.33	93.61	42.57	37.23	19.13	20.97	96.93	14.38	51.04	181.89	33.33
95th-Percentile Queue Length [veh/ln]	1.97	6.74	3.07	2.68	1.38	1.51	6.98	1.04	3.67	11.70	2.40
95th-Percentile Queue Length [ft/ln]	49.19	168.50	76.63	67.02	34.44	37.75	174.48	25.88	91.87	292.48	59.99

Movement, Approach, & Intersection Results

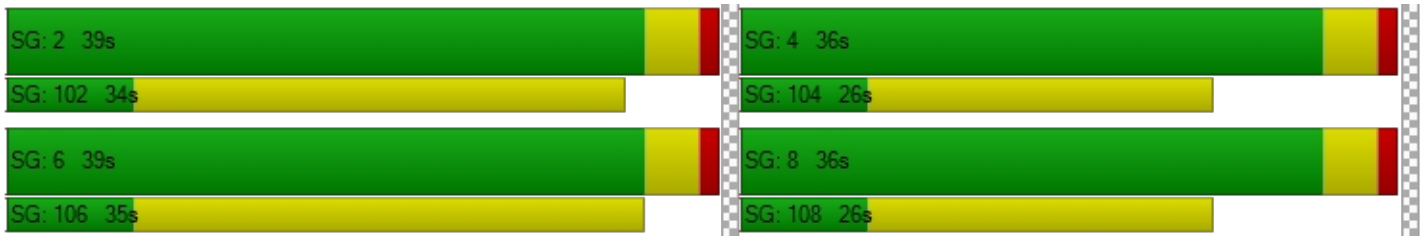
d_M, Delay for Movement [s/veh]	14.43	13.58	13.58	20.03	11.12	10.61	32.69	16.56	13.88	27.08	19.65	14.62
Movement LOS	B	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	13.77			13.95			17.36			19.88		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	17.50											
Intersection LOS	B											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.369	2.382	2.908	2.972
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.305	2.173	2.186	2.635
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.377

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	51	62	72	12	45	10	3	357	49	54	374	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	51	62	72	12	45	10	3	357	49	54	374	8
Peak Hour Factor	0.8470	0.8470	0.8470	0.9250	0.9250	0.9250	0.8560	0.8560	0.8560	0.8990	0.8990	0.8990
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]	15	18	21	3	12	3	1	104	14	15	104	2
Total Analysis Volume [veh/h]	60	73	85	13	49	11	4	417	57	60	416	9
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	47	0	0	47	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	48	48	19	19	19	19
g / C, Green / Cycle	0.63	0.63	0.26	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.14	0.04	0.14	0.14	0.20	0.18
s, saturation flow rate [veh/h]	1607	1699	1795	1630	911	1693
c, Capacity [veh/h]	1080	1134	514	422	300	439
d1, Uniform Delay [s]	5.73	5.23	23.75	23.93	25.90	25.04
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.42	0.11	0.71	1.08	2.01	1.93
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	0.06	0.49	0.54	0.61	0.69
d, Delay for Lane Group [s/veh]	6.15	5.34	24.46	25.01	27.91	26.97
Lane Group LOS	A	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.30	0.39	3.72	3.46	3.21	4.85
50th-Percentile Queue Length [ft/ln]	32.60	9.85	92.93	86.59	80.24	121.22
95th-Percentile Queue Length [veh/ln]	2.35	0.71	6.69	6.23	5.78	8.46
95th-Percentile Queue Length [ft/ln]	58.67	17.73	167.27	155.85	144.43	211.50

Movement, Approach, & Intersection Results

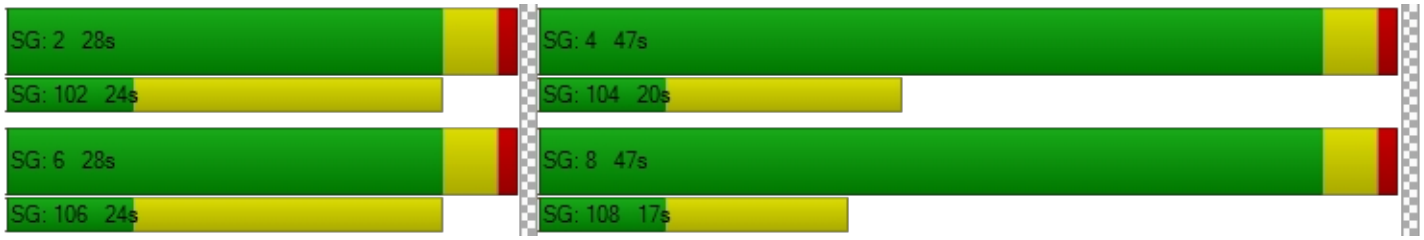
d_M, Delay for Movement [s/veh]	6.15	6.15	6.15	5.34	5.34	5.34	24.46	24.69	25.01	27.91	27.25	26.97
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	6.15			5.34			24.72			27.32		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	21.37											
Intersection LOS	C											
Intersection V/C	0.377											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	1.977	1.788	2.442	2.383
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	640	1147	1147
d_b, Bicycle Delay [s]	17.34	17.34	6.83	6.83
l_b,int, Bicycle LOS Score for Intersection	1.919	1.680	1.954	1.960
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	27.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	56	387	37	28	726	96	94	341	70	75	402	31
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	56	387	37	28	726	96	94	341	70	75	402	31
Peak Hour Factor	0.9160	0.9160	0.9160	0.9460	0.9460	0.9460	0.8480	0.8480	0.8480	0.9260	0.9260	0.9260
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]	15	106	10	7	192	25	28	101	21	20	109	8
Total Analysis Volume [veh/h]	61	422	40	30	767	101	111	402	83	81	434	33
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	27	0	0	27	0	11	37	0	11	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	21	21	21	30	26	26
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.28	0.28	0.28	0.40	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.03	0.47	0.12	0.13	0.13	0.07	0.13	0.13
s, saturation flow rate [veh/h]	638	1842	930	1832	926	1870	1761	1111	1870	1824
c, Capacity [veh/h]	101	912	370	907	245	523	492	487	645	629
d1, Uniform Delay [s]	37.47	12.76	19.26	18.16	30.01	22.45	22.48	14.72	18.43	18.44
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.66	2.01	0.43	21.05	1.31	0.67	0.73	0.16	0.35	0.36
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.60	0.51	0.08	0.96	0.45	0.48	0.48	0.17	0.37	0.37
d, Delay for Lane Group [s/veh]	61.14	14.76	19.68	39.21	31.32	23.13	23.21	14.88	18.78	18.80
Lane Group LOS	E	B	B	D	C	C	C	B	B	B
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.76	5.22	0.41	17.90	1.93	3.58	3.41	0.84	2.97	2.91
50th-Percentile Queue Length [ft/ln]	44.04	130.41	10.25	447.38	48.26	89.41	85.21	21.02	74.20	72.81
95th-Percentile Queue Length [veh/ln]	3.17	8.96	0.74	24.83	3.47	6.44	6.13	1.51	5.34	5.24
95th-Percentile Queue Length [ft/ln]	79.27	224.05	18.45	620.82	86.87	160.93	153.37	37.84	133.57	131.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.14	14.76	14.76	19.68	39.21	39.21	31.32	23.16	23.21	14.88	18.79	18.80
Movement LOS	E	B	B	B	D	D	C	C	C	B	B	B
d_A, Approach Delay [s/veh]	20.17			38.56			24.69			18.21		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	27.24											
Intersection LOS	C											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.438	2.564	2.609	2.531
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	613	613	880	880
d_b, Bicycle Delay [s]	18.03	18.03	11.76	11.76
l_b,int, Bicycle LOS Score for Intersection	2.423	3.041	2.051	2.012
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	42	1322	284	83	799	26	29	11	39	126	17	167
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	42	1322	284	83	799	26	29	11	39	126	17	167
Peak Hour Factor	0.9740	0.9740	0.9740	0.9230	0.9230	0.9230	0.6620	0.6620	0.6620	0.8560	0.8560	0.8560
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]	11	339	73	22	216	7	11	4	15	37	5	49
Total Analysis Volume [veh/h]	43	1357	292	90	866	28	44	17	59	147	20	195
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	62	0	0	62	0	0	28	0	0	28	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	62	62	62	62	62	62	20	20	20
g / C, Green / Cycle	0.69	0.69	0.69	0.69	0.69	0.69	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.45	0.46	0.30	0.24	0.24	0.16	0.20	0.13
s, saturation flow rate [veh/h]	622	1870	1758	303	1870	1849	769	850	1446
c, Capacity [veh/h]	437	1286	1209	204	1286	1272	226	265	323
d1, Uniform Delay [s]	8.80	7.93	8.15	22.37	5.77	5.77	32.77	33.83	31.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.15	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	2.56	2.99	6.79	0.75	0.76	1.92	3.38	1.82
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.65	0.67	0.44	0.35	0.35	0.53	0.63	0.60
d, Delay for Lane Group [s/veh]	9.25	10.49	11.14	29.16	6.52	6.53	34.70	37.21	33.19
Lane Group LOS	A	B	B	C	A	A	C	D	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.41	8.38	8.46	1.91	3.19	3.16	2.62	3.70	3.89
50th-Percentile Queue Length [ft/ln]	10.37	209.51	211.62	47.74	79.71	78.91	65.55	92.51	97.13
95th-Percentile Queue Length [veh/ln]	0.75	13.13	13.24	3.44	5.74	5.68	4.72	6.66	6.99
95th-Percentile Queue Length [ft/ln]	18.66	328.21	330.90	85.93	143.49	142.04	117.99	166.52	174.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.25	10.74	11.14	29.16	6.53	6.53	34.70	34.70	34.70	37.21	37.21	33.19
Movement LOS	A	B	B	C	A	A	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	10.77			8.60			34.70			35.04		
Approach LOS	B			A			C			D		
d_I, Intersection Delay [s/veh]	13.79											
Intersection LOS	B											
Intersection V/C	0.723											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.865	2.069	2.444
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1289	1289	533	533
d_b, Bicycle Delay [s]	5.69	5.69	24.20	24.20
l_b,int, Bicycle LOS Score for Intersection	2.956	2.371	1.758	1.858
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	57	237	100	128	166	78	103	986	43	101	729	188
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	57	237	100	128	166	78	103	986	43	101	729	188
Peak Hour Factor	0.8040	0.8040	0.8040	0.8580	0.8580	0.8580	0.9030	0.9030	0.9030	0.8980	0.8980	0.8980
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]	18	74	31	37	48	23	29	273	12	28	203	52
Total Analysis Volume [veh/h]	71	295	124	149	193	91	114	1092	48	112	812	209
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	35	35	35	35	35	32	32	32	32	32	32
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.15	0.10	0.06	0.17	0.31	0.03	0.22	0.23	0.13
s, saturation flow rate [veh/h]	1190	1777	967	1870	1589	672	3560	1589	516	3560	1589
c, Capacity [veh/h]	542	828	360	871	741	252	1521	679	173	1521	679
d1, Uniform Delay [s]	15.54	13.95	23.35	11.89	11.31	26.57	17.70	12.66	33.58	15.90	14.13
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.50	2.20	3.47	0.59	0.34	1.27	0.65	0.04	4.02	0.29	0.25
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	0.13	0.51	0.41	0.22	0.12	0.45	0.72	0.07	0.65	0.53	0.31
d, Delay for Lane Group [s/veh]	16.04	16.16	26.83	12.48	11.65	27.84	18.35	12.70	37.60	16.19	14.39
Lane Group LOS	B	B	C	B	B	C	B	B	D	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.84	5.01	2.50	1.91	0.86	1.89	7.26	0.46	2.20	4.82	2.22
50th-Percentile Queue Length [ft/ln]	20.96	125.32	62.52	47.77	21.58	47.16	181.38	11.39	55.00	120.39	55.58
95th-Percentile Queue Length [veh/ln]	1.51	8.68	4.50	3.44	1.55	3.40	11.67	0.82	3.96	8.41	4.00
95th-Percentile Queue Length [ft/ln]	37.74	217.12	112.53	85.98	38.85	84.89	291.81	20.50	99.01	210.36	100.04

Movement, Approach, & Intersection Results

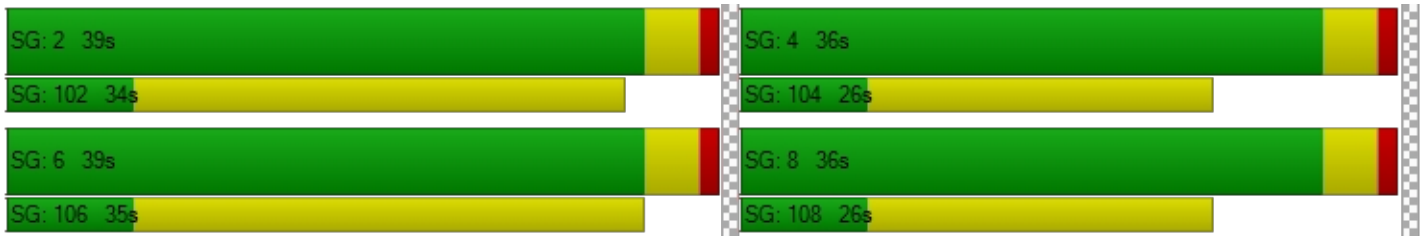
d_M, Delay for Movement [s/veh]	16.04	16.16	16.16	26.83	12.48	11.65	27.84	18.35	12.70	37.60	16.19	14.39
Movement LOS	B	B	B	C	B	B	C	B	B	D	B	B
d_A, Approach Delay [s/veh]	16.14			17.24			19.00			17.97		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	17.99											
Intersection LOS	B											
Intersection V/C	0.607											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.363	2.539	2.906	3.061
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.368	2.274	2.594	2.494
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

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):	0.566

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	66	115	142	15	63	17	9	597	61	61	397	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	66	115	142	15	63	17	9	597	61	61	397	9
Peak Hour Factor	0.8140	0.8140	0.8140	0.7720	0.7720	0.7720	0.8520	0.8520	0.8520	0.9380	0.9380	0.9380
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]	20	35	44	5	20	6	3	175	18	16	106	2
Total Analysis Volume [veh/h]	81	141	174	19	82	22	11	701	72	65	423	10
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	47	0	0	47	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	41	41	26	26	26	26
g / C, Green / Cycle	0.55	0.55	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.24	0.07	0.22	0.22	0.26	0.21
s, saturation flow rate [veh/h]	1624	1683	1853	1645	546	1693
c, Capacity [veh/h]	953	982	684	563	257	580
d1, Uniform Delay [s]	9.81	8.12	20.84	20.89	23.97	20.51
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.34	0.26	0.88	1.29	1.88	1.05
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	0.42	0.13	0.61	0.65	0.56	0.61
d, Delay for Lane Group [s/veh]	11.15	8.38	21.72	22.19	25.85	21.57
Lane Group LOS	B	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.67	0.92	5.95	5.34	2.49	5.04
50th-Percentile Queue Length [ft/ln]	91.67	23.09	148.82	133.62	62.36	125.88
95th-Percentile Queue Length [veh/ln]	6.60	1.66	9.95	9.14	4.49	8.72
95th-Percentile Queue Length [ft/ln]	165.01	41.56	248.85	228.41	112.26	217.89

Movement, Approach, & Intersection Results

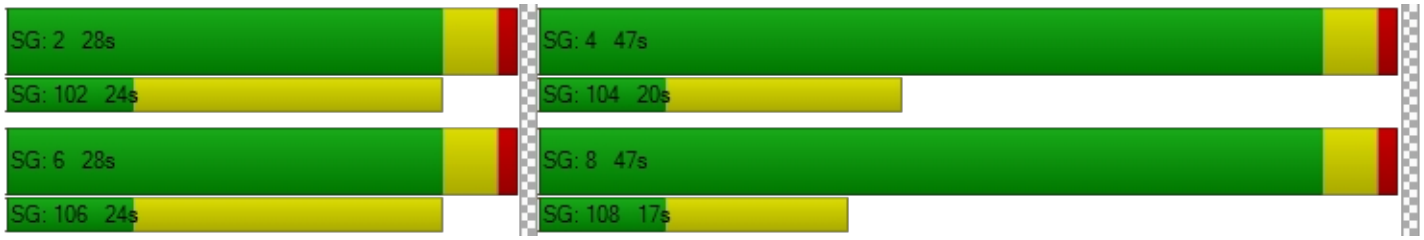
d_M, Delay for Movement [s/veh]	11.15	11.15	11.15	8.38	8.38	8.38	21.72	21.92	22.19	25.85	22.36	21.57
Movement LOS	B	B	B	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.15			8.38			21.94			22.80		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	18.88											
Intersection LOS	B											
Intersection V/C	0.566											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.097	1.859	2.556	2.487
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	640	1147	1147
d_b, Bicycle Delay [s]	17.34	17.34	6.83	6.83
l_b,int, Bicycle LOS Score for Intersection	2.213	1.763	2.206	1.970
Bicycle LOS	B	A	B	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.824

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	65	720	65	30	543	77	174	738	83	43	395	44
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	65	720	65	30	543	77	174	738	83	43	395	44
Peak Hour Factor	0.9300	0.9300	0.9300	0.8520	0.8520	0.8520	0.9540	0.9540	0.9540	0.7550	0.7550	0.7550
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]	17	194	17	9	159	23	46	193	22	14	131	15
Total Analysis Volume [veh/h]	70	774	70	35	637	90	182	774	87	57	523	58
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	50	0	0	50	0	10	30	0	10	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	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	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	46	46	46	46	27	27	27	36	32	32
g / C, Green / Cycle	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.40	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.10	0.46	0.05	0.40	0.22	0.23	0.23	0.07	0.16	0.16
s, saturation flow rate [veh/h]	727	1843	652	1830	833	1870	1804	850	1870	1805
c, Capacity [veh/h]	210	945	138	939	208	567	547	317	661	638
d1, Uniform Delay [s]	33.59	19.69	39.41	17.71	40.16	28.55	28.55	19.22	22.32	22.34
k, delay calibration	0.50	0.50	0.50	0.50	0.20	0.23	0.23	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.23	12.58	4.34	6.21	18.26	4.81	4.99	0.27	0.47	0.49
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.33	0.89	0.25	0.77	0.88	0.77	0.77	0.18	0.45	0.45
d, Delay for Lane Group [s/veh]	37.81	32.27	43.75	23.92	58.42	33.36	33.54	19.49	22.79	22.83
Lane Group LOS	D	C	D	C	E	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.62	17.81	0.90	12.85	5.08	9.06	8.78	0.74	4.73	4.59
50th-Percentile Queue Length [ft/ln]	40.38	445.13	22.57	321.32	126.97	226.62	219.38	18.46	118.22	114.77
95th-Percentile Queue Length [veh/ln]	2.91	24.73	1.63	18.73	8.77	14.00	13.63	1.33	8.29	8.10
95th-Percentile Queue Length [ft/ln]	72.68	618.14	40.63	468.31	219.37	350.06	340.84	33.23	207.37	202.62

Movement, Approach, & Intersection Results

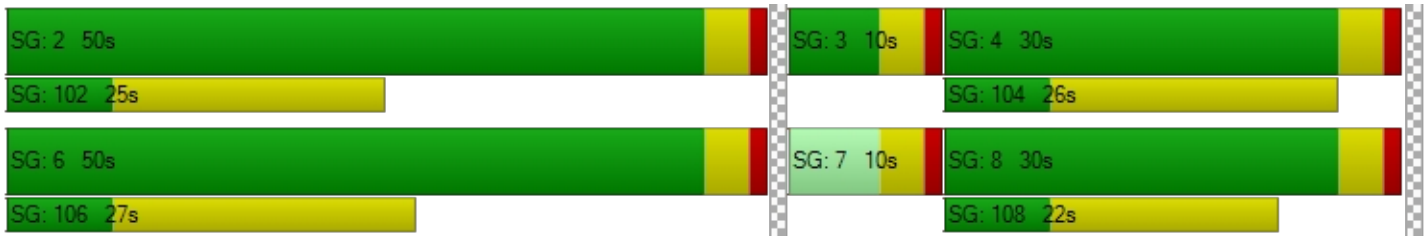
d_M, Delay for Movement [s/veh]	37.81	32.27	32.27	43.75	23.92	23.92	58.42	33.44	33.54	19.49	22.81	22.83
Movement LOS	D	C	C	D	C	C	E	C	C	B	C	C
d_A, Approach Delay [s/veh]	32.69			24.83			37.81			22.52		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.56											
Intersection LOS	C											
Intersection V/C	0.824											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.517	2.776	2.735	2.645
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1022	1022	578	578
d_b, Bicycle Delay [s]	10.76	10.76	22.76	22.76
l_b,int, Bicycle LOS Score for Intersection	3.068	2.817	2.420	2.086
Bicycle LOS	C	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-IV

YEAR 2024 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	34	838	164	102	928	12	8	9	18	95	11	143
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	34	838	164	102	928	12	8	9	18	95	11	143
Peak Hour Factor	0.9110	0.9110	0.9110	0.9260	0.9260	0.9260	0.6590	0.6590	0.6590	0.7280	0.7280	0.7280
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]	9	230	45	28	251	3	3	3	7	33	4	49
Total Analysis Volume [veh/h]	37	920	180	110	1002	13	12	14	27	130	15	196
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	59	0	0	59	0	0	31	0	0	31	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	61	61	61	61	61	61	21	21	21
g / C, Green / Cycle	0.68	0.68	0.68	0.68	0.68	0.68	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.07	0.30	0.30	0.21	0.27	0.27	0.05	0.18	0.14
s, saturation flow rate [veh/h]	555	1870	1765	512	1870	1862	1033	786	1446
c, Capacity [veh/h]	388	1274	1203	354	1274	1268	286	257	332
d1, Uniform Delay [s]	9.59	6.55	6.56	12.36	6.28	6.28	27.86	33.92	30.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	1.12	1.19	2.27	0.94	0.94	0.31	2.21	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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.10	0.44	0.44	0.31	0.40	0.40	0.19	0.57	0.59
d, Delay for Lane Group [s/veh]	10.08	7.67	7.75	14.63	7.21	7.22	28.17	36.12	32.54
Lane Group LOS	B	A	A	B	A	A	C	D	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.38	4.54	4.32	1.45	3.90	3.89	0.92	3.19	3.86
50th-Percentile Queue Length [ft/ln]	9.54	113.46	107.90	36.23	97.52	97.13	22.96	79.71	96.48
95th-Percentile Queue Length [veh/ln]	0.69	8.03	7.72	2.61	7.02	6.99	1.65	5.74	6.95
95th-Percentile Queue Length [ft/ln]	17.17	200.80	193.08	65.22	175.53	174.83	41.32	143.48	173.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.08	7.70	7.75	14.63	7.22	7.22	28.17	28.17	28.17	36.12	36.12	32.54
Movement LOS	B	A	A	B	A	A	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	7.79			7.94			28.17			34.06		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	11.63											
Intersection LOS	B											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.756	2.031	2.444
Crosswalk LOS	F	C	B	B
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
l_b,int, Bicycle LOS Score for Intersection	2.498	2.488	1.647	1.841
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	17.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	73	189	74	111	147	77	42	559	49	104	868	108
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	73	189	74	111	147	77	42	559	49	104	868	108
Peak Hour Factor	0.7340	0.7340	0.7340	0.8810	0.8810	0.8810	0.8530	0.8530	0.8530	0.8250	0.8250	0.8250
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]	25	64	25	31	42	22	12	164	14	32	263	33
Total Analysis Volume [veh/h]	99	257	101	126	167	87	49	655	57	126	1052	131
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	37	37	37	37	37	30	30	30	30	30	30
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.49	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.08	0.20	0.12	0.09	0.05	0.09	0.18	0.04	0.16	0.30	0.08
s, saturation flow rate [veh/h]	1218	1781	1023	1870	1589	536	3560	1589	778	3560	1589
c, Capacity [veh/h]	600	869	440	912	775	163	1444	645	283	1444	645
d1, Uniform Delay [s]	14.03	12.32	18.85	10.80	10.41	31.61	16.23	13.74	25.79	18.80	14.43
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.59	1.44	1.63	0.44	0.29	1.02	0.22	0.06	1.09	0.72	0.15
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	0.17	0.41	0.29	0.18	0.11	0.30	0.45	0.09	0.44	0.73	0.20
d, Delay for Lane Group [s/veh]	14.62	13.76	20.48	11.25	10.70	32.64	16.45	13.79	26.88	19.51	14.59
Lane Group LOS	B	B	C	B	B	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.10	3.83	1.77	1.54	0.78	0.87	3.86	0.57	2.03	7.24	1.38
50th-Percentile Queue Length [ft/ln]	27.57	95.81	44.27	38.44	19.47	21.87	96.52	14.31	50.80	181.07	34.62
95th-Percentile Queue Length [veh/ln]	1.99	6.90	3.19	2.77	1.40	1.57	6.95	1.03	3.66	11.66	2.49
95th-Percentile Queue Length [ft/ln]	49.63	172.46	79.68	69.20	35.05	39.36	173.73	25.77	91.45	291.41	62.32

Movement, Approach, & Intersection Results

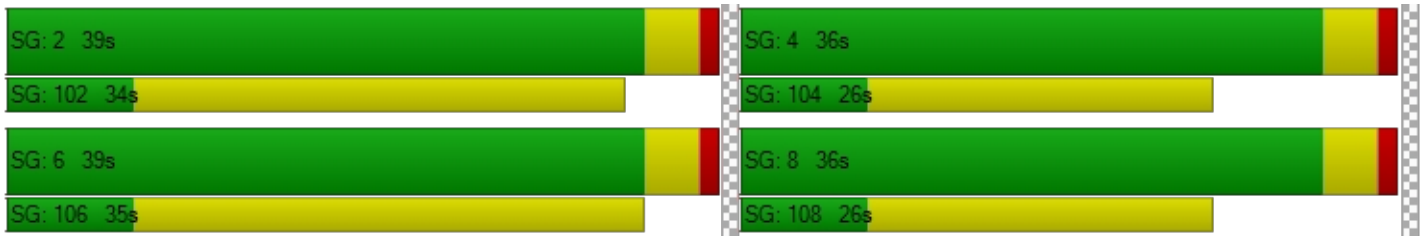
d_M, Delay for Movement [s/veh]	14.62	13.76	13.76	20.48	11.25	10.70	32.64	16.45	13.79	26.88	19.51	14.59
Movement LOS	B	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	13.95			14.18			17.29			19.73		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	17.46											
Intersection LOS	B											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.372	2.390	2.908	2.978
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.314	2.187	2.187	2.640
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.390

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	51	68	80	12	53	10	3	357	49	64	374	8
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	51	68	80	12	53	10	3	357	49	64	374	8
Peak Hour Factor	0.8470	0.8470	0.8470	0.9250	0.9250	0.9250	0.8560	0.8560	0.8560	0.8990	0.8990	0.8990
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]	15	20	24	3	14	3	1	104	14	18	104	2
Total Analysis Volume [veh/h]	60	80	94	13	57	11	4	417	57	71	416	9
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]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	32	0	0	32	0	0	48	0	0	48	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	80	80	80	80	80	80
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	2.00	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]	51	51	21	21	21	21
g / C, Green / Cycle	0.64	0.64	0.26	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.15	0.05	0.14	0.14	0.21	0.18
s, saturation flow rate [veh/h]	1611	1712	1845	1629	926	1693
c, Capacity [veh/h]	1090	1151	523	421	301	438
d1, Uniform Delay [s]	5.94	5.38	25.42	25.51	28.56	26.82
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	0.12	0.69	1.05	2.20	2.02
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	0.21	0.07	0.48	0.53	0.63	0.70
d, Delay for Lane Group [s/veh]	6.39	5.50	26.12	26.57	30.76	28.84
Lane Group LOS	A	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.51	0.47	4.08	3.68	3.61	5.31
50th-Percentile Queue Length [ft/ln]	37.67	11.69	101.97	91.94	90.17	132.81
95th-Percentile Queue Length [veh/ln]	2.71	0.84	7.34	6.62	6.49	9.09
95th-Percentile Queue Length [ft/ln]	67.81	21.05	183.54	165.50	162.31	227.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.39	6.39	6.39	5.50	5.50	5.50	26.12	26.30	26.57	30.76	29.39	28.84
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	6.39			5.50			26.33			29.58		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	22.65											
Intersection LOS	C											
Intersection V/C	0.390											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.013	1.799	2.445	2.392
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	1100	1100
d_b, Bicycle Delay [s]	16.90	16.90	8.10	8.10
l_b,int, Bicycle LOS Score for Intersection	1.946	1.693	1.954	1.969
Bicycle LOS	A	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.768

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	56	387	37	28	726	104	100	343	70	75	404	31
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	56	387	37	28	726	104	100	343	70	75	404	31
Peak Hour Factor	0.9160	0.9160	0.9160	0.9460	0.9460	0.9460	0.8480	0.8480	0.8480	0.9260	0.9260	0.9260
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]	15	106	10	7	192	27	29	101	21	20	109	8
Total Analysis Volume [veh/h]	61	422	40	30	767	110	118	404	83	81	436	33
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	35	0	0	35	0	10	30	0	10	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	21	21	21	30	26	26
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.28	0.28	0.28	0.40	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.03	0.48	0.13	0.13	0.13	0.07	0.13	0.13
s, saturation flow rate [veh/h]	632	1842	930	1829	924	1870	1761	1109	1870	1824
c, Capacity [veh/h]	96	907	367	901	247	528	497	489	650	634
d1, Uniform Delay [s]	37.50	12.90	19.46	18.57	30.06	22.28	22.31	14.58	18.27	18.29
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.81	2.04	0.44	24.27	1.43	0.66	0.71	0.16	0.34	0.35
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.63	0.51	0.08	0.97	0.48	0.47	0.48	0.17	0.36	0.37
d, Delay for Lane Group [s/veh]	65.31	14.95	19.90	42.84	31.49	22.94	23.02	14.74	18.62	18.64
Lane Group LOS	E	B	B	D	C	C	C	B	B	B
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.84	5.26	0.41	19.03	2.06	3.57	3.41	0.84	2.97	2.91
50th-Percentile Queue Length [ft/ln]	45.94	131.47	10.32	475.77	51.61	89.37	85.14	20.89	74.14	72.75
95th-Percentile Queue Length [veh/ln]	3.31	9.02	0.74	26.19	3.72	6.43	6.13	1.50	5.34	5.24
95th-Percentile Queue Length [ft/ln]	82.69	225.49	18.57	654.63	92.91	160.86	153.26	37.60	133.45	130.95

Movement, Approach, & Intersection Results

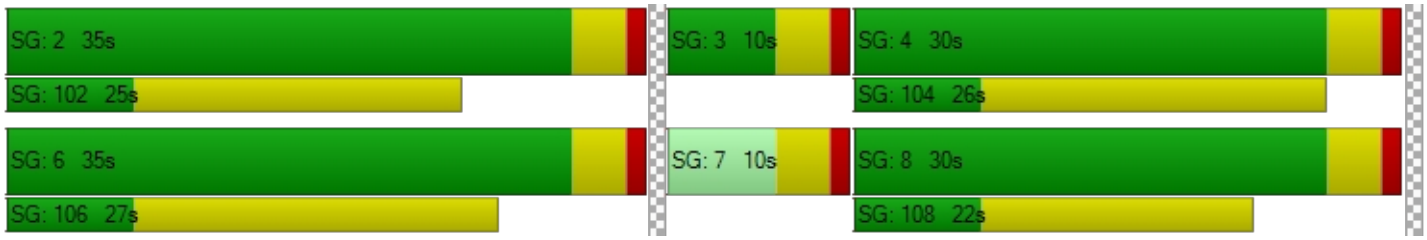
d_M, Delay for Movement [s/veh]	65.31	14.95	14.95	19.90	42.84	42.84	31.49	22.97	23.02	14.74	18.63	18.64
Movement LOS	E	B	B	B	D	D	C	C	C	B	B	B
d_A, Approach Delay [s/veh]	20.82			42.08			24.64			18.05		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	28.59											
Intersection LOS	C											
Intersection V/C	0.768											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.438	2.579	2.613	2.532
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	827	827	693	693
d_b, Bicycle Delay [s]	12.91	12.91	16.01	16.01
l_b,int, Bicycle LOS Score for Intersection	2.423	3.056	2.059	2.013
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

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):	0.781

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	42	1307	320	114	784	26	29	11	39	153	17	202
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	42	1307	320	114	784	26	29	11	39	153	17	202
Peak Hour Factor	0.9740	0.9740	0.9740	0.9230	0.9230	0.9230	0.6620	0.6620	0.6620	0.8560	0.8560	0.8560
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]	11	335	82	31	212	7	11	4	15	45	5	59
Total Analysis Volume [veh/h]	43	1342	329	124	849	28	44	17	59	179	20	236
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	64	0	0	64	0	0	26	0	0	26	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	90	90	90	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	60	60	60	60	60	60	22	22	22
g / C, Green / Cycle	0.67	0.67	0.67	0.67	0.67	0.67	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.45	0.47	0.42	0.24	0.24	0.18	0.24	0.16
s, saturation flow rate [veh/h]	632	1870	1747	297	1870	1849	676	829	1447
c, Capacity [veh/h]	425	1249	1167	186	1249	1235	219	277	351
d1, Uniform Delay [s]	9.97	9.06	9.36	31.36	6.48	6.48	31.93	34.13	30.80
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.24	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	2.98	3.60	17.50	0.78	0.79	2.13	7.57	2.24
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.68	0.71	0.67	0.35	0.35	0.55	0.72	0.67
d, Delay for Lane Group [s/veh]	10.45	12.03	12.96	48.86	7.26	7.27	34.06	41.70	33.04
Lane Group LOS	B	B	B	D	A	A	C	D	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.45	9.45	9.62	3.64	3.40	3.37	2.64	4.82	4.74
50th-Percentile Queue Length [ft/ln]	11.20	236.20	240.41	91.07	85.08	84.21	66.09	120.48	118.47
95th-Percentile Queue Length [veh/ln]	0.81	14.49	14.70	6.56	6.13	6.06	4.76	8.42	8.31
95th-Percentile Queue Length [ft/ln]	20.16	362.23	367.56	163.92	153.15	151.57	118.97	210.49	207.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.45	12.38	12.96	48.86	7.27	7.27	34.06	34.06	34.06	41.70	41.63	33.04
Movement LOS	B	B	B	D	A	A	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	12.44			12.42			34.06			37.00		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	16.49											
Intersection LOS	B											
Intersection V/C	0.781											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.873	2.069	2.528
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1333	489	489
d_b, Bicycle Delay [s]	5.00	5.00	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.974	2.385	1.758	1.918
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.610

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	57	240	100	131	169	79	104	986	43	101	729	191
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	57	240	100	131	169	79	104	986	43	101	729	191
Peak Hour Factor	0.8040	0.8040	0.8040	0.8580	0.8580	0.8580	0.9030	0.9030	0.9030	0.8980	0.8980	0.8980
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]	18	75	31	38	49	23	29	273	12	28	203	53
Total Analysis Volume [veh/h]	71	299	124	153	197	92	115	1092	48	112	812	213
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	36	0	0	36	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
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]	2.00	0.00	2.00	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]	35	35	35	35	35	32	32	32	32	32	32
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.16	0.11	0.06	0.17	0.31	0.03	0.22	0.23	0.13
s, saturation flow rate [veh/h]	1185	1778	964	1870	1589	672	3560	1589	516	3560	1589
c, Capacity [veh/h]	539	828	358	871	741	252	1521	679	173	1521	679
d1, Uniform Delay [s]	15.61	13.99	23.61	11.92	11.32	26.62	17.70	12.66	33.58	15.90	14.17
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.51	2.24	3.71	0.60	0.34	1.29	0.65	0.04	4.02	0.29	0.26
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	0.13	0.51	0.43	0.23	0.12	0.46	0.72	0.07	0.65	0.53	0.31
d, Delay for Lane Group [s/veh]	16.12	16.24	27.32	12.52	11.66	27.91	18.35	12.70	37.60	16.19	14.43
Lane Group LOS	B	B	C	B	B	C	B	B	D	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.84	5.08	2.60	1.96	0.87	1.91	7.26	0.46	2.20	4.82	2.27
50th-Percentile Queue Length [ft/ln]	21.04	126.95	64.98	48.89	21.83	47.67	181.38	11.39	55.00	120.39	56.81
95th-Percentile Queue Length [veh/ln]	1.51	8.77	4.68	3.52	1.57	3.43	11.67	0.82	3.96	8.41	4.09
95th-Percentile Queue Length [ft/ln]	37.87	219.34	116.96	88.00	39.30	85.81	291.81	20.50	99.01	210.36	102.26

Movement, Approach, & Intersection Results

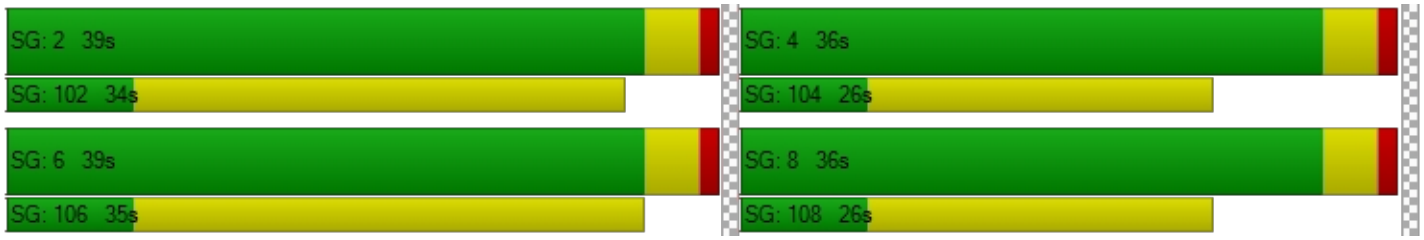
d_M, Delay for Movement [s/veh]	16.12	16.24	16.24	27.32	12.52	11.66	27.91	18.35	12.70	37.60	16.19	14.43
Movement LOS	B	B	B	C	B	B	C	B	B	D	B	B
d_A, Approach Delay [s/veh]	16.22			17.47			19.01			17.97		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	18.04											
Intersection LOS	B											
Intersection V/C	0.610											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.366	2.545	2.906	3.068
Crosswalk LOS	B	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]	933	933	853	853
d_b, Bicycle Delay [s]	10.67	10.67	12.33	12.33
l_b,int, Bicycle LOS Score for Intersection	2.375	2.289	2.595	2.498
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

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):	0.586

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	66	122	151	15	69	17	9	597	61	69	397	9
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	66	122	151	15	69	17	9	597	61	69	397	9
Peak Hour Factor	0.8140	0.8140	0.8140	0.7720	0.7720	0.7720	0.8520	0.8520	0.8520	0.9380	0.9380	0.9380
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]	20	37	46	5	22	6	3	175	18	18	106	2
Total Analysis Volume [veh/h]	81	150	186	19	89	22	11	701	72	74	423	10
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]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	32	0	0	32	0	0	43	0	0	43	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	75	75	75	75	75	75
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	2.00	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]	42	42	25	25	25	25
g / C, Green / Cycle	0.55	0.55	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.26	0.08	0.23	0.23	0.27	0.21
s, saturation flow rate [veh/h]	1631	1696	1833	1645	559	1693
c, Capacity [veh/h]	962	995	670	557	261	574
d1, Uniform Delay [s]	9.80	8.02	21.05	21.16	24.66	20.78
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.42	0.27	0.93	1.37	1.98	1.11
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	0.13	0.62	0.66	0.57	0.62
d, Delay for Lane Group [s/veh]	11.23	8.29	21.98	22.53	26.64	21.89
Lane Group LOS	B	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.90	0.97	5.95	5.42	2.61	5.11
50th-Percentile Queue Length [ft/ln]	97.42	24.29	148.71	135.48	65.31	127.66
95th-Percentile Queue Length [veh/ln]	7.01	1.75	9.95	9.24	4.70	8.81
95th-Percentile Queue Length [ft/ln]	175.36	43.73	248.70	230.92	117.56	220.31

Movement, Approach, & Intersection Results

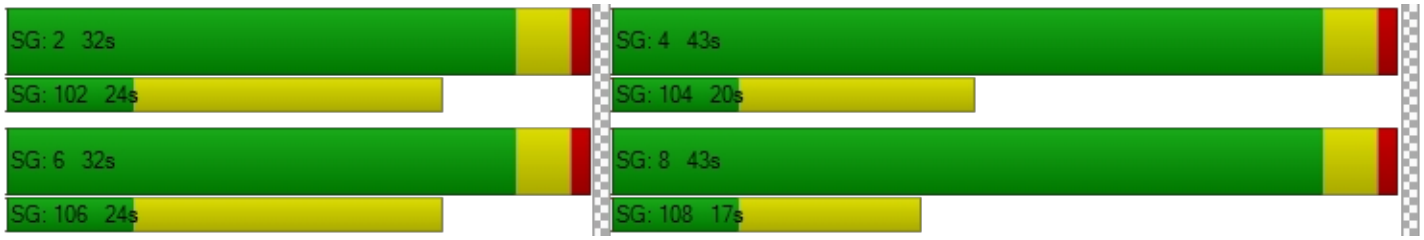
d_M, Delay for Movement [s/veh]	11.23	11.23	11.23	8.29	8.29	8.29	21.98	22.21	22.53	26.64	22.74	21.89
Movement LOS	B	B	B	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.23			8.29			22.24			23.29		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	19.04											
Intersection LOS	B											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	2.128	1.867	2.556	2.492
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	747	747	1040	1040
d_b, Bicycle Delay [s]	14.73	14.73	8.64	8.64
l_b,int, Bicycle LOS Score for Intersection	2.248	1.774	2.206	1.978
Bicycle LOS	B	A	B	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

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):	0.824

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	65	720	65	30	543	83	181	740	83	43	397	44
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	65	720	65	30	543	83	181	740	83	43	397	44
Peak Hour Factor	0.9300	0.9300	0.9300	0.8520	0.8520	0.8520	0.9540	0.9540	0.9540	0.7550	0.7550	0.7550
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]	17	194	17	9	159	24	47	194	22	14	131	15
Total Analysis Volume [veh/h]	70	774	70	35	637	97	190	776	87	57	526	58
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	50	0	0	50	0	10	30	0	10	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	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	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	46	46	46	46	27	27	27	36	32	32
g / C, Green / Cycle	0.51	0.51	0.51	0.51	0.30	0.30	0.30	0.40	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.10	0.46	0.05	0.40	0.23	0.23	0.23	0.07	0.16	0.16
s, saturation flow rate [veh/h]	723	1843	652	1827	831	1870	1805	849	1870	1806
c, Capacity [veh/h]	205	945	138	937	207	567	547	317	661	639
d1, Uniform Delay [s]	34.11	19.70	39.43	17.84	40.41	28.57	28.57	19.23	22.34	22.36
k, delay calibration	0.50	0.50	0.50	0.50	0.22	0.23	0.23	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.50	12.58	4.35	6.50	25.49	4.88	5.05	0.27	0.48	0.50
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.34	0.89	0.25	0.78	0.92	0.77	0.78	0.18	0.45	0.45
d, Delay for Lane Group [s/veh]	38.60	32.28	43.78	24.35	65.90	33.44	33.62	19.50	22.82	22.86
Lane Group LOS	D	C	D	C	E	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.64	17.81	0.90	13.12	5.67	9.10	8.81	0.74	4.76	4.62
50th-Percentile Queue Length [ft/ln]	40.93	445.19	22.58	327.99	141.67	227.48	220.26	18.46	118.94	115.48
95th-Percentile Queue Length [veh/ln]	2.95	24.73	1.63	19.06	9.57	14.05	13.68	1.33	8.33	8.14
95th-Percentile Queue Length [ft/ln]	73.67	618.20	40.65	476.50	239.27	351.16	341.96	33.23	208.37	203.60

Movement, Approach, & Intersection Results

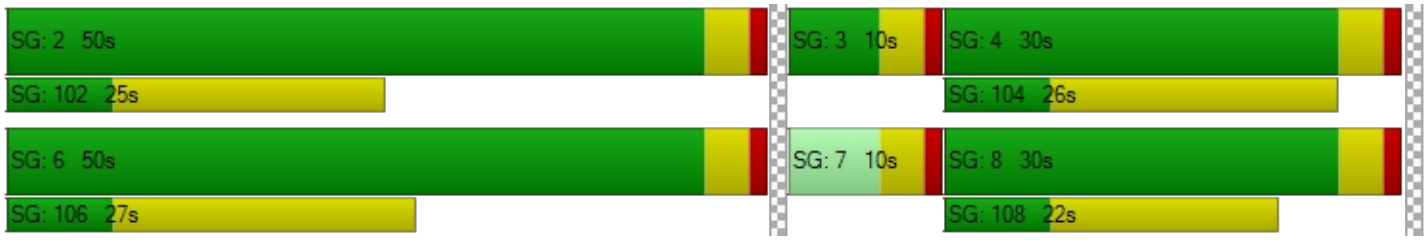
d_M, Delay for Movement [s/veh]	38.60	32.28	32.28	43.78	24.35	24.35	65.90	33.52	33.62	19.50	22.83	22.86
Movement LOS	D	C	C	D	C	C	E	C	C	B	C	C
d_A, Approach Delay [s/veh]	32.76			25.23			39.37			22.54		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.17											
Intersection LOS	C											
Intersection V/C	0.824											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.517	2.792	2.739	2.646
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1022	1022	578	578
d_b, Bicycle Delay [s]	10.76	10.76	22.76	22.76
l_b,int, Bicycle LOS Score for Intersection	3.068	2.828	2.428	2.088
Bicycle LOS	C	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-V

YEAR 2041 BUILDOUT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.468

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	39	995	139	73	1100	14	9	11	21	72	13	120
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	39	995	139	73	1100	14	9	11	21	72	13	120
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	10	262	37	19	289	4	2	3	6	19	3	32
Total Analysis Volume [veh/h]	41	1047	146	77	1158	15	9	12	22	76	14	126
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	49	0	0	49	0	0	71	0	0	71	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	120	120	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	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	95	95	95	95	95	95	17	17	17
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.09	0.33	0.33	0.16	0.31	0.31	0.04	0.11	0.09
s, saturation flow rate [veh/h]	478	1870	1791	469	1870	1862	1104	815	1446
c, Capacity [veh/h]	386	1477	1414	378	1477	1470	195	172	208
d1, Uniform Delay [s]	6.62	3.94	3.94	7.48	3.87	3.87	45.26	49.87	48.19
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	0.85	0.89	1.22	0.80	0.81	0.56	2.44	2.83
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.41	0.41	0.20	0.40	0.40	0.22	0.52	0.61
d, Delay for Lane Group [s/veh]	7.17	4.79	4.84	8.70	4.68	4.68	45.83	52.30	51.03
Lane Group LOS	A	A	A	A	A	A	D	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.40	4.06	3.92	0.85	3.86	3.84	1.16	2.75	3.71
50th-Percentile Queue Length [ft/ln]	10.10	101.55	98.08	21.30	96.45	96.10	29.07	68.71	92.67
95th-Percentile Queue Length [veh/ln]	0.73	7.31	7.06	1.53	6.94	6.92	2.09	4.95	6.67
95th-Percentile Queue Length [ft/ln]	18.18	182.80	176.55	38.34	173.60	172.98	52.32	123.68	166.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.17	4.81	4.84	8.70	4.68	4.68	45.83	45.83	45.83	52.30	52.30	51.03
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.89			4.93			45.83			51.56		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.22											
Intersection LOS	A											
Intersection V/C	0.468											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.801	2.049	2.364
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	750	1117	1117
d_b, Bicycle Delay [s]	23.44	23.44	11.70	11.70
l_b,int, Bicycle LOS Score for Intersection	2.578	2.591	1.631	1.738
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	20.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	85	216	86	126	168	89	47	648	58	121	1007	121
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	85	216	86	126	168	89	47	648	58	121	1007	121
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	22	57	23	33	44	23	12	171	15	32	265	32
Total Analysis Volume [veh/h]	89	227	91	133	177	94	49	682	61	127	1060	127
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]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	56	0	0	56	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
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]	2.00	0.00	2.00	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]	47	47	47	47	47	40	40	40	40	40	40
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.49	0.42	0.42	0.42	0.42	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.07	0.18	0.13	0.09	0.06	0.09	0.19	0.04	0.17	0.30	0.08
s, saturation flow rate [veh/h]	1207	1780	1061	1870	1589	532	3560	1589	759	3560	1589
c, Capacity [veh/h]	600	878	479	923	784	146	1504	671	261	1504	671
d1, Uniform Delay [s]	16.42	14.83	20.85	13.45	12.95	39.37	19.58	16.46	32.54	22.54	17.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.52	1.16	1.44	0.46	0.31	1.34	0.21	0.06	1.40	0.61	0.14
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	0.15	0.36	0.28	0.19	0.12	0.34	0.45	0.09	0.49	0.70	0.19
d, Delay for Lane Group [s/veh]	16.95	15.99	22.29	13.92	13.26	40.70	19.80	16.52	33.94	23.16	17.34
Lane Group LOS	B	B	C	B	B	D	B	B	C	C	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.24	4.33	2.24	2.16	1.11	1.13	5.26	0.80	2.70	9.46	1.73
50th-Percentile Queue Length [ft/ln]	31.08	108.31	55.91	54.09	27.83	28.37	131.54	19.88	67.60	236.56	43.31
95th-Percentile Queue Length [veh/ln]	2.24	7.75	4.03	3.89	2.00	2.04	9.02	1.43	4.87	14.51	3.12
95th-Percentile Queue Length [ft/ln]	55.94	193.65	100.63	97.36	50.09	51.06	225.58	35.79	121.68	362.68	77.95

Movement, Approach, & Intersection Results

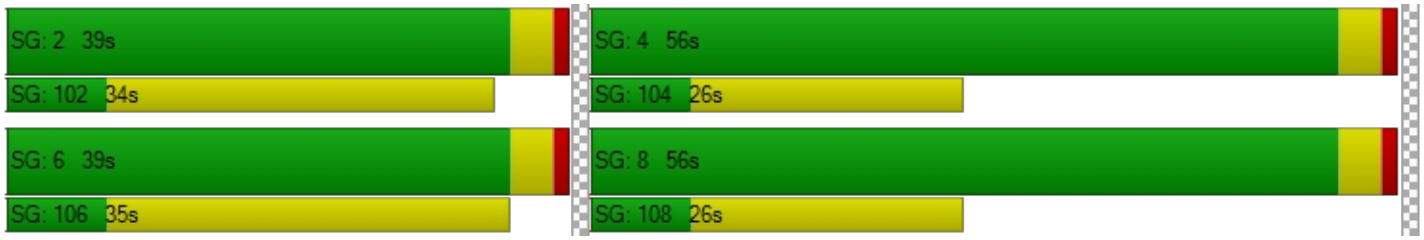
d_M, Delay for Movement [s/veh]	16.95	15.99	15.99	22.29	13.92	13.26	40.70	19.80	16.52	33.94	23.16	17.34
Movement LOS	B	B	B	C	B	B	D	B	B	C	C	B
d_A, Approach Delay [s/veh]	16.20			16.52			20.84			23.64		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.85											
Intersection LOS	C											
Intersection V/C	0.520											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	37.14	37.14	37.14	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.374	2.400	2.912	3.005
Crosswalk LOS	B	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]	737	737	1095	1095
d_b, Bicycle Delay [s]	18.95	18.95	9.73	9.73
l_b,int, Bicycle LOS Score for Intersection	2.231	2.226	2.213	2.644
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

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):	0.405

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	60	72	84	14	53	11	3	415	57	62	433	10
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	60	72	84	14	53	11	3	415	57	62	433	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	16	19	22	4	14	3	1	109	15	16	114	3
Total Analysis Volume [veh/h]	63	76	88	15	56	12	3	437	60	65	456	11
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]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	67	0	0	67	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95
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	2.00	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	27	27	27	27
g / C, Green / Cycle	0.63	0.63	0.28	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.14	0.05	0.15	0.15	0.23	0.20
s, saturation flow rate [veh/h]	1599	1691	1793	1630	810	1692
c, Capacity [veh/h]	1061	1116	545	460	280	478
d1, Uniform Delay [s]	7.34	6.69	28.41	28.64	33.87	30.73
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	0.13	0.65	0.91	2.68	2.11
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	0.21	0.07	0.48	0.52	0.66	0.72
d, Delay for Lane Group [s/veh]	7.80	6.82	29.06	29.55	36.55	32.84
Lane Group LOS	A	A	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.90	0.63	4.97	4.62	4.31	7.27
50th-Percentile Queue Length [ft/ln]	47.61	15.74	124.17	115.39	107.65	181.85
95th-Percentile Queue Length [veh/ln]	3.43	1.13	8.62	8.14	7.71	11.70
95th-Percentile Queue Length [ft/ln]	85.69	28.34	215.54	203.48	192.73	292.43

Movement, Approach, & Intersection Results

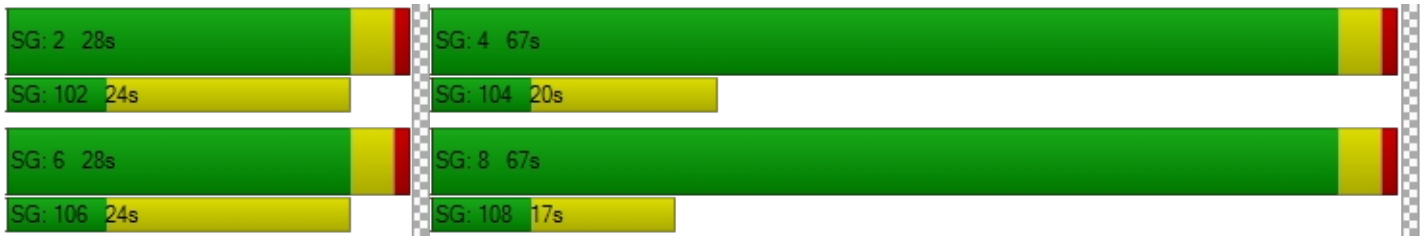
d_M, Delay for Movement [s/veh]	7.80	7.80	7.80	6.82	6.82	6.82	29.06	29.26	29.55	36.55	33.82	32.84
Movement LOS	A	A	A	A	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	7.80			6.82			29.30			34.13		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	26.19											
Intersection LOS	C											
Intersection V/C	0.405											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	37.14	37.14	37.14	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.008	1.806	2.474	2.416
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	505	505	1326	1326
d_b, Bicycle Delay [s]	26.53	26.53	5.39	5.39
l_b,int, Bicycle LOS Score for Intersection	1.934	1.697	1.972	1.999
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	65	447	43	32	833	111	109	397	81	88	467	36
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	65	447	43	32	833	111	109	397	81	88	467	36
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	118	11	8	219	29	29	104	21	23	123	9
Total Analysis Volume [veh/h]	68	471	45	34	877	117	115	418	85	93	492	38
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]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	75	0	0	75	0	10	30	0	10	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115
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
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	26	26	26	36	32	32
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.23	0.23	0.23	0.31	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.12	0.28	0.04	0.54	0.13	0.14	0.14	0.09	0.14	0.14
s, saturation flow rate [veh/h]	566	1842	885	1832	873	1870	1762	1093	1870	1823
c, Capacity [veh/h]	151	1139	467	1133	135	421	397	320	518	505
d1, Uniform Delay [s]	46.50	11.63	17.65	18.30	54.50	40.06	40.11	29.77	35.06	35.08
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.37	1.30	0.30	9.68	13.71	1.45	1.57	0.50	0.80	0.83
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.45	0.45	0.07	0.88	0.85	0.61	0.62	0.29	0.52	0.52
d, Delay for Lane Group [s/veh]	55.88	12.93	17.95	27.98	68.20	41.51	41.68	30.27	35.86	35.91
Lane Group LOS	E	B	B	C	E	D	D	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.25	7.09	0.55	23.30	3.86	6.71	6.39	1.92	6.43	6.30
50th-Percentile Queue Length [ft/ln]	56.36	177.35	13.79	582.53	96.40	167.77	159.80	47.90	160.71	157.38
95th-Percentile Queue Length [veh/ln]	4.06	11.46	0.99	31.22	6.94	10.96	10.54	3.45	10.59	10.41
95th-Percentile Queue Length [ft/ln]	101.45	286.55	24.82	780.44	173.53	273.98	263.46	86.23	264.67	260.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.88	12.93	12.93	17.95	27.98	27.98	68.20	41.58	41.68	30.27	35.88	35.91
Movement LOS	E	B	B	B	C	C	E	D	D	C	D	D
d_A, Approach Delay [s/veh]	17.93			27.65			46.54			35.05		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	31.37											
Intersection LOS	C											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	47.03	47.03	47.03	47.03
l_p,int, Pedestrian LOS Score for Intersection	2.517	2.652	2.661	2.578
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1235	1235	452	452
d_b, Bicycle Delay [s]	8.42	8.42	34.44	34.44
l_b,int, Bicycle LOS Score for Intersection	2.523	3.256	2.069	2.074
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.826

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	46	1536	331	97	928	29	31	13	43	146	20	194
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	46	1536	331	97	928	29	31	13	43	146	20	194
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	12	404	87	26	244	8	8	3	11	38	5	51
Total Analysis Volume [veh/h]	48	1617	348	102	977	31	33	14	45	154	21	204
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	91	0	0	91	0	0	29	0	0	29	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	120	120	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	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	87	87	87	87	87	87	25	25	25
g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.73	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.09	0.53	0.56	0.46	0.27	0.27	0.14	0.21	0.14
s, saturation flow rate [veh/h]	559	1870	1760	223	1870	1850	635	805	1451
c, Capacity [veh/h]	400	1357	1278	142	1357	1343	172	224	301
d1, Uniform Delay [s]	10.04	9.49	10.19	42.13	6.18	6.18	44.93	48.19	43.97
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.14	0.34	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	3.38	4.50	26.54	0.79	0.80	3.33	15.46	3.59
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.72	0.77	0.72	0.37	0.37	0.53	0.76	0.69
d, Delay for Lane Group [s/veh]	10.65	12.87	14.69	68.67	6.96	6.97	48.26	63.65	47.56
Lane Group LOS	B	B	B	E	A	A	D	E	D
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.60	14.24	15.53	4.15	4.65	4.60	2.85	6.11	6.01
50th-Percentile Queue Length [ft/ln]	15.04	356.04	388.15	103.83	116.25	115.11	71.21	152.83	150.18
95th-Percentile Queue Length [veh/ln]	1.08	20.43	21.99	7.48	8.19	8.12	5.13	10.17	10.03
95th-Percentile Queue Length [ft/ln]	27.08	510.77	549.70	186.89	204.66	203.08	128.18	254.21	250.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.65	13.59	14.69	68.67	6.97	6.97	48.26	48.26	48.26	63.65	60.61	47.56
Movement LOS	B	B	B	E	A	A	D	D	D	E	E	D
d_A, Approach Delay [s/veh]	13.71			12.64			48.26			54.82		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.60											
Intersection LOS	B											
Intersection V/C	0.826											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.939	2.085	2.495
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1450	1450	417	417
d_b, Bicycle Delay [s]	4.54	4.54	37.60	37.60
l_b,int, Bicycle LOS Score for Intersection	3.220	2.475	1.711	1.872
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	66	276	116	149	193	91	120	1144	50	118	845	220
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	66	276	116	149	193	91	120	1144	50	118	845	220
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	73	31	39	51	24	32	301	13	31	222	58
Total Analysis Volume [veh/h]	69	291	122	157	203	96	126	1204	53	124	889	232
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]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	46	0	0	46	0	0	64	0	0	64	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
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]	2.00	0.00	2.00	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]	42	42	42	42	42	60	60	60	60	60	60
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.38	0.54	0.54	0.54	0.54	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.16	0.11	0.06	0.20	0.34	0.03	0.27	0.25	0.15
s, saturation flow rate [veh/h]	1179	1777	973	1870	1589	625	3560	1589	464	3560	1589
c, Capacity [veh/h]	415	683	248	719	611	293	1933	863	196	1933	863
d1, Uniform Delay [s]	28.88	27.16	43.29	23.39	22.19	27.84	17.35	11.88	38.75	15.30	13.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.86	3.95	11.72	0.98	0.55	1.00	0.33	0.03	3.35	0.17	0.17
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	0.17	0.60	0.63	0.28	0.16	0.43	0.62	0.06	0.63	0.46	0.27
d, Delay for Lane Group [s/veh]	29.74	31.10	55.01	24.37	22.74	28.83	17.68	11.91	42.10	15.47	13.61
Lane Group LOS	C	C	E	C	C	C	B	B	D	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.46	9.32	4.92	3.83	1.72	2.69	10.15	0.61	3.41	6.60	3.04
50th-Percentile Queue Length [ft/ln]	36.59	233.12	122.92	95.66	43.04	67.22	253.79	15.34	85.17	165.00	76.12
95th-Percentile Queue Length [veh/ln]	2.63	14.33	8.55	6.89	3.10	4.84	15.38	1.10	6.13	10.81	5.48
95th-Percentile Queue Length [ft/ln]	65.86	358.32	213.83	172.18	77.48	121.00	384.43	27.61	153.30	270.33	137.02

Movement, Approach, & Intersection Results

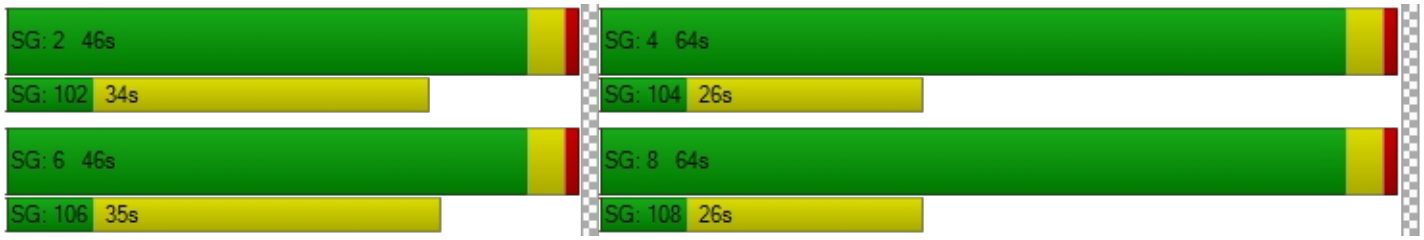
d_M, Delay for Movement [s/veh]	29.74	31.10	31.10	55.01	24.37	22.74	28.83	17.68	11.91	42.10	15.47	13.61
Movement LOS	C	C	C	E	C	C	C	B	B	D	B	B
d_A, Approach Delay [s/veh]	30.91			34.57			18.47			17.78		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	21.97											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	44.55	44.55	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersection	2.406	2.589	2.957	3.129
Crosswalk LOS	B	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]	764	764	1091	1091
d_b, Bicycle Delay [s]	21.02	21.02	11.36	11.36
l_b,int, Bicycle LOS Score for Intersection	2.355	2.312	2.701	2.587
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	77	134	166	18	73	20	10	695	71	71	462	11
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	77	134	166	18	73	20	10	695	71	71	462	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	20	35	44	5	19	5	3	183	19	19	122	3
Total Analysis Volume [veh/h]	81	141	175	19	77	21	11	732	75	75	486	12
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]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	35	0	0	35	0	0	65	0	0	65	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	100	100	100	100	100	100
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	2.00	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]	55	55	37	37	37	37
g / C, Green / Cycle	0.55	0.55	0.37	0.37	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.24	0.24	0.30	0.25
s, saturation flow rate [veh/h]	1620	1670	1802	1646	489	1693
c, Capacity [veh/h]	926	951	714	618	238	636
d1, Uniform Delay [s]	13.51	11.09	25.29	25.56	34.42	26.02
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.45	0.27	0.81	1.07	2.71	1.22
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	0.12	0.60	0.63	0.63	0.67
d, Delay for Lane Group [s/veh]	14.96	11.35	26.10	26.64	37.13	27.23
Lane Group LOS	B	B	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.42	1.29	8.19	7.59	3.65	8.41
50th-Percentile Queue Length [ft/ln]	135.60	32.23	204.83	189.82	91.13	210.16
95th-Percentile Queue Length [veh/ln]	9.24	2.32	12.89	12.11	6.56	13.16
95th-Percentile Queue Length [ft/ln]	231.09	58.02	322.19	302.80	164.03	329.04

Movement, Approach, & Intersection Results

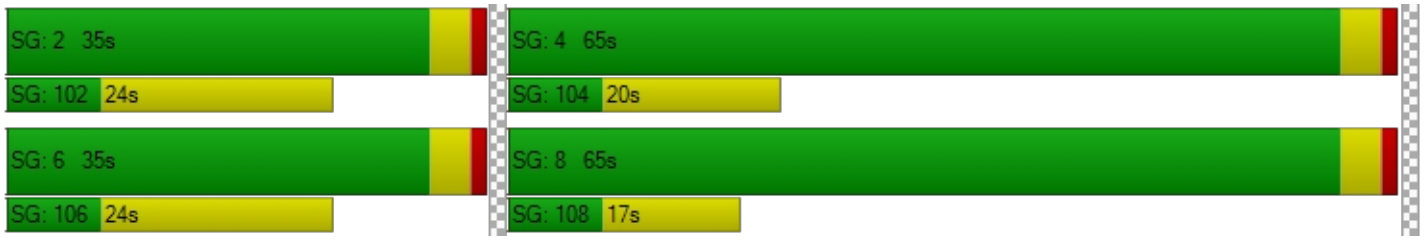
d_M, Delay for Movement [s/veh]	14.96	14.96	14.96	11.35	11.35	11.35	26.10	26.33	26.64	37.13	28.74	27.23
Movement LOS	B	B	B	B	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	14.96			11.35			26.36			29.81		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	24.10											
Intersection LOS	C											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	39.61	39.61	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersection	2.131	1.872	2.594	2.528
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	620	620	1220	1220
d_b, Bicycle Delay [s]	23.81	23.81	7.61	7.61
l_b,int, Bicycle LOS Score for Intersection	2.215	1.753	2.234	2.032
Bicycle LOS	B	A	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	42.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.899

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	76	826	76	35	625	90	202	859	97	50	460	52
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	76	826	76	35	625	90	202	859	97	50	460	52
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	20	217	20	9	164	24	53	226	26	13	121	14
Total Analysis Volume [veh/h]	80	869	80	37	658	95	213	904	102	53	484	55
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	68	0	0	68	0	10	42	0	10	42	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	64	64	64	64	39	39	39	48	44	44
g / C, Green / Cycle	0.53	0.53	0.53	0.53	0.32	0.32	0.32	0.40	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.11	0.52	0.06	0.41	0.25	0.27	0.27	0.07	0.15	0.15
s, saturation flow rate [veh/h]	710	1843	591	1829	866	1870	1804	738	1870	1804
c, Capacity [veh/h]	201	985	78	977	228	606	585	239	684	660
d1, Uniform Delay [s]	43.49	26.83	59.07	22.11	50.77	37.72	37.75	26.80	28.28	28.31
k, delay calibration	0.50	0.50	0.50	0.50	0.28	0.34	0.34	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.83	21.18	19.01	5.85	30.45	9.67	10.14	0.46	0.38	0.40
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.40	0.96	0.47	0.77	0.93	0.84	0.85	0.22	0.40	0.40
d, Delay for Lane Group [s/veh]	49.32	48.00	78.08	27.96	81.22	47.39	47.89	27.26	28.66	28.71
Lane Group LOS	D	D	E	C	F	D	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.48	30.55	1.54	17.78	8.42	15.44	15.02	0.97	5.92	5.75
50th-Percentile Queue Length [ft/ln]	61.91	763.85	38.51	444.56	210.43	386.11	375.48	24.17	147.99	143.74
95th-Percentile Queue Length [veh/ln]	4.46	39.62	2.77	24.70	13.18	21.89	21.37	1.74	9.91	9.68
95th-Percentile Queue Length [ft/ln]	111.44	990.49	69.32	617.45	329.39	547.24	534.37	43.50	247.74	242.06

Movement, Approach, & Intersection Results

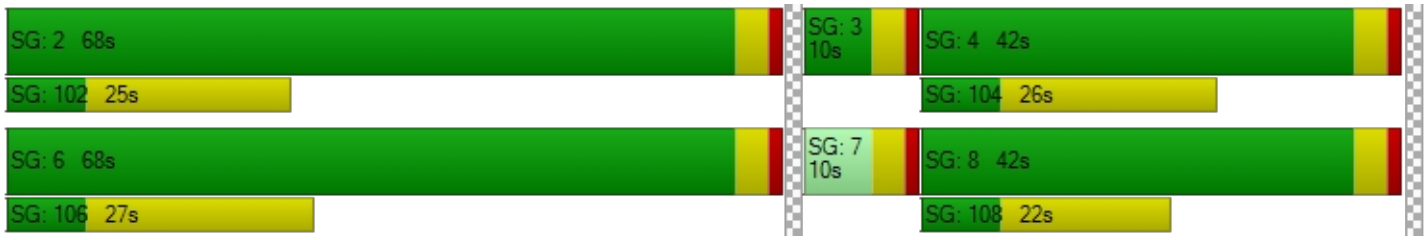
d_M, Delay for Movement [s/veh]	49.32	48.00	48.00	78.08	27.96	27.96	81.22	47.61	47.89	27.26	28.68	28.71
Movement LOS	D	D	D	E	C	C	F	D	D	C	C	C
d_A, Approach Delay [s/veh]	48.11			30.31			53.51			28.56		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	42.86											
Intersection LOS	D											
Intersection V/C	0.899											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	49.50	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	2.578	2.883	2.794	2.681
Crosswalk LOS	B	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	633	633
d_b, Bicycle Delay [s]	13.07	13.07	28.02	28.02
l_b,int, Bicycle LOS Score for Intersection	3.257	2.863	2.565	2.048
Bicycle LOS	C	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-VI

YEAR 2041 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

Control Type:	Signalized	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	39	976	184	112	1081	14	9	11	21	105	13	160
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	39	976	184	112	1081	14	9	11	21	105	13	160
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	10	257	48	29	284	4	2	3	6	28	3	42
Total Analysis Volume [veh/h]	41	1027	194	118	1138	15	9	12	22	111	14	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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	84	0	0	84	0	0	36	0	0	36	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	120	120	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	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	88	88	88	88	88	88	24	24	24
g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.73	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.08	0.33	0.34	0.26	0.31	0.31	0.04	0.16	0.12
s, saturation flow rate [veh/h]	487	1870	1768	457	1870	1861	1052	776	1446
c, Capacity [veh/h]	357	1372	1297	331	1372	1366	246	212	289
d1, Uniform Delay [s]	10.00	6.39	6.41	13.32	6.15	6.16	39.73	47.73	43.49
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.65	1.10	1.17	2.97	0.95	0.96	0.33	3.88	1.86
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.46	0.46	0.36	0.42	0.42	0.17	0.59	0.58
d, Delay for Lane Group [s/veh]	10.65	7.49	7.58	16.29	7.11	7.11	40.06	51.62	45.34
Lane Group LOS	B	A	A	B	A	A	D	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.52	6.05	5.79	1.97	5.36	5.34	1.07	3.90	4.67
50th-Percentile Queue Length [ft/ln]	12.96	151.23	144.63	49.14	134.09	133.60	26.82	97.59	116.83
95th-Percentile Queue Length [veh/ln]	0.93	10.08	9.73	3.54	9.16	9.14	1.93	7.03	8.22
95th-Percentile Queue Length [ft/ln]	23.32	252.07	243.24	88.45	229.05	228.38	48.27	175.67	205.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.65	7.52	7.58	16.29	7.11	7.11	40.06	40.06	40.06	51.62	51.62	45.34
Movement LOS	B	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.63			7.96			40.06			48.02		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.39											
Intersection LOS	B											
Intersection V/C	0.533											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.809	2.049	2.463
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	1333	533	533
d_b, Bicycle Delay [s]	6.67	6.67	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.601	2.608	1.631	1.801
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	85	220	86	129	171	90	49	648	58	121	1007	125
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	85	220	86	129	171	90	49	648	58	121	1007	125
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	22	58	23	34	45	24	13	171	15	32	265	33
Total Analysis Volume [veh/h]	89	232	91	136	180	95	52	682	61	127	1060	132
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]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	39	0	0	39	0	0	56	0	0	56	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
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]	2.00	0.00	2.00	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]	49	49	49	49	49	38	38	38	38	38	38
g / C, Green / Cycle	0.51	0.51	0.51	0.51	0.51	0.40	0.40	0.40	0.40	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.07	0.18	0.13	0.10	0.06	0.10	0.19	0.04	0.17	0.30	0.08
s, saturation flow rate [veh/h]	1204	1781	1057	1870	1589	532	3560	1589	759	3560	1589
c, Capacity [veh/h]	599	913	475	958	814	148	1436	641	263	1436	641
d1, Uniform Delay [s]	16.39	13.79	21.10	12.50	12.01	39.26	20.91	17.58	32.39	24.07	18.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.52	1.08	1.51	0.43	0.29	1.41	0.24	0.06	1.38	0.76	0.16
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	0.15	0.35	0.29	0.19	0.12	0.35	0.47	0.10	0.48	0.74	0.21
d, Delay for Lane Group [s/veh]	16.91	14.87	22.61	12.93	12.30	40.67	21.16	17.65	33.77	24.83	18.60
Lane Group LOS	B	B	C	B	B	D	C	B	C	C	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.24	4.22	2.31	2.11	1.08	1.20	5.47	0.83	2.69	9.84	1.88
50th-Percentile Queue Length [ft/ln]	31.12	105.45	57.87	52.68	26.91	30.11	136.65	20.65	67.28	246.09	46.92
95th-Percentile Queue Length [veh/ln]	2.24	7.59	4.17	3.79	1.94	2.17	9.30	1.49	4.84	14.99	3.38
95th-Percentile Queue Length [ft/ln]	56.02	189.65	104.16	94.82	48.43	54.19	232.50	37.17	121.10	374.73	84.46

Movement, Approach, & Intersection Results

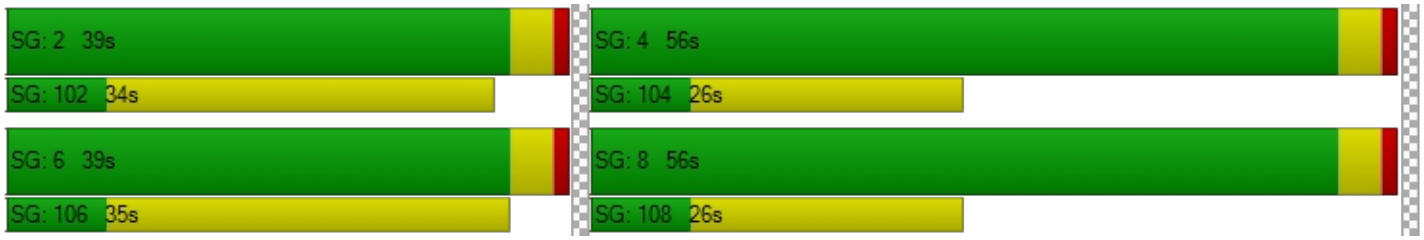
d_M, Delay for Movement [s/veh]	16.91	14.87	14.87	22.61	12.93	12.30	40.67	21.16	17.65	33.77	24.83	18.60
Movement LOS	B	B	B	C	B	B	D	C	B	C	C	B
d_A, Approach Delay [s/veh]	15.31			15.99			22.16			25.07		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.64											
Intersection LOS	C											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	37.14	37.14	37.14	37.14
l_p,int, Pedestrian LOS Score for Intersection	2.377	2.409	2.913	3.011
Crosswalk LOS	B	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]	737	737	1095	1095
d_b, Bicycle Delay [s]	18.95	18.95	9.73	9.73
l_b,int, Bicycle LOS Score for Intersection	2.239	2.238	2.215	2.648
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	60	78	92	14	61	11	3	415	57	72	433	10
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	60	78	92	14	61	11	3	415	57	72	433	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	16	21	24	4	16	3	1	109	15	19	114	3
Total Analysis Volume [veh/h]	63	82	97	15	64	12	3	437	60	76	456	11
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]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	46	0	0	46	0	0	54	0	0	54	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	100	100	100	100	100	100
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	2.00	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]	65	65	27	27	27	27
g / C, Green / Cycle	0.65	0.65	0.27	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.15	0.05	0.14	0.14	0.23	0.20
s, saturation flow rate [veh/h]	1603	1703	1844	1628	881	1692
c, Capacity [veh/h]	1083	1145	539	444	290	461
d1, Uniform Delay [s]	7.21	6.53	30.83	30.95	36.48	33.20
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.14	0.69	0.99	2.95	2.40
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	0.22	0.08	0.49	0.53	0.69	0.74
d, Delay for Lane Group [s/veh]	7.68	6.67	31.53	31.94	39.42	35.60
Lane Group LOS	A	A	C	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.08	0.70	5.45	4.90	4.93	7.76
50th-Percentile Queue Length [ft/ln]	51.97	17.57	136.13	122.45	123.13	194.09
95th-Percentile Queue Length [veh/ln]	3.74	1.27	9.27	8.53	8.56	12.33
95th-Percentile Queue Length [ft/ln]	93.55	31.63	231.80	213.19	214.12	308.33

Movement, Approach, & Intersection Results

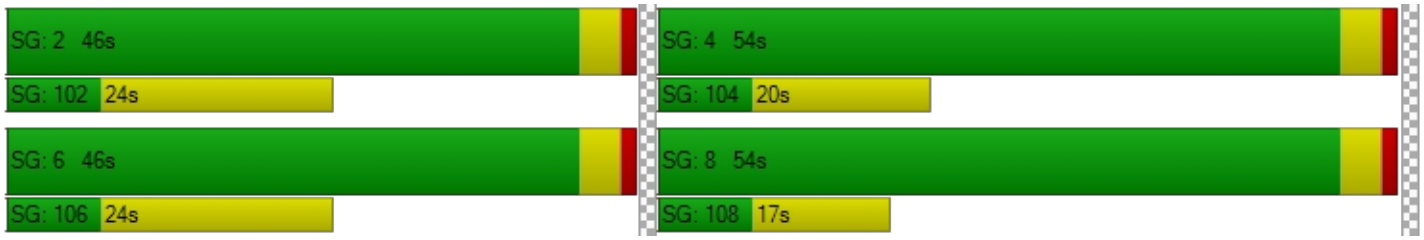
d_M, Delay for Movement [s/veh]	7.68	7.68	7.68	6.67	6.67	6.67	31.53	31.69	31.94	39.42	36.64	35.60
Movement LOS	A	A	A	A	A	A	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	7.68			6.67			31.72			37.01		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	27.92											
Intersection LOS	C											
Intersection V/C	0.411											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	39.61	39.61	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersection	2.043	1.815	2.477	2.423
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	840	1000	1000
d_b, Bicycle Delay [s]	16.82	16.82	12.50	12.50
l_b,int, Bicycle LOS Score for Intersection	1.959	1.710	1.972	2.008
Bicycle LOS	A	A	A	B

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.807

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	65	447	43	32	833	119	115	399	81	88	469	36
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	65	447	43	32	833	119	115	399	81	88	469	36
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	118	11	8	219	31	30	105	21	23	123	9
Total Analysis Volume [veh/h]	68	471	45	34	877	125	121	420	85	93	494	38
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	78	0	0	78	0	10	31	0	11	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	74	74	74	74	28	28	28	38	34	34
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.23	0.23	0.23	0.32	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.12	0.28	0.04	0.55	0.14	0.14	0.14	0.09	0.14	0.14
s, saturation flow rate [veh/h]	562	1842	885	1830	872	1870	1762	1088	1870	1823
c, Capacity [veh/h]	143	1138	464	1131	137	429	405	318	527	514
d1, Uniform Delay [s]	49.66	12.16	18.41	19.34	56.62	41.33	41.38	30.79	36.14	36.16
k, delay calibration	0.50	0.50	0.50	0.50	0.12	0.12	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.98	1.30	0.31	10.30	18.24	1.56	1.72	0.51	0.77	0.79
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.48	0.45	0.07	0.89	0.88	0.60	0.61	0.29	0.51	0.51
d, Delay for Lane Group [s/veh]	60.64	13.46	18.71	29.64	74.87	42.89	43.10	31.30	36.91	36.95
Lane Group LOS	E	B	B	C	E	D	D	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.41	7.48	0.58	25.09	4.38	7.03	6.70	2.00	6.72	6.58
50th-Percentile Queue Length [ft/ln]	60.33	187.11	14.46	627.19	109.47	175.82	167.56	49.99	167.96	164.48
95th-Percentile Queue Length [veh/ln]	4.34	11.97	1.04	33.30	7.81	11.38	10.95	3.60	10.97	10.79
95th-Percentile Queue Length [ft/ln]	108.59	299.28	26.03	832.55	195.27	284.55	273.71	89.97	274.24	269.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.64	13.46	13.46	18.71	29.64	29.64	74.87	42.97	43.10	31.30	36.93	36.95
Movement LOS	E	B	B	B	C	C	E	D	D	C	D	D
d_A, Approach Delay [s/veh]	18.95			29.29			49.15			36.09		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	33.00											
Intersection LOS	C											
Intersection V/C	0.807											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	49.50	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	2.519	2.668	2.666	2.581
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1233	1233	450	467
d_b, Bicycle Delay [s]	8.82	8.82	36.04	35.27
l_b,int, Bicycle LOS Score for Intersection	2.523	3.269	2.076	2.075
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Atlantic Avenue at 33rd Street

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):	0.944

Intersection Setup

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd 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 Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Atlantic Ave			Atlantic Ave			33rd St			33rd St		
Base Volume Input [veh/h]	46	1521	367	128	913	29	31	13	43	173	20	229
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	46	1521	367	128	913	29	31	13	43	173	20	229
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	12	400	97	34	240	8	8	3	11	46	5	60
Total Analysis Volume [veh/h]	48	1601	386	135	961	31	33	14	45	182	21	241
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	90	0	0	90	0	0	30	0	0	30	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	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	17	0	0	0	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C
C, Cycle Length [s]	120	120	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	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	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
g_i, Effective Green Time [s]	86	86	86	86	86	86	26	26	26
g / C, Green / Cycle	0.72	0.72	0.72	0.72	0.72	0.72	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.53	0.57	0.62	0.27	0.27	0.19	0.26	0.17
s, saturation flow rate [veh/h]	567	1870	1750	218	1870	1849	483	730	1457
c, Capacity [veh/h]	397	1340	1254	132	1340	1326	145	217	315
d1, Uniform Delay [s]	10.78	10.26	11.12	49.24	6.56	6.56	45.21	49.29	44.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.28	0.48	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	3.73	5.18	85.63	0.79	0.80	11.01	35.69	9.46
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.74	0.79	1.03	0.37	0.37	0.63	0.88	0.80
d, Delay for Lane Group [s/veh]	11.41	13.98	16.30	134.87	7.35	7.36	56.22	84.97	53.96
Lane Group LOS	B	B	B	F	A	A	E	F	D
Critical Lane Group	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.63	15.28	16.86	7.13	4.75	4.70	3.19	7.96	7.94
50th-Percentile Queue Length [ft/ln]	15.66	381.88	421.56	178.26	118.76	117.59	79.87	198.90	198.43
95th-Percentile Queue Length [veh/ln]	1.13	21.68	23.60	11.73	8.33	8.26	5.75	12.58	12.56
95th-Percentile Queue Length [ft/ln]	28.18	542.12	589.92	293.27	208.13	206.50	143.77	314.55	313.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.41	14.86	16.30	134.87	7.35	7.36	56.22	56.22	56.22	84.97	67.12	53.96
Movement LOS	B	B	B	F	A	A	E	E	E	F	E	D
d_A, Approach Delay [s/veh]	15.06			22.63			56.22			67.30		
Approach LOS	B			C			E			E		
d_I, Intersection Delay [s/veh]	24.66											
Intersection LOS	C											
Intersection V/C	0.944											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
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]	0.00	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.946	2.085	2.576
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1433	1433	433	433
d_b, Bicycle Delay [s]	4.82	4.82	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	3.238	2.489	1.711	1.926
Bicycle LOS	C	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 6: California Avenue at Spring Street

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name	California Ave			California Ave			Spring St			Spring 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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Spring St			Spring St		
Base Volume Input [veh/h]	66	279	116	152	196	92	121	1144	50	118	845	223
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	66	279	116	152	196	92	121	1144	50	118	845	223
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	73	31	40	52	24	32	301	13	31	222	59
Total Analysis Volume [veh/h]	69	294	122	160	206	97	127	1204	53	124	889	235
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]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	46	0	0	46	0	0	64	0	0	64	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	28	0	0	19	0	0	19	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
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]	2.00	0.00	2.00	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]	42	42	42	42	42	60	60	60	60	60	60
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.38	0.54	0.54	0.54	0.54	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.16	0.11	0.06	0.20	0.34	0.03	0.27	0.25	0.15
s, saturation flow rate [veh/h]	1176	1778	970	1870	1589	625	3560	1589	464	3560	1589
c, Capacity [veh/h]	413	683	246	718	611	293	1933	863	196	1933	863
d1, Uniform Delay [s]	28.99	27.22	43.65	23.43	22.20	27.89	17.35	11.88	38.75	15.30	13.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
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
d2, Incremental Delay [s]	0.87	4.01	12.66	1.00	0.56	1.01	0.33	0.03	3.34	0.17	0.17
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	0.17	0.61	0.65	0.29	0.16	0.43	0.62	0.06	0.63	0.46	0.27
d, Delay for Lane Group [s/veh]	29.86	31.23	56.32	24.43	22.76	28.90	17.68	11.91	42.09	15.47	13.64
Lane Group LOS	C	C	E	C	C	C	B	B	D	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.47	9.42	5.08	3.89	1.74	2.72	10.15	0.61	3.41	6.60	3.09
50th-Percentile Queue Length [ft/ln]	36.68	235.45	127.00	97.27	43.52	67.90	253.80	15.34	85.16	165.00	77.28
95th-Percentile Queue Length [veh/ln]	2.64	14.45	8.78	7.00	3.13	4.89	15.38	1.10	6.13	10.81	5.56
95th-Percentile Queue Length [ft/ln]	66.03	361.27	219.41	175.08	78.34	122.22	384.43	27.61	153.29	270.33	139.11

Movement, Approach, & Intersection Results

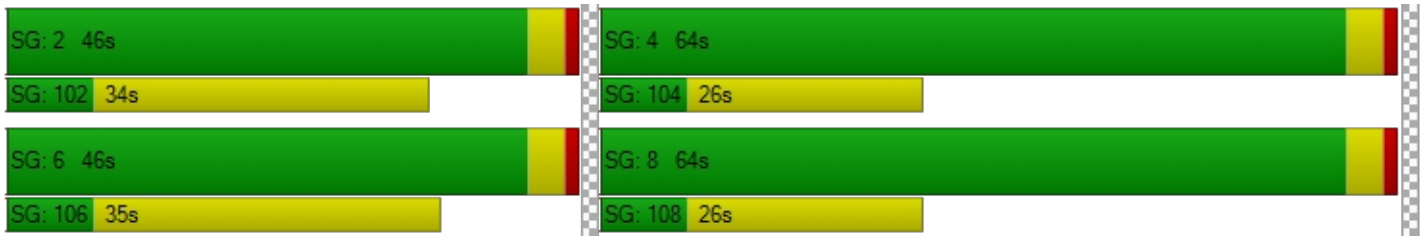
d_M, Delay for Movement [s/veh]	29.86	31.23	31.23	56.32	24.43	22.76	28.90	17.68	11.91	42.09	15.47	13.64
Movement LOS	C	C	C	E	C	C	C	B	B	D	B	B
d_A, Approach Delay [s/veh]	31.03			35.10			18.49			17.77		
Approach LOS	C			D			B			B		
d_I, Intersection Delay [s/veh]	22.09											
Intersection LOS	C											
Intersection V/C	0.617											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	44.55	44.55	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersection	2.408	2.594	2.957	3.134
Crosswalk LOS	B	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]	764	764	1091	1091
d_b, Bicycle Delay [s]	21.02	21.02	11.36	11.36
l_b,int, Bicycle LOS Score for Intersection	2.360	2.324	2.701	2.589
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 7: California Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	California Ave			California Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	77	141	175	18	79	20	10	695	71	79	462	11
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	77	141	175	18	79	20	10	695	71	79	462	11
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	20	37	46	5	21	5	3	183	19	21	122	3
Total Analysis Volume [veh/h]	81	148	184	19	83	21	11	732	75	83	486	12
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]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	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	28	0	0	28	0	0	77	0	0	77	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	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	C	C	C	C	C	C
C, Cycle Length [s]	105	105	105	105	105	105
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	2.00	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]	57	57	40	40	40	40
g / C, Green / Cycle	0.54	0.54	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.25	0.07	0.24	0.24	0.32	0.26
s, saturation flow rate [veh/h]	1622	1671	1816	1646	470	1693
c, Capacity [veh/h]	913	938	736	635	235	654
d1, Uniform Delay [s]	14.81	12.03	25.69	25.91	36.90	26.58
k, delay calibration	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.62	0.29	0.74	0.96	2.81	1.15
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	0.45	0.13	0.58	0.61	0.63	0.66
d, Delay for Lane Group [s/veh]	16.42	12.32	26.43	26.87	39.71	27.73
Lane Group LOS	B	B	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.19	1.47	8.53	7.83	3.83	8.95
50th-Percentile Queue Length [ft/ln]	154.75	36.76	213.34	195.70	95.82	223.67
95th-Percentile Queue Length [veh/ln]	10.27	2.65	13.32	12.42	6.90	13.85
95th-Percentile Queue Length [ft/ln]	256.75	66.17	333.11	310.41	172.48	346.31

Movement, Approach, & Intersection Results

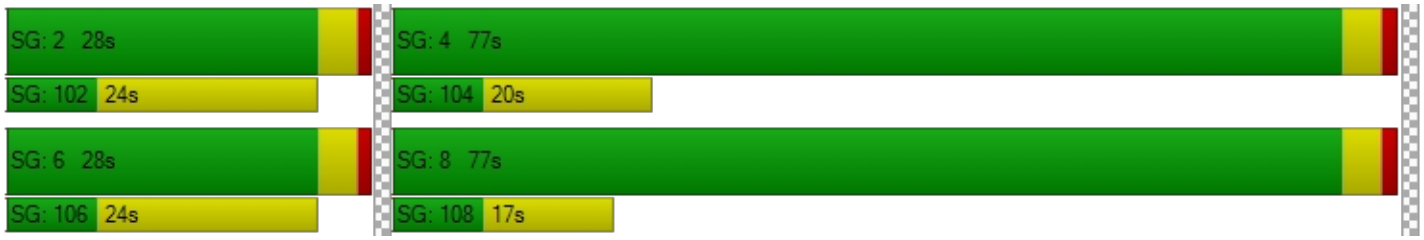
d_M, Delay for Movement [s/veh]	16.42	16.42	16.42	12.32	12.32	12.32	26.43	26.62	26.87	39.71	29.35	27.73
Movement LOS	B	B	B	B	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	16.42			12.32			26.64			30.79		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	24.80											
Intersection LOS	C											
Intersection V/C	0.618											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	42.08	42.08	42.08	42.08
l_p,int, Pedestrian LOS Score for Intersection	2.159	1.881	2.596	2.535
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	457	1390	1390
d_b, Bicycle Delay [s]	31.24	31.24	4.88	4.88
l_b,int, Bicycle LOS Score for Intersection	2.241	1.763	2.234	2.039
Bicycle LOS	B	A	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 8: Orange Avenue at Wardlow Road

Control Type:	Signalized	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.899

Intersection Setup

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
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 Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Orange Ave			Orange Ave			Wardlow Rd			Wardlow Rd		
Base Volume Input [veh/h]	76	826	76	35	625	96	209	861	97	50	462	52
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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]	76	826	76	35	625	96	209	861	97	50	462	52
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	20	217	20	9	164	25	55	227	26	13	122	14
Total Analysis Volume [veh/h]	80	869	80	37	658	101	220	906	102	53	486	55
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]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	68	0	0	68	0	10	42	0	10	42	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	19	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			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	L	C	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	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	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	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	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	64	64	64	64	39	39	39	48	44	44
g / C, Green / Cycle	0.53	0.53	0.53	0.53	0.32	0.32	0.32	0.40	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.11	0.52	0.06	0.42	0.25	0.27	0.27	0.07	0.15	0.15
s, saturation flow rate [veh/h]	706	1843	591	1827	865	1870	1804	737	1870	1804
c, Capacity [veh/h]	196	985	78	976	228	606	585	238	684	660
d1, Uniform Delay [s]	44.09	26.83	59.08	22.26	51.12	37.75	37.78	26.82	28.30	28.33
k, delay calibration	0.50	0.50	0.50	0.50	0.30	0.34	0.35	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.18	21.19	19.07	6.07	38.33	9.79	10.27	0.47	0.38	0.40
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
Rp, platoon ratio	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

Lane Group Results

X, volume / capacity	0.41	0.96	0.47	0.78	0.97	0.85	0.85	0.22	0.40	0.40
d, Delay for Lane Group [s/veh]	50.27	48.01	78.15	28.33	89.45	47.54	48.05	27.29	28.68	28.73
Lane Group LOS	D	D	E	C	F	D	D	C	C	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.51	30.56	1.54	18.08	9.12	15.50	15.08	0.97	5.95	5.77
50th-Percentile Queue Length [ft/ln]	62.64	763.91	38.53	451.91	228.10	387.50	376.99	24.17	148.63	144.37
95th-Percentile Queue Length [veh/ln]	4.51	39.62	2.77	25.05	14.08	21.96	21.45	1.74	9.94	9.72
95th-Percentile Queue Length [ft/ln]	112.74	990.55	69.36	626.23	351.95	548.92	536.20	43.50	248.59	242.90

Movement, Approach, & Intersection Results

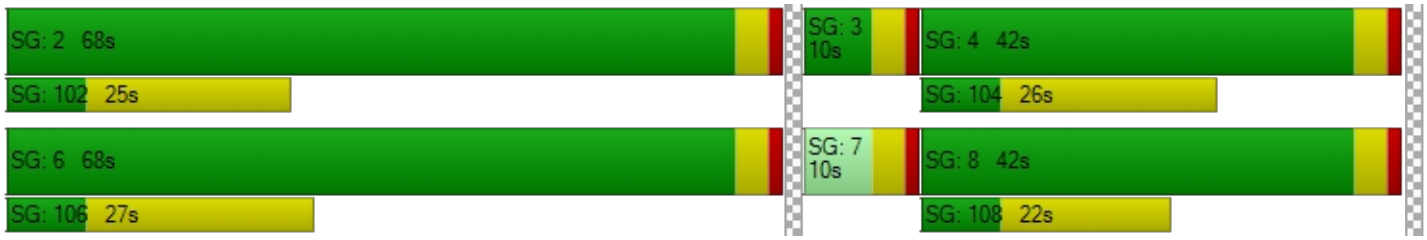
d_M, Delay for Movement [s/veh]	50.27	48.01	48.01	78.15	28.33	28.33	89.45	47.76	48.05	27.29	28.70	28.73
Movement LOS	D	D	D	E	C	C	F	D	D	C	C	C
d_A, Approach Delay [s/veh]	48.19			30.64			55.25			28.58		
Approach LOS	D			C			E			C		
d_I, Intersection Delay [s/veh]	43.54											
Intersection LOS	D											
Intersection V/C	0.899											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	49.50	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	2.578	2.897	2.797	2.682
Crosswalk LOS	B	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	1067	633	633
d_b, Bicycle Delay [s]	13.07	13.07	28.02	28.02
l_b,int, Bicycle LOS Score for Intersection	3.257	2.873	2.573	2.050
Bicycle LOS	C	C	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

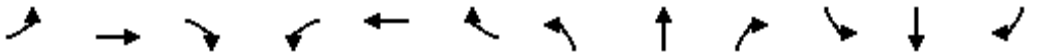


APPENDIX E

CITY OF SIGNAL HILL QUEUEING WORKSHEETS

APPENDIX E-I

EXISTING TRAFFIC CONDITIONS

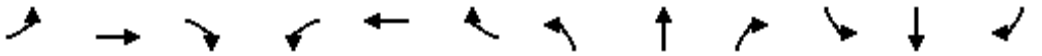


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	15	43	15	10	15	551	46	7	697	10
Future Volume (veh/h)	5	15	15	43	15	10	15	551	46	7	697	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	16	16	45	16	11	16	580	48	7	734	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	54	47	121	26	15	54	1383	113	42	1520	23
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	129	858	753	944	411	244	18	1662	135	5	1827	27
Grp Volume(v), veh/h	37	0	0	72	0	0	644	0	0	752	0	0
Grp Sat Flow(s),veh/h/ln	1740	0	0	1599	0	0	1816	0	0	1859	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.14		0.43	0.62		0.15	0.02		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	152	0	0	162	0	0	1550	0	0	1585	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.44	0.00	0.00	0.42	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	433	0	0	414	0	0	1550	0	0	1585	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.85	0.00	0.00	0.59	0.00	0.00
Uniform Delay (d), s/veh	42.6	0.0	0.0	43.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.9	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.6	0.0	0.0	3.1	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	0.0	0.0	45.4	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		37			72			644			752	
Approach Delay, s/veh		43.4			45.4			0.7			0.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		84.0		11.0		84.0		11.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		63.0		22.0		63.0		22.0				
Max Q Clear Time (g_c+I1), s		2.0		3.9		2.0		6.1				
Green Ext Time (p_c), s		5.2		0.1		6.4		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			3.8									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	27	53	66	0	64	13	391	302	182	709	6
Future Volume (veh/h)	0	27	53	66	0	64	13	391	302	182	709	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	28	56	69	0	67	14	412	318	192	746	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	68	136	176	0	194	625	756	583	516	1431	12
Arrive On Green	0.00	0.12	0.12	0.12	0.00	0.12	0.77	0.77	0.77	1.00	1.00	1.00
Sat Flow, veh/h	0	557	1113	1314	0	1585	711	979	756	726	1853	15
Grp Volume(v), veh/h	0	0	84	69	0	67	14	0	730	192	0	752
Grp Sat Flow(s),veh/h/ln	0	0	1670	1314	0	1585	711	0	1734	726	0	1868
Q Serve(g_s), s	0.0	0.0	4.4	4.9	0.0	3.7	0.4	0.0	15.7	8.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	4.4	9.3	0.0	3.7	0.4	0.0	15.7	23.9	0.0	0.0
Prop In Lane	0.00		0.67	1.00		1.00	1.00		0.44	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	205	176	0	194	625	0	1339	516	0	1442
V/C Ratio(X)	0.00	0.00	0.41	0.39	0.00	0.34	0.02	0.00	0.55	0.37	0.00	0.52
Avail Cap(c_a), veh/h	0	0	404	333	0	384	625	0	1339	516	0	1442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86
Uniform Delay (d), s/veh	0.0	0.0	38.5	42.8	0.0	38.2	2.5	0.0	4.3	2.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.3	1.4	0.0	1.1	0.1	0.0	1.6	1.8	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	3.3	3.0	0.0	2.7	0.1	0.0	6.4	1.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	39.8	44.2	0.0	39.2	2.6	0.0	5.9	4.3	0.0	1.2
LnGrp LOS	A	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		84			136			744			944	
Approach Delay, s/veh		39.8			41.8			5.8			1.8	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.4		16.6		78.4		16.6				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		62.0		23.0		62.0		23.0				
Max Q Clear Time (g_c+I1), s		17.7		6.4		25.9		11.3				
Green Ext Time (p_c), s		6.5		0.3		8.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	524	48	101	821	101	71	180	72	105	140	74
Future Volume (veh/h)	39	524	48	101	821	101	71	180	72	105	140	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	552	51	106	864	106	75	189	76	111	147	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	1421	634	333	1421	634	583	592	238	512	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	579	3554	1585	816	3554	1585	1156	1268	510	1114	1870	1585
Grp Volume(v), veh/h	41	552	51	106	864	106	75	0	265	111	147	78
Grp Sat Flow(s),veh/h/ln	579	1777	1585	816	1777	1585	1156	0	1779	1114	1870	1585
Q Serve(g_s), s	4.5	8.3	1.5	7.9	14.5	3.2	3.0	0.0	7.0	5.2	3.4	2.1
Cycle Q Clear(g_c), s	19.0	8.3	1.5	16.2	14.5	3.2	6.4	0.0	7.0	12.2	3.4	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	216	1421	634	333	1421	634	583	0	830	512	873	740
V/C Ratio(X)	0.19	0.39	0.08	0.32	0.61	0.17	0.13	0.00	0.32	0.22	0.17	0.11
Avail Cap(c_a), veh/h	216	1421	634	333	1421	634	583	0	830	512	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	16.0	13.9	21.7	17.8	14.5	13.4	0.0	12.5	16.4	11.6	11.2
Incr Delay (d2), s/veh	1.9	0.8	0.2	2.5	1.9	0.6	0.5	0.0	1.0	1.0	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.3	5.0	0.9	2.9	8.1	2.1	1.4	0.0	4.3	2.5	2.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	16.8	14.2	24.3	19.8	15.0	13.9	0.0	13.5	17.3	12.0	11.5
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		644			1076			340			336	
Approach Delay, s/veh		17.2			19.8			13.6			13.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		9.0		21.0		14.2		18.2				
Green Ext Time (p_c), s		1.8		2.7		1.4		5.2				

Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	15	15	43	15	10	15	551	46	7	697	10
Future Volume (vph)	5	15	15	43	15	10	15	551	46	7	697	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.942			0.979			0.990			0.998	
Flt Protected		0.993			0.970			0.999				
Satd. Flow (prot)	0	1742	0	0	1769	0	0	1842	0	0	1859	0
Flt Permitted		0.962			0.788			0.979			0.995	
Satd. Flow (perm)	0	1688	0	0	1437	0	0	1805	0	0	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			9			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	16	16	45	16	11	16	580	48	7	734	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	72	0	0	644	0	0	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	27.0	27.0		27.0	27.0		68.0	68.0		68.0	68.0	
Total Split (%)	28.4%	28.4%		28.4%	28.4%		71.6%	71.6%		71.6%	71.6%	
Maximum Green (s)	22.0	22.0		22.0	22.0		63.0	63.0		63.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.6			9.6			78.6			78.6	
Actuated g/C Ratio		0.10			0.10			0.83			0.83	
v/c Ratio		0.20			0.47			0.43			0.49	
Control Delay		27.6			45.1			3.6			2.0	
Queue Delay		0.0			0.0			0.1			0.2	
Total Delay		27.6			45.1			3.7			2.2	
LOS		C			D			A			A	
Approach Delay		27.6			45.1			3.7			2.2	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		12			36			83			34	
Queue Length 95th (ft)		40			77			121			77	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		403			339			1495			1531	
Starvation Cap Reductn		0			0			161			207	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.09			0.21			0.48			0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 37 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 5.5		Intersection LOS: A	
Intersection Capacity Utilization 60.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Orange Ave & 33rd St

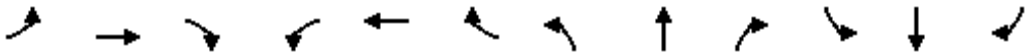
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	27	53	66	0	64	13	391	302	182	709	6
Future Volume (vph)	0	27	53	66	0	64	13	391	302	182	709	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.935			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1742	0	1770	1861	0
Flt Permitted				0.702			0.336			0.346		
Satd. Flow (perm)	0	1695	0	1308	1583	0	626	1742	0	645	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			484			84			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	28	56	69	0	67	14	412	318	192	746	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	69	67	0	14	730	0	192	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		67.0	67.0		67.0	67.0	
Total Split (%)	29.5%	29.5%		29.5%	29.5%		70.5%	70.5%		70.5%	70.5%	
Maximum Green (s)	23.0	23.0		23.0	23.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		10.4		10.4	10.4		77.8	77.8		77.8	77.8	
Actuated g/C Ratio		0.11		0.11	0.11		0.82	0.82		0.82	0.82	
v/c Ratio		0.36		0.48	0.11		0.03	0.51		0.36	0.49	
Control Delay		20.4		50.0	0.4		3.2	4.9		3.4	2.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay		20.4		50.0	0.4		3.2	4.9		3.4	2.7	
LOS		C		D	A		A	A		A	A	
Approach Delay		20.4			25.5			4.8			2.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		16		40	0		1	105		16	64	
Queue Length 95th (ft)		56		79	0		7	219		26	80	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		452		316	750		512	1441		528	1523	
Starvation Cap Reductn		0		0	0		0	0		0	86	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.19		0.22	0.09		0.03	0.51		0.36	0.52	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 43 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St

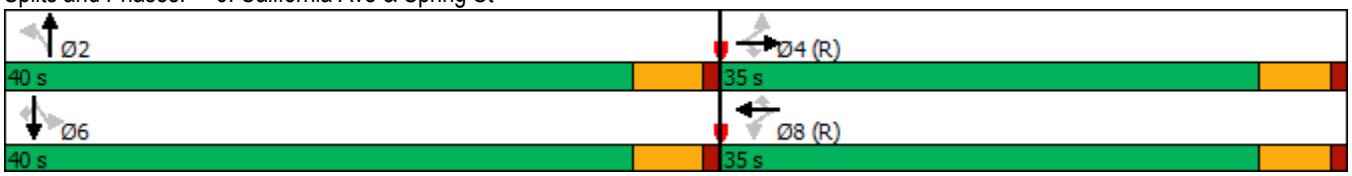
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	524	48	101	821	101	71	180	72	105	140	74
Future Volume (vph)	39	524	48	101	821	101	71	180	72	105	140	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.957				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1783	0	1770	1863	1583
Flt Permitted	0.216			0.391			0.663			0.563		
Satd. Flow (perm)	402	3539	1583	728	3539	1583	1235	1783	0	1049	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			51			93		36				61
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	552	51	106	864	106	75	189	76	111	147	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	552	51	106	864	106	75	265	0	111	147	78
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

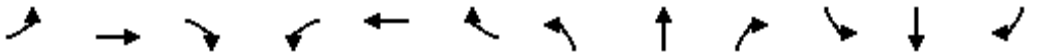


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.26	0.39	0.08	0.36	0.61	0.15	0.13	0.31		0.23	0.17	0.10
Control Delay	20.3	17.0	4.9	20.4	20.1	5.0	12.2	11.9		13.5	12.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.3	17.0	4.9	20.4	20.1	5.0	12.2	11.9		13.5	12.3	4.9
LOS	C	B	A	C	C	A	B	B		B	B	A
Approach Delay		16.3			18.7			12.0			11.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	12	93	0	34	163	4	19	62		29	38	4
Queue Length 95th (ft)	38	133	19	75	221	31	42	111		61	70	25
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	160	1415	663	291	1415	689	576	851		489	869	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.26	0.39	0.08	0.36	0.61	0.15	0.13	0.31		0.23	0.17	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 64.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: California Ave & Spring St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	31	25	35	26	29	36	809	43	8	643	43
Future Volume (veh/h)	30	31	25	35	26	29	36	809	43	8	643	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	33	26	37	27	31	38	852	45	8	677	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	56	38	96	45	42	74	1359	70	43	1408	93
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	498	746	498	567	592	561	43	1659	86	6	1719	113
Grp Volume(v), veh/h	91	0	0	95	0	0	935	0	0	730	0	0
Grp Sat Flow(s),veh/h/ln	1742	0	0	1721	0	0	1788	0	0	1838	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.6	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.35		0.29	0.39		0.33	0.04		0.05	0.01		0.06
Lane Grp Cap(c), veh/h	183	0	0	183	0	0	1504	0	0	1544	0	0
V/C Ratio(X)	0.50	0.00	0.00	0.52	0.00	0.00	0.62	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	412	0	0	407	0	0	1504	0	0	1544	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.54	0.00	0.00	0.73	0.00	0.00
Uniform Delay (d), s/veh	42.7	0.0	0.0	42.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	2.3	0.0	0.0	1.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.7	0.0	0.0	3.9	0.0	0.0	0.8	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	0.0	45.1	0.0	0.0	1.1	0.0	0.0	0.8	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		91			95			935			730	
Approach Delay, s/veh		44.8			45.1			1.1			0.8	
Approach LOS		D			D			A			A	

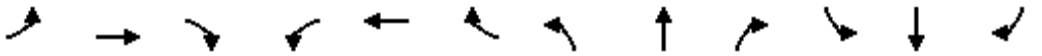
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		12.2		82.8		12.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		64.0		21.0		64.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		6.6		2.0		6.9				
Green Ext Time (p_c), s		10.1		0.3		6.2		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	2	28	247	2	227	35	598	284	81	560	6
Future Volume (veh/h)	4	2	28	247	2	227	35	598	284	81	560	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2	29	260	2	239	37	629	299	85	589	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	47	338	338	3	414	595	757	360	211	1167	12
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	1.00	1.00	1.00
Sat Flow, veh/h	87	179	1285	1378	13	1574	823	1198	570	603	1848	19
Grp Volume(v), veh/h	35	0	0	260	0	241	37	0	928	85	0	595
Grp Sat Flow(s),veh/h/ln	1551	0	0	1378	0	1587	823	0	1768	603	0	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.2	0.0	12.5	1.6	0.0	38.7	11.1	0.0	0.0
Cycle Q Clear(g_c), s	12.5	0.0	0.0	24.8	0.0	12.5	1.6	0.0	38.7	49.8	0.0	0.0
Prop In Lane	0.11		0.83	1.00		0.99	1.00		0.32	1.00		0.01
Lane Grp Cap(c), veh/h	450	0	0	338	0	418	595	0	1117	211	0	1179
V/C Ratio(X)	0.08	0.00	0.00	0.77	0.00	0.58	0.06	0.00	0.83	0.40	0.00	0.50
Avail Cap(c_a), veh/h	450	0	0	338	0	418	595	0	1117	211	0	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.00	0.87
Uniform Delay (d), s/veh	26.4	0.0	0.0	37.3	0.0	30.4	6.8	0.0	13.6	16.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	10.2	0.0	2.0	0.2	0.0	7.2	4.9	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.1	0.0	0.0	9.7	0.0	7.3	0.5	0.0	19.2	2.8	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	0.0	47.5	0.0	32.4	7.0	0.0	20.8	21.0	0.0	1.3
LnGrp LOS	C	A	A	D	A	C	A	A	C	C	A	A
Approach Vol, veh/h		35			501			965			680	
Approach Delay, s/veh		26.4			40.2			20.3			3.8	
Approach LOS		C			D			C			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		30.0		65.0		30.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		25.0		60.0		25.0				
Max Q Clear Time (g_c+I1), s		40.7		14.5		51.8		26.8				
Green Ext Time (p_c), s		7.5		0.1		2.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	929	42	98	685	183	55	230	97	124	161	76
Future Volume (veh/h)	100	929	42	98	685	183	55	230	97	124	161	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	978	44	103	721	193	58	242	102	131	169	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	1421	634	191	1421	634	564	583	246	447	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	611	3554	1585	552	3554	1585	1131	1249	526	1037	1870	1585
Grp Volume(v), veh/h	105	978	44	103	721	193	58	0	344	131	169	80
Grp Sat Flow(s),veh/h/ln	611	1777	1585	552	1777	1585	1131	0	1776	1037	1870	1585
Q Serve(g_s), s	11.7	17.1	1.3	12.9	11.5	6.2	2.4	0.0	9.6	7.2	4.0	2.1
Cycle Q Clear(g_c), s	23.2	17.1	1.3	30.0	11.5	6.2	6.4	0.0	9.6	16.8	4.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	247	1421	634	191	1421	634	564	0	829	447	873	740
V/C Ratio(X)	0.43	0.69	0.07	0.54	0.51	0.30	0.10	0.00	0.42	0.29	0.19	0.11
Avail Cap(c_a), veh/h	247	1421	634	191	1421	634	564	0	829	447	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	18.6	13.9	31.5	16.9	15.4	13.6	0.0	13.2	18.8	11.7	11.2
Incr Delay (d2), s/veh	5.3	2.7	0.2	10.5	1.3	1.2	0.4	0.0	1.5	1.7	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.4	9.4	0.8	3.9	6.6	3.8	1.1	0.0	5.6	3.2	2.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	21.4	14.1	42.0	18.2	16.6	14.0	0.0	14.8	20.4	12.2	11.5
LnGrp LOS	C	C	B	D	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1127			1017			402			380	
Approach Delay, s/veh		22.0			20.3			14.6			14.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		11.6		25.2		18.8		32.0				
Green Ext Time (p_c), s		2.2		2.9		1.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									

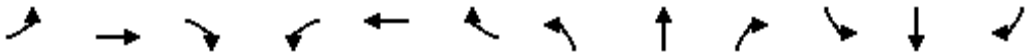
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	31	25	35	26	29	36	809	43	8	643	43
Future Volume (vph)	30	31	25	35	26	29	36	809	43	8	643	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.956			0.994			0.992	
Flt Protected		0.983			0.981			0.998			0.999	
Satd. Flow (prot)	0	1760	0	0	1747	0	0	1848	0	0	1846	0
Flt Permitted		0.836			0.827			0.954			0.991	
Satd. Flow (perm)	0	1497	0	0	1473	0	0	1766	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			24			6			8	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	33	26	37	27	31	38	852	45	8	677	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	95	0	0	935	0	0	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		69.0	69.0		69.0	69.0	
Total Split (%)	27.4%	27.4%		27.4%	27.4%		72.6%	72.6%		72.6%	72.6%	
Maximum Green (s)	21.0	21.0		21.0	21.0		64.0	64.0		64.0	64.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.0			10.0			78.2			78.2	
Actuated g/C Ratio		0.11			0.11			0.82			0.82	
v/c Ratio		0.52			0.54			0.64			0.48	
Control Delay		42.0			41.1			3.2			2.6	
Queue Delay		0.0			0.0			0.2			0.1	
Total Delay		42.0			41.1			3.4			2.7	
LOS		D			D			A			A	
Approach Delay		42.0			41.1			3.4			2.7	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		42			41			41			51	
Queue Length 95th (ft)		87			88			122			85	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		345			344			1455			1509	
Starvation Cap Reductn		0			0			88			113	
Spillback Cap Reductn		0			0			43			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.28			0.68			0.52	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 33 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Orange Ave & 33rd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	28	247	2	227	35	598	284	81	560	6
Future Volume (vph)	4	2	28	247	2	227	35	598	284	81	560	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.888			0.851			0.952			0.998	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1644	0	1770	1585	0	1770	1773	0	1770	1859	0
Flt Permitted		0.966		0.734			0.365			0.174		
Satd. Flow (perm)	0	1598	0	1367	1585	0	680	1773	0	324	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			239			49			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	29	260	2	239	37	629	299	85	589	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	260	241	0	37	928	0	85	595	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0		65.0	65.0		65.0	65.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		68.4%	68.4%		68.4%	68.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		21.9		21.9	21.9		63.1	63.1		63.1	63.1	
Actuated g/C Ratio		0.23		0.23	0.23		0.66	0.66		0.66	0.66	
v/c Ratio		0.09		0.83	0.44		0.08	0.78		0.40	0.48	
Control Delay		12.4		56.4	6.7		7.3	17.2		12.7	8.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		12.4		56.4	6.7		7.3	17.2		12.7	8.0	
LOS		B		E	A		A	B		B	A	
Approach Delay		12.4			32.5			16.8			8.6	
Approach LOS		B			C			B			A	
Queue Length 50th (ft)		3		144	1		8	359		13	98	
Queue Length 95th (ft)		26		#254	57		21	570		40	187	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		441		359	593		451	1194		215	1235	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.08		0.72	0.41		0.08	0.78		0.40	0.48	

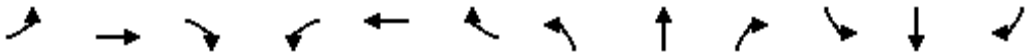
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 24 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 86.6%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Orange Ave & 32nd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	929	42	98	685	183	55	230	97	124	161	76
Future Volume (vph)	100	929	42	98	685	183	55	230	97	124	161	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.289			0.166			0.650			0.484		
Satd. Flow (perm)	538	3539	1583	309	3539	1583	1211	1781	0	902	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34			193		38				80
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	978	44	103	721	193	58	242	102	131	169	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	978	44	103	721	193	58	344	0	131	169	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



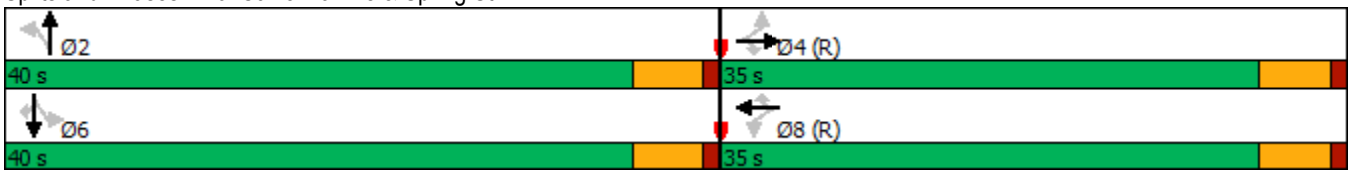
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.49	0.69	0.07	0.84	0.51	0.26	0.10	0.40		0.31	0.19	0.10
Control Delay	26.3	21.8	6.9	73.6	18.5	3.5	11.9	13.3		15.1	12.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	26.3	21.8	6.9	73.6	18.5	3.5	11.9	13.3		15.1	12.5	3.4
LOS	C	C	A	E	B	A	B	B		B	B	A
Approach Delay		21.6			21.3			13.1			11.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	35	192	3	42	129	0	14	88		36	44	0
Queue Length 95th (ft)	86	259	21	#133	178	36	35	150		75	80	21
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	215	1415	653	123	1415	749	565	851		420	869	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.49	0.69	0.07	0.84	0.51	0.26	0.10	0.40		0.31	0.19	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

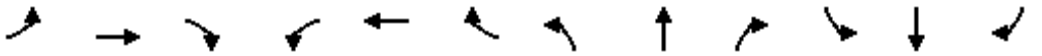
Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



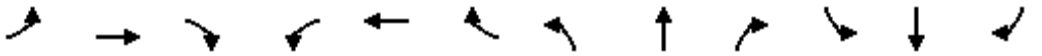
APPENDIX E-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	16	18	43	17	10	19	551	46	7	697	10
Future Volume (veh/h)	5	16	18	43	17	10	19	551	46	7	697	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	17	19	45	18	11	20	580	48	7	734	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	52	52	120	29	15	60	1368	111	42	1517	23
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	115	816	804	919	453	240	25	1647	134	5	1827	27
Grp Volume(v), veh/h	41	0	0	74	0	0	648	0	0	752	0	0
Grp Sat Flow(s),veh/h/ln	1734	0	0	1612	0	0	1806	0	0	1859	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.12		0.46	0.61		0.15	0.03		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	154	0	0	164	0	0	1539	0	0	1582	0	0
V/C Ratio(X)	0.27	0.00	0.00	0.45	0.00	0.00	0.42	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	432	0	0	415	0	0	1539	0	0	1582	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.85	0.00	0.00	0.57	0.00	0.00
Uniform Delay (d), s/veh	42.6	0.0	0.0	43.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.9	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.7	0.0	0.0	3.2	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	0.0	45.4	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		41			74			648			752	
Approach Delay, s/veh		43.5			45.4			0.7			0.6	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.9		11.1		83.9		11.1				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		63.0		22.0		63.0		22.0				
Max Q Clear Time (g_c+I1), s		2.0		4.2		2.0		6.1				
Green Ext Time (p_c), s		5.3		0.1		6.4		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			4.0									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	27	53	66	0	64	13	395	302	182	712	6
Future Volume (veh/h)	0	27	53	66	0	64	13	395	302	182	712	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	28	56	69	0	67	14	416	318	192	749	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	68	136	176	0	194	623	759	580	513	1431	11
Arrive On Green	0.00	0.12	0.12	0.12	0.00	0.12	0.77	0.77	0.77	1.00	1.00	1.00
Sat Flow, veh/h	0	557	1113	1314	0	1585	709	983	752	723	1853	15
Grp Volume(v), veh/h	0	0	84	69	0	67	14	0	734	192	0	755
Grp Sat Flow(s),veh/h/ln	0	0	1670	1314	0	1585	709	0	1735	723	0	1868
Q Serve(g_s), s	0.0	0.0	4.4	4.9	0.0	3.7	0.4	0.0	15.9	8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	4.4	9.3	0.0	3.7	0.4	0.0	15.9	24.2	0.0	0.0
Prop In Lane	0.00		0.67	1.00		1.00	1.00		0.43	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	205	176	0	194	623	0	1340	513	0	1442
V/C Ratio(X)	0.00	0.00	0.41	0.39	0.00	0.34	0.02	0.00	0.55	0.37	0.00	0.52
Avail Cap(c_a), veh/h	0	0	404	333	0	384	623	0	1340	513	0	1442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86
Uniform Delay (d), s/veh	0.0	0.0	38.5	42.8	0.0	38.2	2.5	0.0	4.3	2.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.3	1.4	0.0	1.1	0.1	0.0	1.6	1.8	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	3.3	3.0	0.0	2.7	0.1	0.0	6.4	1.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	39.8	44.2	0.0	39.2	2.6	0.0	5.9	4.4	0.0	1.2
LnGrp LOS	A	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		84			136			748			947	
Approach Delay, s/veh		39.8			41.8			5.8			1.8	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.4		16.6		78.4		16.6				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		62.0		23.0		62.0		23.0				
Max Q Clear Time (g_c+I1), s		17.9		6.4		26.2		11.3				
Green Ext Time (p_c), s		6.6		0.3		8.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	524	48	101	821	105	71	184	72	108	143	75
Future Volume (veh/h)	41	524	48	101	821	105	71	184	72	108	143	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	552	51	106	864	111	75	194	76	114	151	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	1421	634	333	1421	634	579	597	234	508	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	577	3554	1585	816	3554	1585	1151	1279	501	1109	1870	1585
Grp Volume(v), veh/h	43	552	51	106	864	111	75	0	270	114	151	79
Grp Sat Flow(s),veh/h/ln	577	1777	1585	816	1777	1585	1151	0	1780	1109	1870	1585
Q Serve(g_s), s	4.8	8.3	1.5	7.9	14.5	3.4	3.0	0.0	7.2	5.4	3.5	2.1
Cycle Q Clear(g_c), s	19.2	8.3	1.5	16.2	14.5	3.4	6.5	0.0	7.2	12.6	3.5	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	216	1421	634	333	1421	634	579	0	831	508	873	740
V/C Ratio(X)	0.20	0.39	0.08	0.32	0.61	0.18	0.13	0.00	0.33	0.22	0.17	0.11
Avail Cap(c_a), veh/h	216	1421	634	333	1421	634	579	0	831	508	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	16.0	13.9	21.7	17.8	14.5	13.5	0.0	12.6	16.5	11.6	11.2
Incr Delay (d2), s/veh	2.1	0.8	0.2	2.5	1.9	0.6	0.5	0.0	1.0	1.0	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.3	5.0	0.9	2.9	8.1	2.1	1.4	0.0	4.4	2.5	2.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	16.8	14.2	24.3	19.8	15.1	14.0	0.0	13.6	17.5	12.0	11.5
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		646			1081			345			344	
Approach Delay, s/veh		17.3			19.7			13.7			13.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		9.2		21.2		14.6		18.2				
Green Ext Time (p_c), s		1.8		2.7		1.4		5.2				

Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	16	18	43	17	10	19	551	46	7	697	10
Future Volume (vph)	5	16	18	43	17	10	19	551	46	7	697	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.937			0.980			0.990			0.998	
Flt Protected		0.994			0.970			0.998				
Satd. Flow (prot)	0	1735	0	0	1771	0	0	1840	0	0	1859	0
Flt Permitted		0.966			0.790			0.972			0.995	
Satd. Flow (perm)	0	1686	0	0	1442	0	0	1792	0	0	1850	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			9			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	17	19	45	18	11	20	580	48	7	734	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	74	0	0	648	0	0	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	27.0	27.0		27.0	27.0		68.0	68.0		68.0	68.0	
Total Split (%)	28.4%	28.4%		28.4%	28.4%		71.6%	71.6%		71.6%	71.6%	
Maximum Green (s)	22.0	22.0		22.0	22.0		63.0	63.0		63.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.6			9.6			78.6			78.6	
Actuated g/C Ratio		0.10			0.10			0.83			0.83	
v/c Ratio		0.22			0.48			0.44			0.49	
Control Delay		26.8			45.3			3.6			2.0	
Queue Delay		0.0			0.0			0.1			0.2	
Total Delay		26.8			45.3			3.7			2.2	
LOS		C			D			A			A	
Approach Delay		26.8			45.3			3.7			2.2	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		12			38			84			35	
Queue Length 95th (ft)		42			79			122			78	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		405			340			1484			1530	
Starvation Cap Reductn		0			0			154			211	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.22			0.49			0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 37 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 62.7%		ICU Level of Service B	
Analysis Period (min) 15			

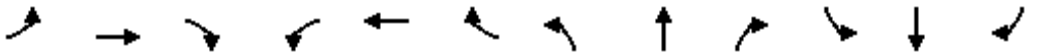
Splits and Phases: 4: Orange Ave & 33rd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	27	53	66	0	64	13	395	302	182	712	6
Future Volume (vph)	0	27	53	66	0	64	13	395	302	182	712	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.935			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1742	0	1770	1861	0
Flt Permitted				0.702			0.335			0.345		
Satd. Flow (perm)	0	1695	0	1308	1583	0	624	1742	0	643	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			480			83			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	28	56	69	0	67	14	416	318	192	749	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	69	67	0	14	734	0	192	755	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		67.0	67.0		67.0	67.0	
Total Split (%)	29.5%	29.5%		29.5%	29.5%		70.5%	70.5%		70.5%	70.5%	
Maximum Green (s)	23.0	23.0		23.0	23.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		10.4		10.4	10.4		77.8	77.8		77.8	77.8	
Actuated g/C Ratio		0.11		0.11	0.11		0.82	0.82		0.82	0.82	
v/c Ratio		0.36		0.48	0.11		0.03	0.51		0.37	0.50	
Control Delay		20.4		50.0	0.4		3.2	4.9		3.4	2.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay		20.4		50.0	0.4		3.2	4.9		3.4	2.7	
LOS		C		D	A		A	A		A	A	
Approach Delay		20.4			25.5			4.9			2.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		16		40	0		1	106		16	65	
Queue Length 95th (ft)		56		79	0		7	221		26	82	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		452		316	747		511	1441		526	1523	
Starvation Cap Reductn		0		0	0		0	0		0	85	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.19		0.22	0.09		0.03	0.51		0.37	0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 43 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St



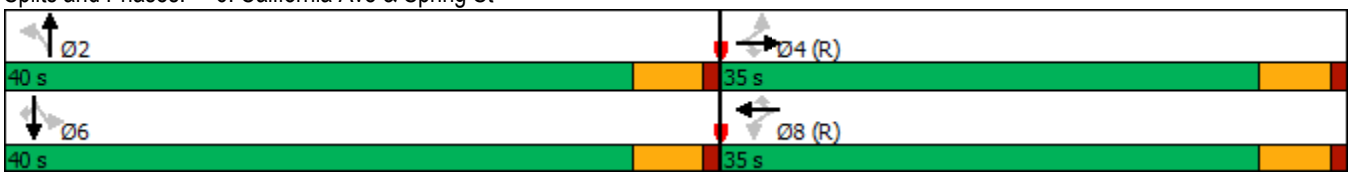
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	524	48	101	821	105	71	184	72	108	143	75
Future Volume (vph)	41	524	48	101	821	105	71	184	72	108	143	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.958				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1785	0	1770	1863	1583
Flt Permitted	0.216			0.391			0.661			0.558		
Satd. Flow (perm)	402	3539	1583	728	3539	1583	1231	1785	0	1039	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			51			98		35				61
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	43	552	51	106	864	111	75	194	76	114	151	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	552	51	106	864	111	75	270	0	114	151	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

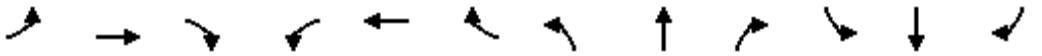
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.27	0.39	0.08	0.36	0.61	0.16	0.13	0.32		0.24	0.17	0.10
Control Delay	20.7	17.0	4.9	20.4	20.1	4.9	12.2	12.0		13.7	12.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.7	17.0	4.9	20.4	20.1	4.9	12.2	12.0		13.7	12.3	4.9
LOS	C	B	A	C	C	A	B	B		B	B	A
Approach Delay		16.3			18.6			12.1			11.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	93	0	34	163	4	19	64		30	39	4
Queue Length 95th (ft)	39	133	19	75	221	32	42	113		63	72	26
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	160	1415	663	291	1415	692	574	851		484	869	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.39	0.08	0.36	0.61	0.16	0.13	0.32		0.24	0.17	0.10

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 64.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: California Ave & Spring St

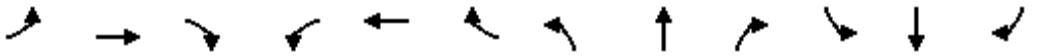




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	32	28	35	27	29	39	809	43	8	643	43
Future Volume (veh/h)	30	32	28	35	27	29	39	809	43	8	643	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	34	29	37	28	31	41	852	45	8	677	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	56	40	95	46	42	78	1350	70	43	1407	93
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	477	734	532	563	607	558	47	1649	85	6	1719	113
Grp Volume(v), veh/h	95	0	0	96	0	0	938	0	0	730	0	0
Grp Sat Flow(s),veh/h/ln	1743	0	0	1729	0	0	1782	0	0	1838	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.8	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.34		0.31	0.39		0.32	0.04		0.05	0.01		0.06
Lane Grp Cap(c), veh/h	183	0	0	184	0	0	1498	0	0	1543	0	0
V/C Ratio(X)	0.52	0.00	0.00	0.52	0.00	0.00	0.63	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	412	0	0	408	0	0	1498	0	0	1543	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.53	0.00	0.00	0.72	0.00	0.00
Uniform Delay (d), s/veh	42.8	0.0	0.0	42.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	2.3	0.0	0.0	1.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.9	0.0	0.0	3.9	0.0	0.0	0.8	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	0.0	0.0	45.1	0.0	0.0	1.1	0.0	0.0	0.8	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		95			96			938			730	
Approach Delay, s/veh		45.1			45.1			1.1			0.8	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		12.2		82.8		12.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		64.0		21.0		64.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		6.8		2.0		6.9				
Green Ext Time (p_c), s		10.2		0.4		6.2		0.4				

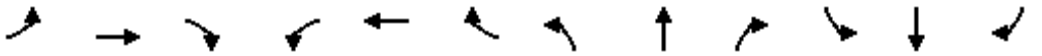
Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	2	28	247	2	227	35	601	284	81	563	6
Future Volume (veh/h)	4	2	28	247	2	227	35	601	284	81	563	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2	29	260	2	239	37	633	299	85	593	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	47	338	338	3	414	593	759	358	209	1167	12
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	1.00	1.00	1.00
Sat Flow, veh/h	87	179	1285	1378	13	1574	820	1201	567	601	1848	19
Grp Volume(v), veh/h	35	0	0	260	0	241	37	0	932	85	0	599
Grp Sat Flow(s),veh/h/ln	1551	0	0	1378	0	1587	820	0	1768	601	0	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.2	0.0	12.5	1.7	0.0	39.0	11.3	0.0	0.0
Cycle Q Clear(g_c), s	12.5	0.0	0.0	24.8	0.0	12.5	1.7	0.0	39.0	50.3	0.0	0.0
Prop In Lane	0.11		0.83	1.00		0.99	1.00		0.32	1.00		0.01
Lane Grp Cap(c), veh/h	450	0	0	338	0	418	593	0	1117	209	0	1179
V/C Ratio(X)	0.08	0.00	0.00	0.77	0.00	0.58	0.06	0.00	0.83	0.41	0.00	0.51
Avail Cap(c_a), veh/h	450	0	0	338	0	418	593	0	1117	209	0	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.00	0.87
Uniform Delay (d), s/veh	26.4	0.0	0.0	37.3	0.0	30.4	6.8	0.0	13.6	16.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	10.2	0.0	2.0	0.2	0.0	7.4	5.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.1	0.0	0.0	9.7	0.0	7.3	0.5	0.0	19.4	2.9	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	0.0	47.5	0.0	32.4	7.0	0.0	21.0	21.4	0.0	1.4
LnGrp LOS	C	A	A	D	A	C	A	A	C	C	A	A
Approach Vol, veh/h		35			501			969			684	
Approach Delay, s/veh		26.4			40.2			20.5			3.9	
Approach LOS		C			D			C			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		30.0		65.0		30.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		60.0		25.0		60.0		25.0				
Max Q Clear Time (g_c+I1), s		41.0		14.5		52.3		26.8				
Green Ext Time (p_c), s		7.5		0.1		2.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	929	42	98	685	186	55	233	97	127	164	77
Future Volume (veh/h)	101	929	42	98	685	186	55	233	97	127	164	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	106	978	44	103	721	196	58	245	102	134	173	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	1421	634	191	1421	634	560	585	244	445	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	609	3554	1585	552	3554	1585	1126	1254	522	1034	1870	1585
Grp Volume(v), veh/h	106	978	44	103	721	196	58	0	347	134	173	81
Grp Sat Flow(s),veh/h/ln	609	1777	1585	552	1777	1585	1126	0	1776	1034	1870	1585
Q Serve(g_s), s	11.9	17.1	1.3	12.9	11.5	6.3	2.4	0.0	9.7	7.4	4.1	2.2
Cycle Q Clear(g_c), s	23.3	17.1	1.3	30.0	11.5	6.3	6.5	0.0	9.7	17.1	4.1	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	247	1421	634	191	1421	634	560	0	829	445	873	740
V/C Ratio(X)	0.43	0.69	0.07	0.54	0.51	0.31	0.10	0.00	0.42	0.30	0.20	0.11
Avail Cap(c_a), veh/h	247	1421	634	191	1421	634	560	0	829	445	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	18.6	13.9	31.5	16.9	15.4	13.7	0.0	13.3	18.9	11.8	11.2
Incr Delay (d2), s/veh	5.4	2.7	0.2	10.5	1.3	1.3	0.4	0.0	1.6	1.7	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.4	9.4	0.8	3.9	6.6	3.8	1.1	0.0	5.7	3.3	3.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	21.4	14.1	42.0	18.2	16.7	14.0	0.0	14.8	20.7	12.3	11.5
LnGrp LOS	C	C	B	D	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1128			1020			405			388	
Approach Delay, s/veh		22.0			20.3			14.7			15.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		11.7		25.3		19.1		32.0				
Green Ext Time (p_c), s		2.2		2.9		1.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.5									
HCM 6th LOS			B									

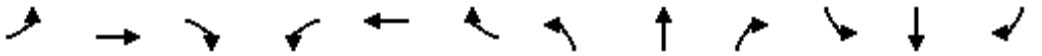
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	32	28	35	27	29	39	809	43	8	643	43
Future Volume (vph)	30	32	28	35	27	29	39	809	43	8	643	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.956			0.994			0.992	
Flt Protected		0.983			0.981			0.998			0.999	
Satd. Flow (prot)	0	1756	0	0	1747	0	0	1848	0	0	1846	0
Flt Permitted		0.839			0.817			0.950			0.991	
Satd. Flow (perm)	0	1499	0	0	1455	0	0	1759	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			23			6			8	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	34	29	37	28	31	41	852	45	8	677	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	0	96	0	0	938	0	0	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		69.0	69.0		69.0	69.0	
Total Split (%)	27.4%	27.4%		27.4%	27.4%		72.6%	72.6%		72.6%	72.6%	
Maximum Green (s)	21.0	21.0		21.0	21.0		64.0	64.0		64.0	64.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.1			10.1			78.1			78.1	
Actuated g/C Ratio		0.11			0.11			0.82			0.82	
v/c Ratio		0.53			0.55			0.65			0.48	
Control Delay		41.7			41.9			3.3			2.6	
Queue Delay		0.0			0.0			0.2			0.1	
Total Delay		41.7			41.9			3.4			2.7	
LOS		D			D			A			A	
Approach Delay		41.7			41.9			3.4			2.7	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		43			42			41			51	
Queue Length 95th (ft)		89			89			123			86	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		347			339			1447			1507	
Starvation Cap Reductn		0			0			85			117	
Spillback Cap Reductn		0			0			43			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.28			0.69			0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 33 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Orange Ave & 33rd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	28	247	2	227	35	601	284	81	563	6
Future Volume (vph)	4	2	28	247	2	227	35	601	284	81	563	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.888			0.851			0.952			0.998	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1644	0	1770	1585	0	1770	1773	0	1770	1859	0
Flt Permitted		0.966		0.734			0.362			0.172		
Satd. Flow (perm)	0	1598	0	1367	1585	0	674	1773	0	320	1859	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			239			49			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	29	260	2	239	37	633	299	85	593	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	260	241	0	37	932	0	85	599	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



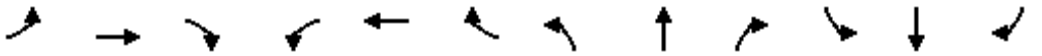
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0		65.0	65.0		65.0	65.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		68.4%	68.4%		68.4%	68.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		21.9		21.9	21.9		63.1	63.1		63.1	63.1	
Actuated g/C Ratio		0.23		0.23	0.23		0.66	0.66		0.66	0.66	
v/c Ratio		0.09		0.83	0.44		0.08	0.78		0.40	0.49	
Control Delay		12.4		56.4	6.7		7.3	17.4		13.1	8.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		12.4		56.4	6.7		7.3	17.4		13.1	8.1	
LOS		B		E	A		A	B		B	A	
Approach Delay		12.4			32.5			17.0			8.7	
Approach LOS		B			C			B			A	
Queue Length 50th (ft)		3		144	1		8	362		13	99	
Queue Length 95th (ft)		26		#254	57		21	577		40	191	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		441		359	593		447	1194		212	1235	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.08		0.72	0.41		0.08	0.78		0.40	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 24 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

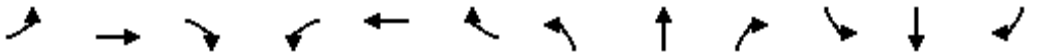
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Orange Ave & 32nd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	929	42	98	685	186	55	233	97	127	164	77
Future Volume (vph)	101	929	42	98	685	186	55	233	97	127	164	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.289			0.166			0.648			0.481		
Satd. Flow (perm)	538	3539	1583	309	3539	1583	1207	1781	0	896	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34			196		37				81
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	106	978	44	103	721	196	58	245	102	134	173	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	978	44	103	721	196	58	347	0	134	173	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



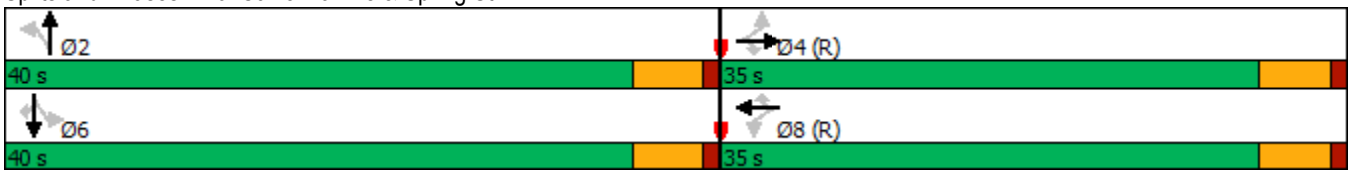
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.49	0.69	0.07	0.84	0.51	0.26	0.10	0.41		0.32	0.20	0.10
Control Delay	26.5	21.8	6.9	73.6	18.5	3.5	11.9	13.4		15.3	12.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	26.5	21.8	6.9	73.6	18.5	3.5	11.9	13.4		15.3	12.5	3.4
LOS	C	C	A	E	B	A	B	B		B	B	A
Approach Delay		21.7			21.2			13.2			11.6	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	36	192	3	42	129	0	14	89		37	45	0
Queue Length 95th (ft)	87	259	21	#133	178	37	35	151		77	82	21
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	215	1415	653	123	1415	750	563	850		418	869	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.49	0.69	0.07	0.84	0.51	0.26	0.10	0.41		0.32	0.20	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 73.0%		ICU Level of Service C	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

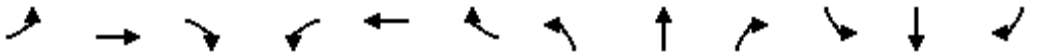
Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



APPENDIX E-III

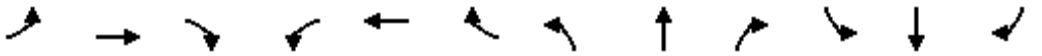
YEAR 2024 CUMULATIVE TRAFFIC CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	15	44	15	11	15	596	47	8	797	10
Future Volume (veh/h)	5	15	15	44	15	11	15	596	47	8	797	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	16	16	46	16	12	16	627	49	8	839	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	54	47	114	26	16	50	1403	108	39	1539	20
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	125	864	753	933	406	259	18	1667	128	5	1829	24
Grp Volume(v), veh/h	37	0	0	74	0	0	692	0	0	858	0	0
Grp Sat Flow(s),veh/h/ln	1741	0	0	1598	0	0	1814	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.14		0.43	0.62		0.16	0.02		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	149	0	0	156	0	0	1562	0	0	1599	0	0
V/C Ratio(X)	0.25	0.00	0.00	0.47	0.00	0.00	0.44	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	376	0	0	361	0	0	1562	0	0	1599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.79	0.00	0.00	0.49	0.00	0.00
Uniform Delay (d), s/veh	47.1	0.0	0.0	48.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.2	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.7	0.0	0.0	3.5	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	0.0	0.0	50.4	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		37			74			692			858	
Approach Delay, s/veh		48.0			50.4			0.7			0.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		93.4		11.6		93.4		11.6				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		74.0		21.0		74.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		4.1		2.0		6.6				
Green Ext Time (p_c), s		5.8		0.1		8.2		0.2				

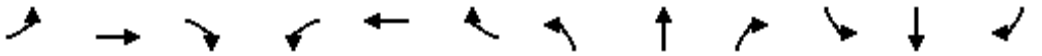
Intersection Summary												
HCM 6th Ctrl Delay			3.9									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	28	55	92	0	66	13	431	325	187	809	6
Future Volume (veh/h)	0	28	55	92	0	66	13	431	325	187	809	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	29	58	97	0	69	14	454	342	197	852	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	79	158	193	0	225	559	755	569	452	1414	10
Arrive On Green	0.00	0.14	0.14	0.14	0.00	0.14	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	0	557	1113	1310	0	1585	644	990	746	682	1855	13
Grp Volume(v), veh/h	0	0	87	97	0	69	14	0	796	197	0	858
Grp Sat Flow(s),veh/h/ln	0	0	1670	1310	0	1585	644	0	1736	682	0	1868
Q Serve(g_s), s	0.0	0.0	5.0	7.6	0.0	4.1	0.6	0.0	21.1	12.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	5.0	12.5	0.0	4.1	0.6	0.0	21.1	34.0	0.0	0.0
Prop In Lane	0.00		0.67	1.00		1.00	1.00		0.43	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	238	193	0	225	559	0	1324	452	0	1424
V/C Ratio(X)	0.00	0.00	0.37	0.50	0.00	0.31	0.03	0.00	0.60	0.44	0.00	0.60
Avail Cap(c_a), veh/h	0	0	366	294	0	347	559	0	1324	452	0	1424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.81	0.00	0.81
Uniform Delay (d), s/veh	0.0	0.0	40.8	46.4	0.0	40.4	3.0	0.0	5.5	4.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.0	0.0	0.8	0.1	0.0	2.0	2.5	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	3.6	4.3	0.0	3.0	0.1	0.0	9.0	2.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	41.7	48.4	0.0	41.1	3.1	0.0	7.5	7.0	0.0	1.5
LnGrp LOS	A	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		87			166			810			1055	
Approach Delay, s/veh		41.7			45.4			7.4			2.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		85.1		19.9		85.1		19.9				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		72.0		23.0		72.0		23.0				
Max Q Clear Time (g_c+I1), s		23.1		7.0		36.0		14.5				
Green Ext Time (p_c), s		7.6		0.4		10.1		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	559	49	104	868	104	73	185	74	108	144	76
Future Volume (veh/h)	40	559	49	104	868	104	73	185	74	108	144	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	588	52	109	914	109	77	195	78	114	152	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	1421	634	318	1421	634	578	593	237	505	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	551	3554	1585	789	3554	1585	1148	1271	508	1106	1870	1585
Grp Volume(v), veh/h	42	588	52	109	914	109	77	0	273	114	152	80
Grp Sat Flow(s),veh/h/ln	551	1777	1585	789	1777	1585	1148	0	1779	1106	1870	1585
Q Serve(g_s), s	5.0	8.9	1.5	8.6	15.6	3.3	3.1	0.0	7.3	5.4	3.5	2.1
Cycle Q Clear(g_c), s	20.6	8.9	1.5	17.6	15.6	3.3	6.7	0.0	7.3	12.7	3.5	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	202	1421	634	318	1421	634	578	0	830	505	873	740
V/C Ratio(X)	0.21	0.41	0.08	0.34	0.64	0.17	0.13	0.00	0.33	0.23	0.17	0.11
Avail Cap(c_a), veh/h	202	1421	634	318	1421	634	578	0	830	505	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	16.2	14.0	22.5	18.2	14.5	13.5	0.0	12.6	16.6	11.6	11.2
Incr Delay (d2), s/veh	2.3	0.9	0.3	2.9	2.2	0.6	0.5	0.0	1.1	1.0	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.3	5.3	1.0	3.1	8.6	2.1	1.4	0.0	4.5	2.6	2.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	17.1	14.2	25.4	20.4	15.1	14.0	0.0	13.7	17.6	12.0	11.5
LnGrp LOS	C	B	B	C	C	B	B	A	B	B	B	B
Approach Vol, veh/h		682			1132			350			346	
Approach Delay, s/veh		17.6			20.4			13.7			13.8	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		9.3		22.6		14.7		19.6				
Green Ext Time (p_c), s		1.8		2.5		1.5		5.1				

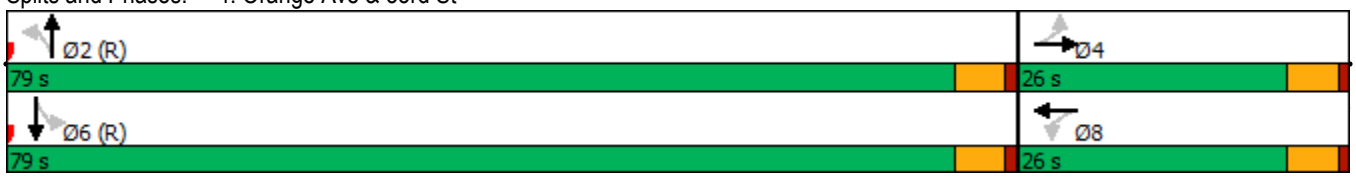
Intersection Summary												
HCM 6th Ctrl Delay			17.8									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	15	15	44	15	11	15	596	47	8	797	10
Future Volume (vph)	5	15	15	44	15	11	15	596	47	8	797	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.942			0.978			0.990			0.998	
Flt Protected		0.993			0.970			0.999				
Satd. Flow (prot)	0	1742	0	0	1767	0	0	1842	0	0	1859	0
Flt Permitted		0.965			0.789			0.977			0.994	
Satd. Flow (perm)	0	1693	0	0	1437	0	0	1802	0	0	1848	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			8			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	16	16	46	16	12	16	627	49	8	839	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	74	0	0	692	0	0	858	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

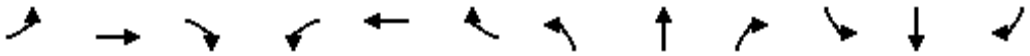
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		79.0	79.0		79.0	79.0	
Total Split (%)	24.8%	24.8%		24.8%	24.8%		75.2%	75.2%		75.2%	75.2%	
Maximum Green (s)	21.0	21.0		21.0	21.0		74.0	74.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.1			10.1			88.1			88.1	
Actuated g/C Ratio		0.10			0.10			0.84			0.84	
v/c Ratio		0.21			0.51			0.46			0.55	
Control Delay		30.5			51.4			3.4			1.9	
Queue Delay		0.0			0.0			0.1			0.3	
Total Delay		30.5			51.4			3.5			2.2	
LOS		C			D			A			A	
Approach Delay		30.5			51.4			3.5			2.2	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		13			43			85			46	
Queue Length 95th (ft)		43			86			121			m83	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		351			293			1512			1550	
Starvation Cap Reductn		0			0			188			222	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.11			0.25			0.52			0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 37 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	28	55	92	0	66	13	431	325	187	809	6
Future Volume (vph)	0	28	55	92	0	66	13	431	325	187	809	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.936			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1744	0	1770	1861	0
Flt Permitted				0.701			0.277			0.305		
Satd. Flow (perm)	0	1695	0	1306	1583	0	516	1744	0	568	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			465			82			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	29	58	97	0	69	14	454	342	197	852	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	97	69	0	14	796	0	197	858	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

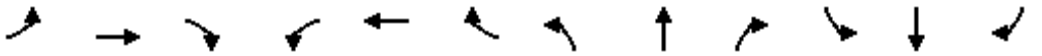


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		77.0	77.0		77.0	77.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%		73.3%	73.3%	
Maximum Green (s)	23.0	23.0		23.0	23.0		72.0	72.0		72.0	72.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		13.1		13.1	13.1		81.9	81.9		81.9	81.9	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78		0.78	0.78	
v/c Ratio		0.33		0.60	0.11		0.03	0.58		0.44	0.59	
Control Delay		19.9		57.6	0.4		3.8	6.6		5.1	3.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay		19.9		57.6	0.4		3.8	6.6		5.1	3.9	
LOS		B		E	A		A	A		A	A	
Approach Delay		19.9			33.8			6.6			4.1	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)		18		63	0		2	150		19	85	
Queue Length 95th (ft)		60		111	0		8	305		31	105	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		416		286	709		402	1378		443	1451	
Starvation Cap Reductn		0		0	0		0	0		0	85	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.21		0.34	0.10		0.03	0.58		0.44	0.63	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 42 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St

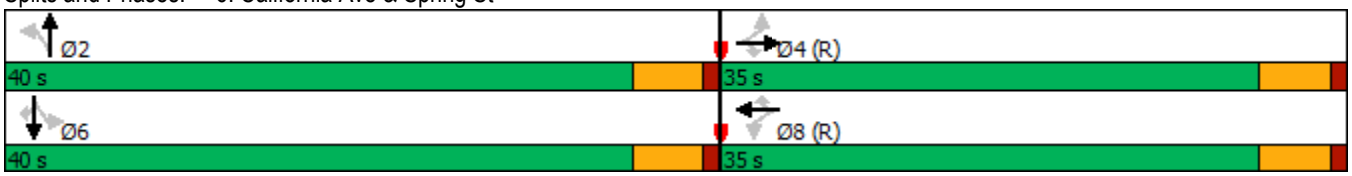
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	559	49	104	868	104	73	185	74	108	144	76
Future Volume (vph)	40	559	49	104	868	104	73	185	74	108	144	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.957				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1783	0	1770	1863	1583
Flt Permitted	0.193			0.368			0.660			0.555		
Satd. Flow (perm)	360	3539	1583	685	3539	1583	1229	1783	0	1034	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52			91		36				51
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	588	52	109	914	109	77	195	78	114	152	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	588	52	109	914	109	77	273	0	114	152	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.29	0.42	0.08	0.40	0.65	0.16	0.13	0.32		0.24	0.17	0.10
Control Delay	22.1	17.3	4.9	21.6	20.8	5.4	12.2	12.0		13.7	12.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	22.1	17.3	4.9	21.6	20.8	5.4	12.2	12.0		13.7	12.3	5.9
LOS	C	B	A	C	C	A	B	B		B	B	A
Approach Delay		16.7			19.4			12.1			11.3	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	13	100	0	35	175	5	19	65		30	39	7
Queue Length 95th (ft)	40	142	20	79	237	33	43	115		63	73	29
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	144	1415	664	274	1415	687	573	851		482	869	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.29	0.42	0.08	0.40	0.65	0.16	0.13	0.32		0.24	0.17	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

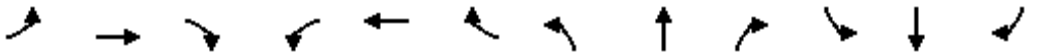
Splits and Phases: 6: California Ave & Spring St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	34	26	36	28	30	37	909	44	8	710	44
Future Volume (veh/h)	31	34	26	36	28	30	37	909	44	8	710	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	36	27	38	29	32	39	957	46	8	747	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	59	37	90	46	42	70	1378	65	39	1429	87
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	479	760	485	548	601	549	41	1665	79	6	1727	106
Grp Volume(v), veh/h	96	0	0	99	0	0	1042	0	0	801	0	0
Grp Sat Flow(s),veh/h/ln	1724	0	0	1699	0	0	1785	0	0	1838	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.34		0.28	0.38		0.32	0.04		0.04	0.01		0.06
Lane Grp Cap(c), veh/h	179	0	0	179	0	0	1513	0	0	1556	0	0
V/C Ratio(X)	0.54	0.00	0.00	0.55	0.00	0.00	0.69	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	373	0	0	368	0	0	1513	0	0	1556	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.32	0.00	0.00	0.68	0.00	0.00
Uniform Delay (d), s/veh	47.2	0.0	0.0	47.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	2.7	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.3	0.0	0.0	4.4	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	0.0	0.0	50.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		96			99			1042			801	
Approach Delay, s/veh		49.7			50.0			0.8			0.8	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		91.9		13.1		91.9		13.1				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		74.0		21.0		74.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		7.5		2.0		7.8				
Green Ext Time (p_c), s		13.0		0.4		7.3		0.4				

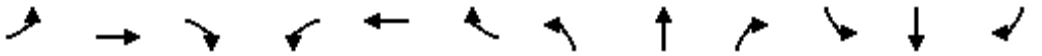
Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	2	29	267	2	234	36	692	344	83	625	6
Future Volume (veh/h)	4	2	29	267	2	234	36	692	344	83	625	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2	31	281	2	246	38	728	362	87	658	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	40	287	277	3	375	583	786	391	135	1234	11
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.67	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	67	166	1206	1376	13	1574	772	1179	586	517	1850	17
Grp Volume(v), veh/h	37	0	0	281	0	248	38	0	1090	87	0	664
Grp Sat Flow(s),veh/h/ln	1440	0	0	1376	0	1587	772	0	1765	517	0	1867
Q Serve(g_s), s	0.1	0.0	0.0	10.1	0.0	14.8	1.8	0.0	56.5	13.5	0.0	0.0
Cycle Q Clear(g_c), s	14.9	0.0	0.0	25.0	0.0	14.8	1.8	0.0	56.5	70.0	0.0	0.0
Prop In Lane	0.11		0.84	1.00		0.99	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	381	0	0	277	0	378	583	0	1177	135	0	1245
V/C Ratio(X)	0.10	0.00	0.00	1.01	0.00	0.66	0.07	0.00	0.93	0.64	0.00	0.53
Avail Cap(c_a), veh/h	381	0	0	277	0	378	583	0	1177	135	0	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.00	0.84
Uniform Delay (d), s/veh	31.2	0.0	0.0	45.3	0.0	36.1	6.1	0.0	15.3	29.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	57.5	0.0	4.1	0.2	0.0	13.6	18.2	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.4	0.0	0.0	15.5	0.0	8.8	0.5	0.0	28.3	4.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	0.0	102.7	0.0	40.2	6.4	0.0	28.9	48.1	0.0	1.4
LnGrp LOS	C	A	A	F	A	D	A	A	C	D	A	A
Approach Vol, veh/h		37			529			1128			751	
Approach Delay, s/veh		31.3			73.4			28.1			6.8	
Approach LOS		C			E			C			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.0		30.0		75.0		30.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		70.0		25.0		70.0		25.0				
Max Q Clear Time (g_c+I1), s		58.5		16.9		72.0		27.0				
Green Ext Time (p_c), s		6.8		0.1		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			31.4									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	986	43	101	729	188	57	237	100	128	166	78
Future Volume (veh/h)	103	986	43	101	729	188	57	237	100	128	166	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	1038	45	106	767	198	60	249	105	135	175	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	1421	634	175	1421	634	558	583	246	439	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	582	3554	1585	521	3554	1585	1123	1249	527	1027	1870	1585
Grp Volume(v), veh/h	108	1038	45	106	767	198	60	0	354	135	175	82
Grp Sat Flow(s),veh/h/ln	582	1777	1585	521	1777	1585	1123	0	1776	1027	1870	1585
Q Serve(g_s), s	13.1	18.6	1.3	11.4	12.4	6.4	2.5	0.0	10.0	7.6	4.1	2.2
Cycle Q Clear(g_c), s	25.5	18.6	1.3	30.0	12.4	6.4	6.6	0.0	10.0	17.5	4.1	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	233	1421	634	175	1421	634	558	0	829	439	873	740
V/C Ratio(X)	0.46	0.73	0.07	0.60	0.54	0.31	0.11	0.00	0.43	0.31	0.20	0.11
Avail Cap(c_a), veh/h	233	1421	634	175	1421	634	558	0	829	439	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	19.1	13.9	33.2	17.2	15.4	13.7	0.0	13.3	19.2	11.8	11.2
Incr Delay (d2), s/veh	6.5	3.3	0.2	14.5	1.5	1.3	0.4	0.0	1.6	1.8	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.6	10.2	0.8	4.2	7.0	3.9	1.1	0.0	5.8	3.3	3.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	22.4	14.1	47.7	18.7	16.7	14.1	0.0	14.9	21.0	12.3	11.6
LnGrp LOS	C	C	B	D	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1191			1071			414			392	
Approach Delay, s/veh		23.1			21.2			14.8			15.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		12.0		27.5		19.5		32.0				
Green Ext Time (p_c), s		2.3		1.7		1.6		0.0				

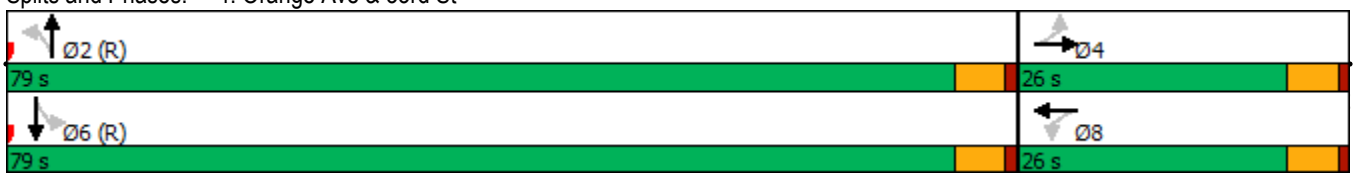
Intersection Summary												
HCM 6th Ctrl Delay			20.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	26	36	28	30	37	909	44	8	710	44
Future Volume (vph)	31	34	26	36	28	30	37	909	44	8	710	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.962			0.956			0.994			0.992	
Flt Protected		0.983			0.981			0.998				
Satd. Flow (prot)	0	1761	0	0	1747	0	0	1848	0	0	1848	0
Flt Permitted		0.811			0.795			0.952			0.990	
Satd. Flow (perm)	0	1453	0	0	1416	0	0	1763	0	0	1829	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			20			5			7	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	36	27	38	29	32	39	957	46	8	747	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	99	0	0	1042	0	0	801	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

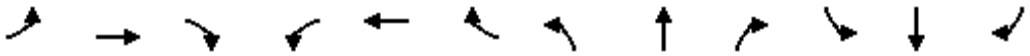
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		79.0	79.0		79.0	79.0	
Total Split (%)	24.8%	24.8%		24.8%	24.8%		75.2%	75.2%		75.2%	75.2%	
Maximum Green (s)	21.0	21.0		21.0	21.0		74.0	74.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.9			10.9			87.3			87.3	
Actuated g/C Ratio		0.10			0.10			0.83			0.83	
v/c Ratio		0.58			0.60			0.71			0.53	
Control Delay		50.0			50.4			3.6			2.3	
Queue Delay		0.0			0.0			0.4			0.0	
Total Delay		50.0			50.4			4.0			2.4	
LOS		D			D			A			A	
Approach Delay		50.0			50.4			4.0			2.4	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		51			51			50			45	
Queue Length 95th (ft)		100			102			m137			80	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		304			299			1467			1522	
Starvation Cap Reductn		0			0			102			49	
Spillback Cap Reductn		0			0			67			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.33			0.76			0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 28 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 7.8		Intersection LOS: A	
Intersection Capacity Utilization 89.3%		ICU Level of Service E	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	29	267	2	234	36	692	344	83	625	6
Future Volume (vph)	4	2	29	267	2	234	36	692	344	83	625	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.887			0.851			0.950			0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1644	0	1770	1585	0	1770	1770	0	1770	1861	0
Flt Permitted		0.968		0.733			0.327			0.094		
Satd. Flow (perm)	0	1599	0	1365	1585	0	609	1770	0	175	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			246			51			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	31	281	2	246	38	728	362	87	658	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	281	248	0	38	1090	0	87	664	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



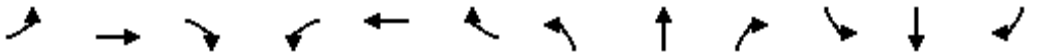
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0		75.0	75.0		75.0	75.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%		71.4%	71.4%		71.4%	71.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		70.0	70.0		70.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		23.9		23.9	23.9		71.1	71.1		71.1	71.1	
Actuated g/C Ratio		0.23		0.23	0.23		0.68	0.68		0.68	0.68	
v/c Ratio		0.10		0.91	0.45		0.09	0.90		0.74	0.53	
Control Delay		13.9		72.3	7.2		6.9	25.5		46.5	8.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.2	
Total Delay		13.9		72.3	7.2		6.9	25.5		46.5	8.8	
LOS		B		E	A		A	C		D	A	
Approach Delay		13.9			41.8			24.8			13.2	
Approach LOS		B			D			C			B	
Queue Length 50th (ft)		3		182	1		8	540		16	122	
Queue Length 95th (ft)		29		#331	63		20	#928		#139	223	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		404		325	564		412	1215		118	1261	
Starvation Cap Reductn		0		0	0		0	0		0	109	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.09		0.86	0.44		0.09	0.90		0.74	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 20 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 96.3%		ICU Level of Service F	
Analysis Period (min) 15			

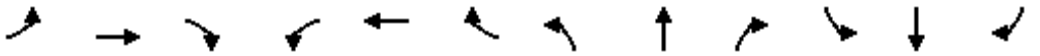
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Orange Ave & 32nd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	986	43	101	729	188	57	237	100	128	166	78
Future Volume (vph)	103	986	43	101	729	188	57	237	100	128	166	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.265			0.142			0.647			0.474		
Satd. Flow (perm)	494	3539	1583	265	3539	1583	1205	1781	0	883	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33			196		33				82
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	108	1038	45	106	767	198	60	249	105	135	175	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	1038	45	106	767	198	60	354	0	135	175	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



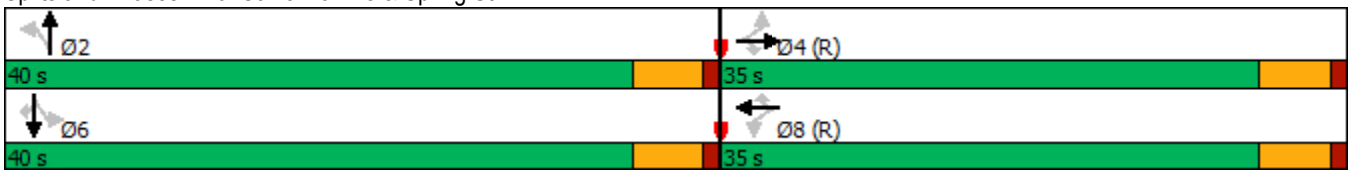
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.55	0.73	0.07	1.00	0.54	0.26	0.11	0.42		0.33	0.20	0.10
Control Delay	30.1	22.9	7.2	118.2	19.0	3.5	11.9	13.8		15.4	12.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.1	22.9	7.2	118.2	19.0	3.5	11.9	13.8		15.4	12.6	3.3
LOS	C	C	A	F	B	A	B	B		B	B	A
Approach Delay		23.0			26.0			13.5			11.6	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	37	209	3	48	140	1	15	93		38	46	0
Queue Length 95th (ft)	#98	281	22	#146	192	37	35	156		78	82	21
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	197	1415	653	106	1415	750	562	848		412	869	782
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.55	0.73	0.07	1.00	0.54	0.26	0.11	0.42		0.33	0.20	0.10

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 75.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



APPENDIX E-IV

YEAR 2024 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	16	18	44	17	11	19	596	47	8	797	10
Future Volume (veh/h)	5	16	18	44	17	11	19	596	47	8	797	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	17	19	46	18	12	20	627	49	8	839	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	53	52	114	29	16	56	1388	107	39	1537	20
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	111	820	804	910	446	254	24	1651	127	5	1829	24
Grp Volume(v), veh/h	41	0	0	76	0	0	696	0	0	858	0	0
Grp Sat Flow(s),veh/h/ln	1736	0	0	1611	0	0	1802	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.12		0.46	0.61		0.16	0.03		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	150	0	0	159	0	0	1550	0	0	1597	0	0
V/C Ratio(X)	0.27	0.00	0.00	0.48	0.00	0.00	0.45	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	375	0	0	362	0	0	1550	0	0	1597	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.79	0.00	0.00	0.48	0.00	0.00
Uniform Delay (d), s/veh	47.1	0.0	0.0	48.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	2.2	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.9	0.0	0.0	3.6	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	0.0	50.3	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		41			76			696			858	
Approach Delay, s/veh		48.1			50.3			0.7			0.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		93.3		11.7		93.3		11.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		74.0		21.0		74.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		4.4		2.0		6.7				
Green Ext Time (p_c), s		5.9		0.1		8.2		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			4.1									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	28	55	92	0	66	13	435	325	187	812	6
Future Volume (veh/h)	0	28	55	92	0	66	13	435	325	187	812	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	29	58	97	0	69	14	458	342	197	855	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	79	158	193	0	225	558	758	566	449	1415	10
Arrive On Green	0.00	0.14	0.14	0.14	0.00	0.14	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	0	557	1113	1310	0	1585	642	994	742	680	1855	13
Grp Volume(v), veh/h	0	0	87	97	0	69	14	0	800	197	0	861
Grp Sat Flow(s),veh/h/ln	0	0	1670	1310	0	1585	642	0	1737	680	0	1868
Q Serve(g_s), s	0.0	0.0	5.0	7.6	0.0	4.1	0.6	0.0	21.3	13.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	5.0	12.5	0.0	4.1	0.6	0.0	21.3	34.4	0.0	0.0
Prop In Lane	0.00		0.67	1.00		1.00	1.00		0.43	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	238	193	0	225	558	0	1324	449	0	1424
V/C Ratio(X)	0.00	0.00	0.37	0.50	0.00	0.31	0.03	0.00	0.60	0.44	0.00	0.60
Avail Cap(c_a), veh/h	0	0	366	294	0	347	558	0	1324	449	0	1424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.81	0.00	0.81
Uniform Delay (d), s/veh	0.0	0.0	40.8	46.4	0.0	40.4	3.0	0.0	5.5	4.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.0	0.0	0.8	0.1	0.0	2.1	2.5	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	3.6	4.3	0.0	3.0	0.1	0.0	9.1	2.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	41.7	48.4	0.0	41.1	3.1	0.0	7.5	7.1	0.0	1.6
LnGrp LOS	A	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		87			166			814			1058	
Approach Delay, s/veh		41.7			45.4			7.5			2.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		85.1		19.9		85.1		19.9				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		72.0		23.0		72.0		23.0				
Max Q Clear Time (g_c+I1), s		23.3		7.0		36.4		14.5				
Green Ext Time (p_c), s		7.7		0.4		10.1		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	559	49	104	868	108	73	189	74	111	147	77
Future Volume (veh/h)	42	559	49	104	868	108	73	189	74	111	147	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	588	52	109	914	114	77	199	78	117	155	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	1421	634	318	1421	634	575	597	234	502	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	549	3554	1585	789	3554	1585	1144	1279	501	1102	1870	1585
Grp Volume(v), veh/h	44	588	52	109	914	114	77	0	277	117	155	81
Grp Sat Flow(s),veh/h/ln	549	1777	1585	789	1777	1585	1144	0	1780	1102	1870	1585
Q Serve(g_s), s	5.3	8.9	1.5	8.6	15.6	3.5	3.1	0.0	7.4	5.6	3.6	2.2
Cycle Q Clear(g_c), s	20.9	8.9	1.5	17.6	15.6	3.5	6.8	0.0	7.4	13.0	3.6	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	201	1421	634	318	1421	634	575	0	831	502	873	740
V/C Ratio(X)	0.22	0.41	0.08	0.34	0.64	0.18	0.13	0.00	0.33	0.23	0.18	0.11
Avail Cap(c_a), veh/h	201	1421	634	318	1421	634	575	0	831	502	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	16.2	14.0	22.5	18.2	14.5	13.6	0.0	12.6	16.7	11.6	11.2
Incr Delay (d2), s/veh	2.5	0.9	0.3	2.9	2.2	0.6	0.5	0.0	1.1	1.1	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.4	5.3	1.0	3.1	8.6	2.2	1.4	0.0	4.5	2.6	2.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	17.1	14.2	25.4	20.4	15.2	14.1	0.0	13.7	17.8	12.1	11.5
LnGrp LOS	C	B	B	C	C	B	B	A	B	B	B	B
Approach Vol, veh/h		684			1137			354			353	
Approach Delay, s/veh		17.6			20.4			13.8			13.9	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		9.4		22.9		15.0		19.6				
Green Ext Time (p_c), s		1.9		2.5		1.5		5.1				

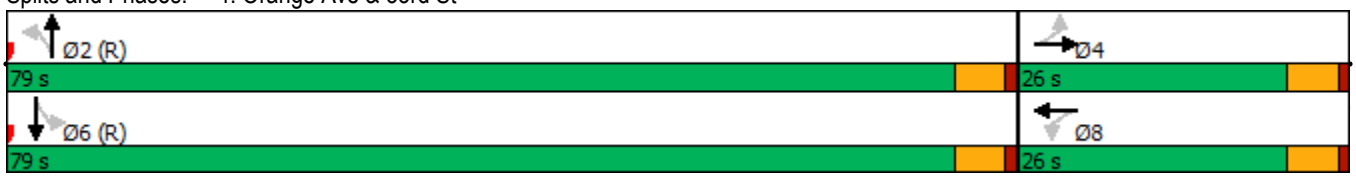
Intersection Summary												
HCM 6th Ctrl Delay			17.8									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	16	18	44	17	11	19	596	47	8	797	10
Future Volume (vph)	5	16	18	44	17	11	19	596	47	8	797	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.937			0.979			0.990			0.998	
Flt Protected		0.994			0.971			0.999				
Satd. Flow (prot)	0	1735	0	0	1771	0	0	1842	0	0	1859	0
Flt Permitted		0.968			0.814			0.969			0.994	
Satd. Flow (perm)	0	1690	0	0	1484	0	0	1787	0	0	1848	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	17	19	46	18	12	20	627	49	8	839	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	76	0	0	696	0	0	858	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		79.0	79.0		79.0	79.0	
Total Split (%)	24.8%	24.8%		24.8%	24.8%		75.2%	75.2%		75.2%	75.2%	
Maximum Green (s)	21.0	21.0		21.0	21.0		74.0	74.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.3			10.3			87.9			87.9	
Actuated g/C Ratio		0.10			0.10			0.84			0.84	
v/c Ratio		0.23			0.50			0.46			0.55	
Control Delay		29.5			50.5			3.5			1.9	
Queue Delay		0.0			0.0			0.1			0.3	
Total Delay		29.5			50.5			3.6			2.2	
LOS		C			D			A			A	
Approach Delay		29.5			50.5			3.6			2.2	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		14			44			86			47	
Queue Length 95th (ft)		45			88			122			m83	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		353			303			1498			1548	
Starvation Cap Reductn		0			0			178			225	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.12			0.25			0.53			0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 37 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



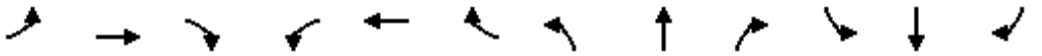
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	28	55	92	0	66	13	435	325	187	812	6
Future Volume (vph)	0	28	55	92	0	66	13	435	325	187	812	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.936			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1744	0	1770	1861	0
Flt Permitted				0.701			0.275			0.304		
Satd. Flow (perm)	0	1695	0	1306	1583	0	512	1744	0	566	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			462			81			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	29	58	97	0	69	14	458	342	197	855	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	97	69	0	14	800	0	197	861	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		77.0	77.0		77.0	77.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%		73.3%	73.3%	
Maximum Green (s)	23.0	23.0		23.0	23.0		72.0	72.0		72.0	72.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		13.1		13.1	13.1		81.9	81.9		81.9	81.9	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78		0.78	0.78	
v/c Ratio		0.33		0.60	0.11		0.04	0.58		0.45	0.59	
Control Delay		19.9		57.6	0.4		3.8	6.7		5.1	3.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay		19.9		57.6	0.4		3.8	6.7		5.1	4.0	
LOS		B		E	A		A	A		A	A	
Approach Delay		19.9			33.8			6.6			4.2	
Approach LOS		B			C			A			A	
Queue Length 50th (ft)		18		63	0		2	152		19	86	
Queue Length 95th (ft)		60		111	0		8	308		31	106	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		416		286	707		399	1378		441	1451	
Starvation Cap Reductn		0		0	0		0	0		0	84	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.21		0.34	0.10		0.04	0.58		0.45	0.63	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 42 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St

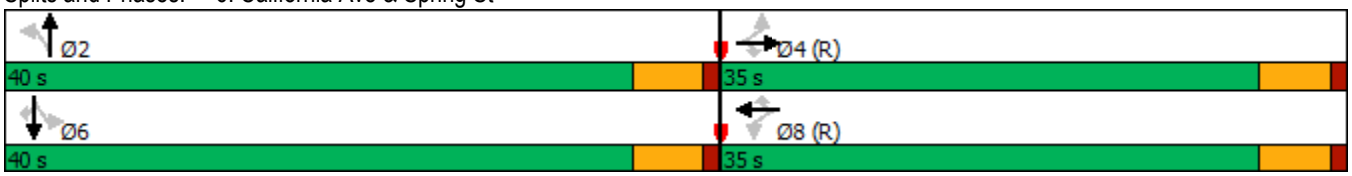
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	559	49	104	868	108	73	189	74	111	147	77
Future Volume (vph)	42	559	49	104	868	108	73	189	74	111	147	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.958				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1785	0	1770	1863	1583
Flt Permitted	0.193			0.368			0.659			0.551		
Satd. Flow (perm)	360	3539	1583	685	3539	1583	1228	1785	0	1026	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52			95		35				51
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	44	588	52	109	914	114	77	199	78	117	155	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	588	52	109	914	114	77	277	0	117	155	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

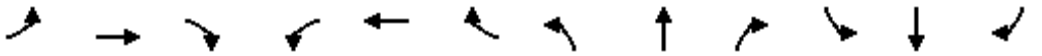


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.31	0.42	0.08	0.40	0.65	0.17	0.13	0.33		0.24	0.18	0.11
Control Delay	22.6	17.3	4.9	21.6	20.8	5.3	12.2	12.2		13.8	12.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	22.6	17.3	4.9	21.6	20.8	5.3	12.2	12.2		13.8	12.3	5.9
LOS	C	B	A	C	C	A	B	B		B	B	A
Approach Delay		16.7			19.3			12.2			11.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	14	100	0	35	175	5	19	66		31	40	7
Queue Length 95th (ft)	42	142	20	79	237	34	43	117		65	74	29
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	144	1415	664	274	1415	690	573	851		478	869	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.31	0.42	0.08	0.40	0.65	0.17	0.13	0.33		0.24	0.18	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: California Ave & Spring St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	35	29	36	29	30	40	909	44	8	710	44
Future Volume (veh/h)	31	35	29	36	29	30	40	909	44	8	710	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	37	31	38	31	32	42	957	46	8	747	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	59	42	89	49	42	73	1366	65	39	1426	87
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	452	741	528	530	624	535	45	1655	78	6	1727	106
Grp Volume(v), veh/h	101	0	0	101	0	0	1045	0	0	801	0	0
Grp Sat Flow(s),veh/h/ln	1721	0	0	1688	0	0	1778	0	0	1838	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.33		0.31	0.38		0.32	0.04		0.04	0.01		0.06
Lane Grp Cap(c), veh/h	181	0	0	181	0	0	1504	0	0	1552	0	0
V/C Ratio(X)	0.56	0.00	0.00	0.56	0.00	0.00	0.69	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	372	0	0	368	0	0	1504	0	0	1552	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.31	0.00	0.00	0.67	0.00	0.00
Uniform Delay (d), s/veh	47.2	0.0	0.0	47.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	2.7	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.4	0.0	0.0	4.4	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	0.0	0.0	50.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		101			101			1045			801	
Approach Delay, s/veh		49.9			50.0			0.8			0.8	
Approach LOS		D			D			A			A	

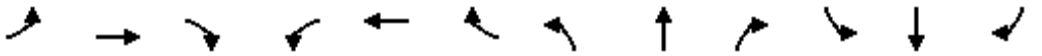
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		91.7		13.3		91.7		13.3				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		74.0		21.0		74.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		7.8		2.0		7.9				
Green Ext Time (p_c), s		13.1		0.4		7.3		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	2	29	267	2	234	36	695	344	83	628	6
Future Volume (veh/h)	4	2	29	267	2	234	36	695	344	83	628	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	2	31	281	2	246	38	732	362	87	661	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	40	287	277	3	375	581	787	389	132	1234	11
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.67	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	67	166	1206	1376	13	1574	769	1181	584	515	1851	17
Grp Volume(v), veh/h	37	0	0	281	0	248	38	0	1094	87	0	667
Grp Sat Flow(s),veh/h/ln	1440	0	0	1376	0	1587	769	0	1765	515	0	1867
Q Serve(g_s), s	0.1	0.0	0.0	10.1	0.0	14.8	1.8	0.0	57.0	13.0	0.0	0.0
Cycle Q Clear(g_c), s	14.9	0.0	0.0	25.0	0.0	14.8	1.8	0.0	57.0	70.0	0.0	0.0
Prop In Lane	0.11		0.84	1.00		0.99	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	381	0	0	277	0	378	581	0	1177	132	0	1245
V/C Ratio(X)	0.10	0.00	0.00	1.01	0.00	0.66	0.07	0.00	0.93	0.66	0.00	0.54
Avail Cap(c_a), veh/h	381	0	0	277	0	378	581	0	1177	132	0	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82
Uniform Delay (d), s/veh	31.2	0.0	0.0	45.3	0.0	36.1	6.1	0.0	15.3	30.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	57.5	0.0	4.1	0.2	0.0	14.0	19.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.4	0.0	0.0	15.5	0.0	8.8	0.5	0.0	28.6	4.4	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	0.0	102.7	0.0	40.2	6.4	0.0	29.3	49.4	0.0	1.4
LnGrp LOS	C	A	A	F	A	D	A	A	C	D	A	A
Approach Vol, veh/h		37			529			1132			754	
Approach Delay, s/veh		31.3			73.4			28.6			6.9	
Approach LOS		C			E			C			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.0		30.0		75.0		30.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		70.0		25.0		70.0		25.0				
Max Q Clear Time (g_c+I1), s		59.0		16.9		72.0		27.0				
Green Ext Time (p_c), s		6.6		0.1		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			31.6									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	986	43	101	729	191	57	240	100	131	169	79
Future Volume (veh/h)	104	986	43	101	729	191	57	240	100	131	169	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	1038	45	106	767	201	60	253	105	138	178	83
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	1421	634	175	1421	634	555	586	243	436	873	740
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	581	3554	1585	521	3554	1585	1118	1256	521	1023	1870	1585
Grp Volume(v), veh/h	109	1038	45	106	767	201	60	0	358	138	178	83
Grp Sat Flow(s),veh/h/ln	581	1777	1585	521	1777	1585	1118	0	1777	1023	1870	1585
Q Serve(g_s), s	13.3	18.6	1.3	11.4	12.4	6.5	2.5	0.0	10.1	7.8	4.2	2.2
Cycle Q Clear(g_c), s	25.6	18.6	1.3	30.0	12.4	6.5	6.7	0.0	10.1	17.9	4.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	232	1421	634	175	1421	634	555	0	829	436	873	740
V/C Ratio(X)	0.47	0.73	0.07	0.60	0.54	0.32	0.11	0.00	0.43	0.32	0.20	0.11
Avail Cap(c_a), veh/h	232	1421	634	175	1421	634	555	0	829	436	873	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	19.1	13.9	33.2	17.2	15.5	13.8	0.0	13.4	19.3	11.8	11.3
Incr Delay (d2), s/veh	6.7	3.3	0.2	14.5	1.5	1.3	0.4	0.0	1.6	1.9	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.6	10.2	0.8	4.2	7.0	3.9	1.1	0.0	5.9	3.4	3.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	22.4	14.1	47.7	18.7	16.8	14.2	0.0	15.0	21.2	12.3	11.6
LnGrp LOS	C	C	B	D	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1192			1074			418			399	
Approach Delay, s/veh		23.1			21.2			14.9			15.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		35.0		40.0		35.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		30.0		35.0		30.0				
Max Q Clear Time (g_c+I1), s		12.1		27.6		19.9		32.0				
Green Ext Time (p_c), s		2.3		1.6		1.6		0.0				

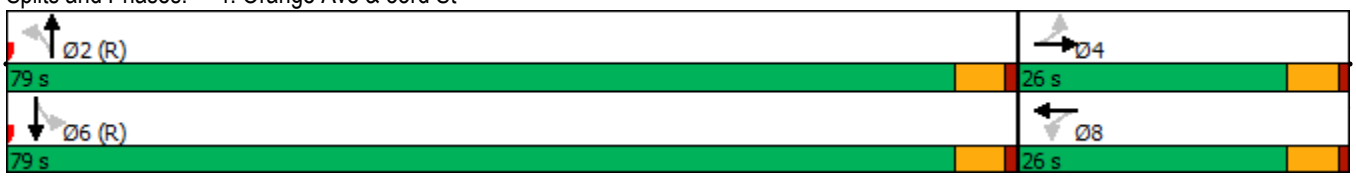
Intersection Summary												
HCM 6th Ctrl Delay			20.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	35	29	36	29	30	40	909	44	8	710	44
Future Volume (vph)	31	35	29	36	29	30	40	909	44	8	710	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.959			0.957			0.994			0.992	
Flt Protected		0.984			0.982			0.998				
Satd. Flow (prot)	0	1758	0	0	1751	0	0	1848	0	0	1848	0
Flt Permitted		0.820			0.791			0.947			0.990	
Satd. Flow (perm)	0	1465	0	0	1410	0	0	1753	0	0	1829	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			20			5			7	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	37	31	38	31	32	42	957	46	8	747	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	101	0	0	101	0	0	1045	0	0	801	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

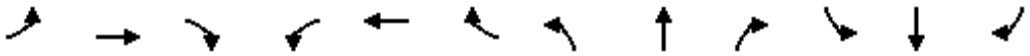
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		79.0	79.0		79.0	79.0	
Total Split (%)	24.8%	24.8%		24.8%	24.8%		75.2%	75.2%		75.2%	75.2%	
Maximum Green (s)	21.0	21.0		21.0	21.0		74.0	74.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.9			10.9			84.1			84.1	
Actuated g/C Ratio		0.10			0.10			0.80			0.80	
v/c Ratio		0.60			0.62			0.74			0.55	
Control Delay		50.2			51.3			4.2			2.6	
Queue Delay		0.0			0.0			0.5			0.1	
Total Delay		50.2			51.3			4.7			2.6	
LOS		D			D			A			A	
Approach Delay		50.2			51.3			4.7			2.6	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		53			53			50			46	
Queue Length 95th (ft)		104			103			m136			80	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		308			298			1405			1466	
Starvation Cap Reductn		0			0			98			54	
Spillback Cap Reductn		0			0			65			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.33			0.34			0.80			0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 28 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 91.4%		ICU Level of Service F	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	29	267	2	234	36	695	344	83	628	6
Future Volume (vph)	4	2	29	267	2	234	36	695	344	83	628	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.887			0.851			0.950			0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1644	0	1770	1585	0	1770	1770	0	1770	1861	0
Flt Permitted		0.968		0.733			0.325			0.091		
Satd. Flow (perm)	0	1599	0	1365	1585	0	605	1770	0	170	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			246			51			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	2	31	281	2	246	38	732	362	87	661	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	281	248	0	38	1094	0	87	667	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0		75.0	75.0		75.0	75.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%		71.4%	71.4%		71.4%	71.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		70.0	70.0		70.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		23.9		23.9	23.9		71.1	71.1		71.1	71.1	
Actuated g/C Ratio		0.23		0.23	0.23		0.68	0.68		0.68	0.68	
v/c Ratio		0.10		0.91	0.45		0.09	0.90		0.76	0.53	
Control Delay		13.9		72.3	7.2		6.9	25.8		49.8	8.8	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.2	
Total Delay		13.9		72.3	7.2		6.9	25.9		49.8	8.9	
LOS		B		E	A		A	C		D	A	
Approach Delay		13.9			41.8			25.2			13.6	
Approach LOS		B			D			C			B	
Queue Length 50th (ft)		3		182	1		8	546		17	126	
Queue Length 95th (ft)		29		#331	63		20	#935		#144	227	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		404		325	564		409	1215		115	1261	
Starvation Cap Reductn		0		0	0		0	0		0	109	
Spillback Cap Reductn		0		0	0		0	2		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.09		0.86	0.44		0.09	0.90		0.76	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 105			
Offset: 20 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 25.1		Intersection LOS: C	
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Orange Ave & 32nd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	986	43	101	729	191	57	240	100	131	169	79
Future Volume (vph)	104	986	43	101	729	191	57	240	100	131	169	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.265			0.142			0.645			0.470		
Satd. Flow (perm)	494	3539	1583	265	3539	1583	1201	1781	0	875	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33			199		33				83
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	109	1038	45	106	767	201	60	253	105	138	178	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1038	45	106	767	201	60	358	0	138	178	83
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

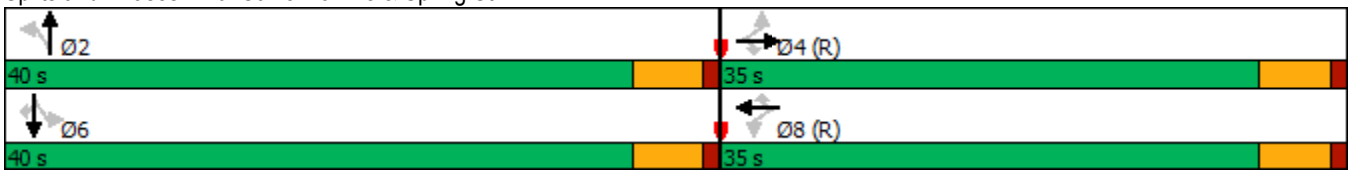
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	53.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47		0.47	0.47	0.47
v/c Ratio	0.55	0.73	0.07	1.00	0.54	0.27	0.11	0.42		0.34	0.20	0.11
Control Delay	30.5	22.9	7.2	118.2	19.0	3.5	12.0	13.8		15.6	12.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.5	22.9	7.2	118.2	19.0	3.5	12.0	13.8		15.6	12.6	3.3
LOS	C	C	A	F	B	A	B	B		B	B	A
Approach Delay		23.0			25.9			13.6			11.7	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	38	209	3	48	140	1	15	94		39	47	0
Queue Length 95th (ft)	#105	281	22	#146	192	38	35	159		80	83	21
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	197	1415	653	106	1415	752	560	848		408	869	783
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.55	0.73	0.07	1.00	0.54	0.27	0.11	0.42		0.34	0.20	0.11

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

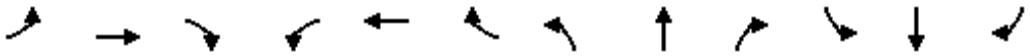
Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



APPENDIX E-V

YEAR 2041 BUILDOUT TRAFFIC CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	18	18	52	18	13	18	689	55	9	915	12
Future Volume (veh/h)	6	18	18	52	18	13	18	689	55	9	915	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	19	19	55	19	14	19	725	58	9	963	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	62	54	118	29	18	49	1389	110	36	1536	21
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	121	871	754	941	403	254	20	1651	130	6	1826	24
Grp Volume(v), veh/h	44	0	0	88	0	0	802	0	0	985	0	0
Grp Sat Flow(s),veh/h/ln	1745	0	0	1598	0	0	1801	0	0	1856	0	0
Q Serve(g_s), s	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.14		0.43	0.62		0.16	0.02		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	161	0	0	165	0	0	1548	0	0	1593	0	0
V/C Ratio(X)	0.27	0.00	0.00	0.53	0.00	0.00	0.52	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	345	0	0	330	0	0	1548	0	0	1593	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.69	0.00	0.00	0.39	0.00	0.00
Uniform Delay (d), s/veh	50.8	0.0	0.0	52.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.6	0.0	0.0	0.9	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	2.3	0.0	0.0	4.3	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	0.0	0.0	54.9	0.0	0.0	0.9	0.0	0.0	0.7	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		44			88			802			985	
Approach Delay, s/veh		51.8			54.9			0.9			0.7	
Approach LOS		D			D			A			A	

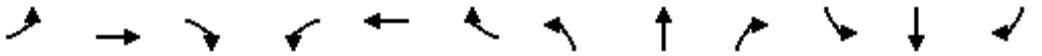
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		101.8		13.2		101.8		13.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		84.0		21.0		84.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		4.8		2.0		8.1				
Green Ext Time (p_c), s		7.5		0.1		10.9		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			4.4									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	32	64	103	0	77	16	497	376	218	930	7
Future Volume (veh/h)	0	32	64	103	0	77	16	497	376	218	930	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	34	67	108	0	81	17	523	396	229	979	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	88	173	195	0	248	495	747	566	356	1403	10
Arrive On Green	0.00	0.16	0.16	0.16	0.00	0.16	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	0	562	1108	1294	0	1585	571	988	748	608	1855	13
Grp Volume(v), veh/h	0	0	101	108	0	81	17	0	919	229	0	986
Grp Sat Flow(s),veh/h/ln	0	0	1671	1294	0	1585	571	0	1736	608	0	1868
Q Serve(g_s), s	0.0	0.0	6.2	9.4	0.0	5.2	0.9	0.0	31.5	31.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.2	15.6	0.0	5.2	0.9	0.0	31.5	62.7	0.0	0.0
Prop In Lane	0.00		0.66	1.00		1.00	1.00		0.43	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	261	195	0	248	495	0	1313	356	0	1413
V/C Ratio(X)	0.00	0.00	0.39	0.55	0.00	0.33	0.03	0.00	0.70	0.64	0.00	0.70
Avail Cap(c_a), veh/h	0	0	334	251	0	317	495	0	1313	356	0	1413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.00	0.73
Uniform Delay (d), s/veh	0.0	0.0	43.6	50.6	0.0	43.1	3.5	0.0	7.2	11.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.5	0.0	0.8	0.1	0.0	3.1	6.4	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	4.4	5.1	0.0	3.6	0.2	0.0	13.6	5.8	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	44.5	53.0	0.0	43.9	3.6	0.0	10.4	17.7	0.0	2.1
LnGrp LOS	A	A	D	D	A	D	A	A	B	B	A	A
Approach Vol, veh/h		101			189			936			1215	
Approach Delay, s/veh		44.5			49.1			10.2			5.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		92.0		23.0		92.0		23.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		82.0		23.0		82.0		23.0				
Max Q Clear Time (g_c+I1), s		33.5		8.2		64.7		17.6				
Green Ext Time (p_c), s		10.0		0.4		9.3		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	648	58	121	1007	121	85	216	86	126	168	89
Future Volume (veh/h)	47	648	58	121	1007	121	85	216	86	126	168	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	682	61	127	1060	127	89	227	91	133	177	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	1885	841	363	1885	841	415	486	195	326	716	606
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	472	3554	1585	717	3554	1585	1108	1270	509	1062	1870	1585
Grp Volume(v), veh/h	49	682	61	127	1060	127	89	0	318	133	177	94
Grp Sat Flow(s),veh/h/ln	472	1777	1585	717	1777	1585	1108	0	1779	1062	1870	1585
Q Serve(g_s), s	8.9	12.8	2.2	14.4	23.0	4.7	6.8	0.0	15.5	12.4	7.4	4.5
Cycle Q Clear(g_c), s	31.9	12.8	2.2	27.2	23.0	4.7	14.3	0.0	15.5	27.8	7.4	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	219	1885	841	363	1885	841	415	0	681	326	716	606
V/C Ratio(X)	0.22	0.36	0.07	0.35	0.56	0.15	0.21	0.00	0.47	0.41	0.25	0.15
Avail Cap(c_a), veh/h	219	1885	841	363	1885	841	415	0	681	326	716	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	15.7	13.2	23.6	18.1	13.8	29.1	0.0	26.7	37.2	24.2	23.3
Incr Delay (d2), s/veh	2.4	0.5	0.2	2.6	1.2	0.4	1.2	0.0	2.3	3.7	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	2.0	7.4	1.4	4.3	12.2	3.1	3.4	0.0	9.5	5.5	5.3	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	16.2	13.4	26.2	19.3	14.2	30.3	0.0	29.0	40.9	25.0	23.8
LnGrp LOS	C	B	B	C	B	B	C	A	C	D	C	C
Approach Vol, veh/h		792			1314			407			404	
Approach Delay, s/veh		16.9			19.5			29.3			30.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		49.0		66.0		49.0		66.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		44.0		61.0		44.0		61.0				
Max Q Clear Time (g_c+I1), s		17.5		33.9		29.8		29.2				
Green Ext Time (p_c), s		2.2		5.7		1.6		10.6				

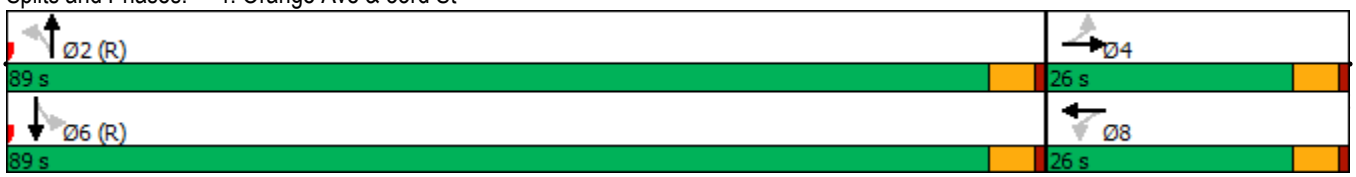
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

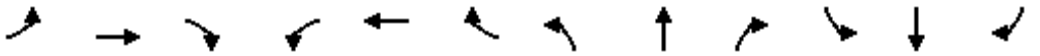
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	18	18	52	18	13	18	689	55	9	915	12
Future Volume (vph)	6	18	18	52	18	13	18	689	55	9	915	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.979			0.990			0.998	
Flt Protected		0.993			0.970			0.999				
Satd. Flow (prot)	0	1742	0	0	1769	0	0	1842	0	0	1859	0
Flt Permitted		0.964			0.844			0.969			0.993	
Satd. Flow (perm)	0	1692	0	0	1539	0	0	1787	0	0	1846	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			7			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	19	19	55	19	14	19	725	58	9	963	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	88	0	0	802	0	0	985	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		89.0	89.0		89.0	89.0	
Total Split (%)	22.6%	22.6%		22.6%	22.6%		77.4%	77.4%		77.4%	77.4%	
Maximum Green (s)	21.0	21.0		21.0	21.0		84.0	84.0		84.0	84.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.7			11.8			96.5			96.5	
Actuated g/C Ratio		0.10			0.10			0.84			0.84	
v/c Ratio		0.23			0.54			0.53			0.64	
Control Delay		32.6			56.2			3.8			2.2	
Queue Delay		0.0			0.0			0.2			0.5	
Total Delay		32.6			56.2			4.0			2.7	
LOS		C			E			A			A	
Approach Delay		32.6			56.2			4.0			2.7	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		17			58			98			59	
Queue Length 95th (ft)		51			106			138			m100	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		324			286			1501			1549	
Starvation Cap Reductn		0			0			185			213	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.14			0.31			0.61			0.74	

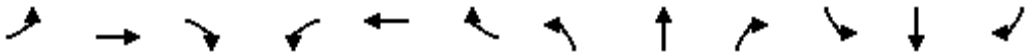
Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 37 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	32	64	103	0	77	16	497	376	218	930	7
Future Volume (vph)	0	32	64	103	0	77	16	497	376	218	930	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.935			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1742	0	1770	1861	0
Flt Permitted				0.649			0.219			0.248		
Satd. Flow (perm)	0	1695	0	1209	1583	0	408	1742	0	462	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			423			83			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	34	67	108	0	81	17	523	396	229	979	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	101	0	108	81	0	17	919	0	229	986	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

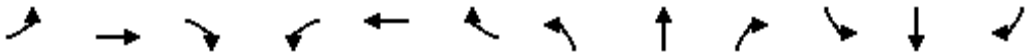


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		87.0	87.0		87.0	87.0	
Total Split (%)	24.3%	24.3%		24.3%	24.3%		75.7%	75.7%		75.7%	75.7%	
Maximum Green (s)	23.0	23.0		23.0	23.0		82.0	82.0		82.0	82.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		15.1		15.1	15.1		89.9	89.9		89.9	89.9	
Actuated g/C Ratio		0.13		0.13	0.13		0.78	0.78		0.78	0.78	
v/c Ratio		0.36		0.68	0.14		0.05	0.67		0.63	0.68	
Control Delay		22.1		67.9	0.5		4.4	8.8		10.9	4.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.2	
Total Delay		22.1		67.9	0.5		4.4	8.8		10.9	5.2	
LOS		C		E	A		A	A		B	A	
Approach Delay		22.1			39.0			8.7			6.3	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		25		77	0		2	228		26	114	
Queue Length 95th (ft)		74		132	0		10	458		40	139	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		392		241	655		318	1380		361	1455	
Starvation Cap Reductn		0		0	0		0	0		0	88	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.26		0.45	0.12		0.05	0.67		0.63	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 40 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St

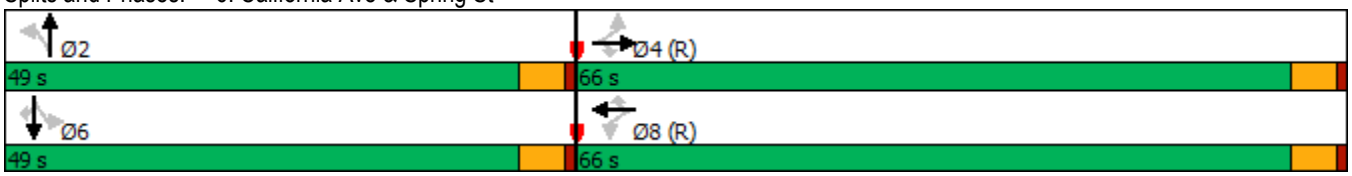
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	648	58	121	1007	121	85	216	86	126	168	89
Future Volume (vph)	47	648	58	121	1007	121	85	216	86	126	168	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.957				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1783	0	1770	1863	1583
Flt Permitted	0.185			0.338			0.605			0.436		
Satd. Flow (perm)	345	3539	1583	630	3539	1583	1127	1783	0	812	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57			76		20				76
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	49	682	61	127	1060	127	89	227	91	133	177	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	682	61	127	1060	127	89	318	0	133	177	94
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

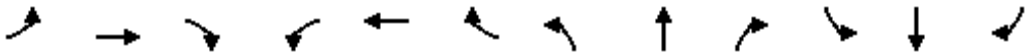


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	49.0	49.0		49.0	49.0	49.0
Total Split (%)	57.4%	57.4%	57.4%	57.4%	57.4%	57.4%	42.6%	42.6%		42.6%	42.6%	42.6%
Maximum Green (s)	61.0	61.0	61.0	61.0	61.0	61.0	44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	61.0	61.0	61.0	61.0	61.0	61.0	44.0	44.0		44.0	44.0	44.0
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.38	0.38		0.38	0.38	0.38
v/c Ratio	0.27	0.36	0.07	0.38	0.56	0.15	0.21	0.46		0.43	0.25	0.14
Control Delay	19.7	16.4	4.1	20.1	19.6	6.4	25.5	27.4		31.6	25.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.7	16.4	4.1	20.1	19.6	6.4	25.5	27.4		31.6	25.4	7.9
LOS	B	B	A	C	B	A	C	C		C	C	A
Approach Delay		15.7			18.4			27.0			23.4	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	19	148	1	53	265	18	44	163		72	88	8
Queue Length 95th (ft)	48	190	22	104	328	48	83	246		132	142	43
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	183	1877	866	334	1877	875	431	694		310	712	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.36	0.07	0.38	0.56	0.15	0.21	0.46		0.43	0.25	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 49 (43%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: California Ave & Spring St

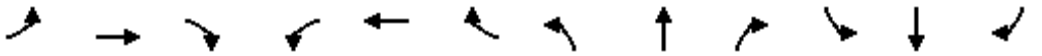




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	39	30	42	32	35	43	1047	52	10	820	52
Future Volume (veh/h)	36	39	30	42	32	35	43	1047	52	10	820	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	41	32	44	34	37	45	1102	55	11	863	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	68	45	105	55	49	74	1318	65	46	1369	87
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	477	752	498	547	608	548	41	1650	81	7	1714	108
Grp Volume(v), veh/h	111	0	0	115	0	0	1202	0	0	929	0	0
Grp Sat Flow(s),veh/h/ln	1727	0	0	1703	0	0	1771	0	0	1830	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.4	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.34		0.29	0.38		0.32	0.04		0.05	0.01		0.06
Lane Grp Cap(c), veh/h	209	0	0	209	0	0	1456	0	0	1502	0	0
V/C Ratio(X)	0.53	0.00	0.00	0.55	0.00	0.00	0.83	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	434	0	0	429	0	0	1456	0	0	1502	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.09	0.00	0.00	0.50	0.00	0.00
Uniform Delay (d), s/veh	39.7	0.0	0.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	2.3	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.1	0.0	0.0	4.3	0.0	0.0	0.4	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	0.0	0.0	42.1	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		111			115			1202			929	
Approach Delay, s/veh		41.8			42.1			0.5			1.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		76.9		13.1		76.9		13.1				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		59.0		21.0		59.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		7.4		2.0		7.7				
Green Ext Time (p_c), s		18.4		0.4		9.7		0.5				

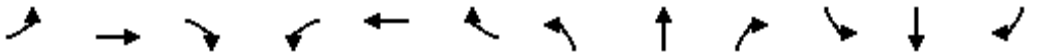
Intersection Summary												
HCM 6th Ctrl Delay			4.7									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2	34	309	2	272	42	794	392	97	720	7
Future Volume (veh/h)	5	2	34	309	2	272	42	794	392	97	720	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	2	36	325	2	286	44	836	413	102	758	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	40	289	292	3	403	525	748	370	80	1172	11
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	1.00	1.00	1.00
Sat Flow, veh/h	62	158	1132	1370	11	1576	702	1182	584	445	1850	17
Grp Volume(v), veh/h	43	0	0	325	0	288	44	0	1249	102	0	765
Grp Sat Flow(s),veh/h/ln	1352	0	0	1370	0	1587	702	0	1765	445	0	1867
Q Serve(g_s), s	0.1	0.0	0.0	8.0	0.0	14.9	2.2	0.0	57.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	0.0	23.0	0.0	14.9	2.2	0.0	57.0	57.0	0.0	0.0
Prop In Lane	0.12		0.84	1.00		0.99	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	390	0	0	292	0	405	525	0	1118	80	0	1183
V/C Ratio(X)	0.11	0.00	0.00	1.11	0.00	0.71	0.08	0.00	1.12	1.27	0.00	0.65
Avail Cap(c_a), veh/h	390	0	0	292	0	405	525	0	1118	80	0	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.00	0.73
Uniform Delay (d), s/veh	25.7	0.0	0.0	38.5	0.0	30.5	6.5	0.0	16.5	28.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	85.9	0.0	5.7	0.3	0.0	65.1	177.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.3	0.0	0.0	18.4	0.0	8.8	0.6	0.0	49.4	8.8	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	0.0	0.0	124.5	0.0	36.2	6.8	0.0	81.6	205.5	0.0	2.0
LnGrp LOS	C	A	A	F	A	D	A	A	F	F	A	A
Approach Vol, veh/h		43			613			1293			867	
Approach Delay, s/veh		25.8			83.0			79.1			25.9	
Approach LOS		C			F			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.0		28.0		62.0		28.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		57.0		23.0		57.0		23.0				
Max Q Clear Time (g_c+I1), s		59.0		17.0		59.0		25.0				
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			62.8									
HCM 6th LOS			E									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1144	50	118	845	220	66	276	116	149	193	91
Future Volume (veh/h)	120	1144	50	118	845	220	66	276	116	149	193	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	1204	53	124	889	232	69	291	122	157	203	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	1777	793	188	1777	793	420	487	204	278	727	616
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	502	3554	1585	442	3554	1585	1080	1251	525	973	1870	1585
Grp Volume(v), veh/h	126	1204	53	124	889	232	69	0	413	157	203	96
Grp Sat Flow(s),veh/h/ln	502	1777	1585	442	1777	1585	1080	0	1776	973	1870	1585
Q Serve(g_s), s	20.1	23.1	1.6	21.9	15.0	7.7	4.2	0.0	16.7	13.8	6.7	3.5
Cycle Q Clear(g_c), s	35.1	23.1	1.6	45.0	15.0	7.7	10.9	0.0	16.7	30.5	6.7	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	247	1777	793	188	1777	793	420	0	691	278	727	616
V/C Ratio(X)	0.51	0.68	0.07	0.66	0.50	0.29	0.16	0.00	0.60	0.56	0.28	0.16
Avail Cap(c_a), veh/h	247	1777	793	188	1777	793	420	0	691	278	727	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	17.0	11.6	35.5	15.0	13.2	22.6	0.0	21.9	34.0	18.9	17.9
Incr Delay (d2), s/veh	7.3	2.1	0.2	16.8	1.0	0.9	0.8	0.0	3.8	8.0	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.5	12.0	1.0	5.5	8.2	4.4	2.0	0.0	9.9	5.8	4.8	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	19.1	11.8	52.3	16.0	14.1	23.4	0.0	25.7	42.1	19.8	18.4
LnGrp LOS	C	B	B	D	B	B	C	A	C	D	B	B
Approach Vol, veh/h		1383			1245			482			456	
Approach Delay, s/veh		20.2			19.3			25.4			27.2	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		50.0		40.0		50.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		45.0		35.0		45.0				
Max Q Clear Time (g_c+I1), s		18.7		37.1		32.5		47.0				
Green Ext Time (p_c), s		2.5		5.3		0.6		0.0				

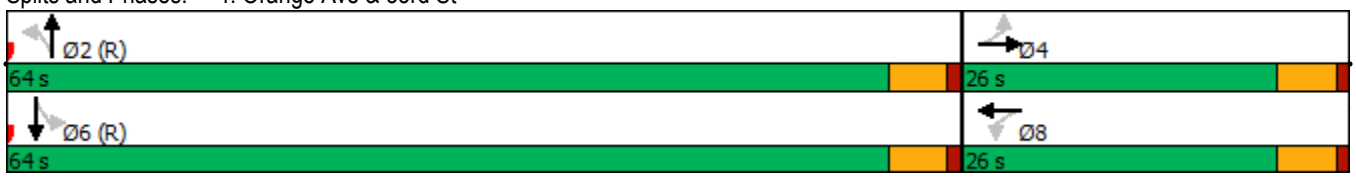
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	39	30	42	32	35	43	1047	52	10	820	52
Future Volume (vph)	36	39	30	42	32	35	43	1047	52	10	820	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.961			0.957			0.994			0.992	
Flt Protected		0.983			0.981			0.998			0.999	
Satd. Flow (prot)	0	1760	0	0	1749	0	0	1848	0	0	1846	0
Flt Permitted		0.813			0.798			0.943			0.984	
Satd. Flow (perm)	0	1455	0	0	1423	0	0	1746	0	0	1818	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			25			6			7	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	41	32	44	34	37	45	1102	55	11	863	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	0	115	0	0	1202	0	0	929	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

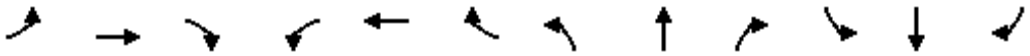
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		64.0	64.0		64.0	64.0	
Total Split (%)	28.9%	28.9%		28.9%	28.9%		71.1%	71.1%		71.1%	71.1%	
Maximum Green (s)	21.0	21.0		21.0	21.0		59.0	59.0		59.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.8			10.8			72.4			72.4	
Actuated g/C Ratio		0.12			0.12			0.80			0.80	
v/c Ratio		0.58			0.60			0.85			0.63	
Control Delay		41.4			41.4			9.5			2.9	
Queue Delay		0.0			0.0			6.2			0.3	
Total Delay		41.4			41.4			15.7			3.3	
LOS		D			D			B			A	
Approach Delay		41.4			41.4			15.7			3.3	
Approach LOS		D			D			B			A	
Queue Length 50th (ft)		49			49			156			56	
Queue Length 95th (ft)		97			98			m201			m105	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		355			351			1406			1464	
Starvation Cap Reductn		0			0			65			147	
Spillback Cap Reductn		1			2			165			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.31			0.33			0.97			0.71	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 101.4%		ICU Level of Service G	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	34	309	2	272	42	794	392	97	720	7
Future Volume (vph)	5	2	34	309	2	272	42	794	392	97	720	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.887			0.851			0.950			0.999	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1642	0	1770	1585	0	1770	1770	0	1770	1861	0
Flt Permitted		0.961		0.729			0.250			0.070		
Satd. Flow (perm)	0	1588	0	1358	1585	0	466	1770	0	130	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			194			54			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	2	36	325	2	286	44	836	413	102	758	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	325	288	0	44	1249	0	102	765	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		62.0	62.0		62.0	62.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		68.9%	68.9%		68.9%	68.9%	
Maximum Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		22.7		22.7	22.7		57.3	57.3		57.3	57.3	
Actuated g/C Ratio		0.25		0.25	0.25		0.64	0.64		0.64	0.64	
v/c Ratio		0.10		0.95	0.53		0.15	1.09		1.24	0.65	
Control Delay		10.6		72.4	13.8		8.2	73.2		186.6	8.4	
Queue Delay		0.0		0.0	0.0		0.0	4.1		0.0	0.2	
Total Delay		10.6		72.4	13.8		8.2	77.3		186.6	8.6	
LOS		B		E	B		A	E		F	A	
Approach Delay		10.6			44.9			74.9			29.6	
Approach LOS		B			D			E			C	
Queue Length 50th (ft)		3		181	42		9	~802		~72	103	
Queue Length 95th (ft)		m26		#345	119		24	#1054		m#147	187	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		432		347	549		296	1145		82	1185	
Starvation Cap Reductn		0		0	0		0	0		0	64	
Spillback Cap Reductn		0		0	7		0	68		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.10		0.94	0.53		0.15	1.16		1.24	0.68	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 30 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 53.4 Intersection LOS: D
Intersection Capacity Utilization 107.3% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

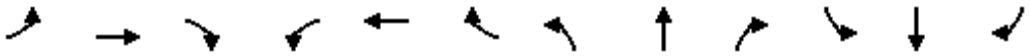
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Orange Ave & 32nd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1144	50	118	845	220	66	276	116	149	193	91
Future Volume (vph)	120	1144	50	118	845	220	66	276	116	149	193	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.243			0.133			0.595			0.351		
Satd. Flow (perm)	453	3539	1583	248	3539	1583	1108	1781	0	654	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33			198		27				96
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	1204	53	124	889	232	69	291	122	157	203	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1204	53	124	889	232	69	413	0	157	203	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



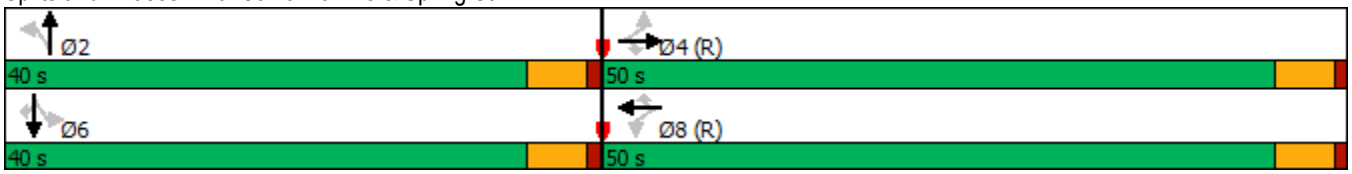
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	50.0	50.0	50.0	50.0	50.0	50.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	55.6%	55.6%	55.6%	55.6%	55.6%	55.6%	44.4%	44.4%		44.4%	44.4%	44.4%
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39		0.39	0.39	0.39
v/c Ratio	0.56	0.68	0.07	1.00	0.50	0.26	0.16	0.58		0.62	0.28	0.14
Control Delay	27.3	19.5	6.3	109.8	16.3	3.6	19.3	24.2		34.9	20.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	27.3	19.5	6.3	109.8	16.3	3.6	19.3	24.2		34.9	20.2	4.5
LOS	C	B	A	F	B	A	B	C		C	C	A
Approach Delay		19.7			23.2			23.5			22.0	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	47	260	6	67	168	9	25	170		70	78	0
Queue Length 95th (ft)	115	333	24	#184	221	46	55	265		#149	130	30
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	226	1769	808	124	1769	890	430	709		254	724	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.56	0.68	0.07	1.00	0.50	0.26	0.16	0.58		0.62	0.28	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

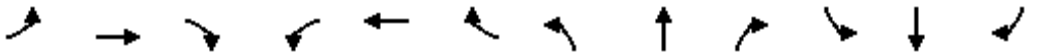
Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



APPENDIX E-VI

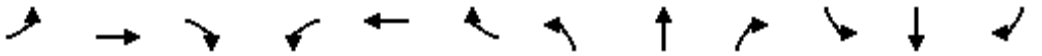
YEAR 2041 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	19	21	52	20	13	22	689	55	9	915	12
Future Volume (veh/h)	6	19	21	52	20	13	22	689	55	9	915	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	20	22	55	21	14	23	725	58	9	963	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	60	58	117	32	18	54	1373	108	36	1534	21
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	110	833	798	924	436	250	26	1634	129	6	1826	24
Grp Volume(v), veh/h	48	0	0	90	0	0	806	0	0	985	0	0
Grp Sat Flow(s),veh/h/ln	1741	0	0	1609	0	0	1788	0	0	1856	0	0
Q Serve(g_s), s	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.12		0.46	0.61		0.16	0.03		0.07	0.01		0.01
Lane Grp Cap(c), veh/h	162	0	0	167	0	0	1535	0	0	1591	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.54	0.00	0.00	0.52	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	344	0	0	331	0	0	1535	0	0	1591	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.69	0.00	0.00	0.37	0.00	0.00
Uniform Delay (d), s/veh	50.9	0.0	0.0	52.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	2.7	0.0	0.0	0.9	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	2.5	0.0	0.0	4.4	0.0	0.0	0.7	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	0.0	0.0	54.8	0.0	0.0	0.9	0.0	0.0	0.7	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		48			90			806			985	
Approach Delay, s/veh		51.9			54.8			0.9			0.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		101.7		13.3		101.7		13.3				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		84.0		21.0		84.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		5.0		2.0		8.1				
Green Ext Time (p_c), s		7.7		0.1		10.9		0.3				

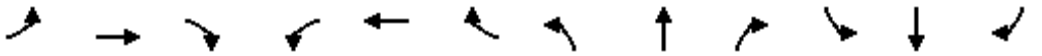
Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	32	64	103	0	77	16	501	376	218	933	7
Future Volume (veh/h)	0	32	64	103	0	77	16	501	376	218	933	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	34	67	108	0	81	17	527	396	229	982	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	88	173	195	0	248	493	750	564	354	1403	10
Arrive On Green	0.00	0.16	0.16	0.16	0.00	0.16	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	0	562	1108	1294	0	1585	569	991	745	606	1855	13
Grp Volume(v), veh/h	0	0	101	108	0	81	17	0	923	229	0	989
Grp Sat Flow(s),veh/h/ln	0	0	1671	1294	0	1585	569	0	1736	606	0	1868
Q Serve(g_s), s	0.0	0.0	6.2	9.4	0.0	5.2	0.9	0.0	31.8	31.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.2	15.6	0.0	5.2	0.9	0.0	31.8	63.5	0.0	0.0
Prop In Lane	0.00		0.66	1.00		1.00	1.00		0.43	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	261	195	0	248	493	0	1314	354	0	1413
V/C Ratio(X)	0.00	0.00	0.39	0.55	0.00	0.33	0.03	0.00	0.70	0.65	0.00	0.70
Avail Cap(c_a), veh/h	0	0	334	251	0	317	493	0	1314	354	0	1413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.00	0.73
Uniform Delay (d), s/veh	0.0	0.0	43.6	50.6	0.0	43.1	3.5	0.0	7.3	11.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.5	0.0	0.8	0.1	0.0	3.2	6.6	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	0.0	0.0	4.4	5.1	0.0	3.6	0.2	0.0	13.7	5.9	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	44.5	53.0	0.0	43.9	3.6	0.0	10.4	18.1	0.0	2.1
LnGrp LOS	A	A	D	D	A	D	A	A	B	B	A	A
Approach Vol, veh/h		101			189			940			1218	
Approach Delay, s/veh		44.5			49.1			10.3			5.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		92.0		23.0		92.0		23.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		82.0		23.0		82.0		23.0				
Max Q Clear Time (g_c+I1), s		33.8		8.2		65.5		17.6				
Green Ext Time (p_c), s		10.0		0.4		9.1		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	648	58	121	1007	125	85	220	86	129	171	90
Future Volume (veh/h)	49	648	58	121	1007	125	85	220	86	129	171	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	682	61	127	1060	132	89	232	91	136	180	95
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	1885	841	363	1885	841	412	489	192	322	716	606
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	470	3554	1585	717	3554	1585	1104	1279	502	1057	1870	1585
Grp Volume(v), veh/h	52	682	61	127	1060	132	89	0	323	136	180	95
Grp Sat Flow(s),veh/h/ln	470	1777	1585	717	1777	1585	1104	0	1780	1057	1870	1585
Q Serve(g_s), s	9.6	12.8	2.2	14.4	23.0	4.9	6.9	0.0	15.7	12.8	7.6	4.5
Cycle Q Clear(g_c), s	32.5	12.8	2.2	27.2	23.0	4.9	14.4	0.0	15.7	28.6	7.6	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	218	1885	841	363	1885	841	412	0	681	322	716	606
V/C Ratio(X)	0.24	0.36	0.07	0.35	0.56	0.16	0.22	0.00	0.47	0.42	0.25	0.16
Avail Cap(c_a), veh/h	218	1885	841	363	1885	841	412	0	681	322	716	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	15.7	13.2	23.6	18.1	13.8	29.2	0.0	26.8	37.5	24.3	23.3
Incr Delay (d2), s/veh	2.6	0.5	0.2	2.6	1.2	0.4	1.2	0.0	2.4	4.0	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	2.2	7.4	1.4	4.3	12.2	3.2	3.4	0.0	9.6	5.6	5.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	16.2	13.4	26.2	19.3	14.2	30.4	0.0	29.1	41.6	25.1	23.9
LnGrp LOS	C	B	B	C	B	B	C	A	C	D	C	C
Approach Vol, veh/h		795			1319			412			411	
Approach Delay, s/veh		17.0			19.5			29.4			30.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		49.0		66.0		49.0		66.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		44.0		61.0		44.0		61.0				
Max Q Clear Time (g_c+I1), s		17.7		34.5		30.6		29.2				
Green Ext Time (p_c), s		2.3		5.7		1.6		10.6				

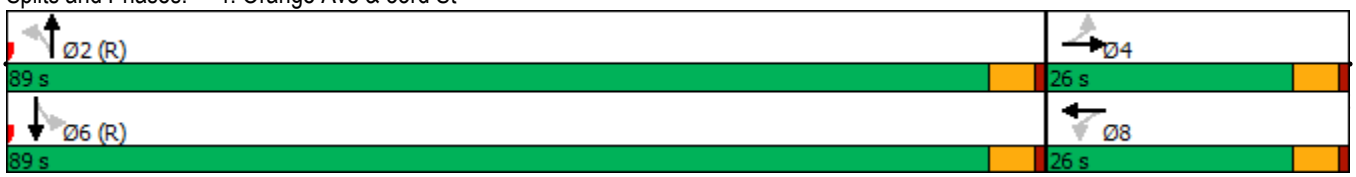
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	21	52	20	13	22	689	55	9	915	12
Future Volume (vph)	6	19	21	52	20	13	22	689	55	9	915	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.938			0.979			0.990			0.998	
Flt Protected		0.994			0.970			0.999				
Satd. Flow (prot)	0	1737	0	0	1769	0	0	1842	0	0	1859	0
Flt Permitted		0.967			0.844			0.960			0.993	
Satd. Flow (perm)	0	1690	0	0	1539	0	0	1770	0	0	1846	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			7			9			2	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	20	22	55	21	14	23	725	58	9	963	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	90	0	0	806	0	0	985	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

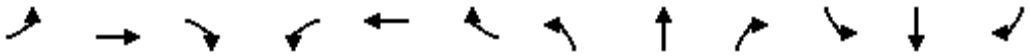
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		89.0	89.0		89.0	89.0	
Total Split (%)	22.6%	22.6%		22.6%	22.6%		77.4%	77.4%		77.4%	77.4%	
Maximum Green (s)	21.0	21.0		21.0	21.0		84.0	84.0		84.0	84.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.8			11.9			96.4			96.4	
Actuated g/C Ratio		0.10			0.10			0.84			0.84	
v/c Ratio		0.25			0.55			0.54			0.64	
Control Delay		31.7			56.4			3.8			2.2	
Queue Delay		0.0			0.0			0.2			0.5	
Total Delay		31.7			56.4			4.1			2.8	
LOS		C			E			A			A	
Approach Delay		31.7			56.4			4.1			2.8	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		18			59			99			60	
Queue Length 95th (ft)		53			108			139			m100	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		326			286			1485			1548	
Starvation Cap Reductn		0			0			175			216	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.15			0.31			0.62			0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 37 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 73.3%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	32	64	103	0	77	16	501	376	218	933	7
Future Volume (vph)	0	32	64	103	0	77	16	501	376	218	933	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.910			0.850			0.936			0.999	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1695	0	1770	1583	0	1770	1744	0	1770	1861	0
Flt Permitted				0.649			0.218			0.247		
Satd. Flow (perm)	0	1695	0	1209	1583	0	406	1744	0	460	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			421			82			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	34	67	108	0	81	17	527	396	229	982	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	101	0	108	81	0	17	923	0	229	989	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

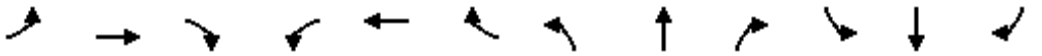


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		87.0	87.0		87.0	87.0	
Total Split (%)	24.3%	24.3%		24.3%	24.3%		75.7%	75.7%		75.7%	75.7%	
Maximum Green (s)	23.0	23.0		23.0	23.0		82.0	82.0		82.0	82.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		15.1		15.1	15.1		89.9	89.9		89.9	89.9	
Actuated g/C Ratio		0.13		0.13	0.13		0.78	0.78		0.78	0.78	
v/c Ratio		0.36		0.68	0.14		0.05	0.67		0.64	0.68	
Control Delay		22.0		67.9	0.5		4.4	8.9		11.0	5.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.2	
Total Delay		22.0		67.9	0.5		4.4	8.9		11.0	5.3	
LOS		C		E	A		A	A		B	A	
Approach Delay		22.0			39.0			8.8			6.3	
Approach LOS		C			D			A			A	
Queue Length 50th (ft)		25		77	0		2	230		26	116	
Queue Length 95th (ft)		74		132	0		10	464		41	141	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		392		241	653		317	1381		359	1455	
Starvation Cap Reductn		0		0	0		0	0		0	88	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.26		0.45	0.12		0.05	0.67		0.64	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 40 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Orange Ave & 32nd St

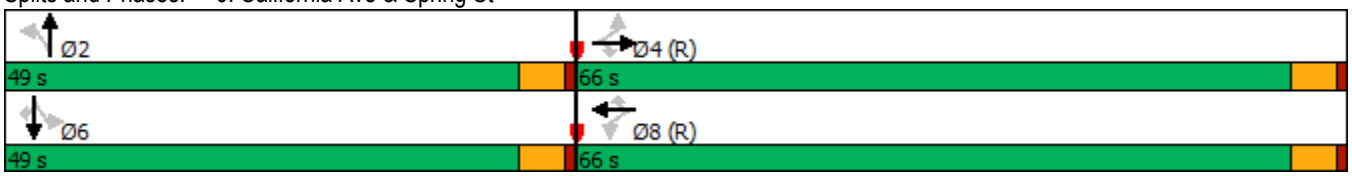
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	648	58	121	1007	125	85	220	86	129	171	90
Future Volume (vph)	49	648	58	121	1007	125	85	220	86	129	171	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.958				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1785	0	1770	1863	1583
Flt Permitted	0.185			0.338			0.602			0.430		
Satd. Flow (perm)	345	3539	1583	630	3539	1583	1121	1785	0	801	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57			79		20				76
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	682	61	127	1060	132	89	232	91	136	180	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	682	61	127	1060	132	89	323	0	136	180	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6

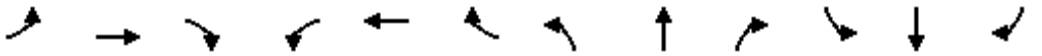


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	49.0	49.0		49.0	49.0	49.0
Total Split (%)	57.4%	57.4%	57.4%	57.4%	57.4%	57.4%	42.6%	42.6%		42.6%	42.6%	42.6%
Maximum Green (s)	61.0	61.0	61.0	61.0	61.0	61.0	44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	61.0	61.0	61.0	61.0	61.0	61.0	44.0	44.0		44.0	44.0	44.0
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.38	0.38		0.38	0.38	0.38
v/c Ratio	0.28	0.36	0.07	0.38	0.56	0.15	0.21	0.46		0.44	0.25	0.15
Control Delay	20.3	16.4	4.1	20.1	19.6	6.4	25.5	27.6		32.2	25.5	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.3	16.4	4.1	20.1	19.6	6.4	25.5	27.6		32.2	25.5	8.0
LOS	C	B	A	C	B	A	C	C		C	C	A
Approach Delay		15.7			18.3			27.1			23.7	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	20	148	1	53	265	18	44	166		74	90	9
Queue Length 95th (ft)	51	190	22	104	328	49	83	250		136	144	44
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	183	1877	866	334	1877	876	428	695		306	712	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.28	0.36	0.07	0.38	0.56	0.15	0.21	0.46		0.44	0.25	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 49 (43%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: California Ave & Spring St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	40	33	42	33	35	46	1047	52	10	820	52
Future Volume (veh/h)	36	40	33	42	33	35	46	1047	52	10	820	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	42	35	44	35	37	48	1102	55	11	863	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	68	48	104	56	49	77	1308	64	46	1368	86
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	458	742	525	537	617	541	44	1640	81	7	1714	108
Grp Volume(v), veh/h	115	0	0	116	0	0	1205	0	0	929	0	0
Grp Sat Flow(s),veh/h/ln	1725	0	0	1695	0	0	1764	0	0	1830	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.33		0.30	0.38		0.32	0.04		0.05	0.01		0.06
Lane Grp Cap(c), veh/h	210	0	0	210	0	0	1449	0	0	1500	0	0
V/C Ratio(X)	0.55	0.00	0.00	0.55	0.00	0.00	0.83	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	434	0	0	429	0	0	1449	0	0	1500	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.09	0.00	0.00	0.49	0.00	0.00
Uniform Delay (d), s/veh	39.7	0.0	0.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	2.3	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.3	0.0	0.0	4.3	0.0	0.0	0.4	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	0.0	0.0	42.1	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		115			116			1205			929	
Approach Delay, s/veh		41.9			42.1			0.5			1.0	
Approach LOS		D			D			A			A	

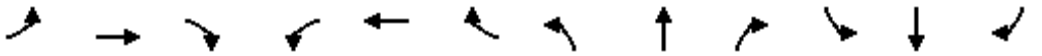
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		76.8		13.2		76.8		13.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		59.0		21.0		59.0		21.0				
Max Q Clear Time (g_c+I1), s		2.0		7.6		2.0		7.8				
Green Ext Time (p_c), s		18.6		0.5		9.7		0.5				

Intersection Summary												
HCM 6th Ctrl Delay			4.8									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2	34	309	2	272	42	797	392	97	723	7
Future Volume (veh/h)	5	2	34	309	2	272	42	797	392	97	723	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	2	36	325	2	286	44	839	413	102	761	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	40	289	292	3	403	524	749	369	80	1172	11
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	1.00	1.00	1.00
Sat Flow, veh/h	62	158	1132	1370	11	1576	700	1183	582	444	1850	17
Grp Volume(v), veh/h	43	0	0	325	0	288	44	0	1252	102	0	768
Grp Sat Flow(s),veh/h/ln	1352	0	0	1370	0	1587	700	0	1766	444	0	1867
Q Serve(g_s), s	0.1	0.0	0.0	8.0	0.0	14.9	2.2	0.0	57.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	0.0	23.0	0.0	14.9	2.2	0.0	57.0	57.0	0.0	0.0
Prop In Lane	0.12		0.84	1.00		0.99	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	390	0	0	292	0	405	524	0	1118	80	0	1183
V/C Ratio(X)	0.11	0.00	0.00	1.11	0.00	0.71	0.08	0.00	1.12	1.27	0.00	0.65
Avail Cap(c_a), veh/h	390	0	0	292	0	405	524	0	1118	80	0	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.70	0.00	0.70
Uniform Delay (d), s/veh	25.7	0.0	0.0	38.5	0.0	30.5	6.5	0.0	16.5	28.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	85.9	0.0	5.7	0.3	0.0	66.1	175.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.3	0.0	0.0	18.4	0.0	8.8	0.6	0.0	49.8	8.8	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	0.0	0.0	124.5	0.0	36.2	6.8	0.0	82.6	203.8	0.0	1.9
LnGrp LOS	C	A	A	F	A	D	A	A	F	F	A	A
Approach Vol, veh/h		43			613			1296			870	
Approach Delay, s/veh		25.8			83.0			80.1			25.6	
Approach LOS		C			F			F			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.0		28.0		62.0		28.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		57.0		23.0		57.0		23.0				
Max Q Clear Time (g_c+I1), s		59.0		17.0		59.0		25.0				
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			63.1									
HCM 6th LOS			E									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1144	50	118	845	223	66	279	116	152	196	92
Future Volume (veh/h)	121	1144	50	118	845	223	66	279	116	152	196	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	1204	53	124	889	235	69	294	122	160	206	97
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	1777	793	188	1777	793	417	488	203	276	727	616
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	501	3554	1585	442	3554	1585	1076	1256	521	970	1870	1585
Grp Volume(v), veh/h	127	1204	53	124	889	235	69	0	416	160	206	97
Grp Sat Flow(s),veh/h/ln	501	1777	1585	442	1777	1585	1076	0	1777	970	1870	1585
Q Serve(g_s), s	20.4	23.1	1.6	21.9	15.0	7.8	4.2	0.0	16.8	14.2	6.8	3.6
Cycle Q Clear(g_c), s	35.4	23.1	1.6	45.0	15.0	7.8	11.0	0.0	16.8	31.0	6.8	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	247	1777	793	188	1777	793	417	0	691	276	727	616
V/C Ratio(X)	0.51	0.68	0.07	0.66	0.50	0.30	0.17	0.00	0.60	0.58	0.28	0.16
Avail Cap(c_a), veh/h	247	1777	793	188	1777	793	417	0	691	276	727	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	17.0	11.6	35.5	15.0	13.2	22.7	0.0	21.9	34.3	18.9	17.9
Incr Delay (d2), s/veh	7.5	2.1	0.2	16.8	1.0	1.0	0.9	0.0	3.9	8.6	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.5	12.0	1.0	5.5	8.2	4.5	2.0	0.0	10.0	5.9	4.8	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	19.1	11.8	52.3	16.0	14.2	23.5	0.0	25.8	42.9	19.9	18.4
LnGrp LOS	C	B	B	D	B	B	C	A	C	D	B	B
Approach Vol, veh/h		1384			1248			485			463	
Approach Delay, s/veh		20.2			19.3			25.5			27.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		50.0		40.0		50.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		45.0		35.0		45.0				
Max Q Clear Time (g_c+I1), s		18.8		37.4		33.0		47.0				
Green Ext Time (p_c), s		2.5		5.1		0.5		0.0				

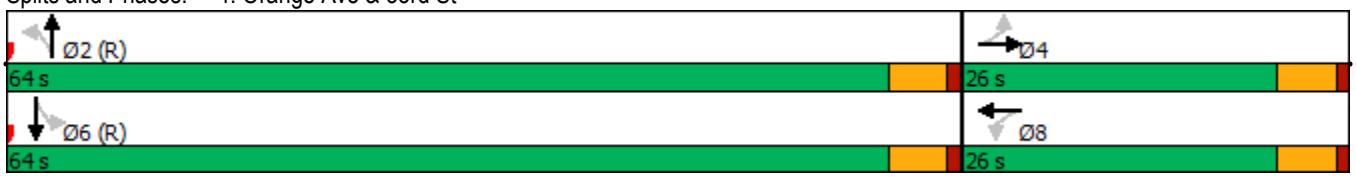
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	40	33	42	33	35	46	1047	52	10	820	52
Future Volume (vph)	36	40	33	42	33	35	46	1047	52	10	820	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.959			0.957			0.994			0.992	
Flt Protected		0.984			0.981			0.998			0.999	
Satd. Flow (prot)	0	1758	0	0	1749	0	0	1848	0	0	1846	0
Flt Permitted		0.824			0.798			0.938			0.984	
Satd. Flow (perm)	0	1472	0	0	1423	0	0	1737	0	0	1818	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			24			6			7	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1330			580			656			663	
Travel Time (s)		36.3			15.8			12.8			12.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	42	35	44	35	37	48	1102	55	11	863	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	0	116	0	0	1205	0	0	929	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	

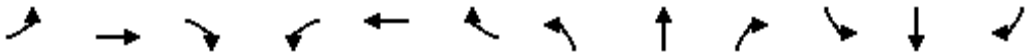
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	26.0	26.0		26.0	26.0		23.0	23.0		24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		64.0	64.0		64.0	64.0	
Total Split (%)	28.9%	28.9%		28.9%	28.9%		71.1%	71.1%		71.1%	71.1%	
Maximum Green (s)	21.0	21.0		21.0	21.0		59.0	59.0		59.0	59.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		11.0	11.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.9			10.9			69.1			69.1	
Actuated g/C Ratio		0.12			0.12			0.77			0.77	
v/c Ratio		0.58			0.60			0.90			0.66	
Control Delay		40.8			41.9			11.7			3.3	
Queue Delay		0.0			0.0			19.4			0.5	
Total Delay		40.8			41.9			31.1			3.8	
LOS		D			D			C			A	
Approach Delay		40.8			41.9			31.1			3.8	
Approach LOS		D			D			C			A	
Queue Length 50th (ft)		50			50			157			56	
Queue Length 95th (ft)		98			99			m201			m105	
Internal Link Dist (ft)		1250			500			576			583	
Turn Bay Length (ft)												
Base Capacity (vph)		361			350			1335			1397	
Starvation Cap Reductn		0			0			62			149	
Spillback Cap Reductn		2			2			165			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.33			1.03			0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 103.5%		ICU Level of Service G	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 4: Orange Ave & 33rd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	34	309	2	272	42	797	392	97	723	7
Future Volume (vph)	5	2	34	309	2	272	42	797	392	97	723	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	120		0	100		0	160		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	60			60			60			60		
Lane Util. 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
Frt		0.887			0.851			0.951			0.999	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1642	0	1770	1585	0	1770	1771	0	1770	1861	0
Flt Permitted		0.961		0.729			0.248			0.070		
Satd. Flow (perm)	0	1588	0	1358	1585	0	462	1771	0	130	1861	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			192			54			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1317			586			588			656	
Travel Time (s)		35.9			16.0			11.5			12.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	2	36	325	2	286	44	839	413	102	761	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	325	288	0	44	1252	0	102	768	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0	11.0		28.0	28.0		11.0	11.0		23.0	23.0	
Total Split (s)	28.0	28.0		28.0	28.0		62.0	62.0		62.0	62.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		68.9%	68.9%		68.9%	68.9%	
Maximum Green (s)	23.0	23.0		23.0	23.0		57.0	57.0		57.0	57.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)				7.0	7.0					7.0	7.0	
Flash Dont Walk (s)				16.0	16.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		22.7		22.7	22.7		57.3	57.3		57.3	57.3	
Actuated g/C Ratio		0.25		0.25	0.25		0.64	0.64		0.64	0.64	
v/c Ratio		0.10		0.95	0.53		0.15	1.09		1.24	0.65	
Control Delay		10.6		72.4	14.0		8.3	73.9		185.2	8.4	
Queue Delay		0.0		0.0	0.0		0.0	3.4		0.0	0.2	
Total Delay		10.6		72.4	14.0		8.3	77.2		185.2	8.6	
LOS		B		E	B		A	E		F	A	
Approach Delay		10.6			45.0			74.9			29.3	
Approach LOS		B			D			E			C	
Queue Length 50th (ft)		3		181	43		9	~805		~72	105	
Queue Length 95th (ft)		m26		#345	120		25	#1057		m#140	189	
Internal Link Dist (ft)		1237			506			508			576	
Turn Bay Length (ft)				120			100			160		
Base Capacity (vph)		432		347	547		293	1146		82	1185	
Starvation Cap Reductn		0		0	0		0	0		0	64	
Spillback Cap Reductn		0		0	7		0	71		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.10		0.94	0.53		0.15	1.16		1.24	0.69	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 30 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 53.4		Intersection LOS: D	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

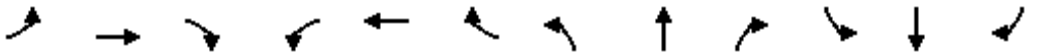
\# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Orange Ave & 32nd St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	1144	50	118	845	223	66	279	116	152	196	92
Future Volume (vph)	121	1144	50	118	845	223	66	279	116	152	196	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		100	75		0	110		70
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	60			60			60			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1781	0	1770	1863	1583
Flt Permitted	0.243			0.133			0.591			0.348		
Satd. Flow (perm)	453	3539	1583	248	3539	1583	1101	1781	0	648	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33			201		27				97
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		562			618			644			1331	
Travel Time (s)		9.6			10.5			11.0			25.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	127	1204	53	124	889	235	69	294	122	160	206	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	1204	53	124	889	235	69	416	0	160	206	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		6



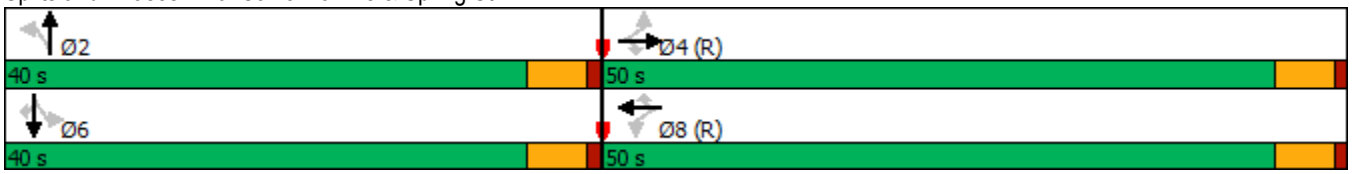
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	39.0	39.0		40.0	40.0	40.0
Total Split (s)	50.0	50.0	50.0	50.0	50.0	50.0	40.0	40.0		40.0	40.0	40.0
Total Split (%)	55.6%	55.6%	55.6%	55.6%	55.6%	55.6%	44.4%	44.4%		44.4%	44.4%	44.4%
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0	19.0	27.0	27.0		28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39		0.39	0.39	0.39
v/c Ratio	0.56	0.68	0.07	1.00	0.50	0.26	0.16	0.59		0.63	0.28	0.14
Control Delay	27.5	19.5	6.3	109.8	16.3	3.6	19.3	24.3		36.1	20.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	27.5	19.5	6.3	109.8	16.3	3.6	19.3	24.3		36.1	20.2	4.5
LOS	C	B	A	F	B	A	B	C		D	C	A
Approach Delay		19.8			23.2			23.6			22.4	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	48	260	6	67	168	9	25	171		72	79	0
Queue Length 95th (ft)	116	333	24	#184	221	46	55	267		#164	132	30
Internal Link Dist (ft)		482			538			564			1251	
Turn Bay Length (ft)	100		100	100		100	75			110		70
Base Capacity (vph)	226	1769	808	124	1769	892	428	709		252	724	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.56	0.68	0.07	1.00	0.50	0.26	0.16	0.59		0.63	0.28	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 85.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: California Ave & Spring St



APPENDIX F

PROJECT DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX F-I

YEAR 2024 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 9: Project Driveway 1 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.142

Intersection Setup

Name	Project Dwy 1			Lime Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Project Dwy 1			Lime Ave			33rd St			33rd St		
Base Volume Input [veh/h]	66	0	35	15	0	15	15	174	83	38	166	15
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	66	0	35	15	0	15	15	174	83	38	166	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	17	0	9	4	0	4	4	46	22	10	44	4
Total Analysis Volume [veh/h]	69	0	37	16	0	16	16	183	87	40	175	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.04	0.03	0.00	0.02	0.01	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	13.80	14.72	10.45	12.35	0.00	8.89	7.64	0.00	0.00	7.88	0.00	0.00
Movement LOS	B	B	B	B		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.67	0.67	0.67	0.10	0.00	0.05	0.04	0.02	0.00	0.10	0.05	0.00
95th-Percentile Queue Length [ft/ln]	16.67	16.67	16.67	2.45	0.00	1.29	0.88	0.44	0.00	2.40	1.20	0.00
d_A, Approach Delay [s/veh]	12.63			10.62			0.43			1.36		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.23											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Project Driveway 2 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name	Project Dwy 2		33rd St		33rd 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Dwy 2		33rd St		33rd St	
Base Volume Input [veh/h]	53	20	156	68	22	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	53	20	156	68	22	166
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	5	41	18	6	44
Total Analysis Volume [veh/h]	56	21	164	72	23	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	0.09	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	11.43	9.62	0.00	0.00	7.76	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.38	0.38	0.00	0.00	0.05	0.03
95th-Percentile Queue Length [ft/ln]	9.48	9.48	0.00	0.00	1.32	0.66
d_A, Approach Delay [s/veh]	10.94		0.00		0.90	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.00					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 11: California Ave at Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	California Ave		California Ave		Project Dwy 3	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	California Ave		California Ave		Project Dwy 3	
Base Volume Input [veh/h]	20	259	236	19	11	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	20	259	236	19	11	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	68	62	5	3	3
Total Analysis Volume [veh/h]	21	273	248	20	12	14
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	0.02	0.00	0.00	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	0.00	12.90	9.88
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.14	0.14
95th-Percentile Queue Length [ft/ln]	1.24	1.24	0.00	0.00	3.39	3.39
d_A, Approach Delay [s/veh]	0.56		0.00		11.28	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: Project Driveway 1 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	22.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.374

Intersection Setup

Name	Project Dwy 1			Lime Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Project Dwy 1			Lime Ave			33rd St			33rd St		
Base Volume Input [veh/h]	121	0	52	15	0	15	15	314	114	43	236	15
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	121	0	52	15	0	15	15	314	114	43	236	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	32	0	14	4	0	4	4	83	30	11	62	4
Total Analysis Volume [veh/h]	127	0	55	16	0	16	16	331	120	45	248	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.37	0.00	0.07	0.04	0.00	0.02	0.01	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	22.46	23.57	16.49	15.03	0.00	9.11	7.81	0.00	0.00	8.39	0.00	0.00
Movement LOS	C	C	C	C		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.23	2.23	2.23	0.13	0.00	0.05	0.04	0.02	0.00	0.13	0.06	0.00
95th-Percentile Queue Length [ft/ln]	55.71	55.71	55.71	3.33	0.00	1.37	0.94	0.47	0.00	3.18	1.59	0.00
d_A, Approach Delay [s/veh]	20.66			12.07			0.27			1.22		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	4.70											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 10: Project Driveway 2 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.256

Intersection Setup

Name	Project Dwy 2		33rd St		33rd 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Dwy 2		33rd St		33rd St	
Base Volume Input [veh/h]	116	41	273	108	34	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	116	41	273	108	34	177
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	11	72	28	9	47
Total Analysis Volume [veh/h]	122	43	287	114	36	186
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	0.26	0.05	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	15.52	12.44	0.00	0.00	8.22	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.30	1.30	0.00	0.00	0.10	0.05
95th-Percentile Queue Length [ft/ln]	32.60	32.60	0.00	0.00	2.41	1.21
d_A, Approach Delay [s/veh]	14.72		0.00		1.33	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.46					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: California Ave at Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.094

Intersection Setup

Name	California Ave		California Ave		Project Dwy 3	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	California Ave		California Ave		Project Dwy 3	
Base Volume Input [veh/h]	32	462	333	30	26	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	32	462	333	30	26	28
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	122	88	8	7	7
Total Analysis Volume [veh/h]	34	486	351	32	27	29
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	0.03	0.00	0.00	0.00	0.09	0.04
d_M, Delay for Movement [s/veh]	8.15	0.00	0.00	0.00	18.86	11.69
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.47	0.47
95th-Percentile Queue Length [ft/ln]	2.23	2.23	0.00	0.00	11.72	11.72
d_A, Approach Delay [s/veh]	0.53		0.00		15.15	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.17					
Intersection LOS	C					

APPENDIX F-II

YEAR 2041 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 9: Project Driveway 1 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.169

Intersection Setup

Name	Project Dwy 1			Lime Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Project Dwy 1			Lime Ave			33rd St			33rd St		
Base Volume Input [veh/h]	71	0	39	18	0	18	18	195	91	42	187	18
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	71	0	39	18	0	18	18	195	91	42	187	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	19	0	10	5	0	5	5	51	24	11	49	5
Total Analysis Volume [veh/h]	75	0	41	19	0	19	19	205	96	44	197	19
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.00	0.05	0.04	0.00	0.02	0.01	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	14.99	15.99	10.99	13.13	0.00	8.97	7.70	0.00	0.00	7.97	0.00	0.00
Movement LOS	B	C	B	B		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.82	0.82	0.82	0.13	0.00	0.06	0.04	0.02	0.00	0.11	0.05	0.00
95th-Percentile Queue Length [ft/ln]	20.43	20.43	20.43	3.21	0.00	1.57	1.07	0.53	0.00	2.72	1.36	0.00
d_A, Approach Delay [s/veh]	13.57			11.05			0.46			1.35		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.39											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 10: Project Driveway 2 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	Project Dwy 2		33rd St		33rd 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Dwy 2		33rd St		33rd St	
Base Volume Input [veh/h]	56	21	180	71	24	191
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	56	21	180	71	24	191
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	6	47	19	6	50
Total Analysis Volume [veh/h]	59	22	189	75	25	201
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	0.10	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	11.95	9.83	0.00	0.00	7.83	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.43	0.43	0.00	0.00	0.06	0.03
95th-Percentile Queue Length [ft/ln]	10.69	10.69	0.00	0.00	1.47	0.74
d_A, Approach Delay [s/veh]	11.37		0.00		0.87	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 11: California Ave at Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	California Ave		California Ave		Project Dwy 3	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	California Ave		California Ave		Project Dwy 3	
Base Volume Input [veh/h]	21	302	275	20	12	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	21	302	275	20	12	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	79	72	5	3	4
Total Analysis Volume [veh/h]	22	318	289	21	13	15
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	0.02	0.00	0.00	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	7.93	0.00	0.00	0.00	13.97	10.22
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	1.34	1.34	0.00	0.00	4.05	4.05
d_A, Approach Delay [s/veh]	0.51		0.00		11.96	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: Project Driveway 1 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.499

Intersection Setup

Name	Project Dwy 1			Lime Ave			33rd St			33rd 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 Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Project Dwy 1			Lime Ave			33rd St			33rd St		
Base Volume Input [veh/h]	136	0	59	18	0	18	18	360	128	49	269	18
Base Volume 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
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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
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
Total Hourly Volume [veh/h]	136	0	59	18	0	18	18	360	128	49	269	18
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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]	36	0	16	5	0	5	5	95	34	13	71	5
Total Analysis Volume [veh/h]	143	0	62	19	0	19	19	379	135	52	283	19
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.00	0.08	0.06	0.00	0.02	0.02	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	30.89	32.18	23.18	16.95	0.00	9.24	7.91	0.00	0.00	8.62	0.00	0.00
Movement LOS	D	D	C	C		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	3.51	3.51	3.51	0.19	0.00	0.07	0.05	0.02	0.00	0.16	0.08	0.00
95th-Percentile Queue Length [ft/ln]	87.85	87.85	87.85	4.71	0.00	1.68	1.15	0.58	0.00	3.91	1.96	0.00
d_A, Approach Delay [s/veh]	28.56			13.10			0.28			1.27		
Approach LOS	D			B			A			A		
d_I, Intersection Delay [s/veh]	6.15											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 10: Project Driveway 2 at 33rd St

Control Type:	Two-way stop	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.321

Intersection Setup

Name	Project Dwy 2		33rd St		33rd 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project Dwy 2		33rd St		33rd St	
Base Volume Input [veh/h]	130	46	316	120	37	205
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	130	46	316	120	37	205
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	12	83	32	10	54
Total Analysis Volume [veh/h]	137	48	333	126	39	216
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	0.32	0.06	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	17.98	14.21	0.00	0.00	8.40	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.78	1.78	0.00	0.00	0.11	0.06
95th-Percentile Queue Length [ft/ln]	44.41	44.41	0.00	0.00	2.76	1.38
d_A, Approach Delay [s/veh]	17.00		0.00		1.28	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.86					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: California Ave at Project Dwy 3

Control Type:	Two-way stop	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.132

Intersection Setup

Name	California Ave		California Ave		Project Dwy 3	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	California Ave		California Ave		Project Dwy 3	
Base Volume Input [veh/h]	35	538	388	33	29	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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]	35	538	388	33	29	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	142	102	9	8	8
Total Analysis Volume [veh/h]	37	566	408	35	31	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

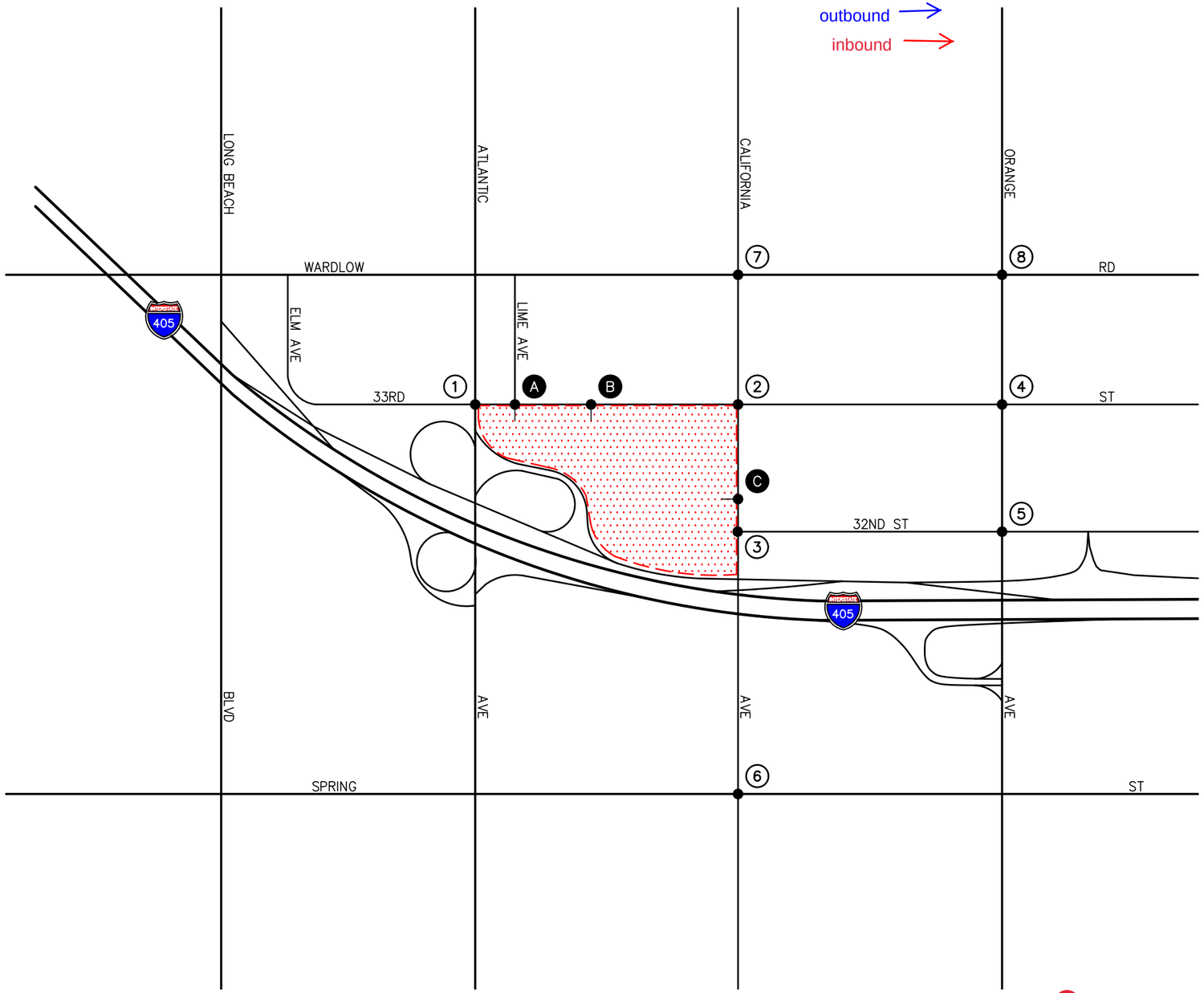
Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

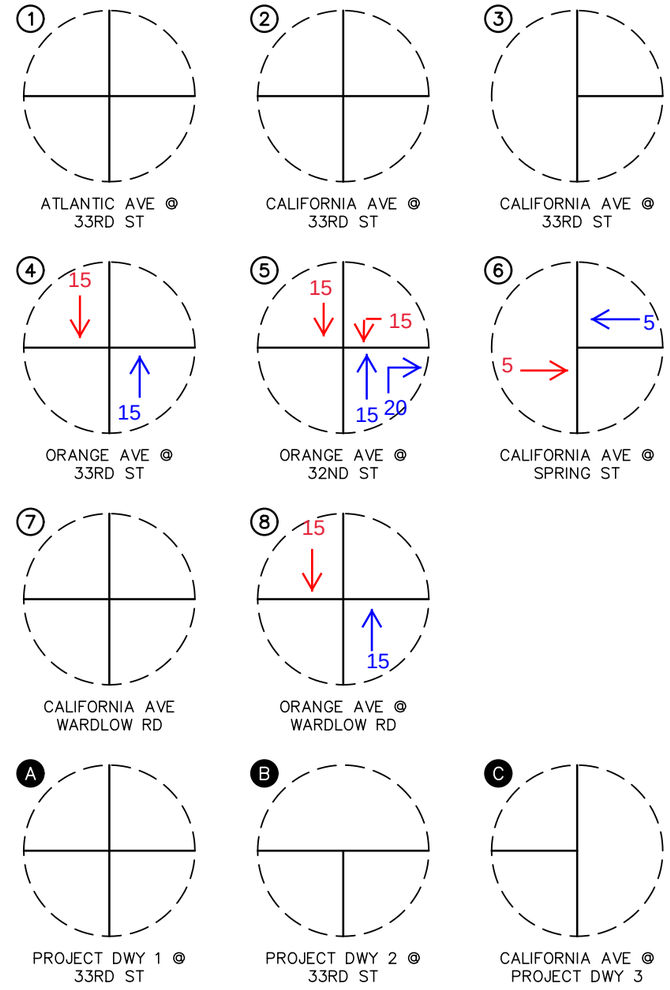
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.13	0.05
d_M, Delay for Movement [s/veh]	8.33	0.00	0.00	0.00	22.70	13.06
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.67	0.67
95th-Percentile Queue Length [ft/ln]	2.57	2.57	0.00	0.00	16.68	16.68
d_A, Approach Delay [s/veh]	0.51		0.00		17.73	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.30					
Intersection LOS	C					

APPENDIX G

CUMULATIVE PROJECT TRAFFIC DISTRIBUTIONS





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LINSCOTT LAW & GREENSPAN engineers

NO SCALE

1. 2550 Orange Avenue
Industrial - PV

SOURCE: GOOGLE

KEY

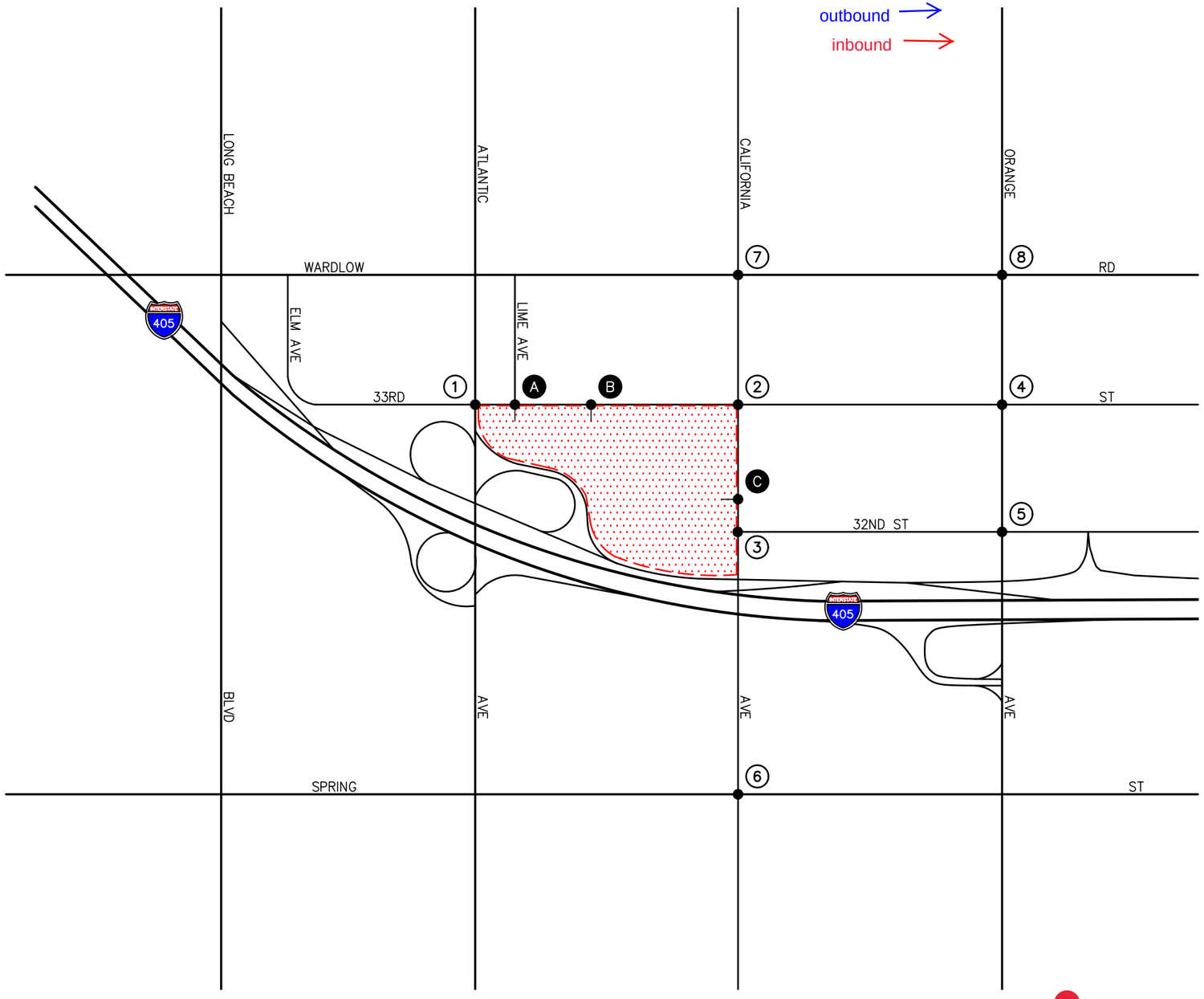
(#) = STUDY INTERSECTION

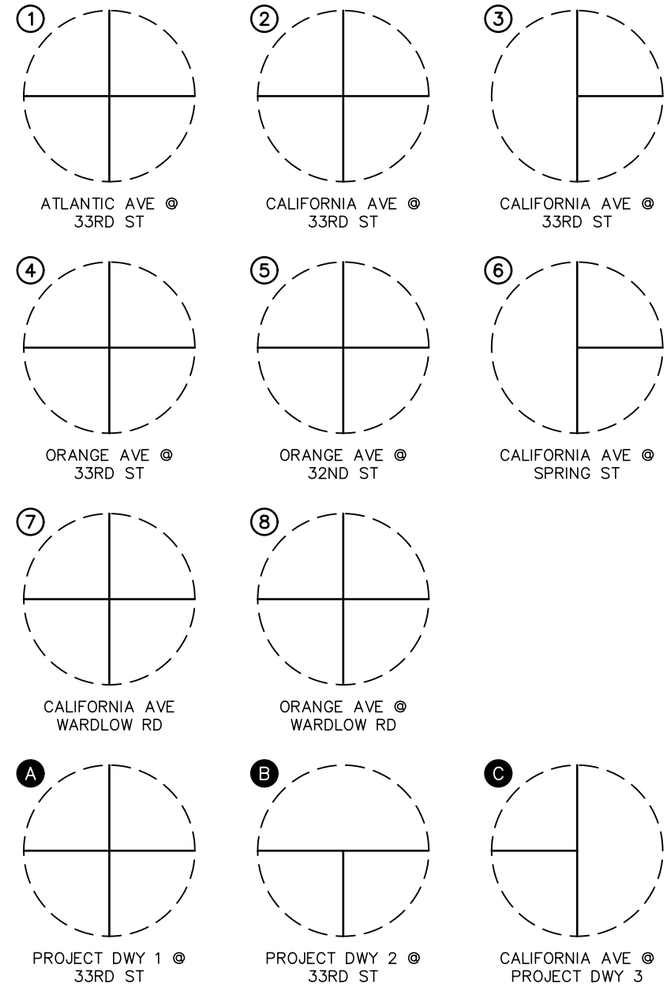
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

1. 2550 Orange Avenue
Industrial - Trucks

SOURCE: GOOGLE

KEY

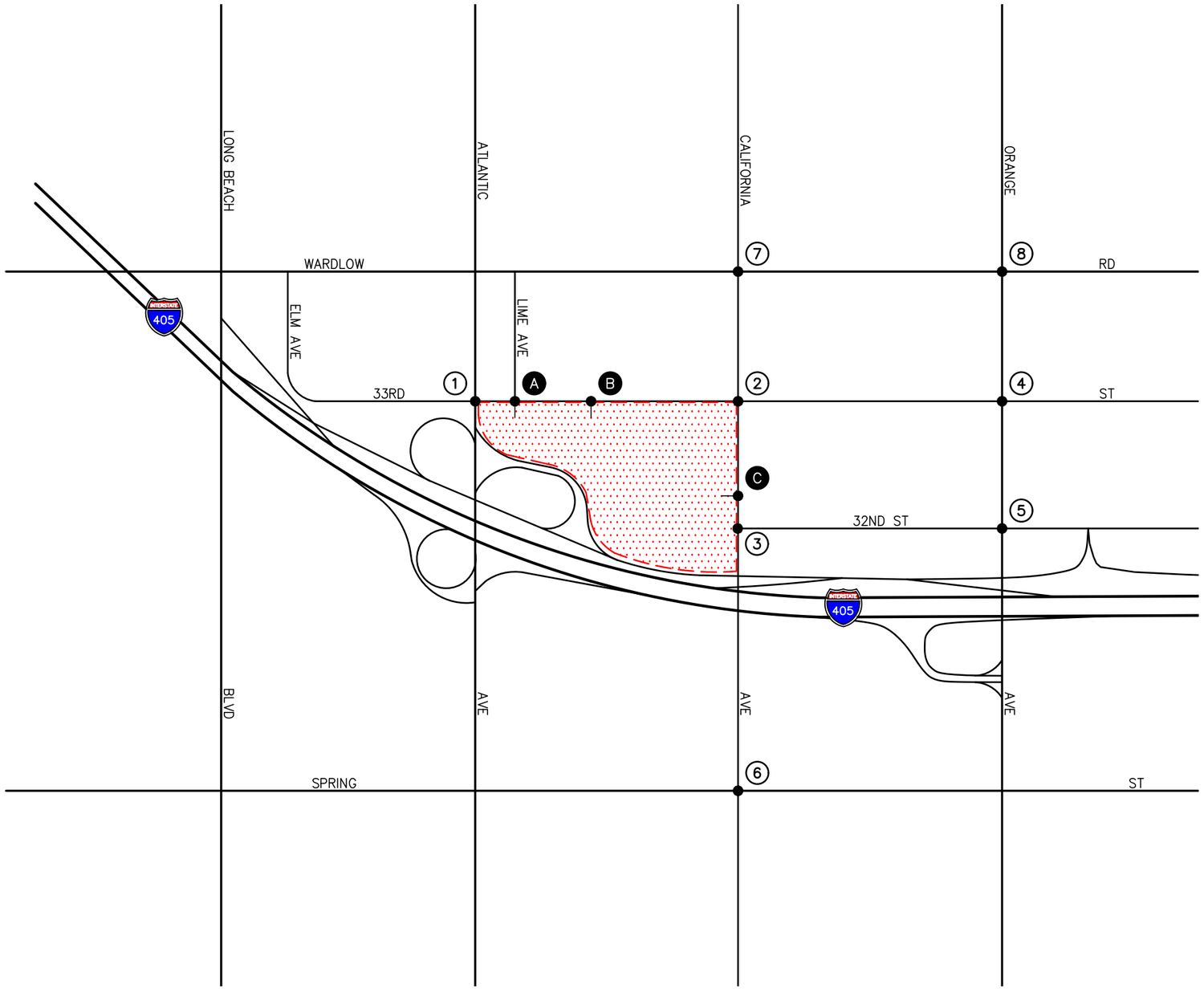
(#) = STUDY INTERSECTION

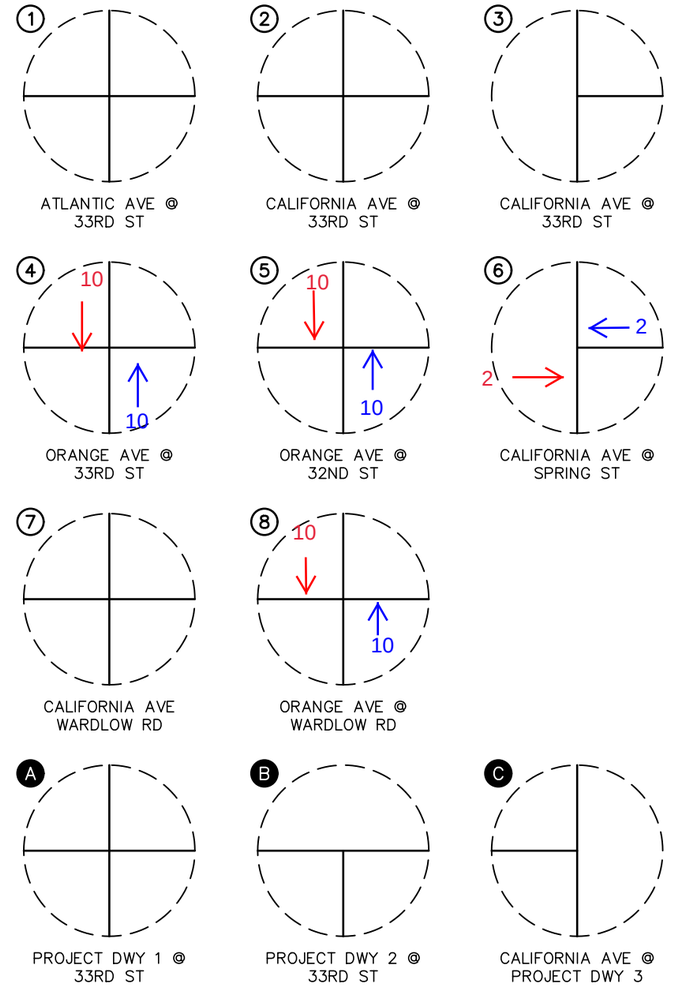
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

2. Signal Hill Heritage Square -Residential

SOURCE: GOOGLE

KEY

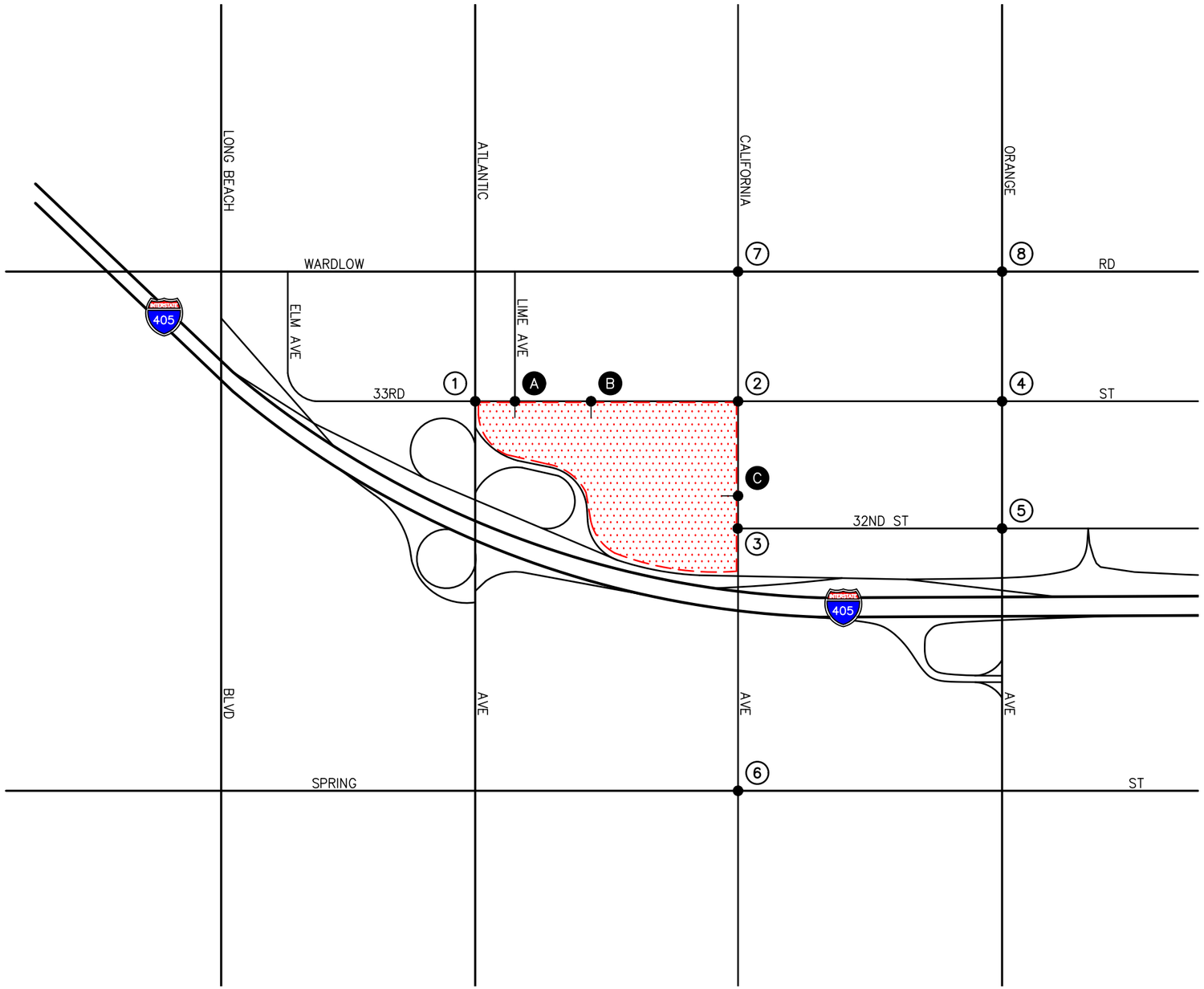
(#) = STUDY INTERSECTION

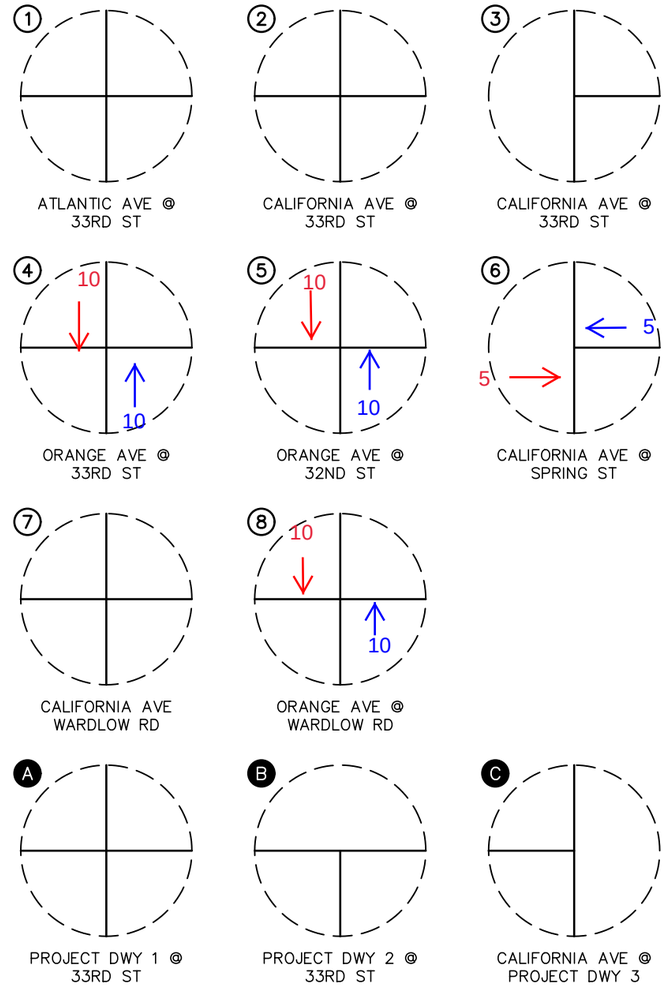
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

2. Signal Hill Heritage Square -Commercial

SOURCE: GOOGLE

KEY

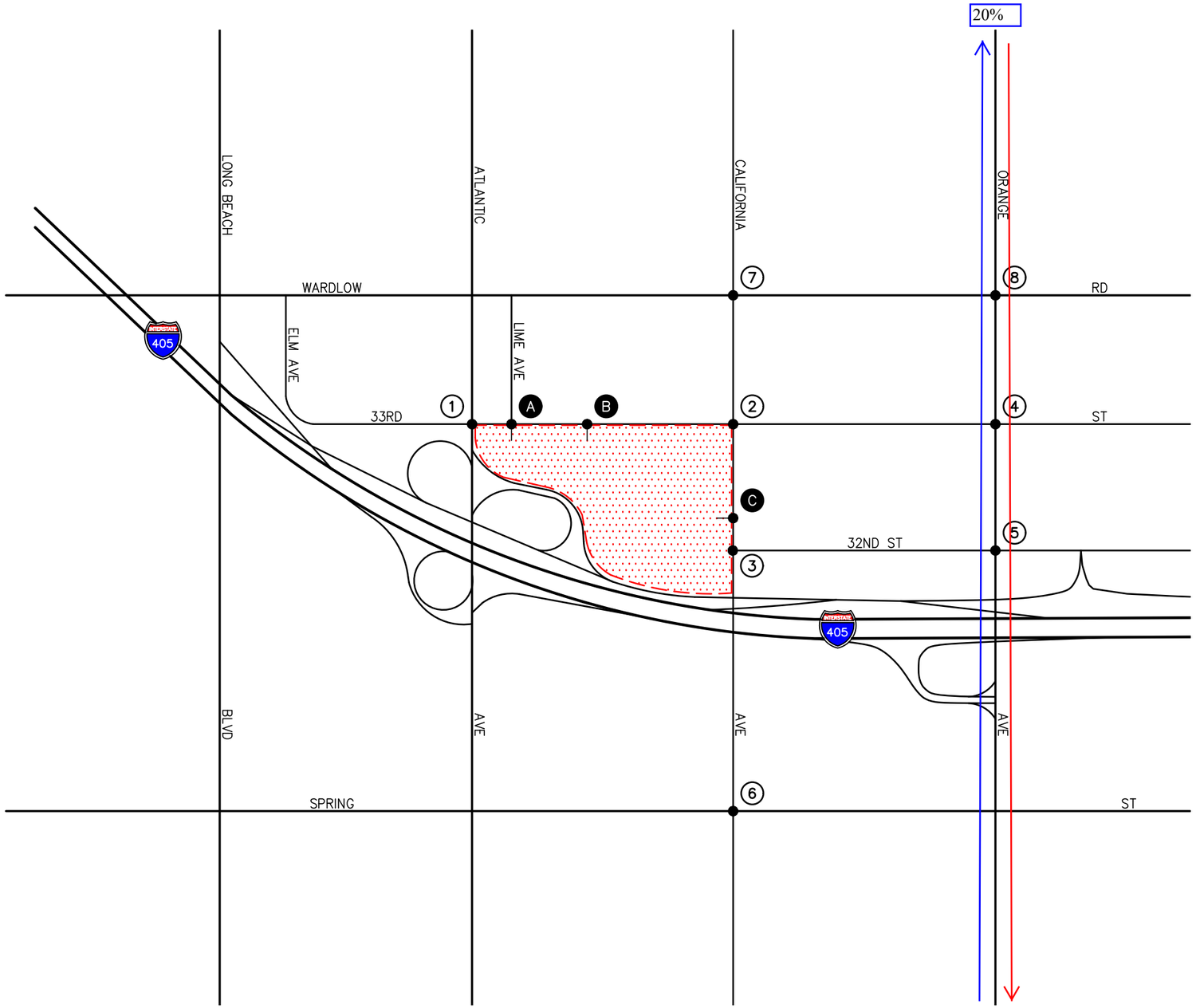
(#) = STUDY INTERSECTION

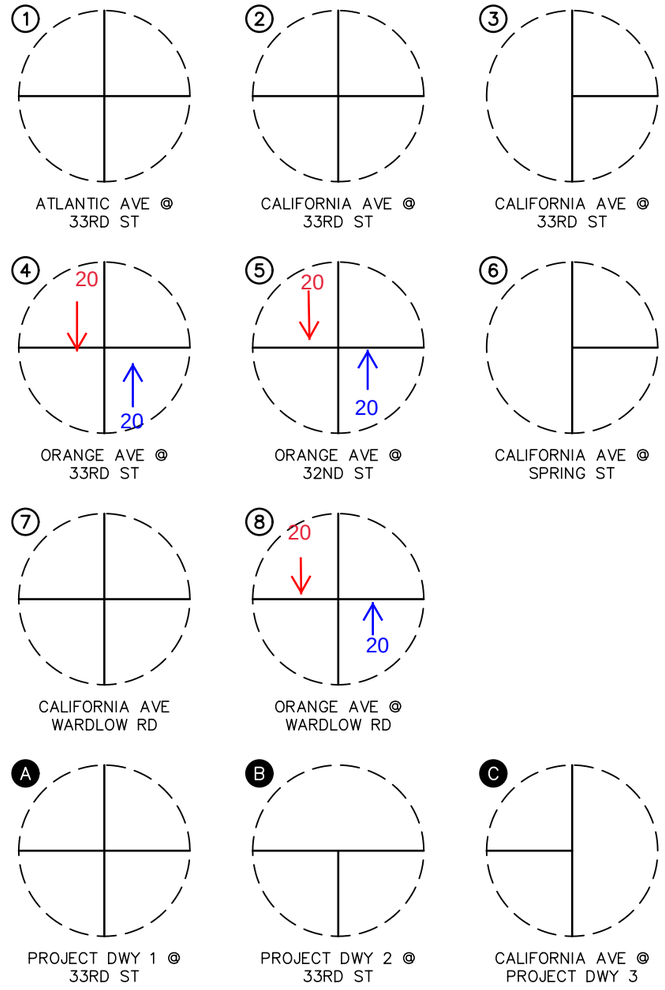
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

3. Signal Hill Business Center

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL

Figure 14
Project Trip Distribution - Passenger Cars (Outbound)

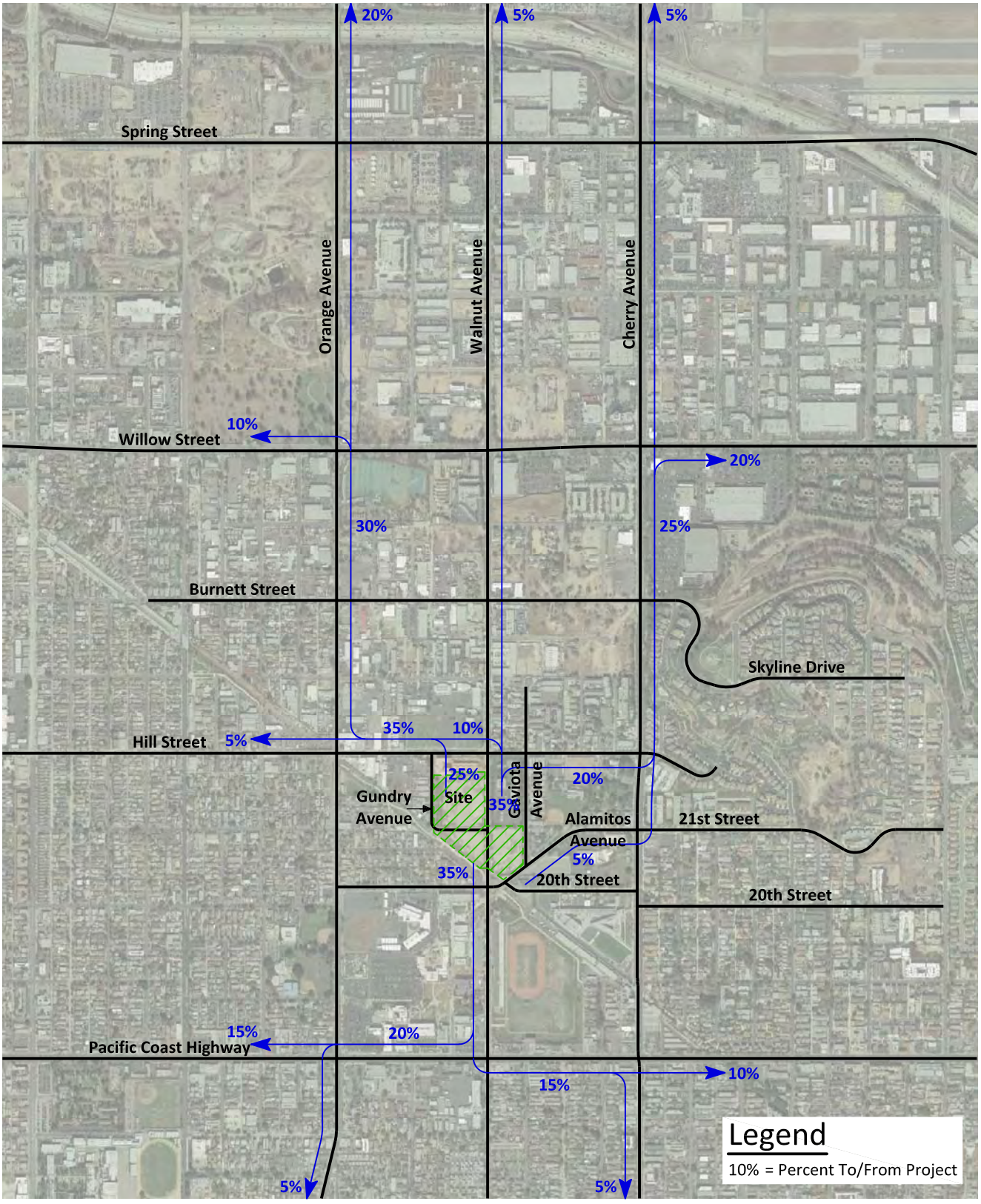
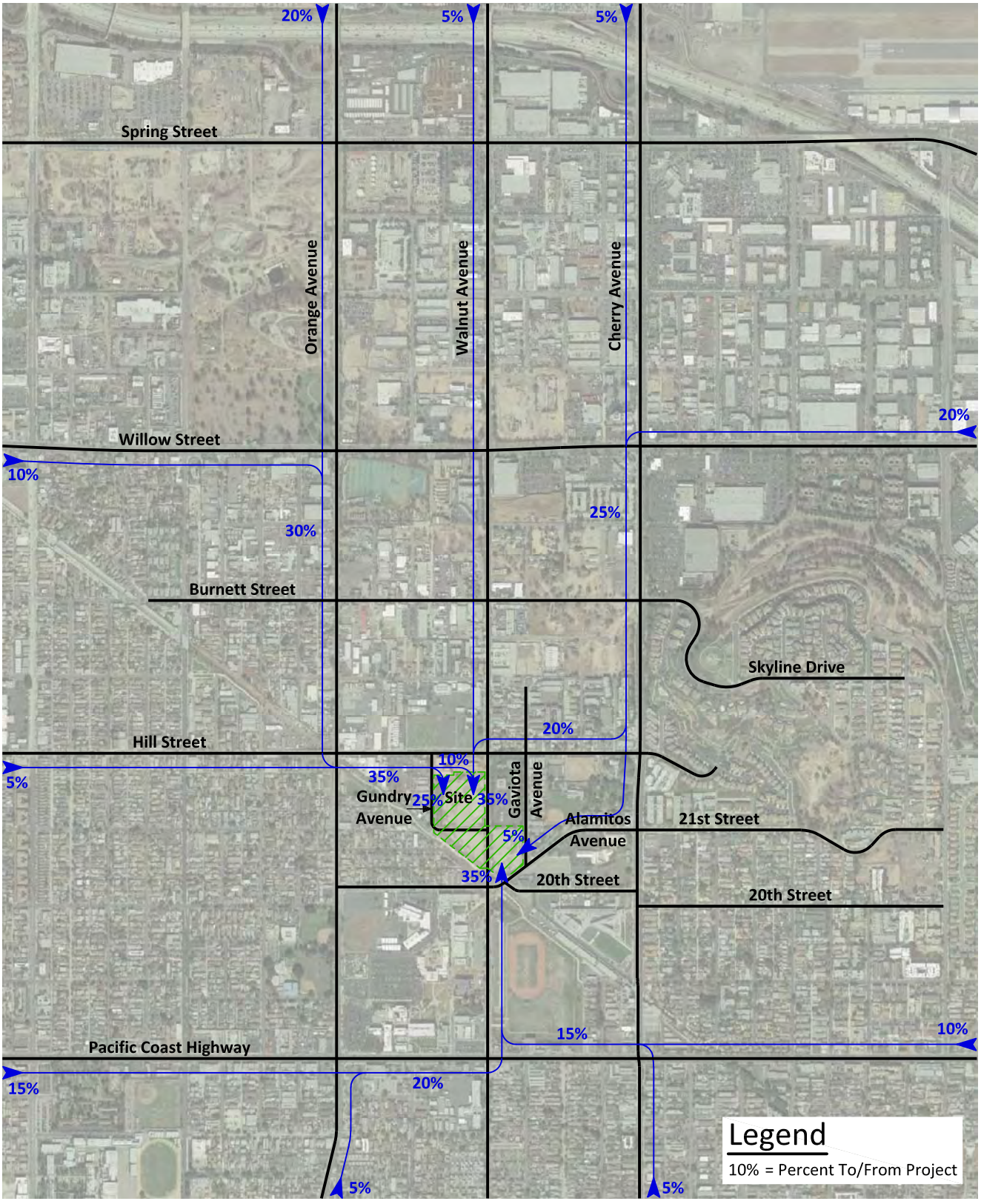
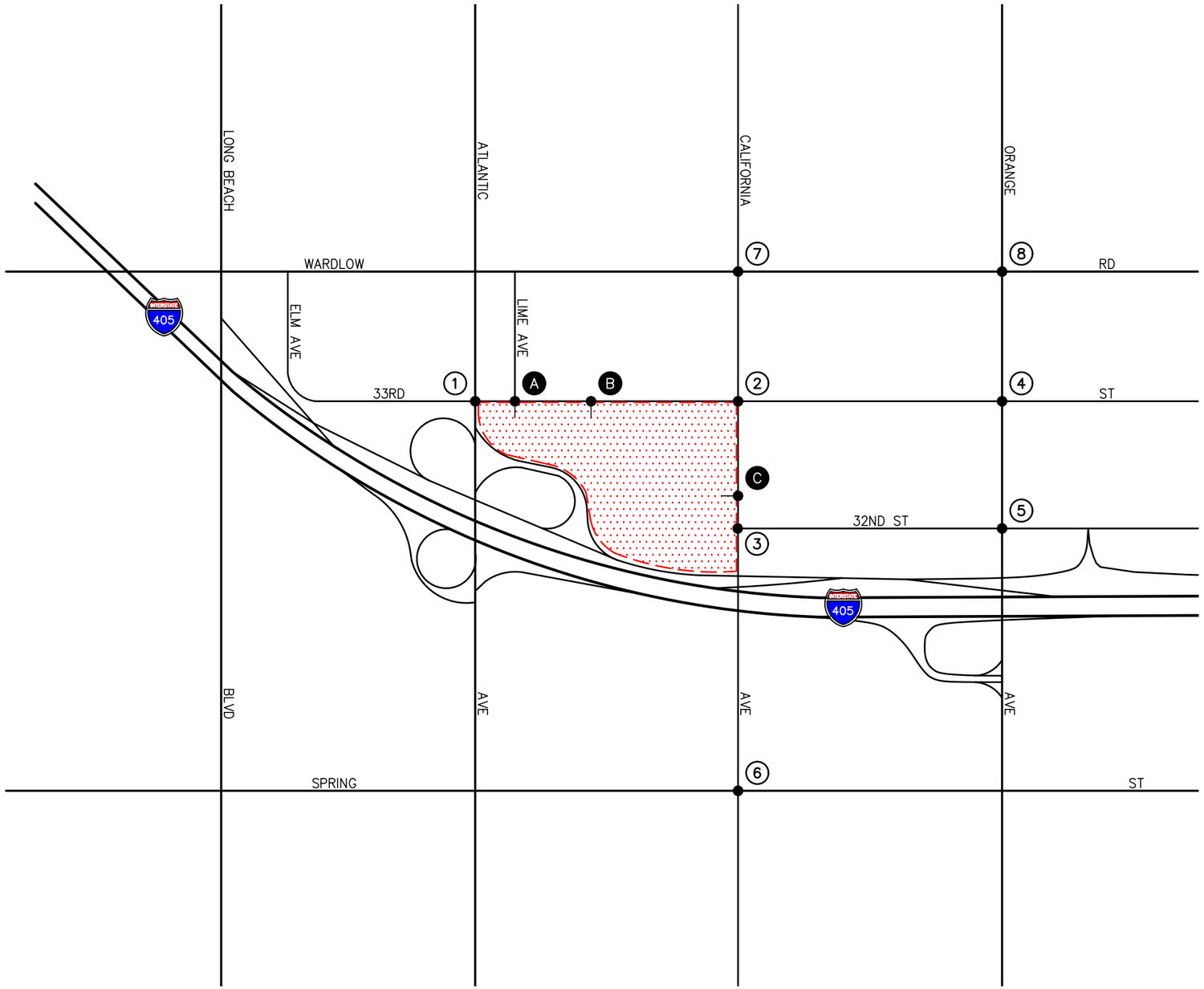
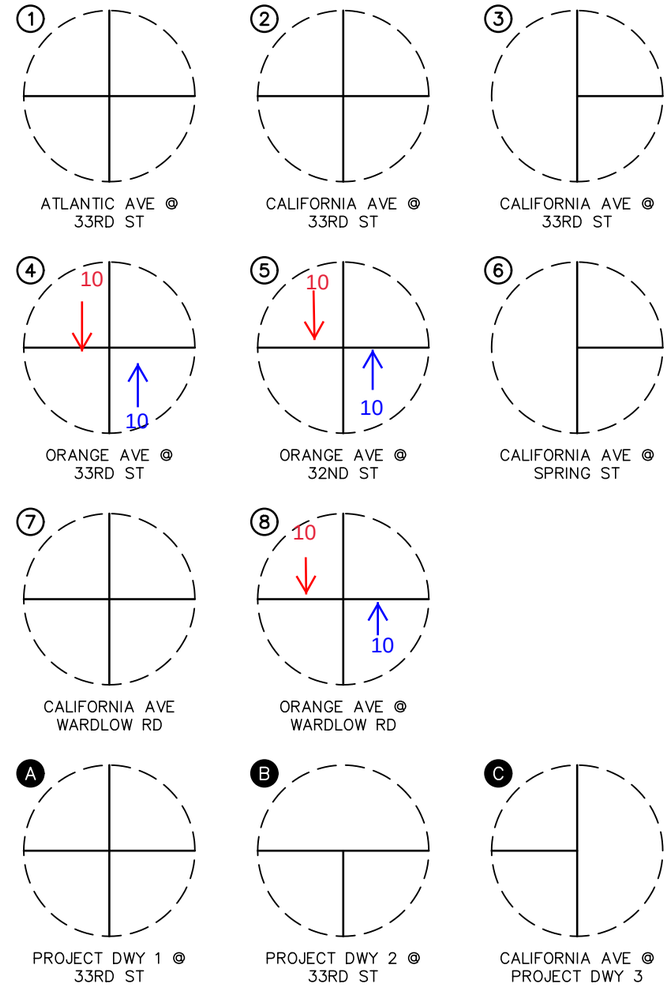


Figure 15
Project Trip Distribution - Passenger Cars (Inbound)







n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

4. 2351 Walnut Ave

SOURCE: GOOGLE

KEY

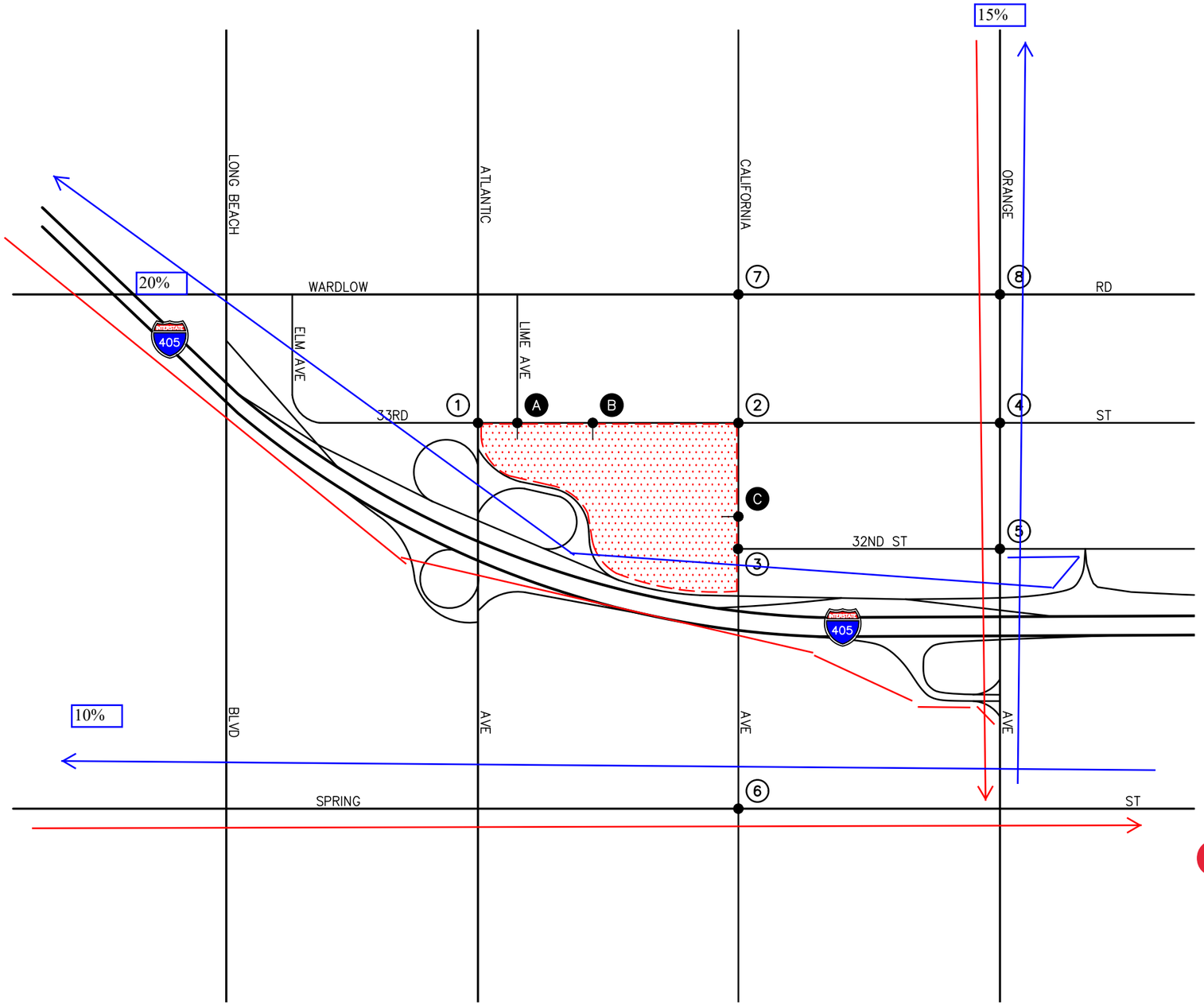
(#) = STUDY INTERSECTION

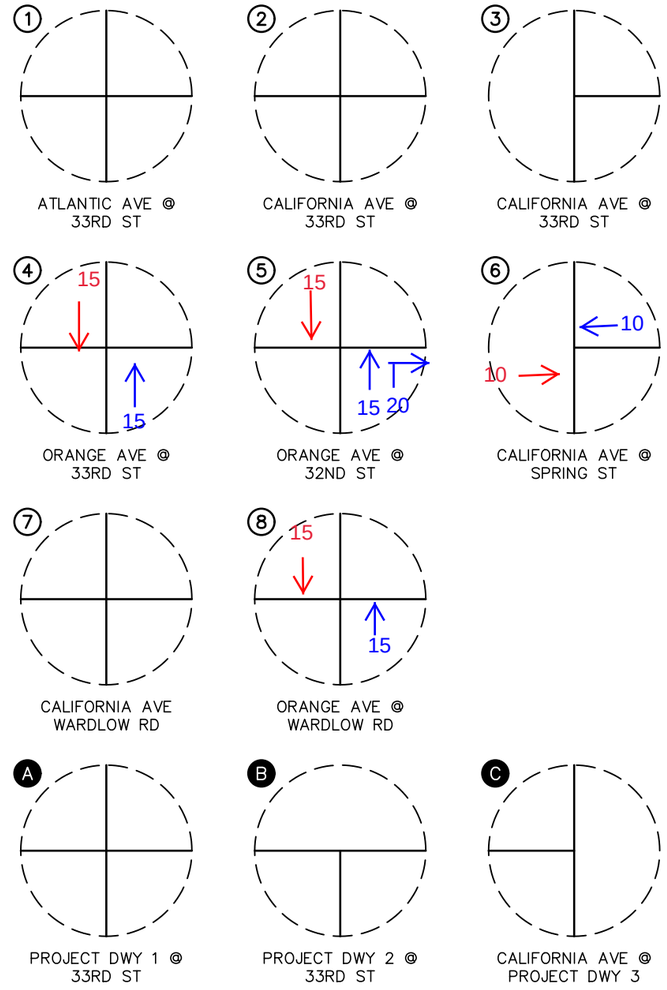
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

5. Honda Expansion

SOURCE: GOOGLE

KEY

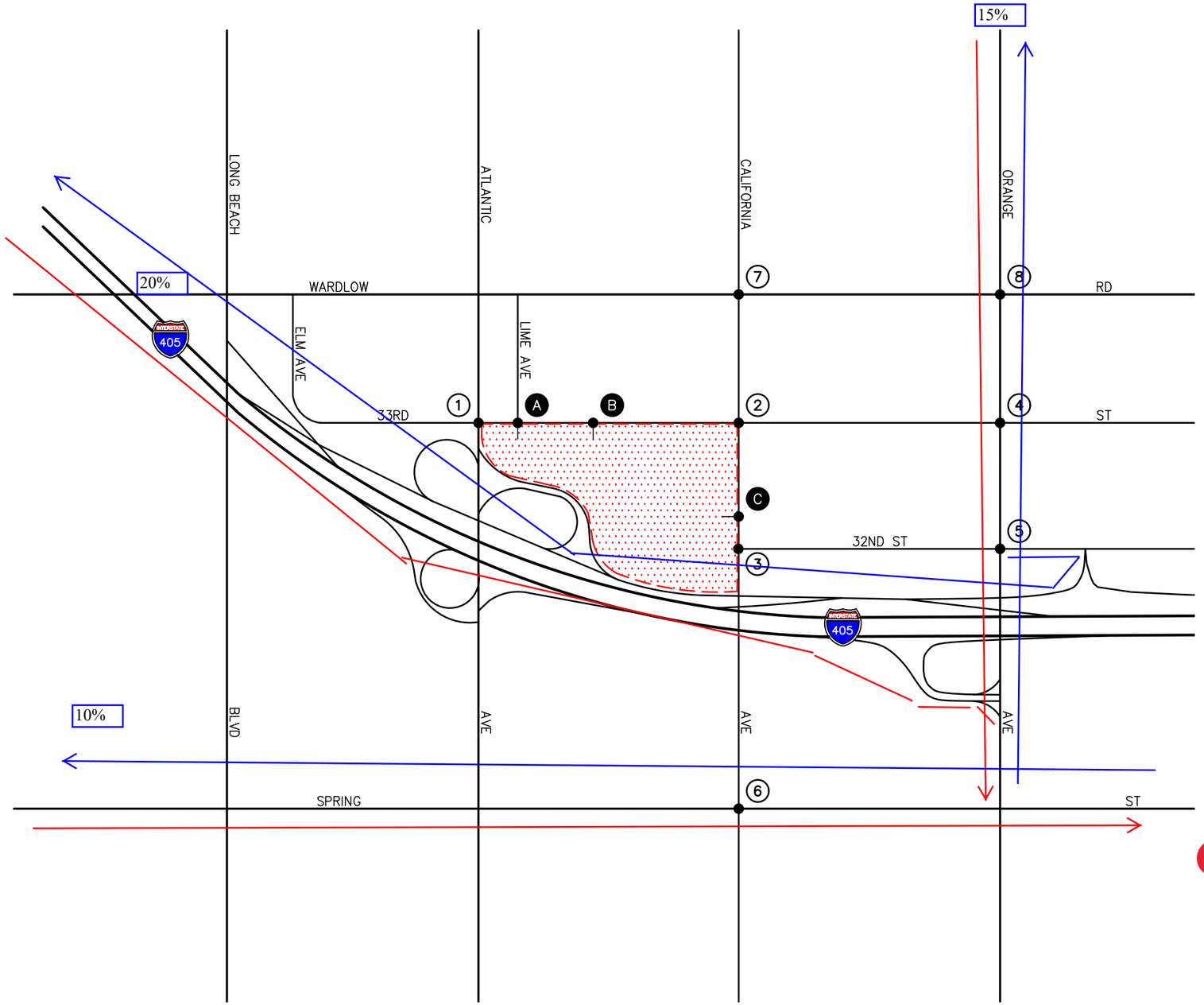
(#) = STUDY INTERSECTION

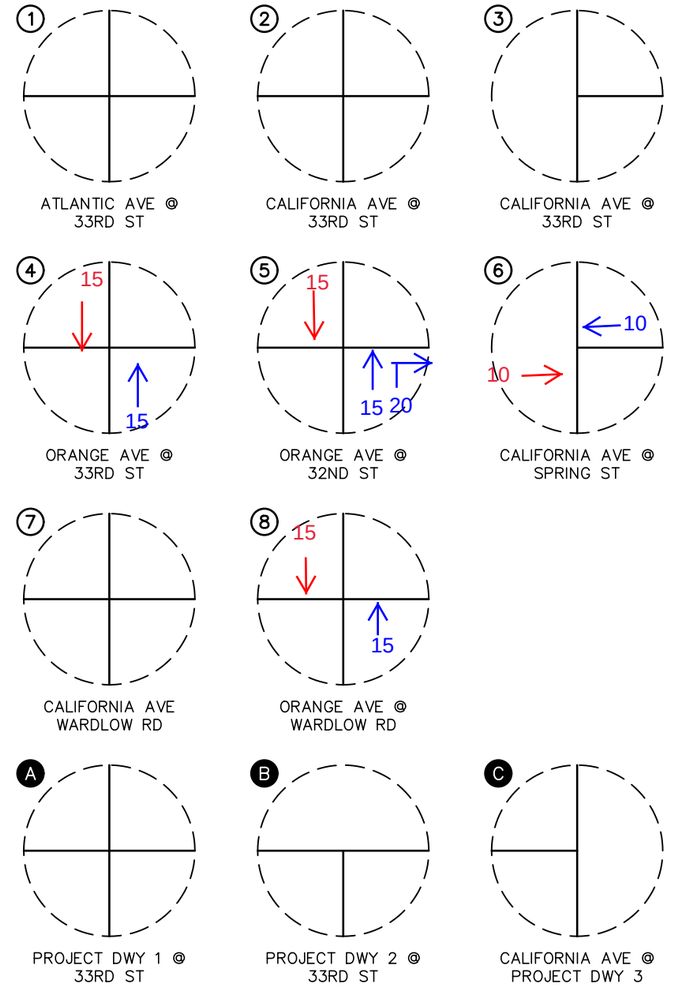
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

6. Mazda Dealer

SOURCE: GOOGLE

KEY

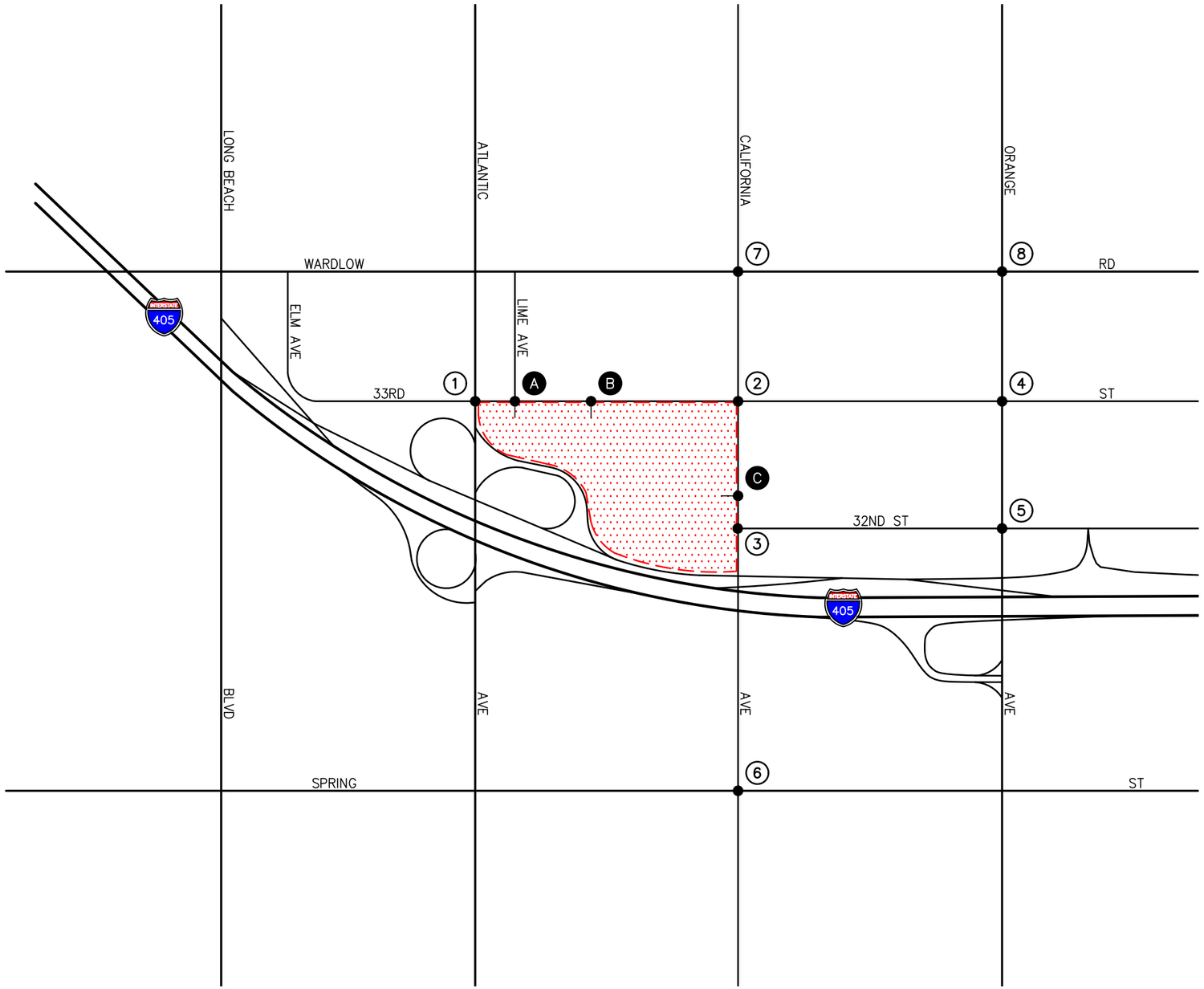
(#) = STUDY INTERSECTION

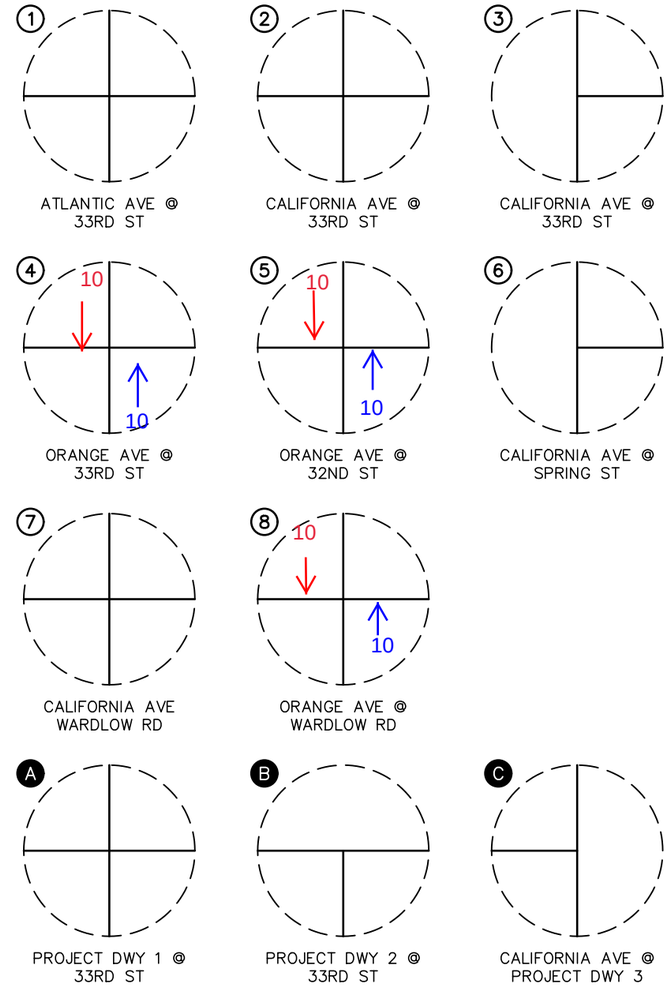
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

7. Crescent Square

SOURCE: GOOGLE

KEY

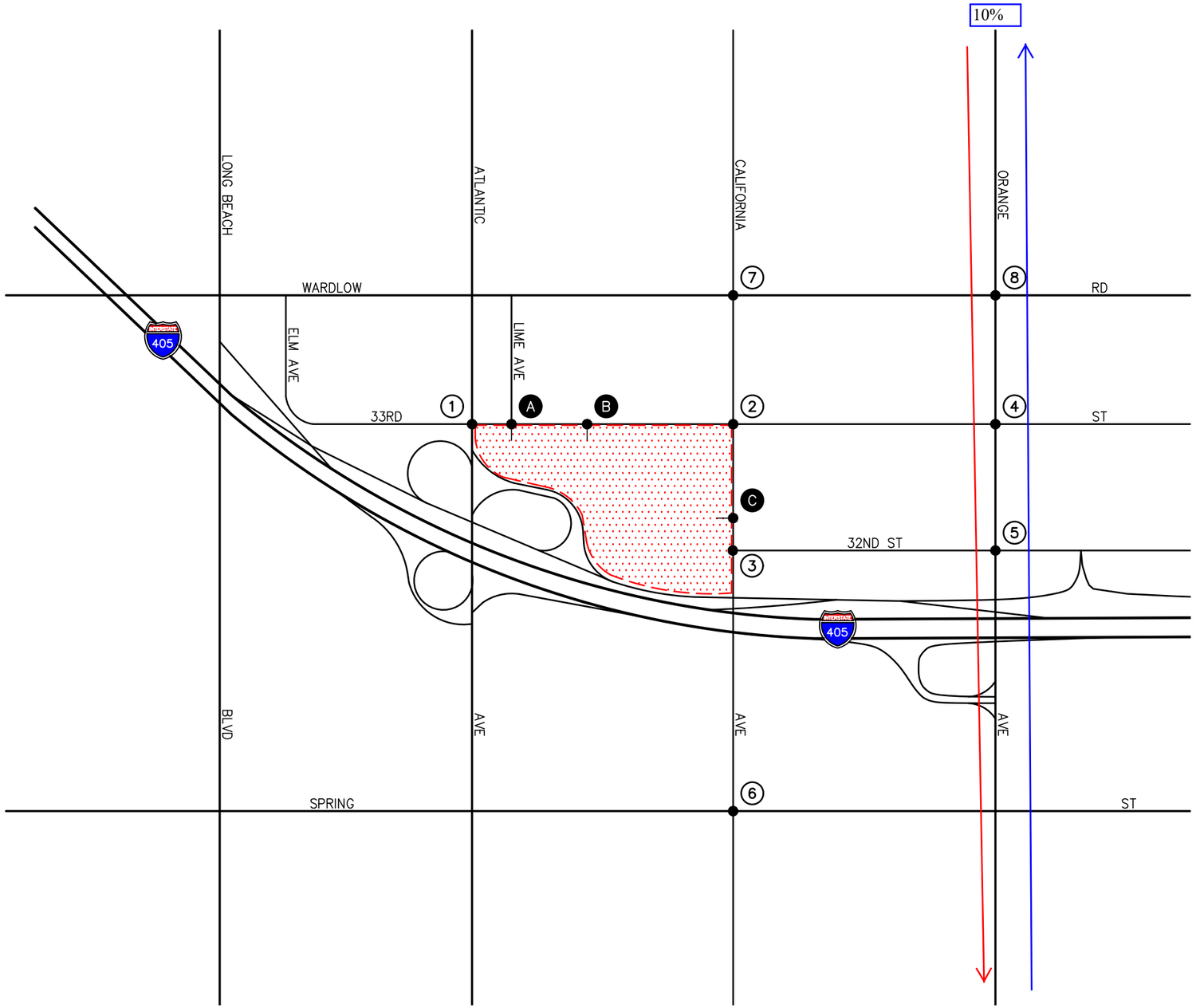
(#) = STUDY INTERSECTION

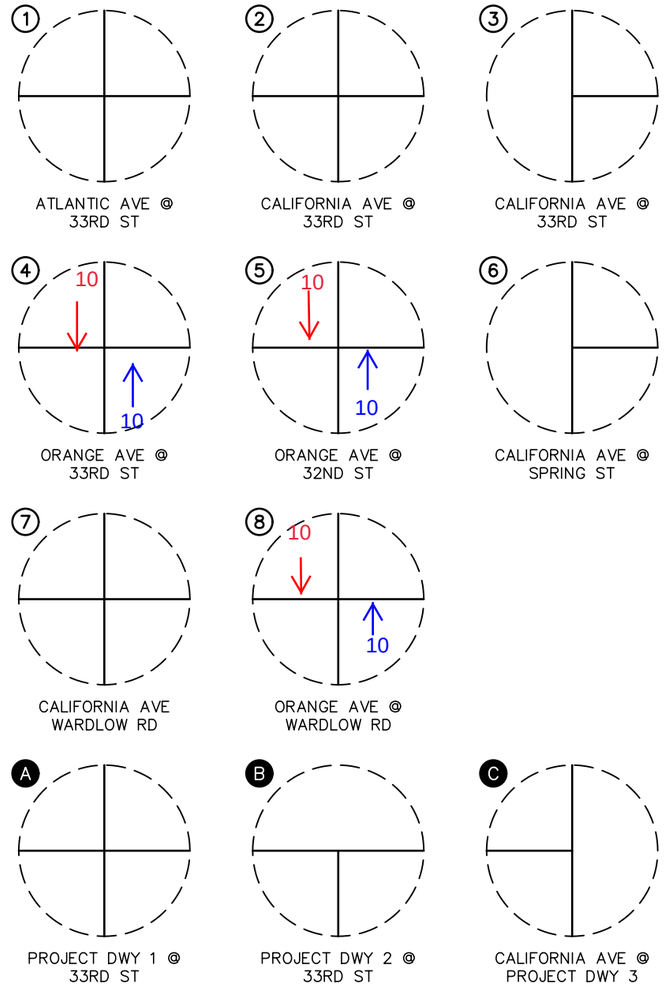
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

8. Zinnia

SOURCE: GOOGLE

KEY

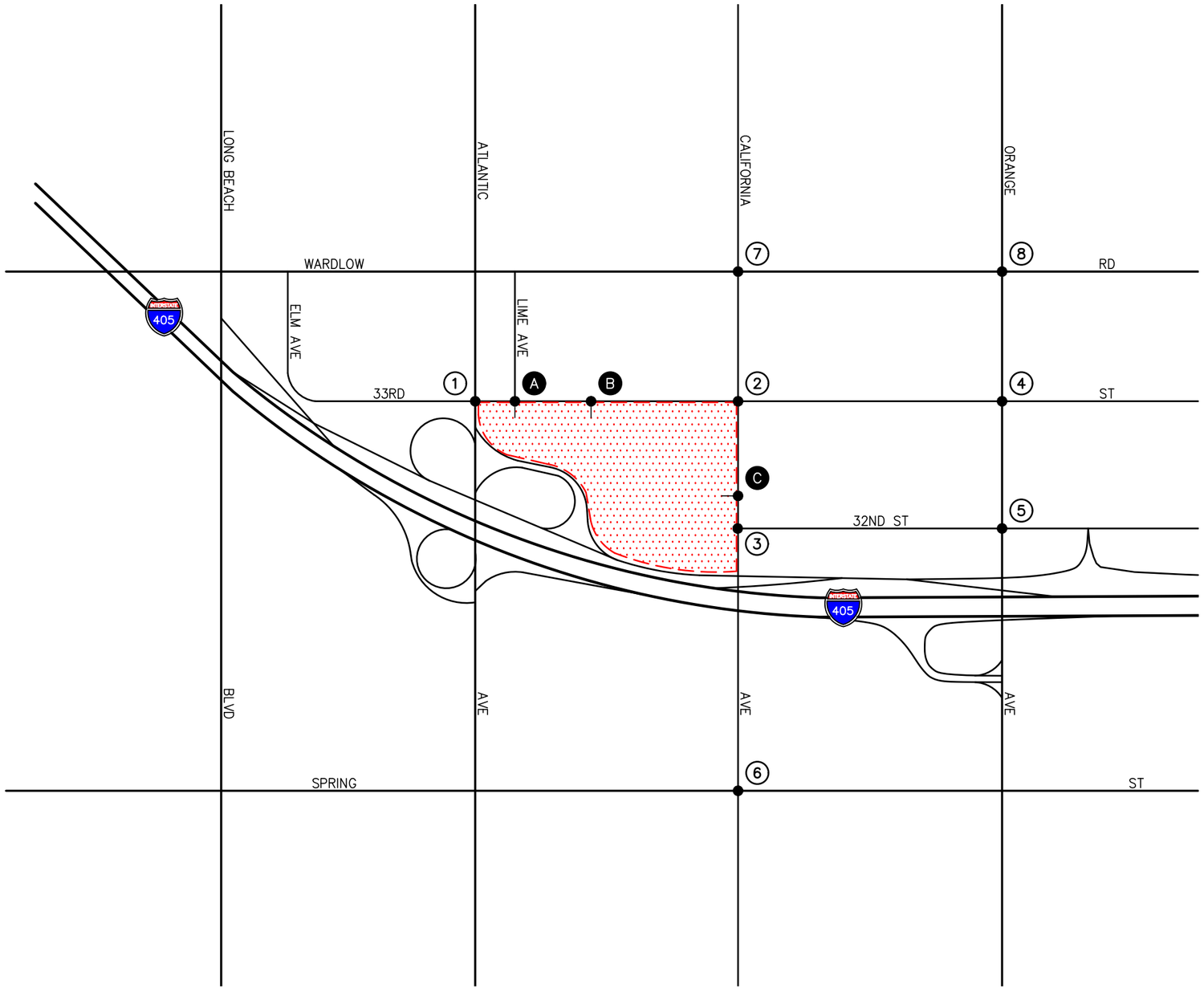
(#) = STUDY INTERSECTION

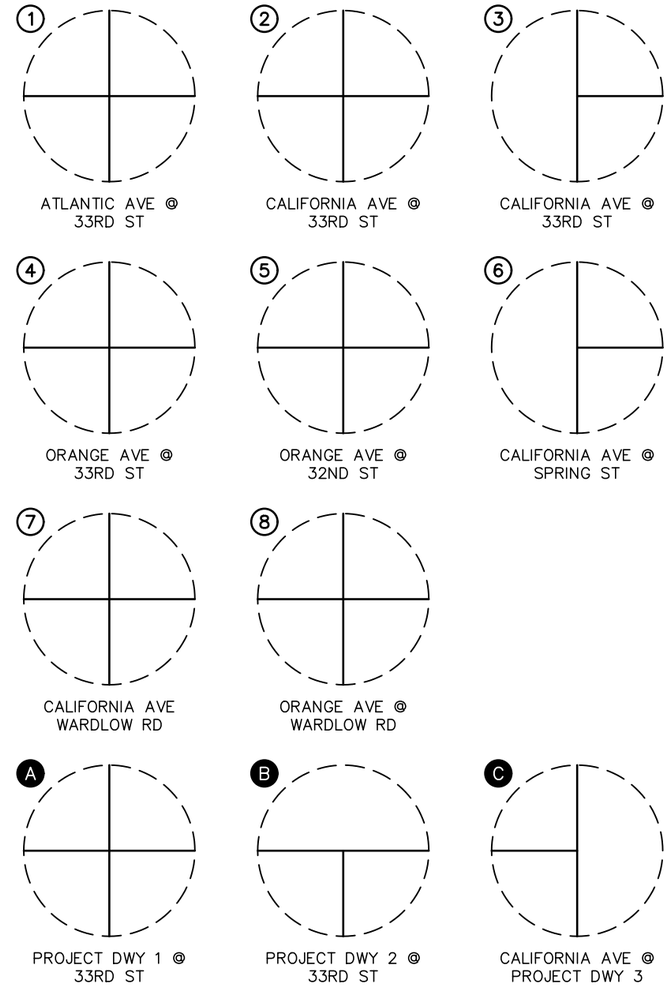
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No trips

n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

9. The courtyard
10. 2599 Pacific Coast Highway

SOURCE: GOOGLE

KEY

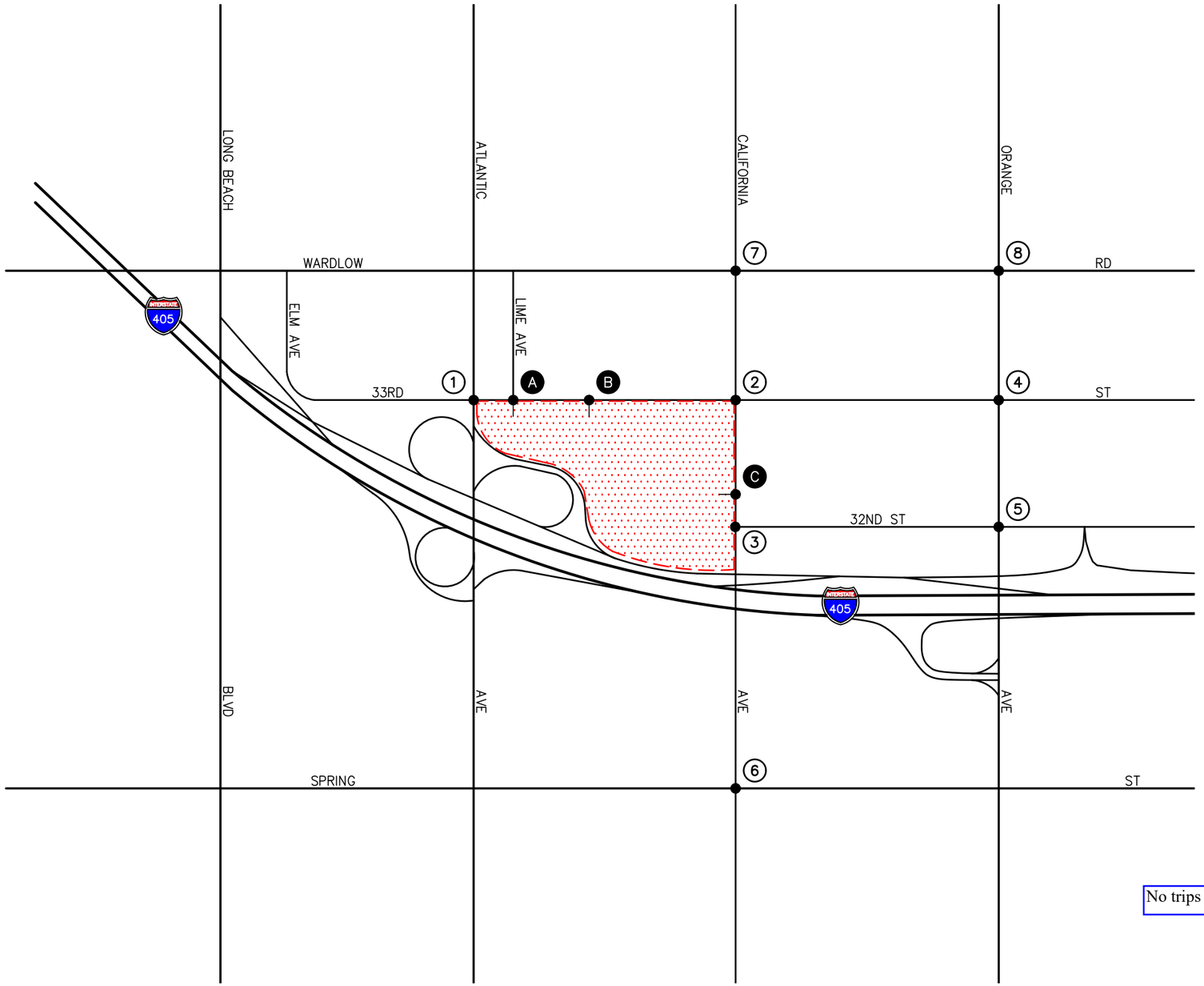
(#) = STUDY INTERSECTION

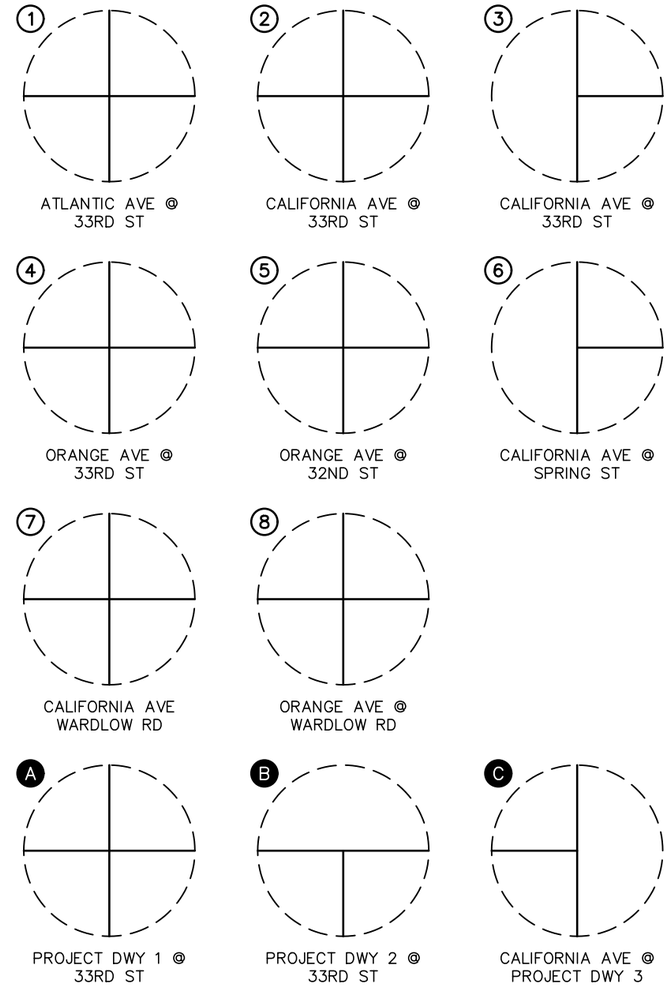
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No trips

n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

11. 1803-11

SOURCE: GOOGLE

KEY

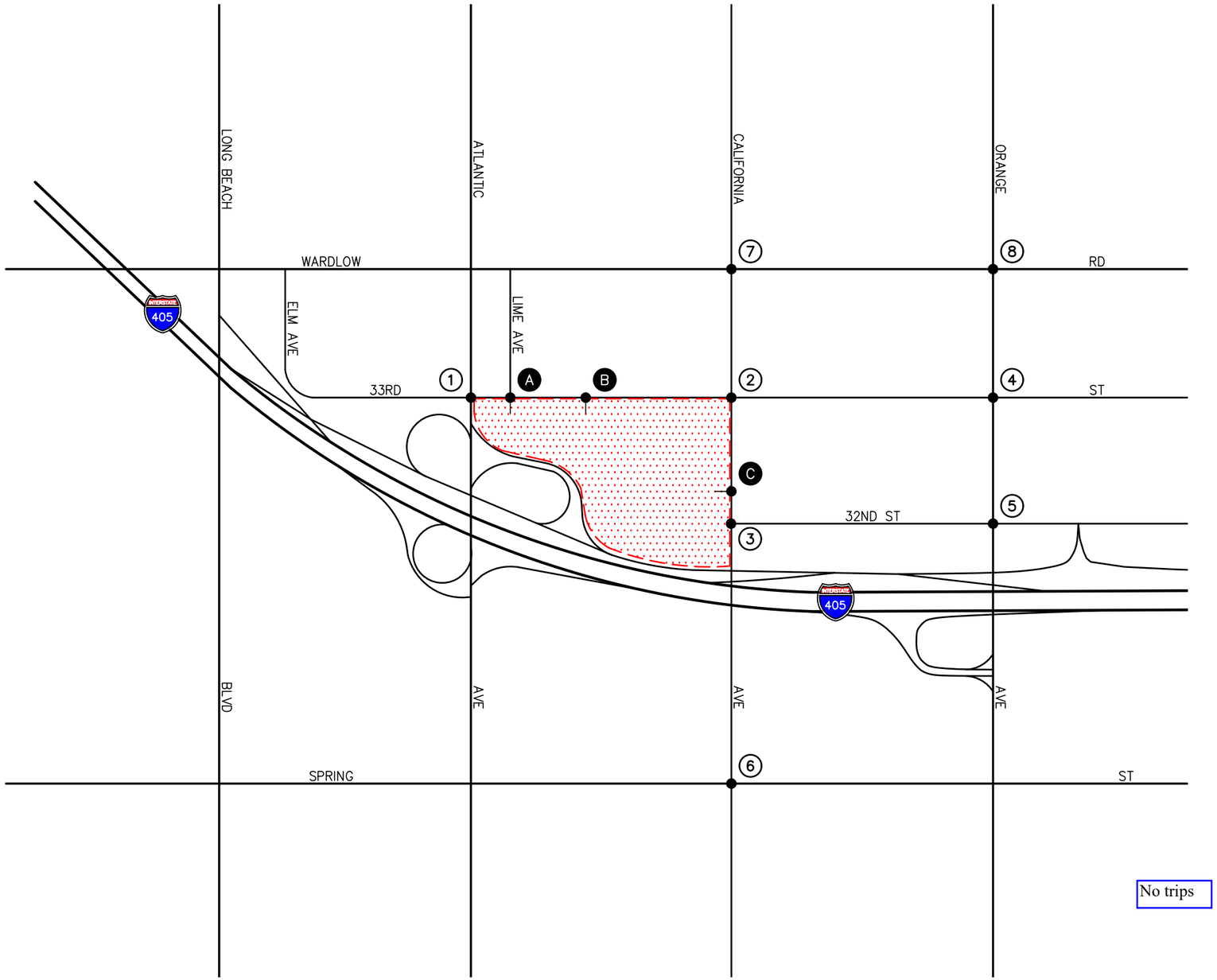
(#) = STUDY INTERSECTION

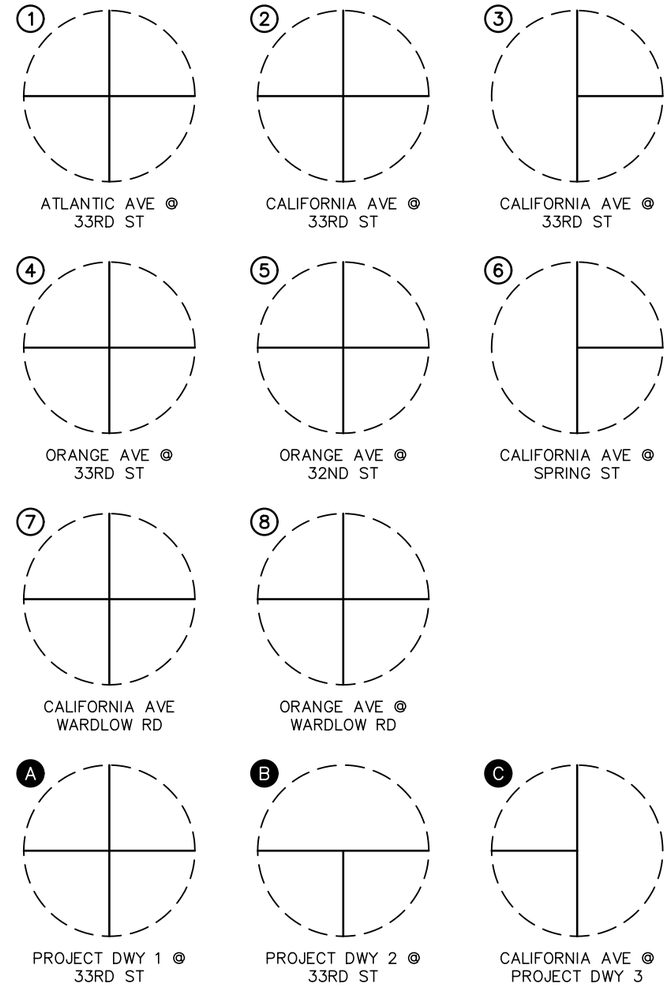
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No trips

n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

12. 1612-29

SOURCE: GOOGLE

KEY

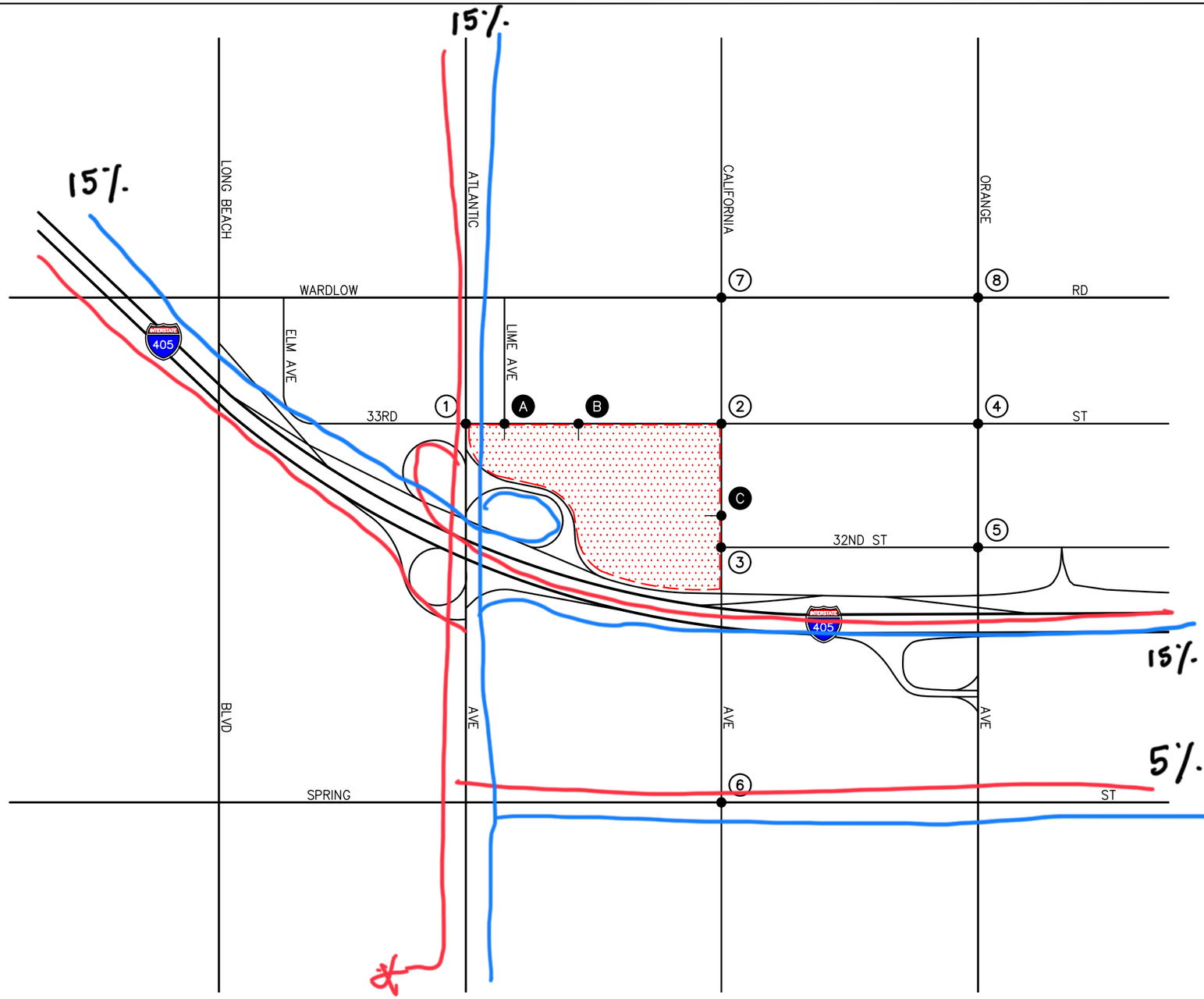
(#) = STUDY INTERSECTION

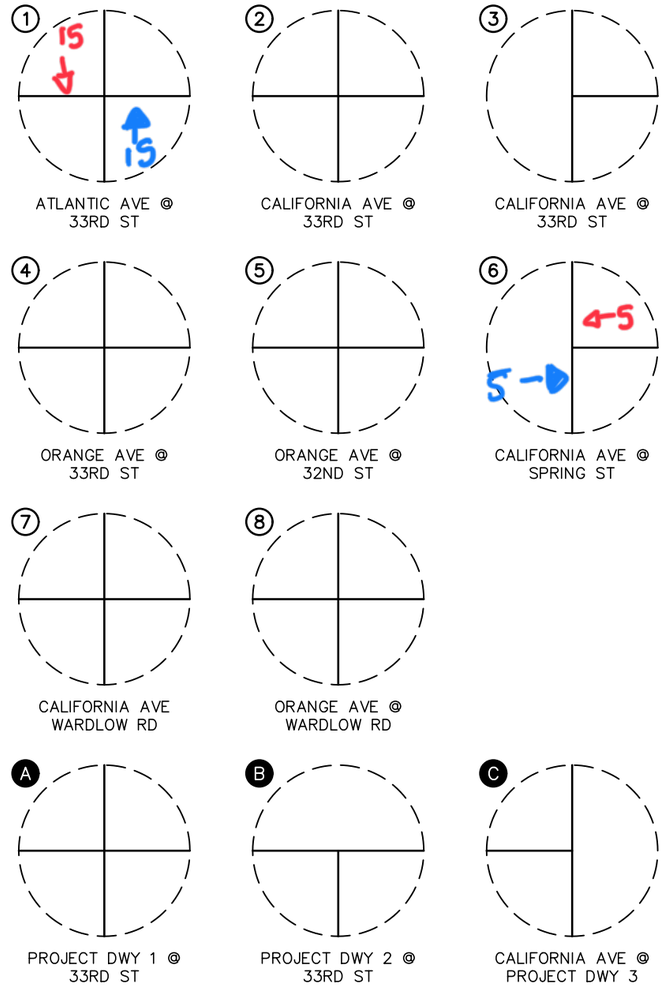
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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N NO SCALE

13. 1701-41

SOURCE: GOOGLE

KEY

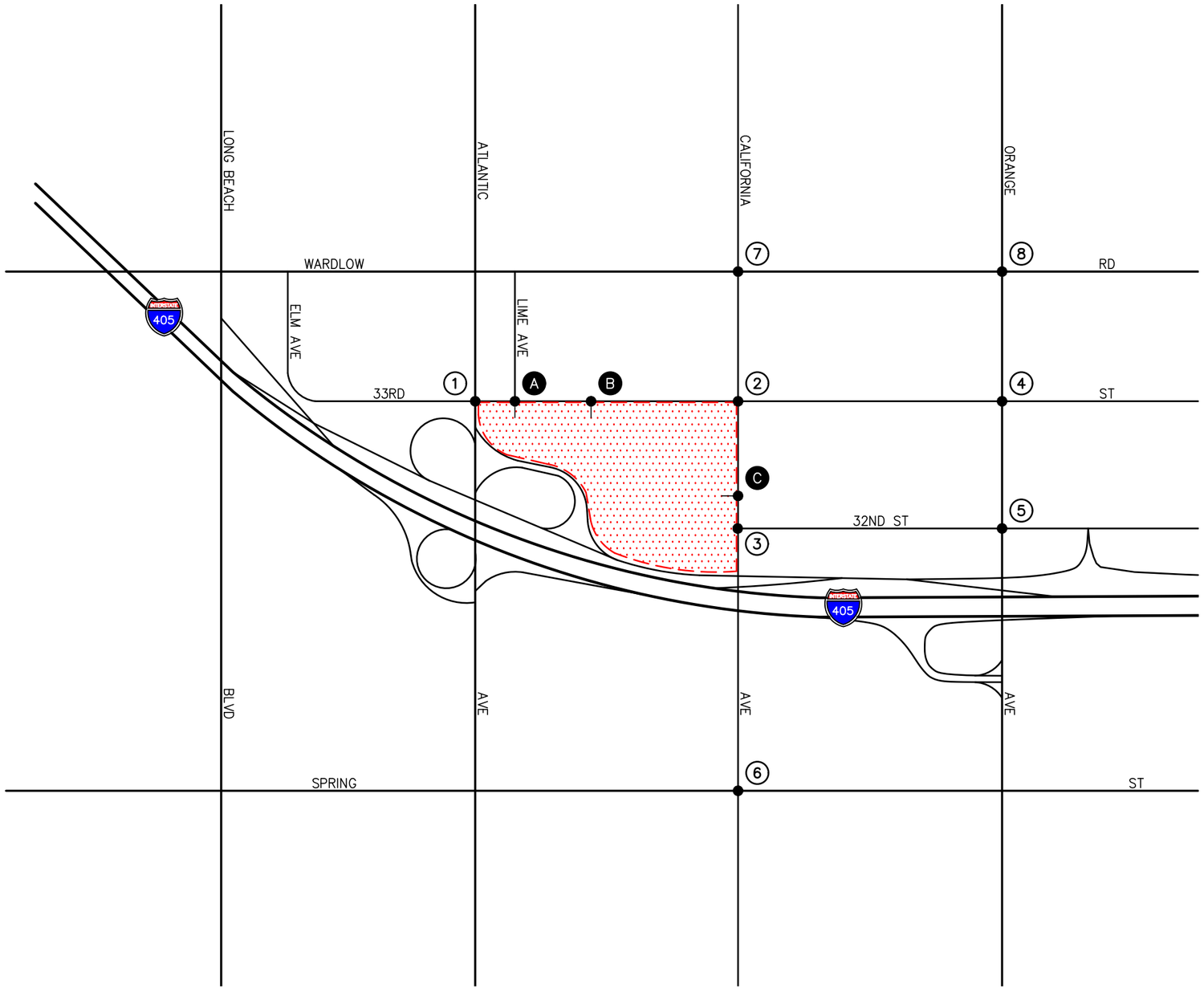
(#) = STUDY INTERSECTION

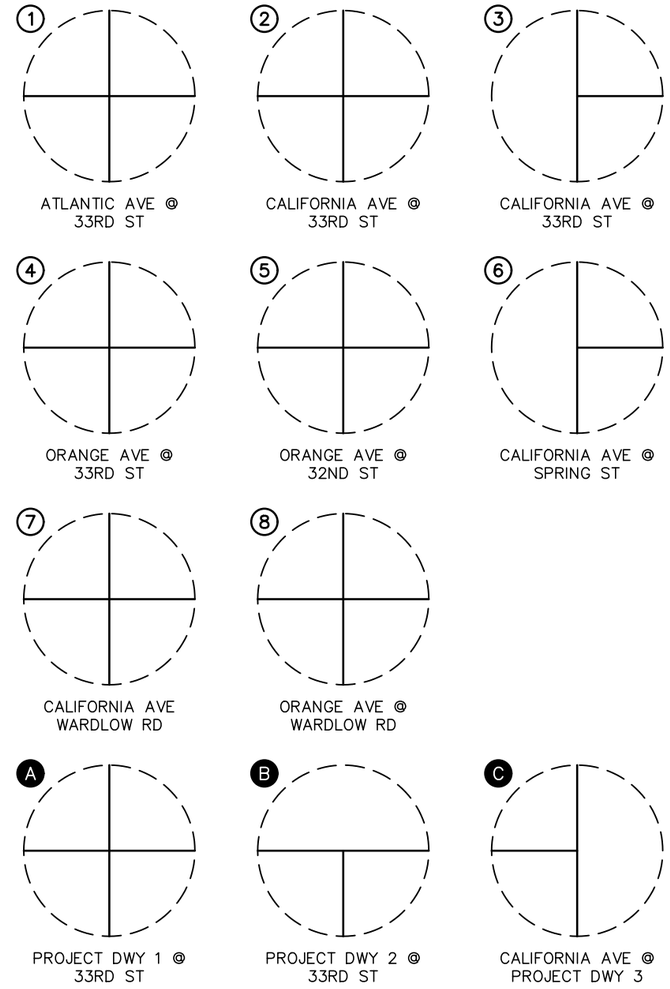
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

14. 1709-32
15. 1709-35

SOURCE: GOOGLE

KEY

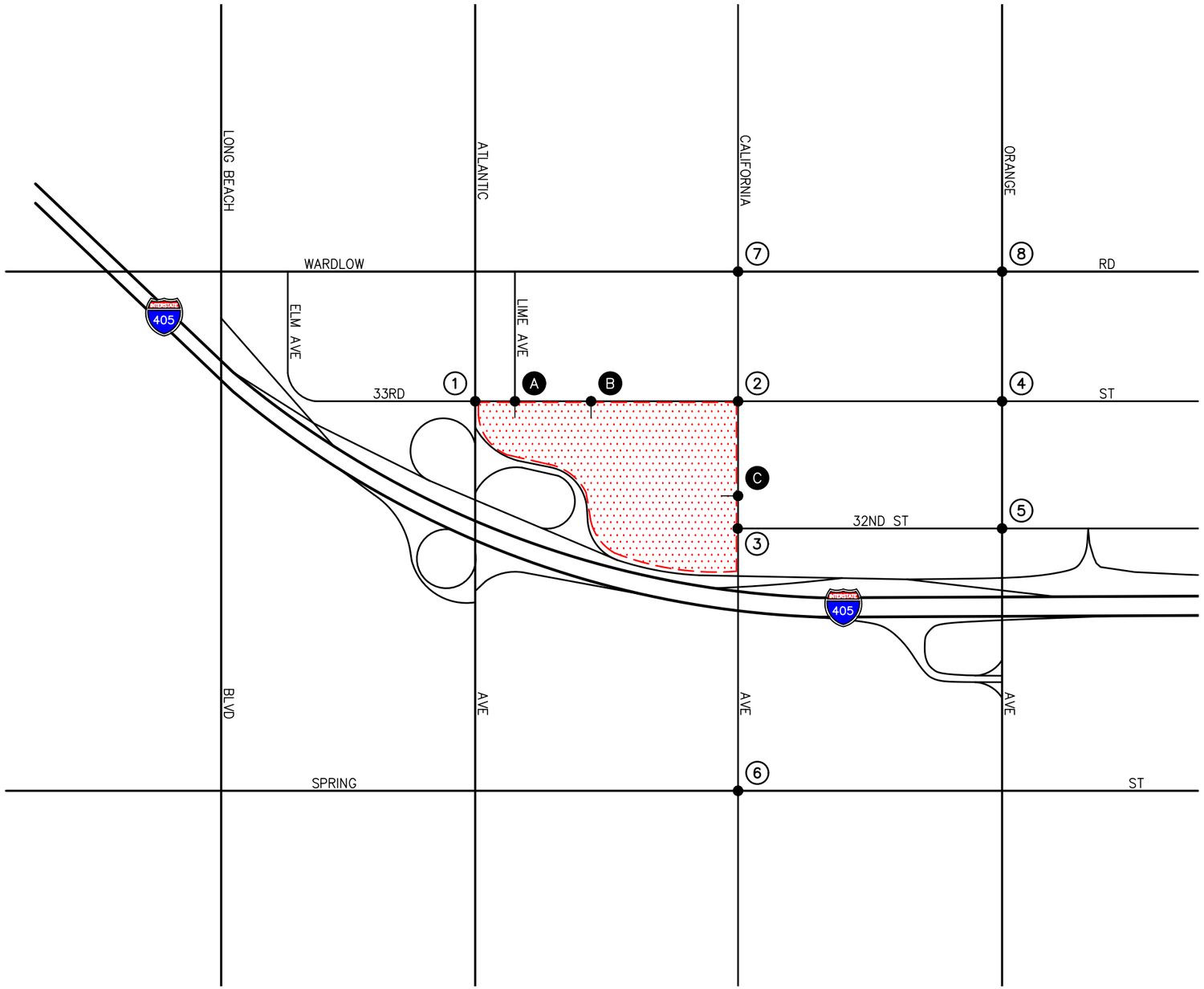
(#) = STUDY INTERSECTION

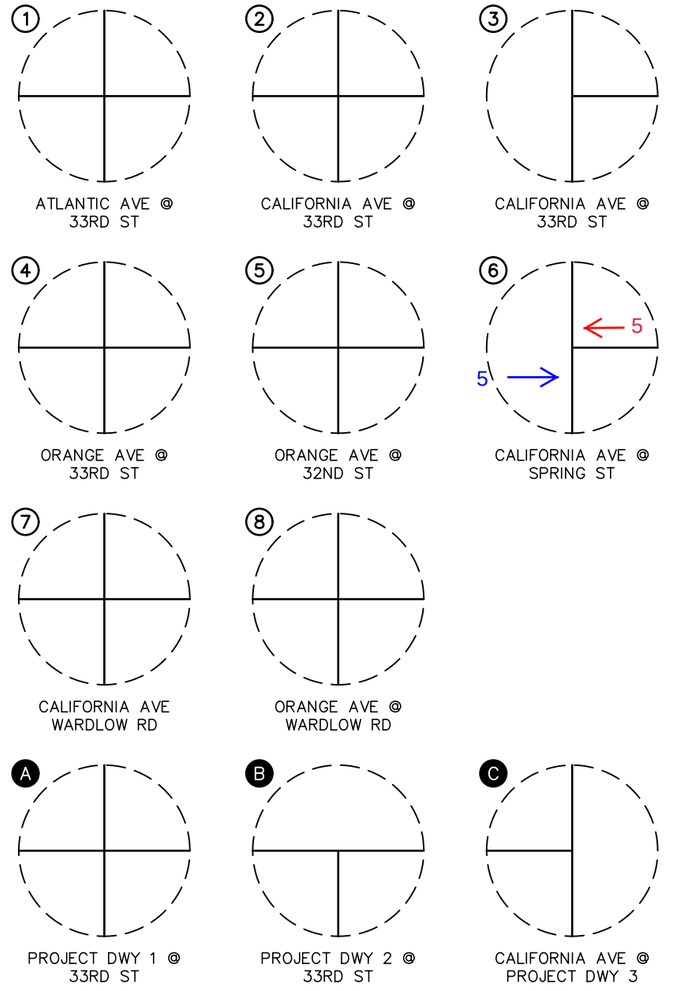
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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N NO SCALE

16. 1802-27

SOURCE: GOOGLE

KEY

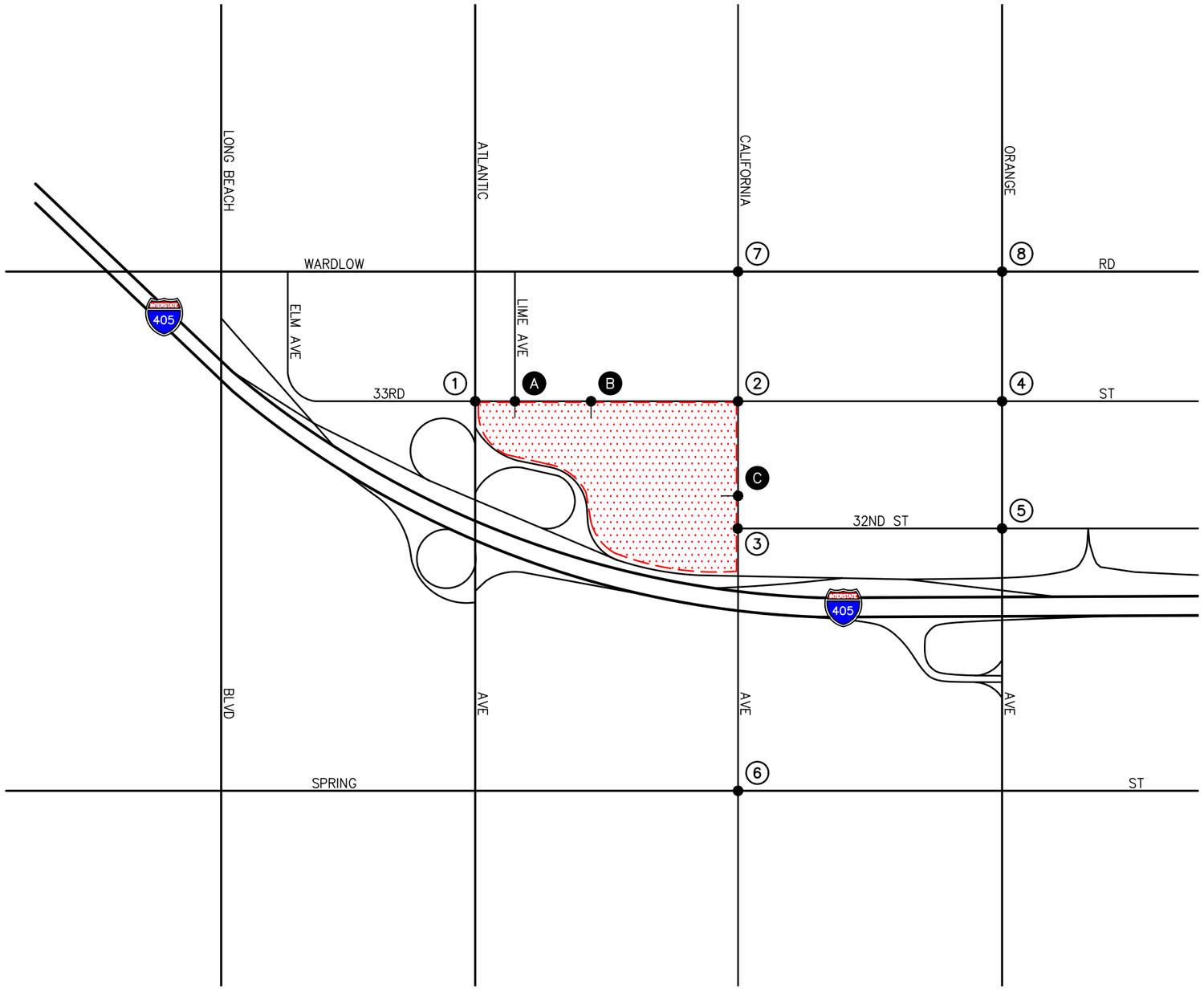
(#) = STUDY INTERSECTION

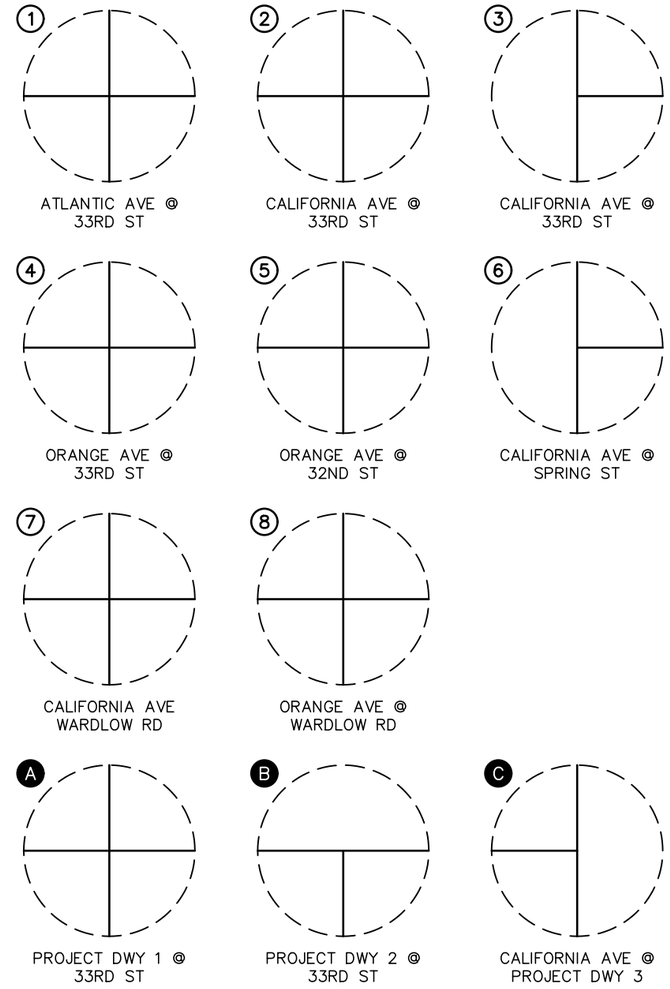
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

17. 1810-26

SOURCE: GOOGLE

KEY

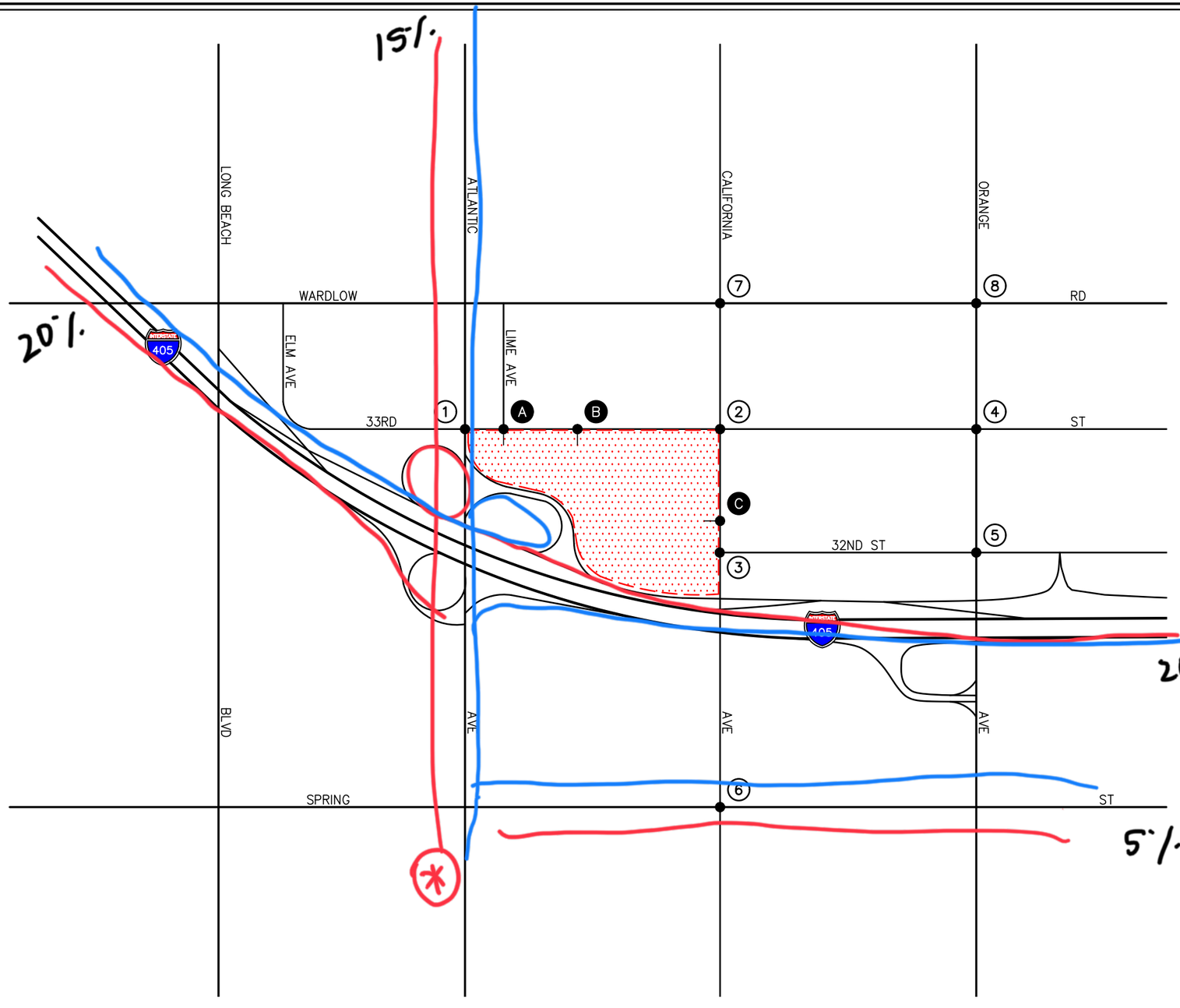
(#) = STUDY INTERSECTION

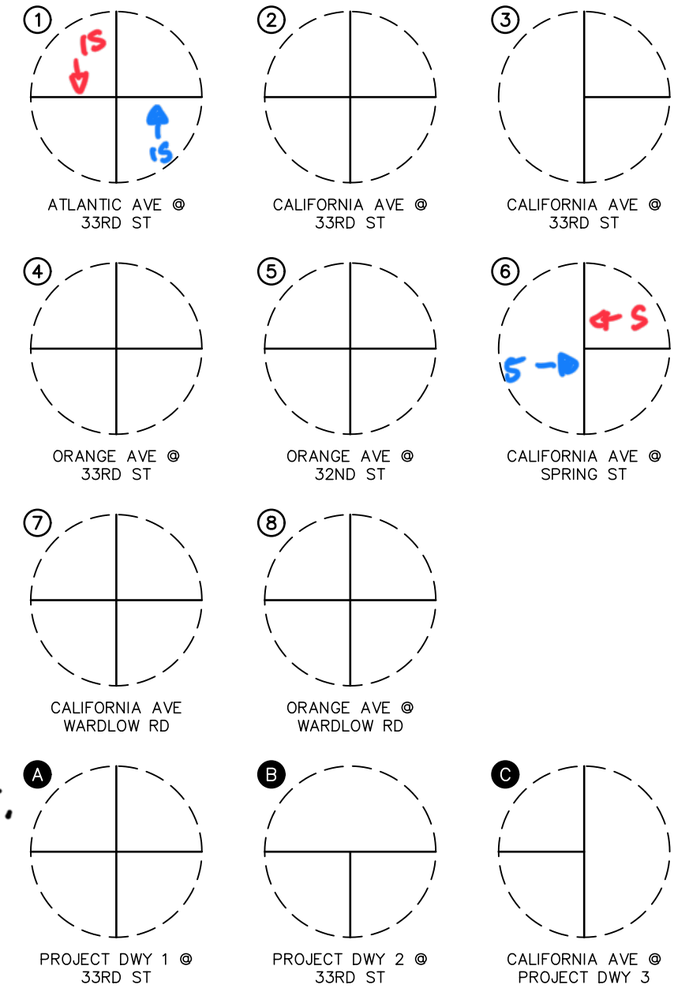
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

18. 1902-13

SOURCE: GOOGLE

KEY

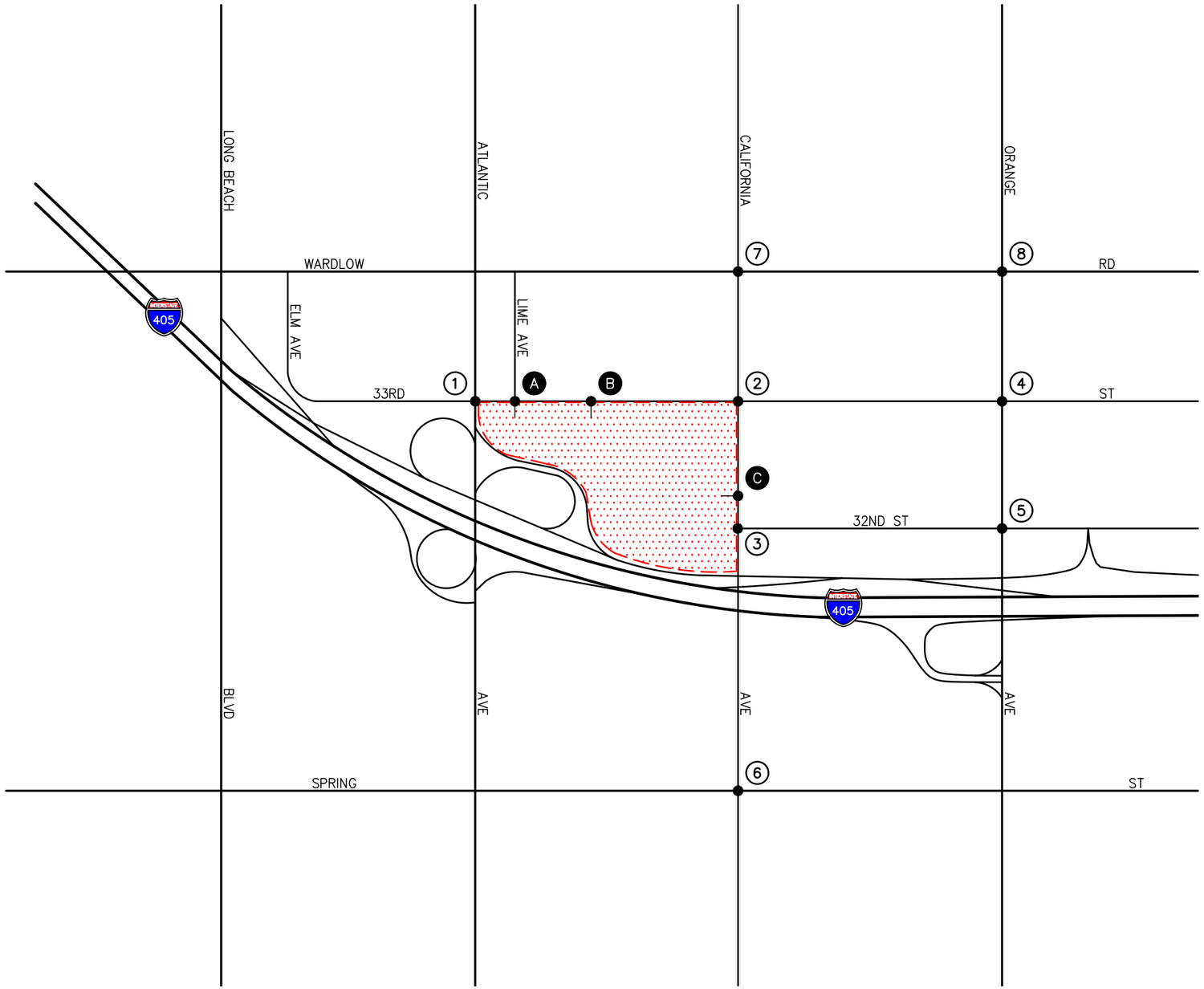
(#) = STUDY INTERSECTION

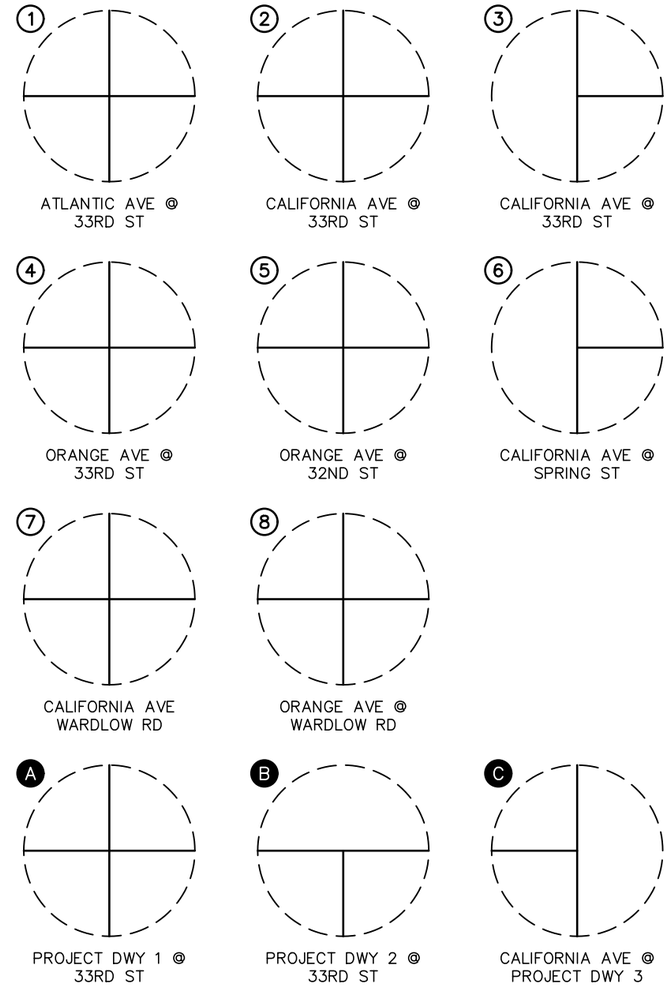
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

19. 2002-07

SOURCE: GOOGLE

KEY

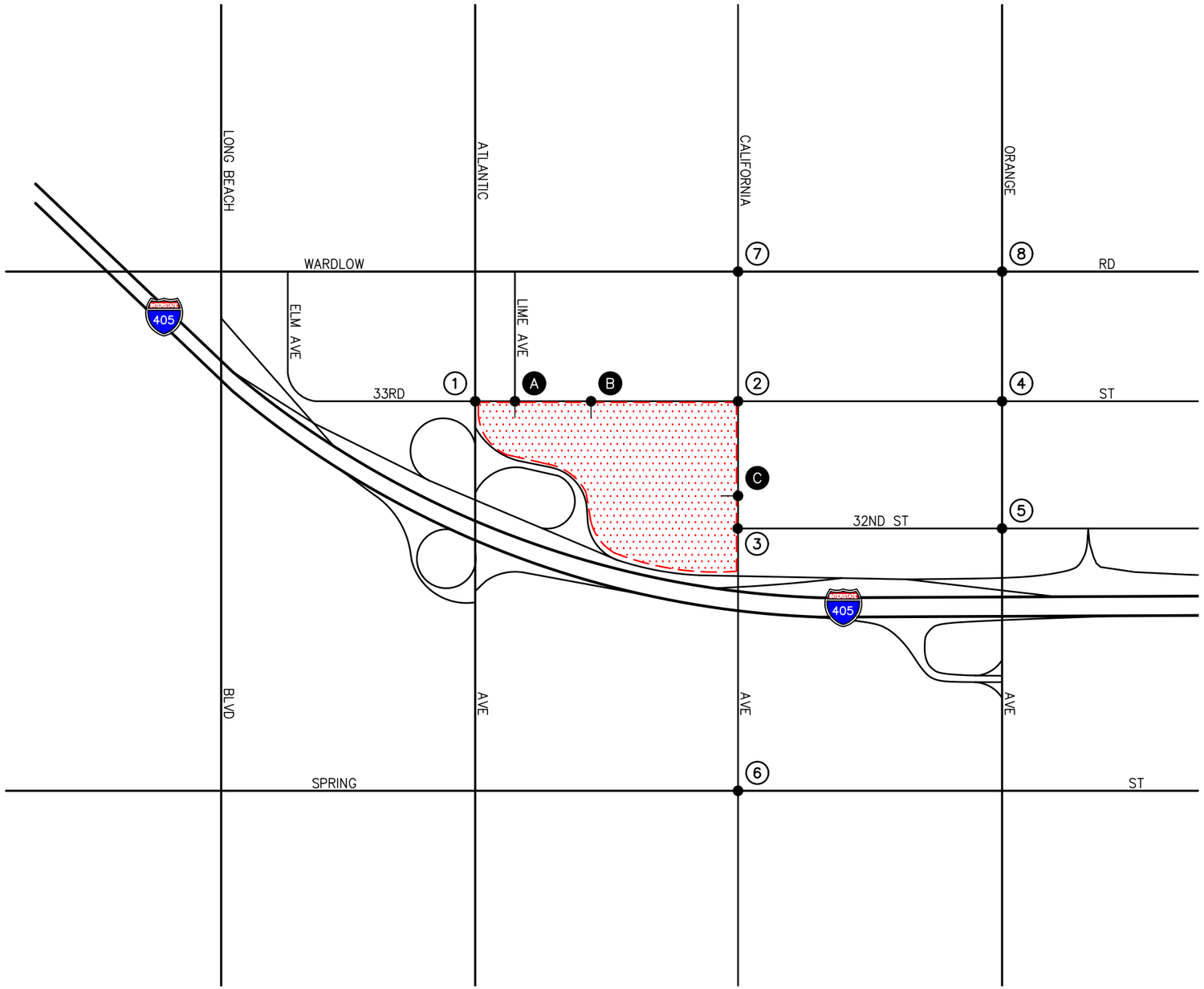
(#) = STUDY INTERSECTION

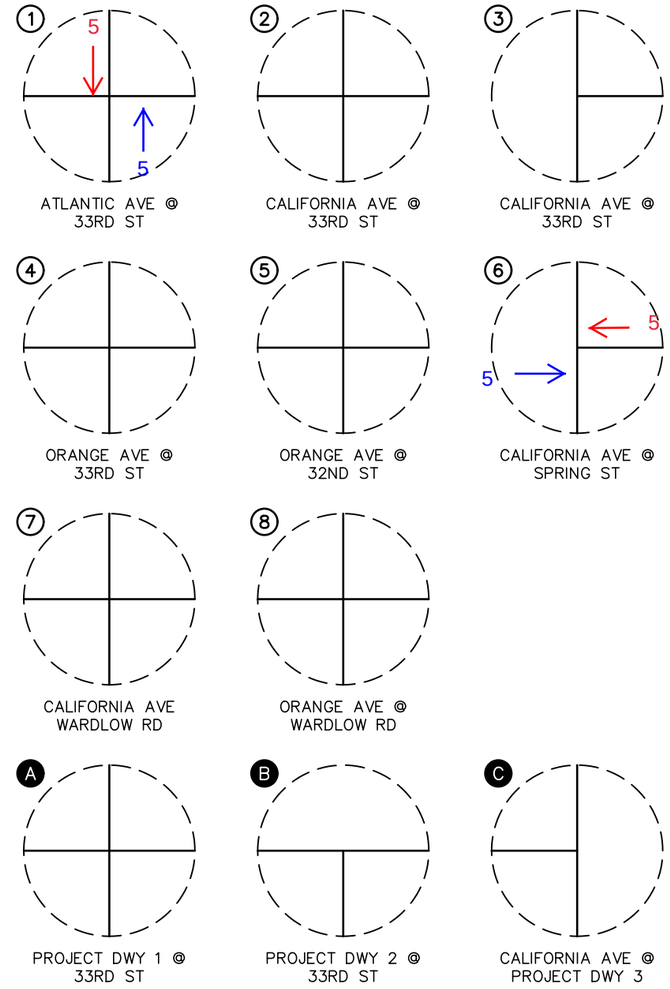
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

20. Salvation Army Citadel Expansion

SOURCE: GOOGLE

KEY

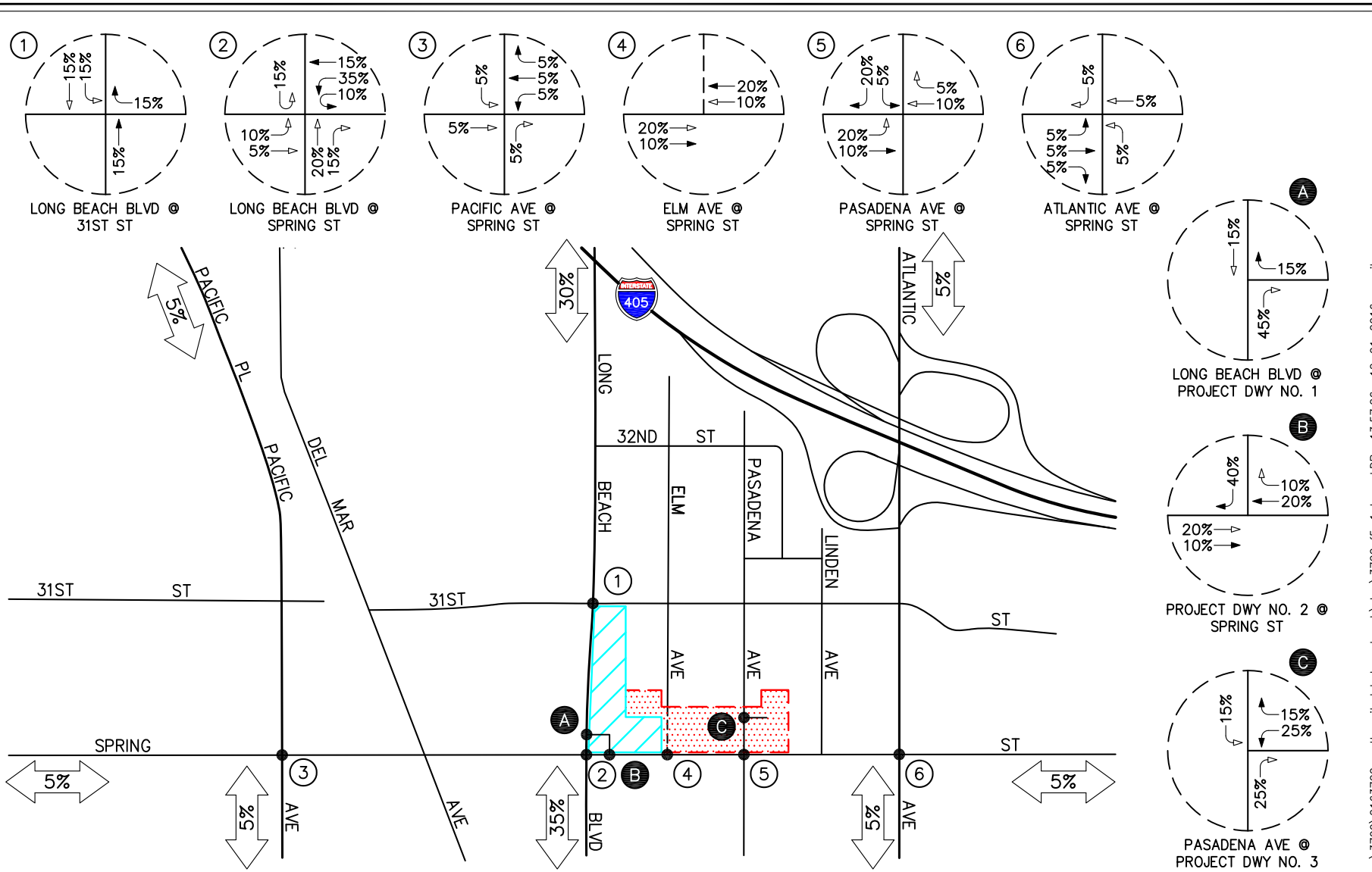
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



n:\3700\2163722 - the citadel, long beach\dwg\3722 f5-1.dwg LDP 13:57:26 12-01-2016 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

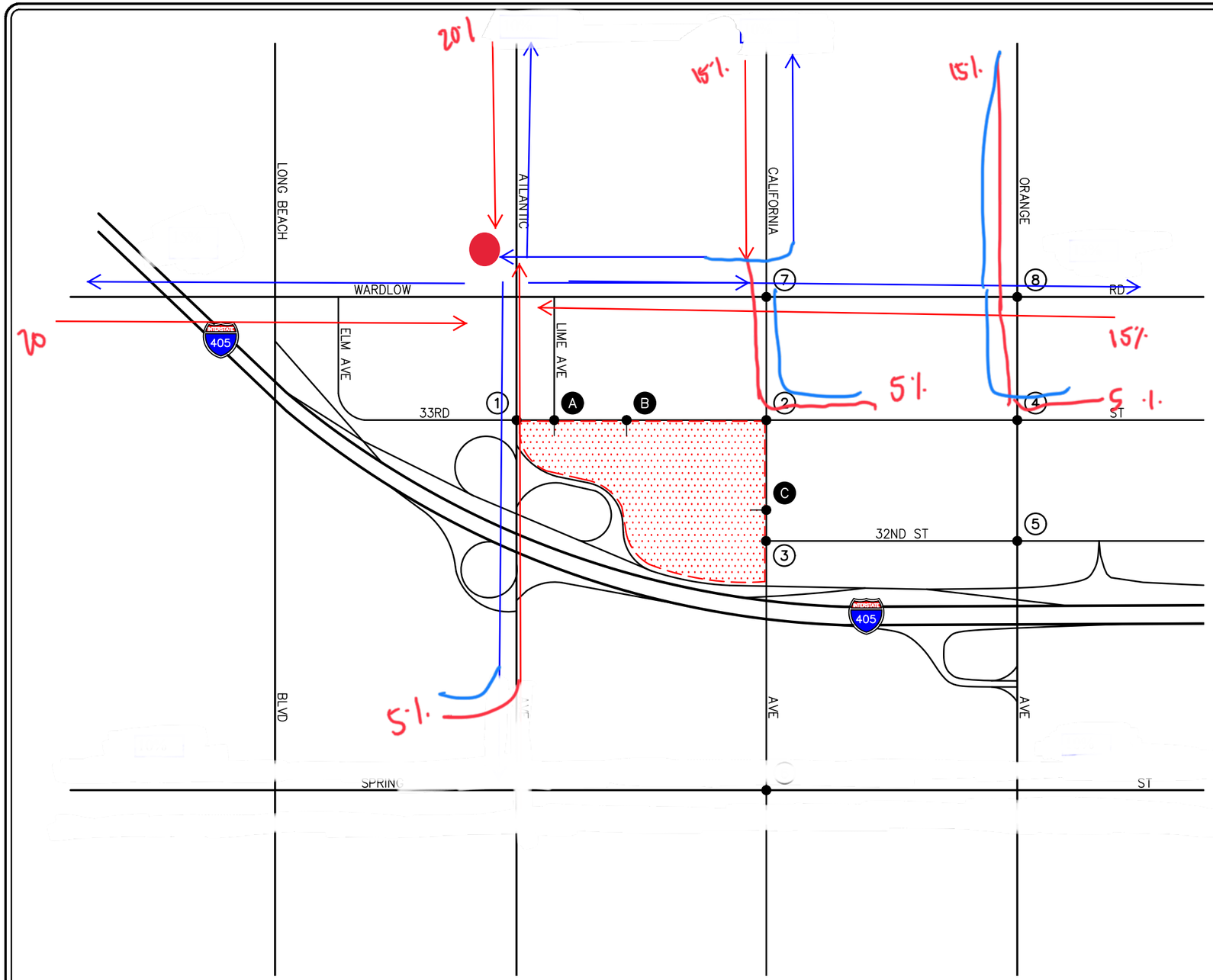
(#) = STUDY INTERSECTION
⟵ = INBOUND PERCENTAGE
⟵ = OUTBOUND PERCENTAGE
NOTE: = 5% NON-AUTO/MODE SPLIT

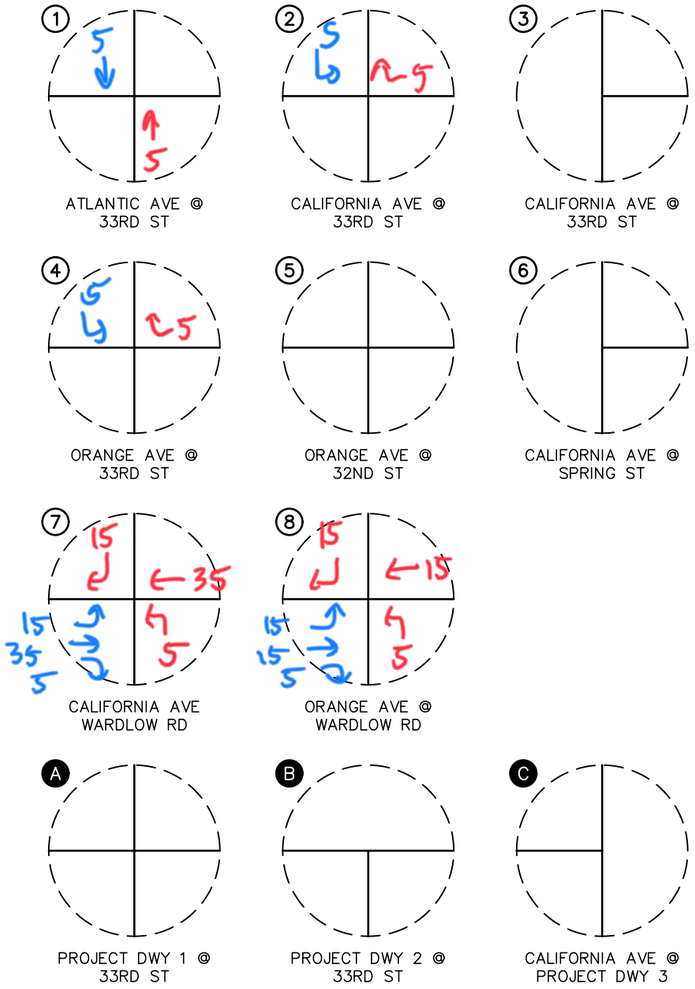
– – – = TO BE REMOVED AS PART OF THE PROPOSED PROJECT
= PROJECT SITE
= EXISTING SITE

FIGURE 5-1

PROJECT TRIP DISTRIBUTION PATTERN

SALVATION ARMY LONG BEACH CITADEL EXPANSION PROJECT, LONG BEACH





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

21. 1703-32

SOURCE: GOOGLE

KEY

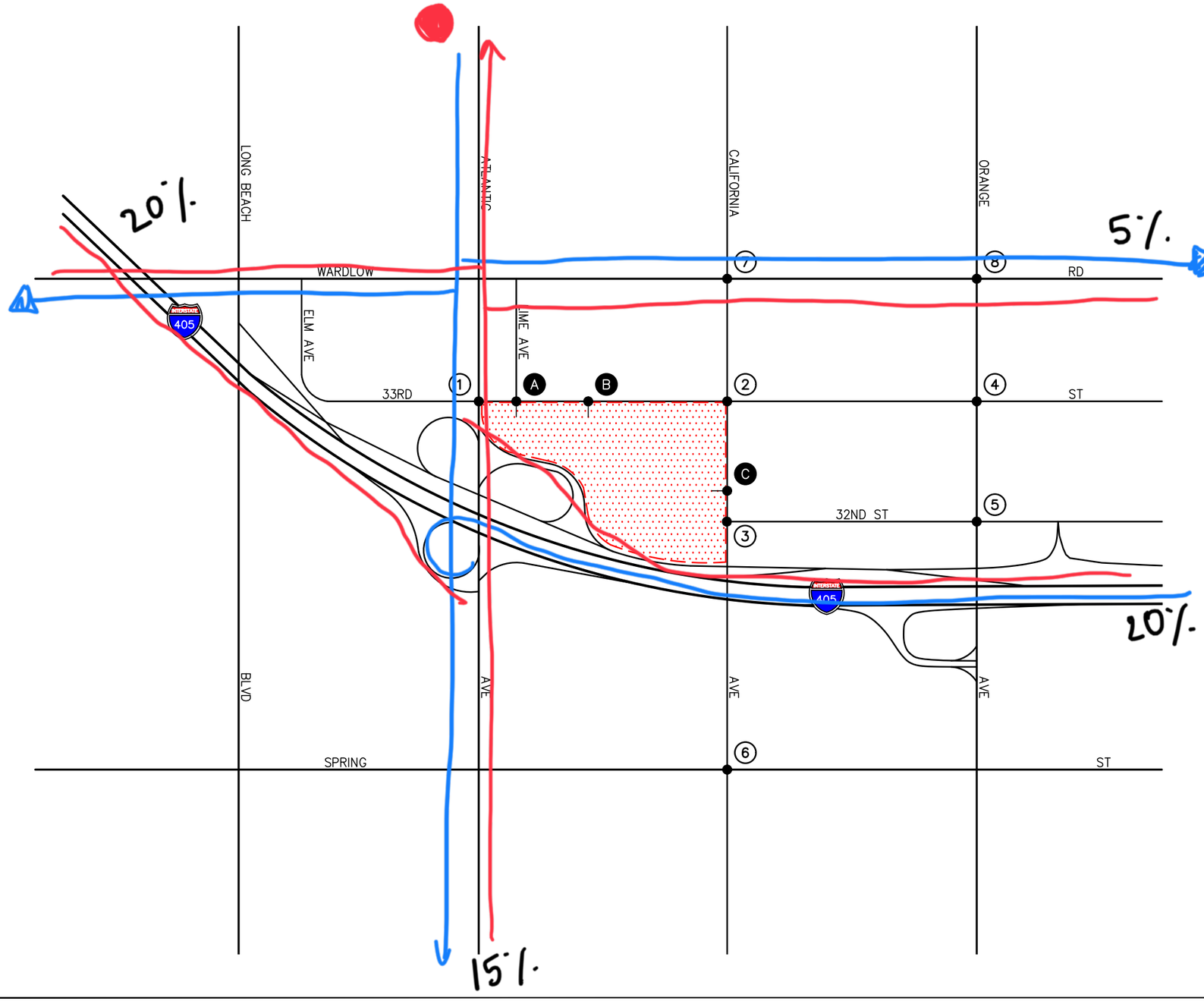
(#) = STUDY INTERSECTION

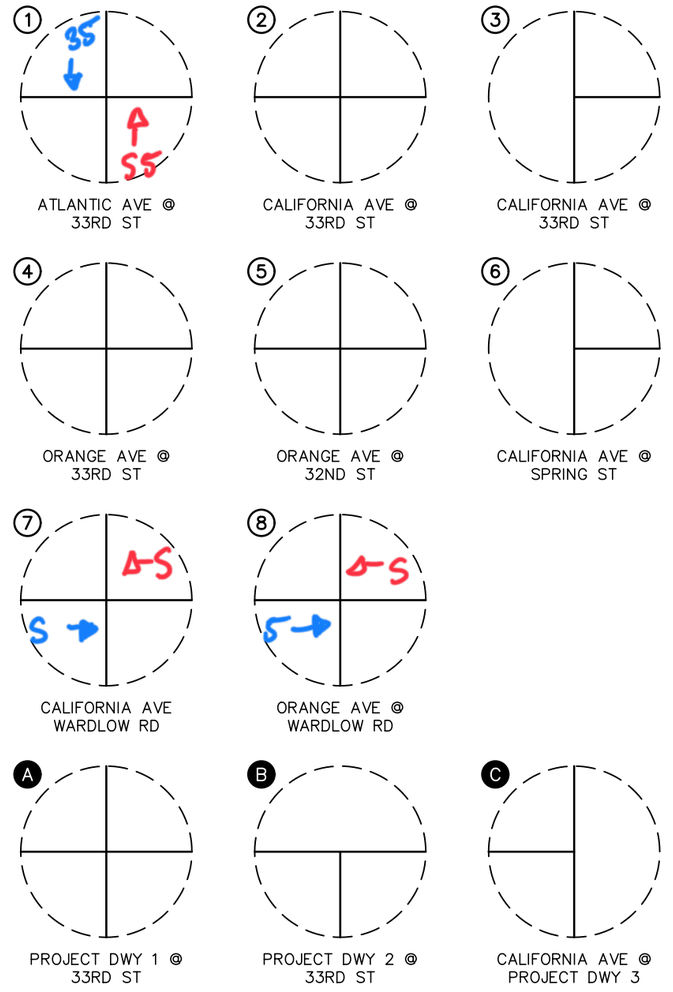
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

22. 1706-14

SOURCE: GOOGLE

KEY

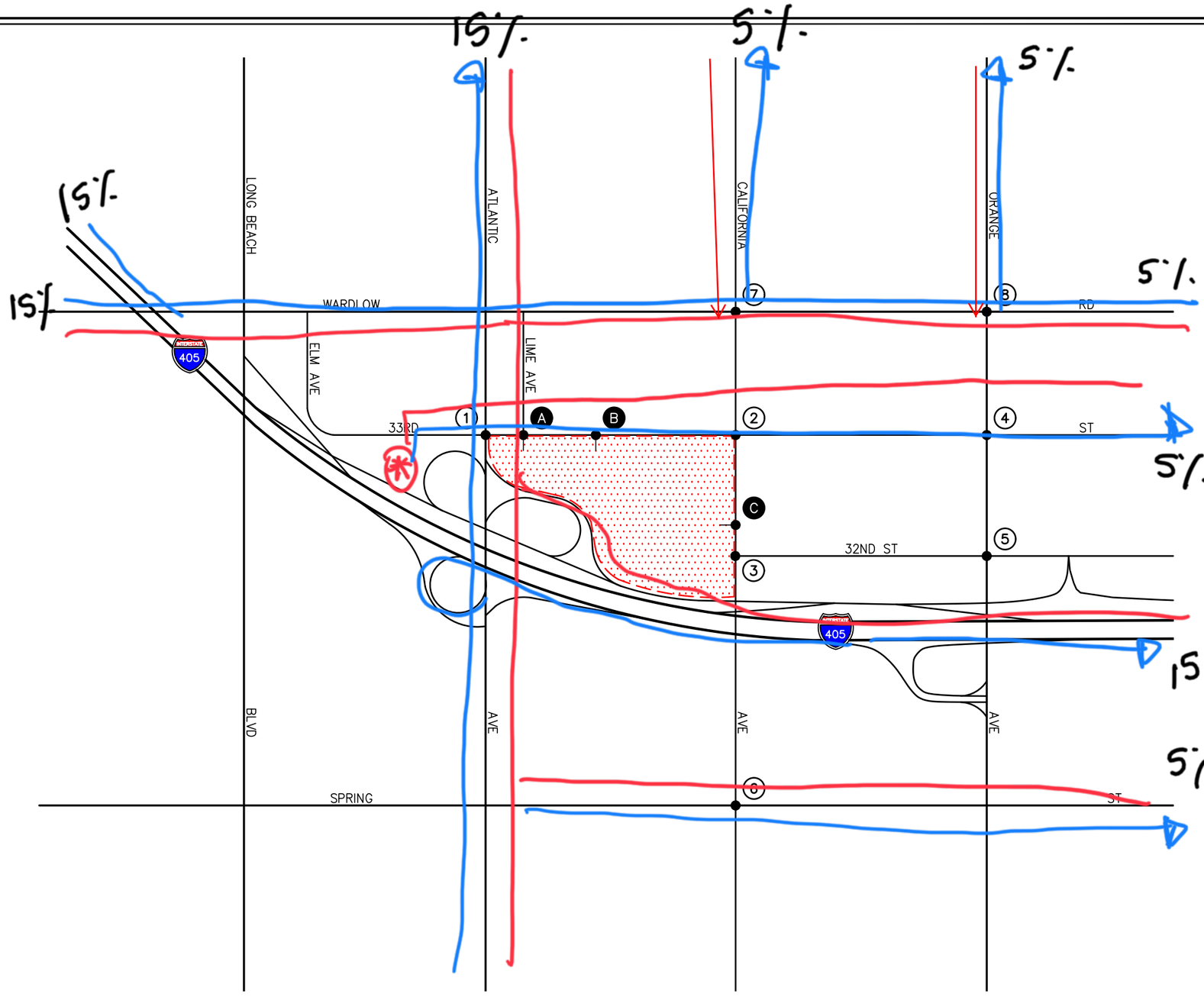
(#) = STUDY INTERSECTION

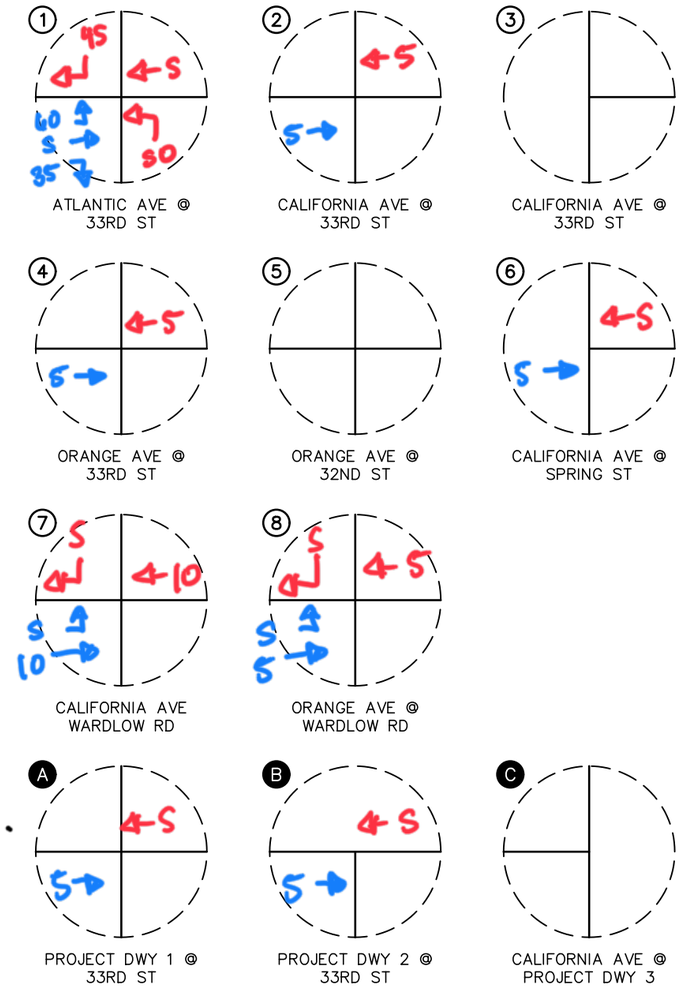
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





n:\miscellaneous\bases\autocad planning standards\11x17 landscape.dwg LDP 16:44:23 06-17-2020 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

23. Harbor Freight

SOURCE: GOOGLE

KEY

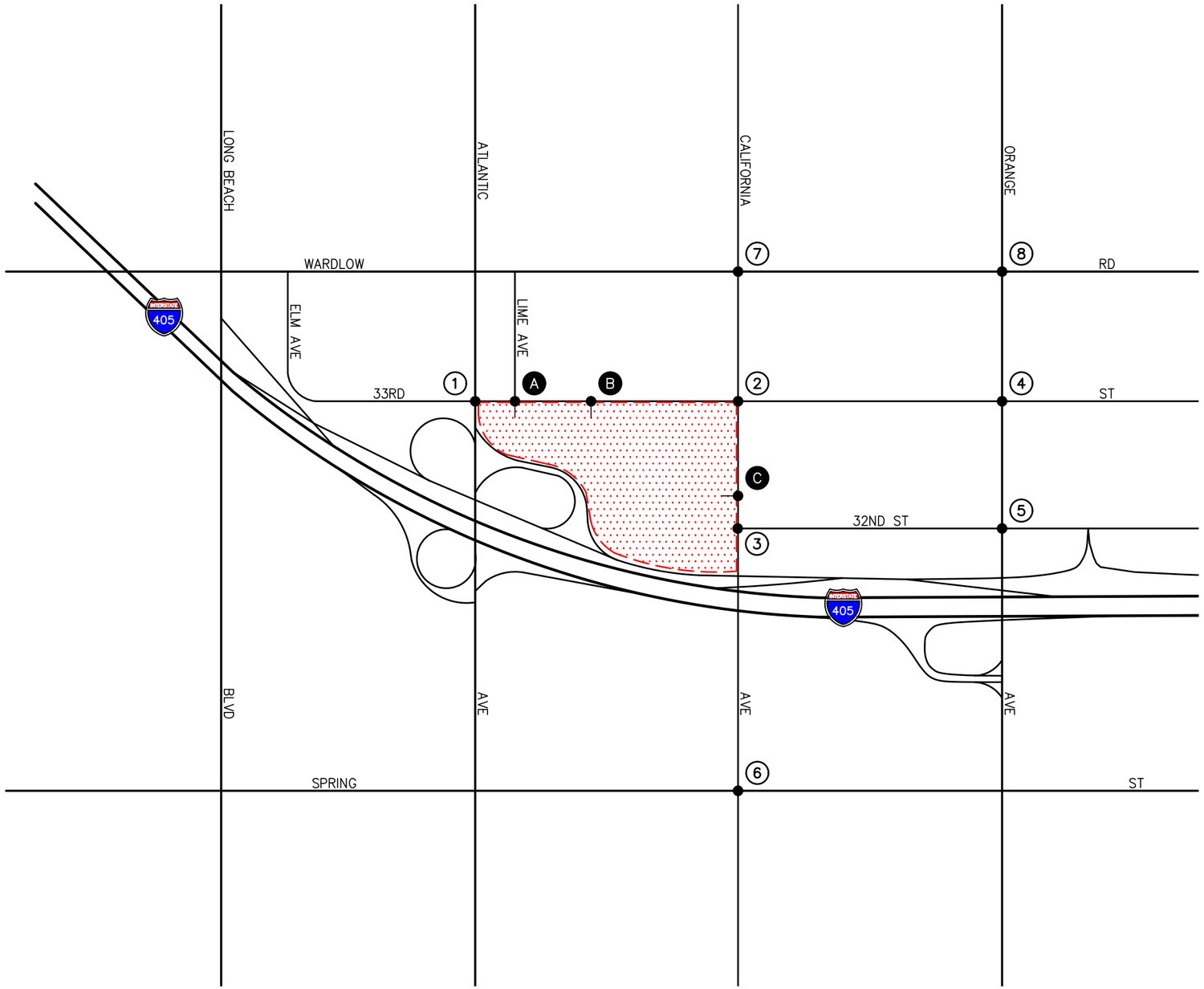
(#) = STUDY INTERSECTION

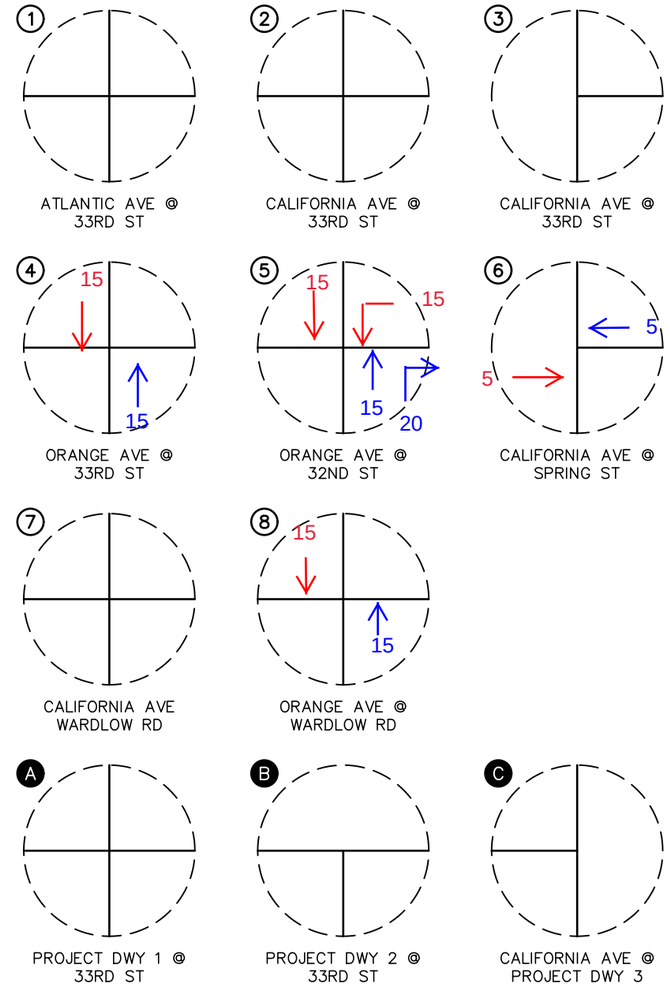
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

NO SCALE

24. Spring Street Industrial

Passenger vehicles

SOURCE: GOOGLE

KEY

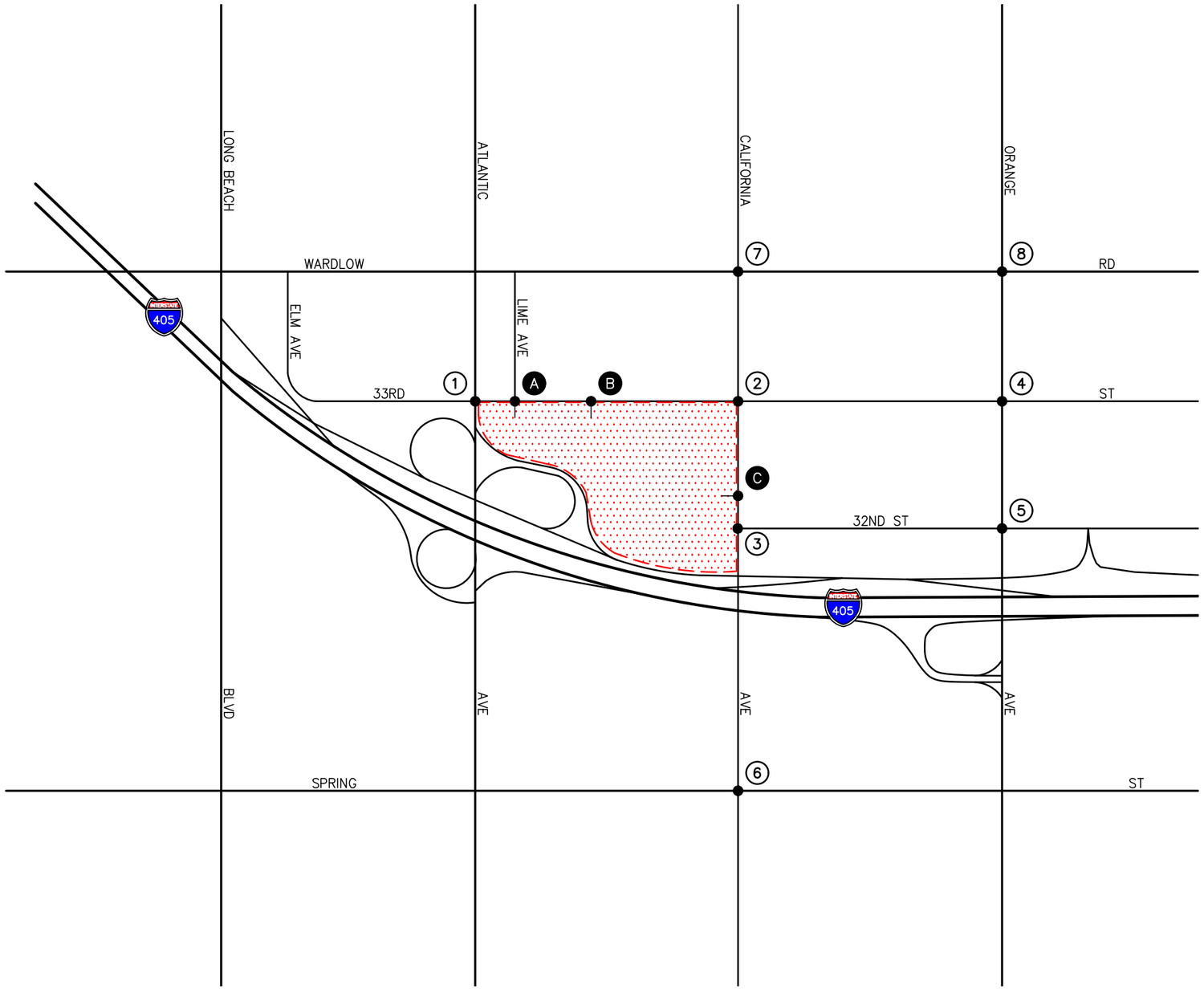
(#) = STUDY INTERSECTION

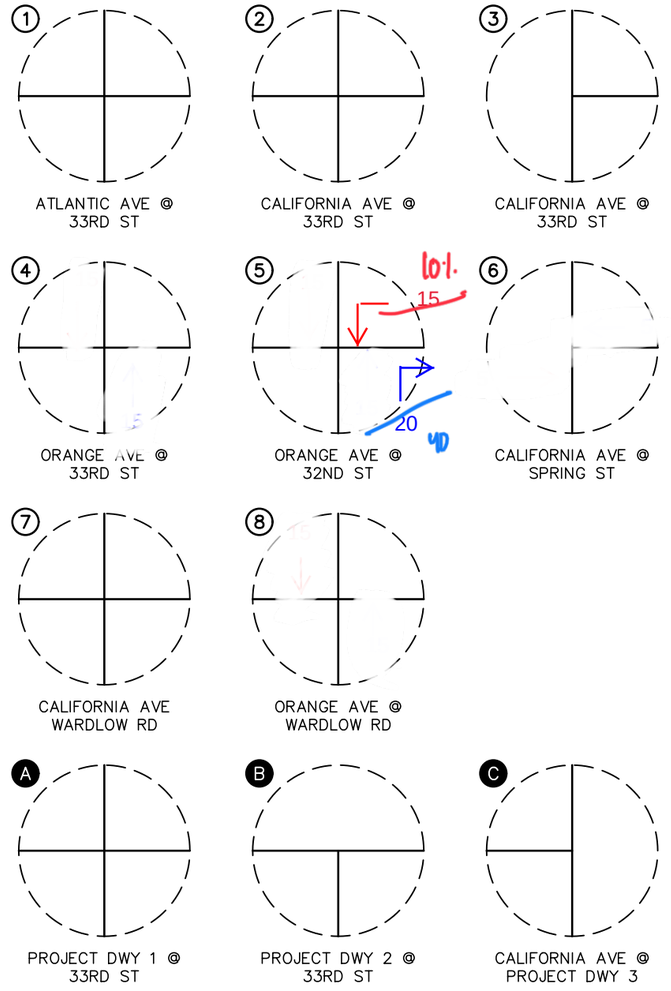
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

24. Spring Street Industrial

TRUCKS

SOURCE: GOOGLE

KEY

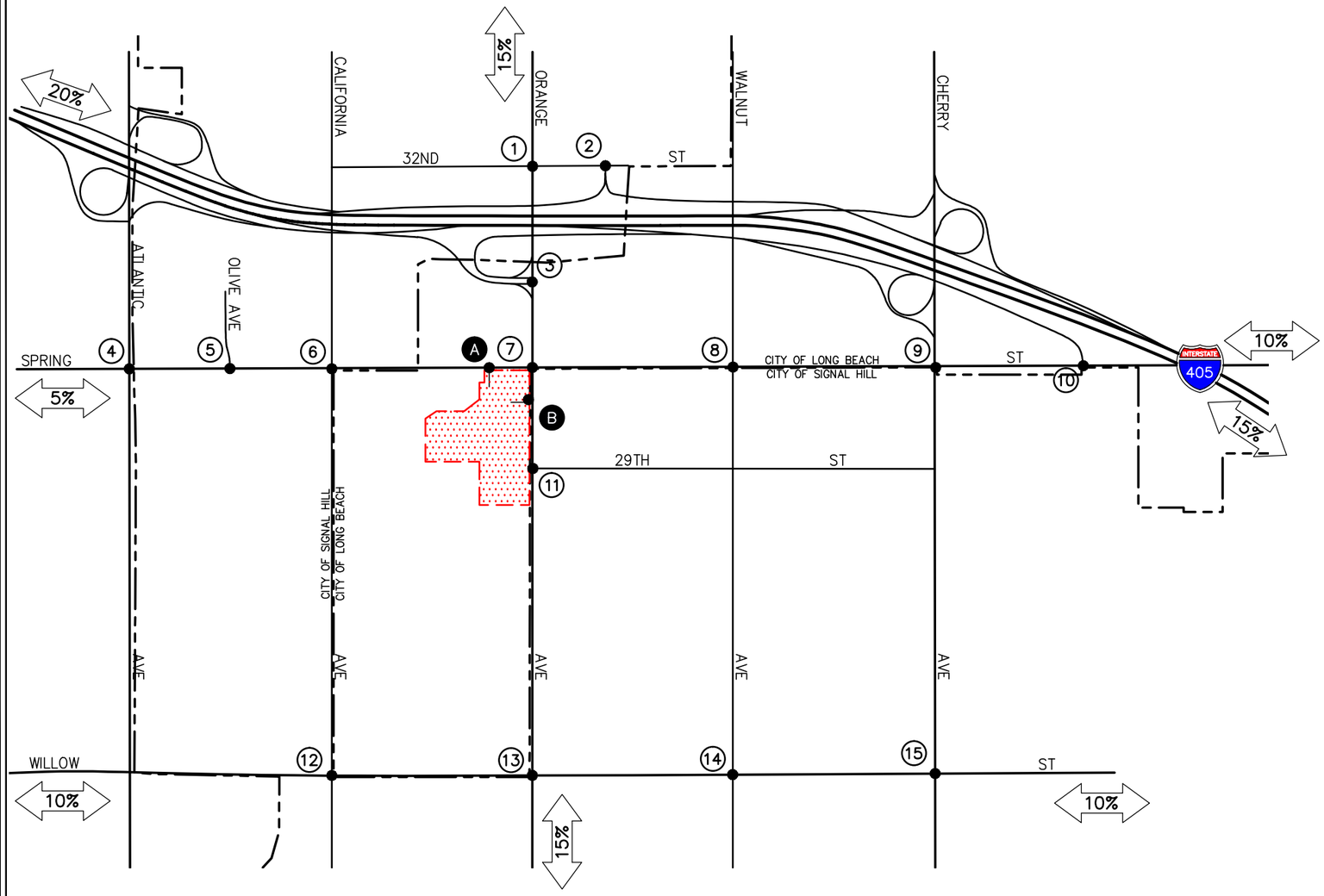
(#) = STUDY INTERSECTION

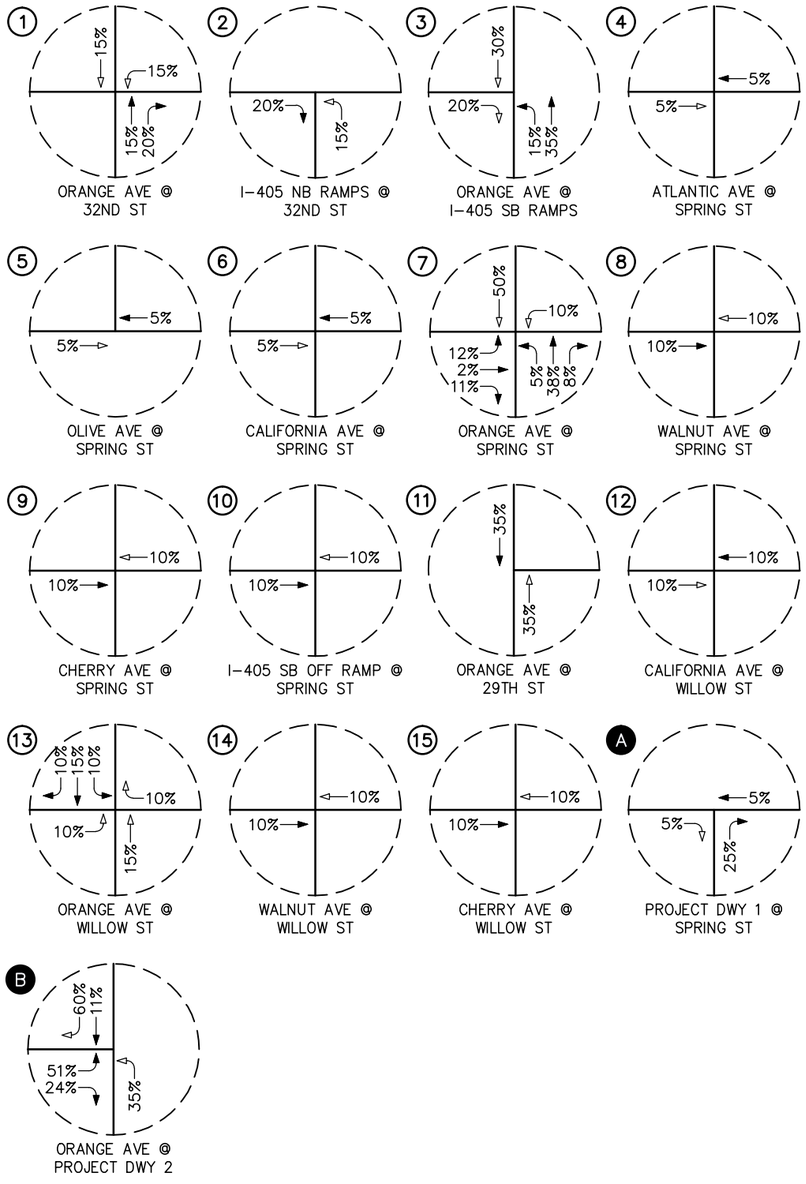
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

⟵ = INBOUND PERCENTAGE

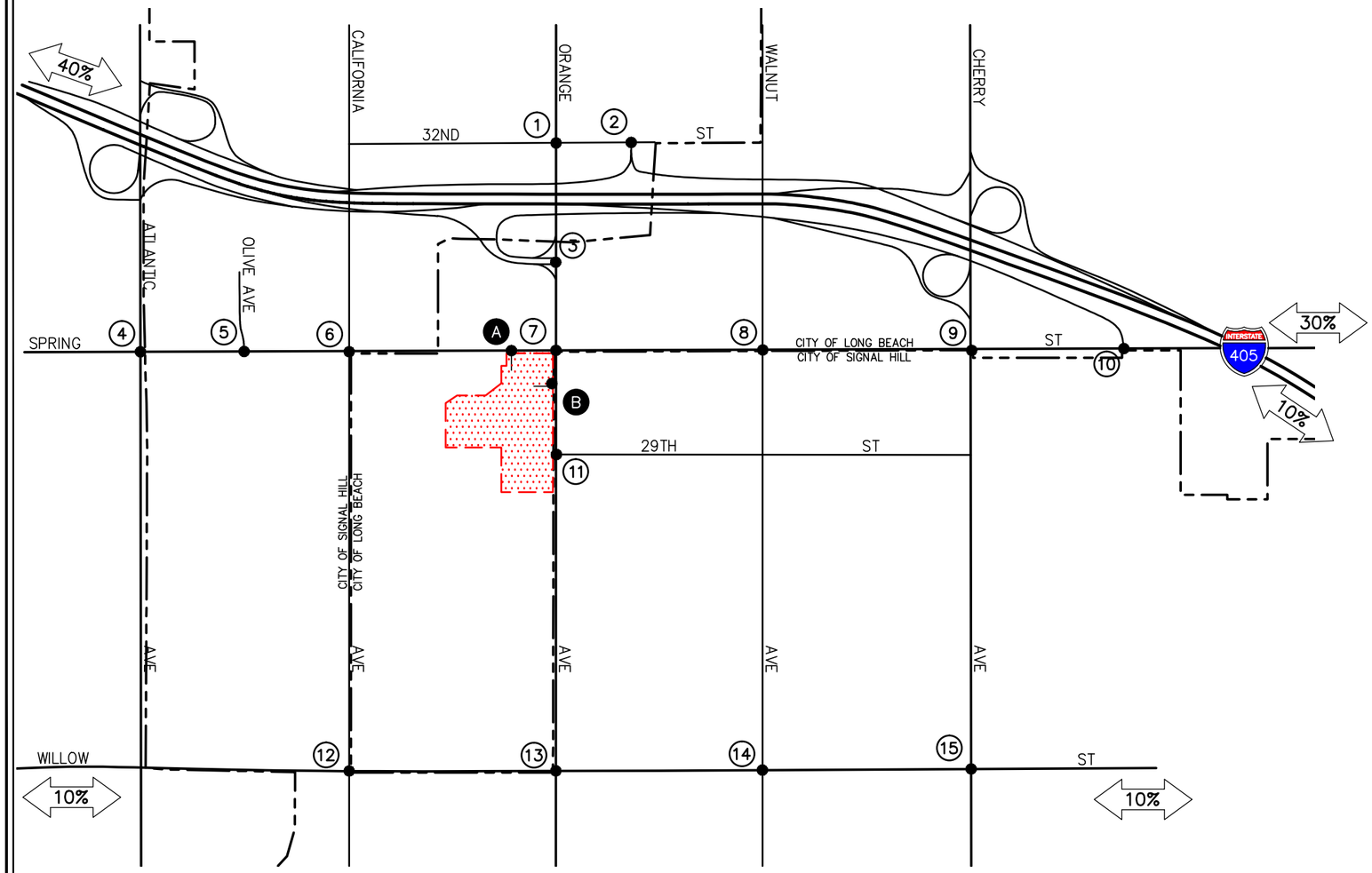
⟵ = OUTBOUND PERCENTAGE

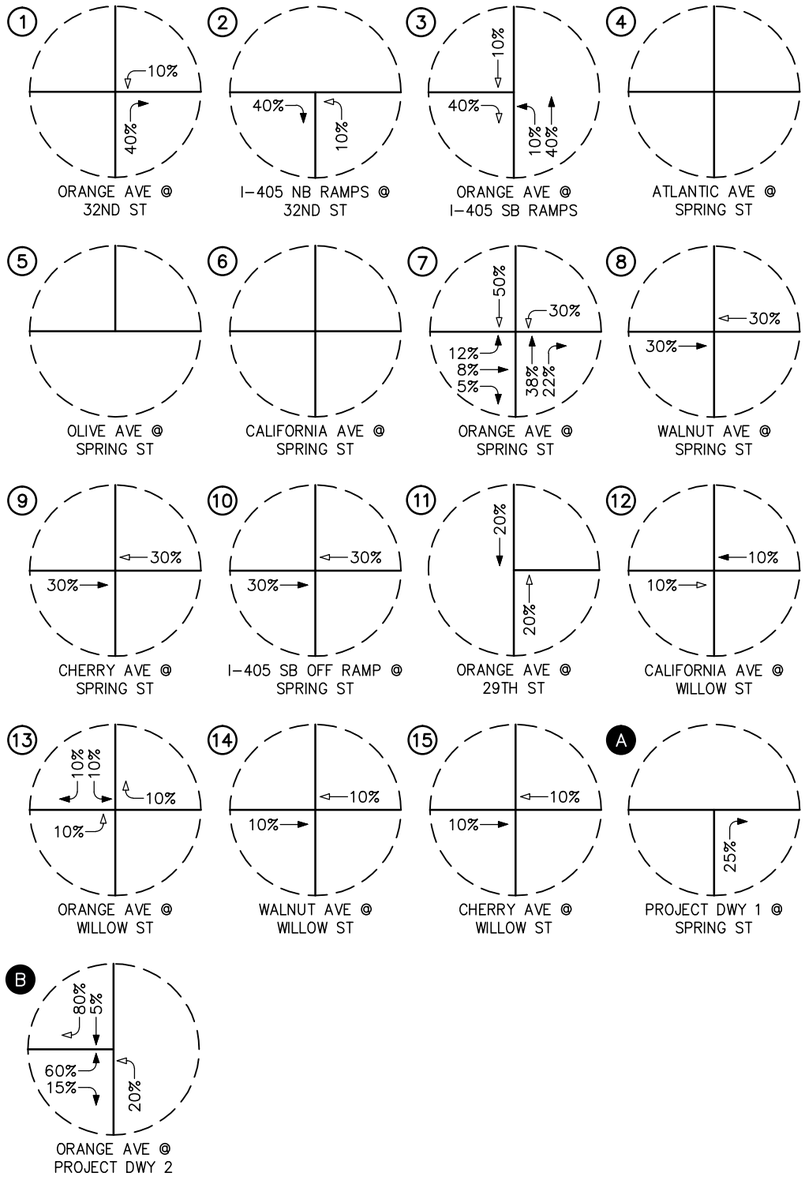
▭ = PROJECT SITE

FIGURE 5-1

PROJECT DISTRIBUTION – PASSENGER VEHICLES

SPRING STREET INDUSTRIAL, LONG BEACH





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

⟵ = INBOUND PERCENTAGE

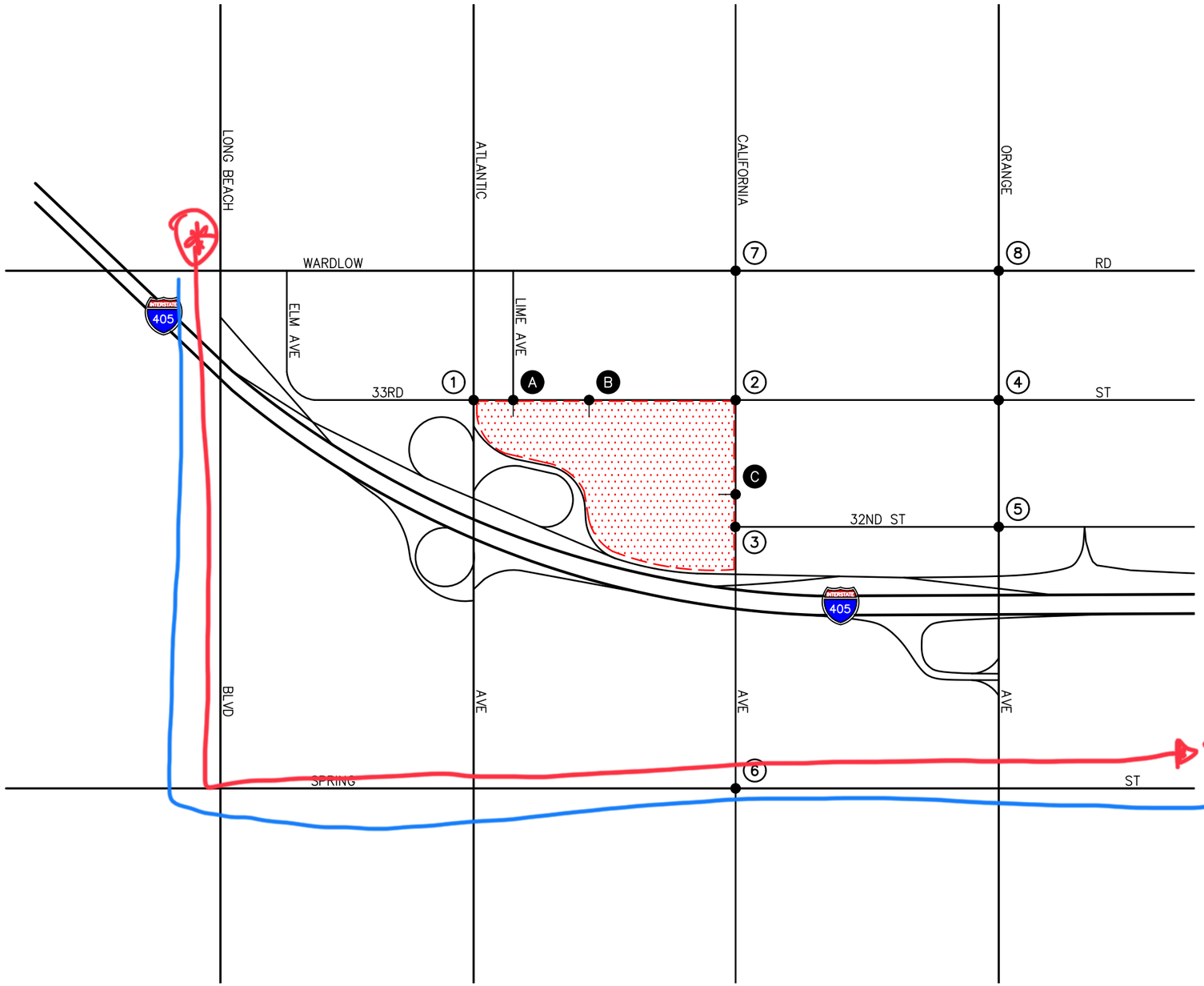
⟵ = OUTBOUND PERCENTAGE

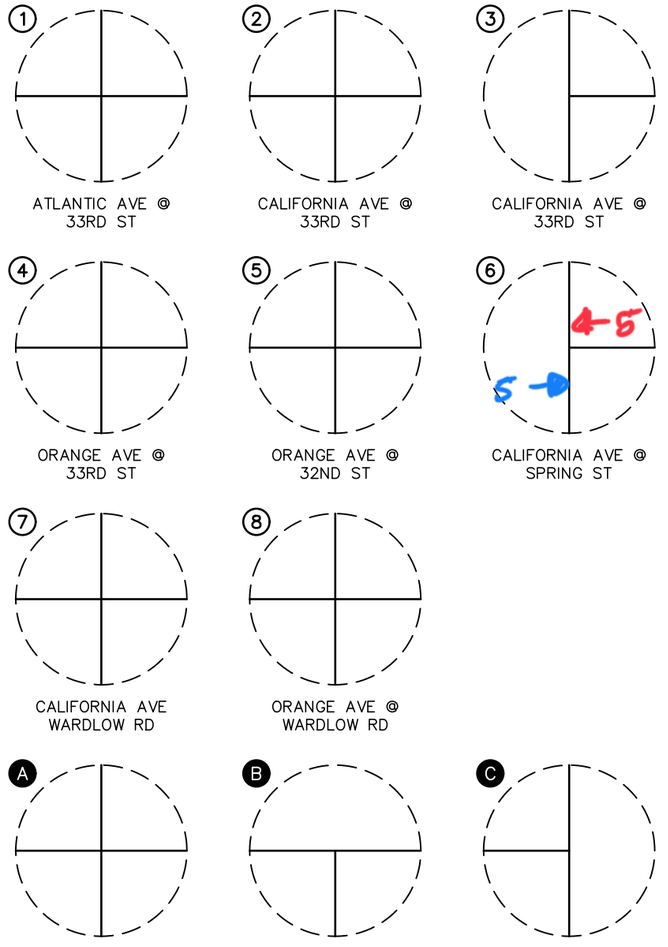
▭ = PROJECT SITE

FIGURE 5-2

PROJECT DISTRIBUTION – TRUCKS

SPRING STREET INDUSTRIAL, LONG BEACH





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

25. 1804-14

SOURCE: GOOGLE

KEY

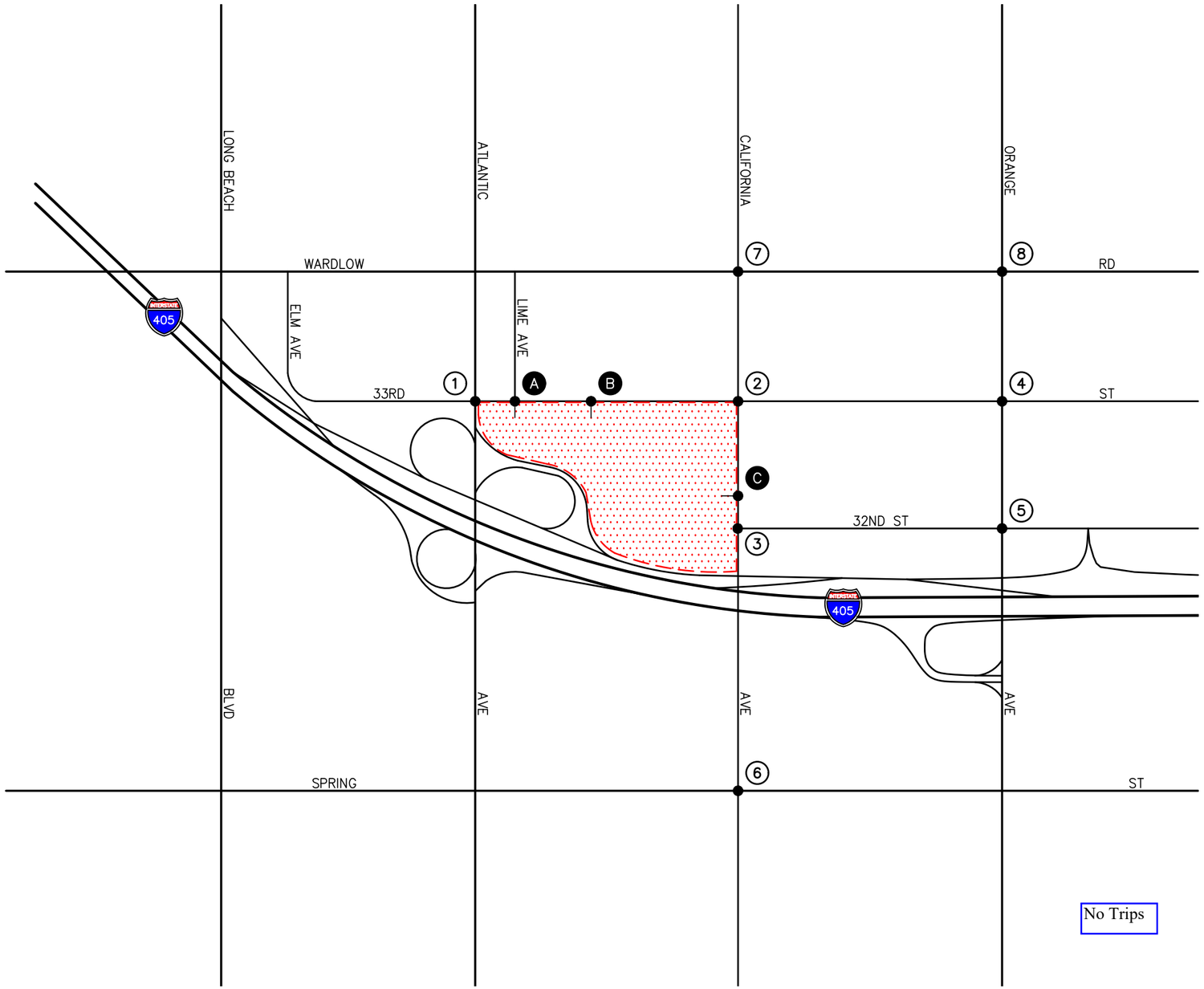
(#) = STUDY INTERSECTION

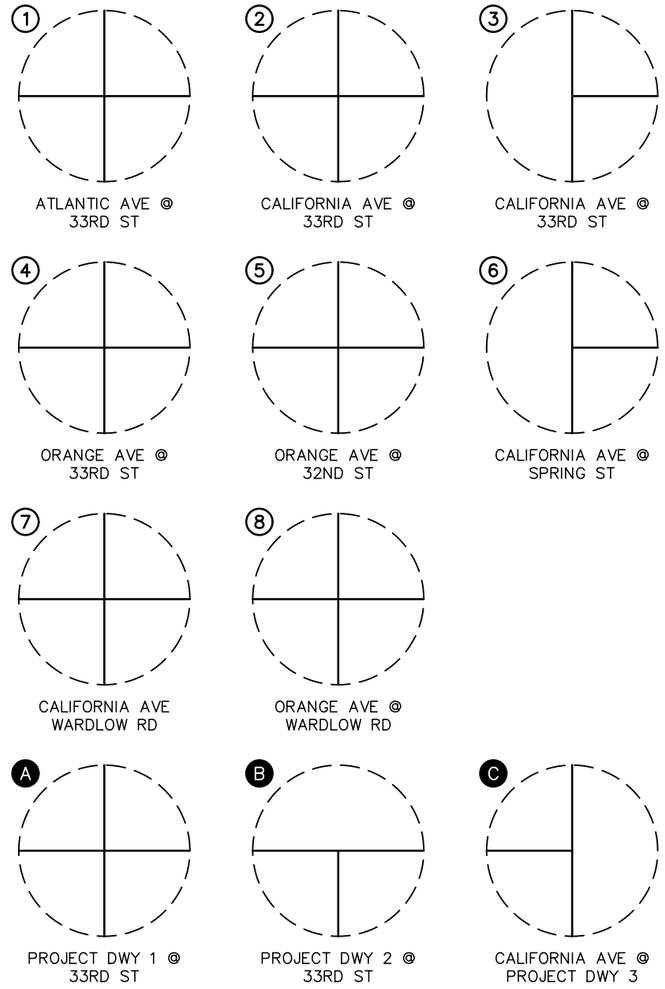
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

26. 1805-31
27. 2003-024

SOURCE: GOOGLE

KEY

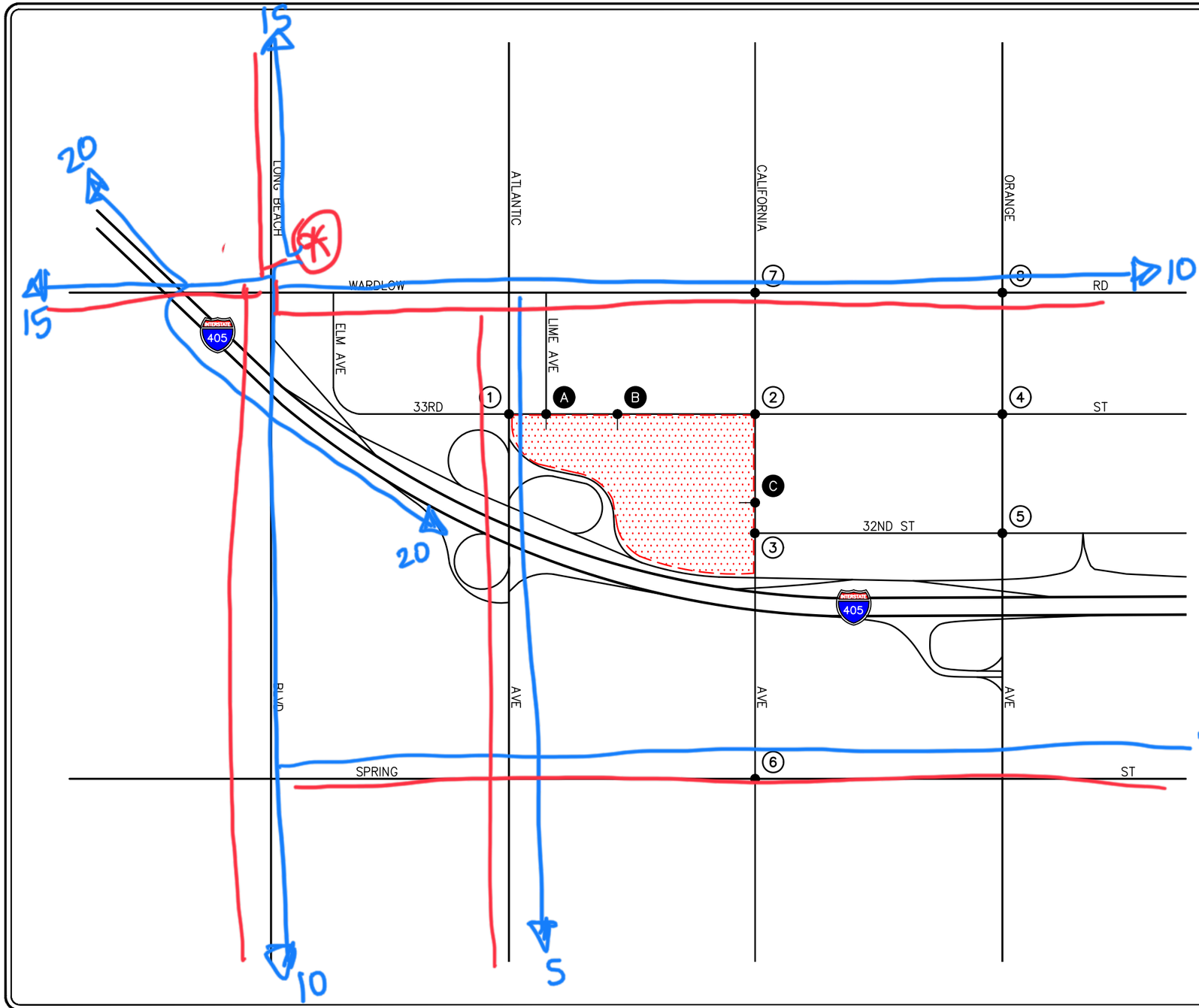
(#) = STUDY INTERSECTION

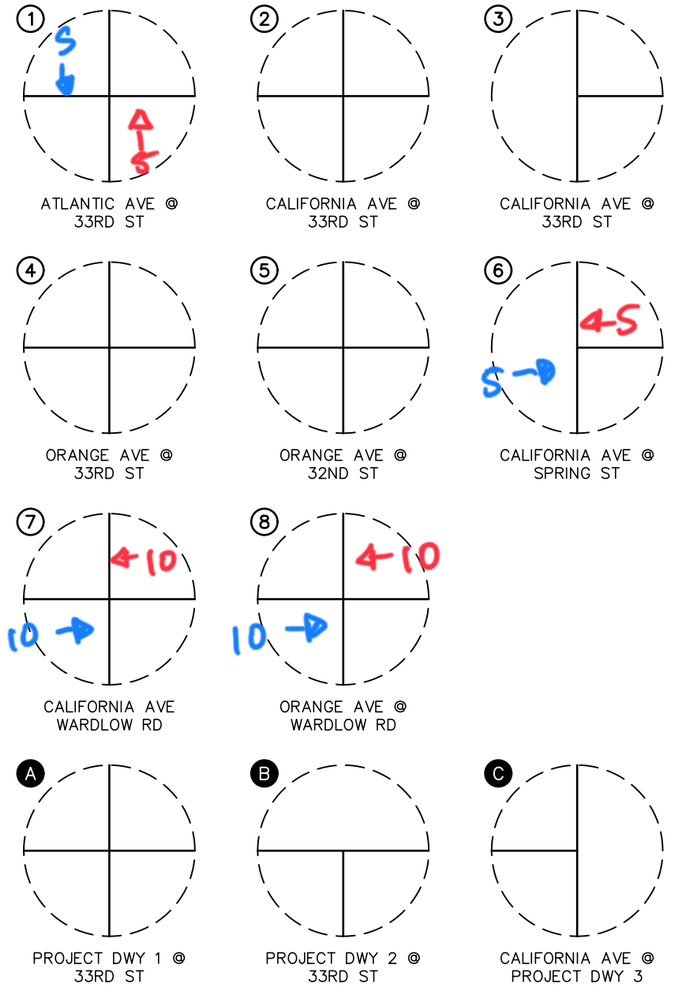
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

28. 2004-024

SOURCE: GOOGLE

KEY

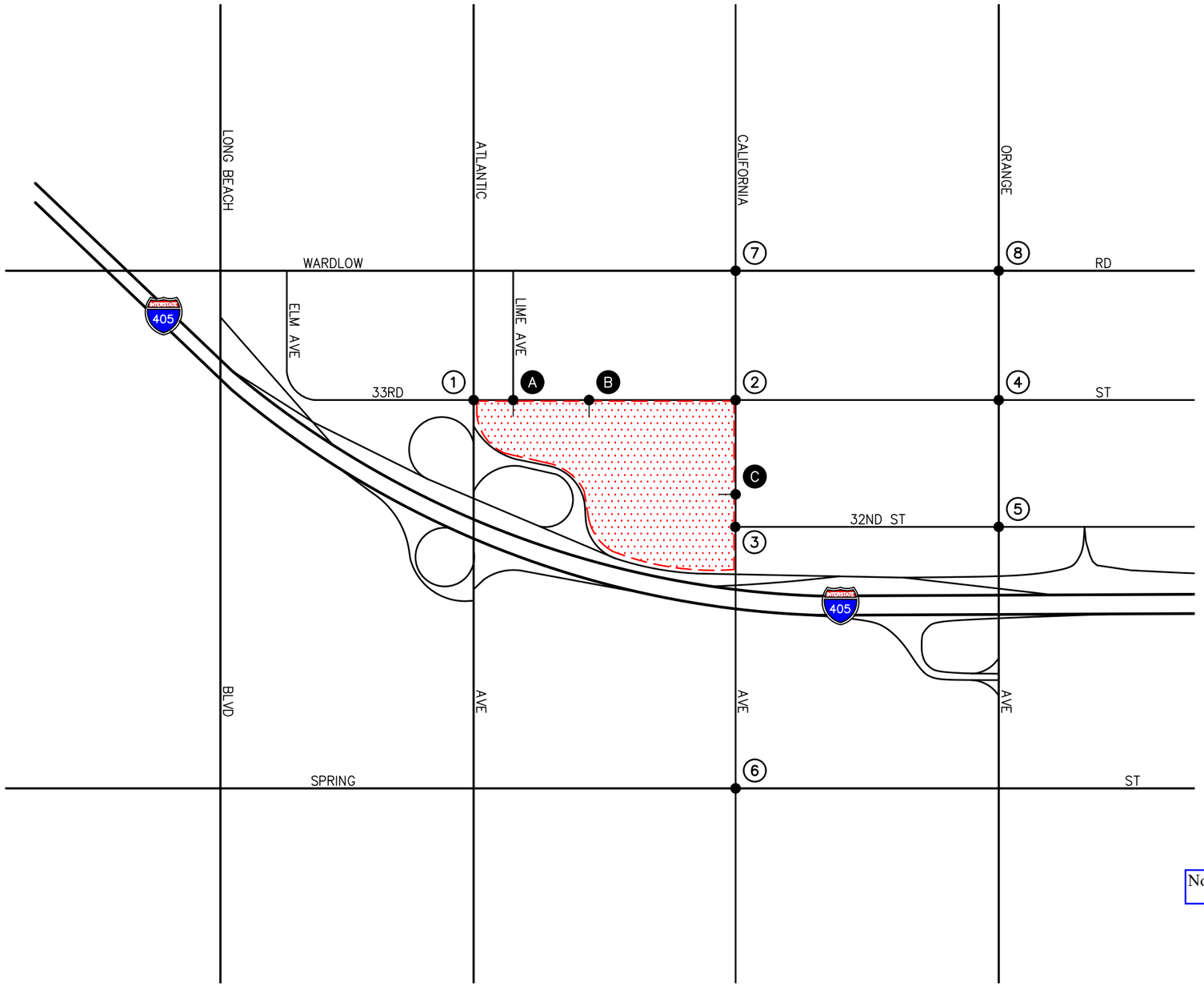
(#) = STUDY INTERSECTION

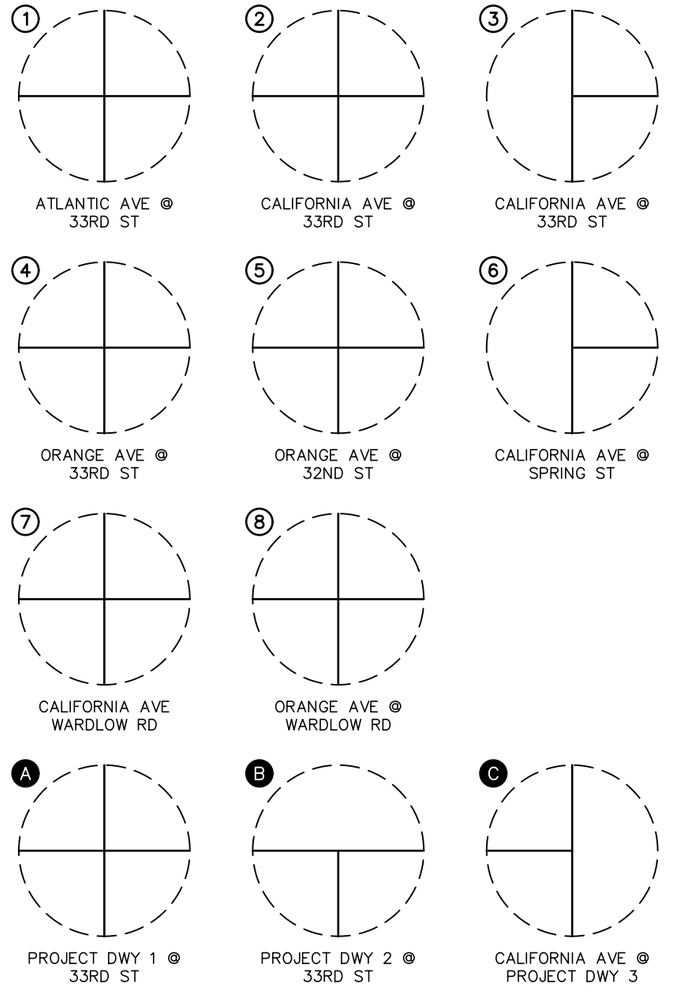
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

29. 1406-12A
30. 1707-10
31. 1805-03

SOURCE: GOOGLE

KEY

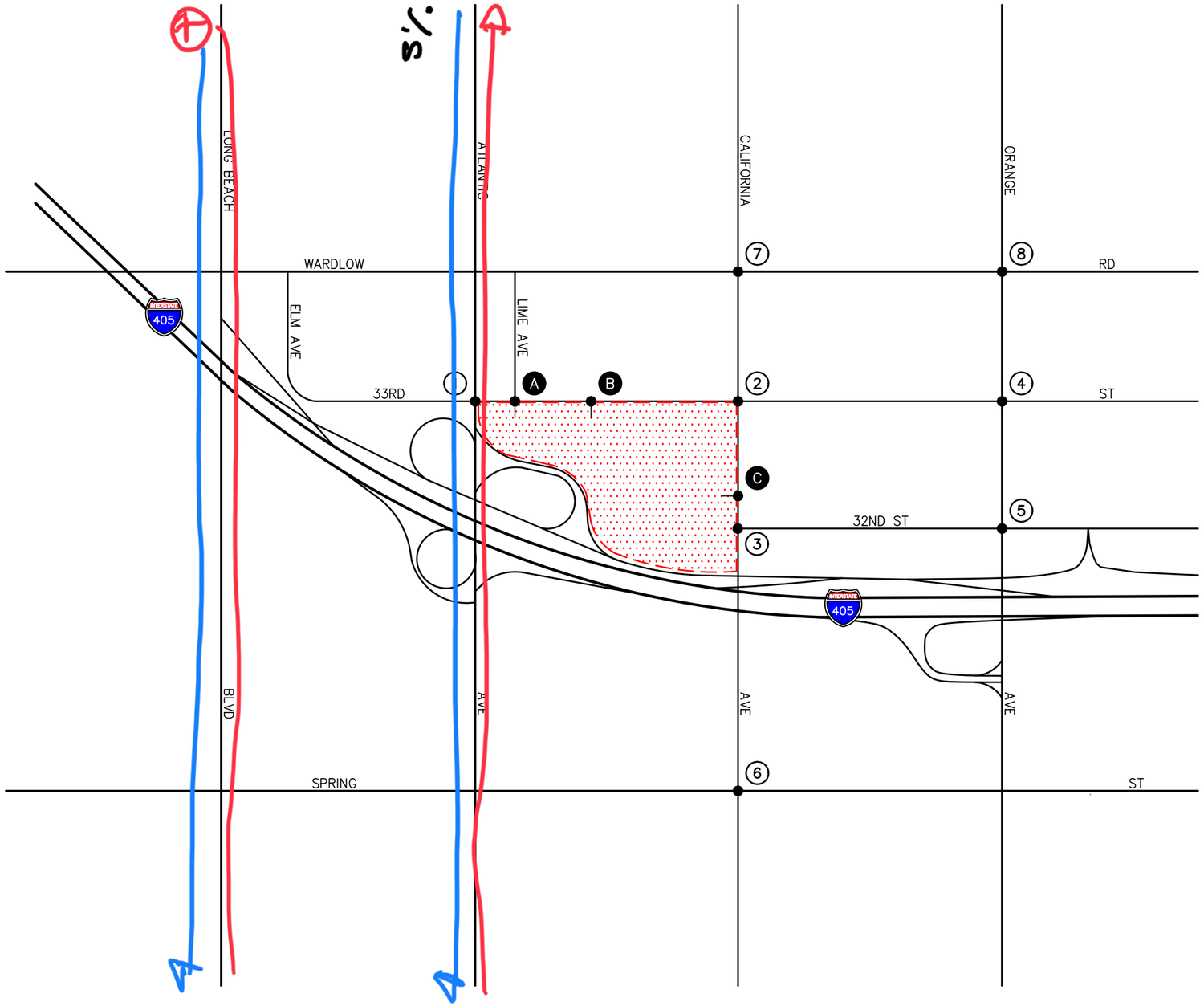
(#) = STUDY INTERSECTION

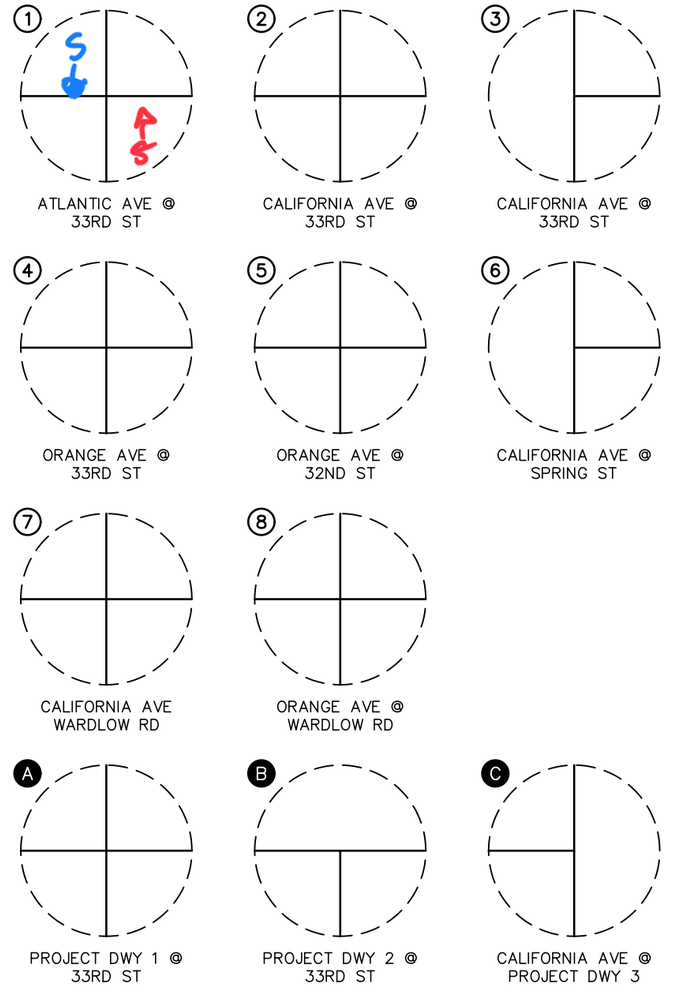
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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N NO SCALE

32. 1905-29

SOURCE: GOOGLE

KEY

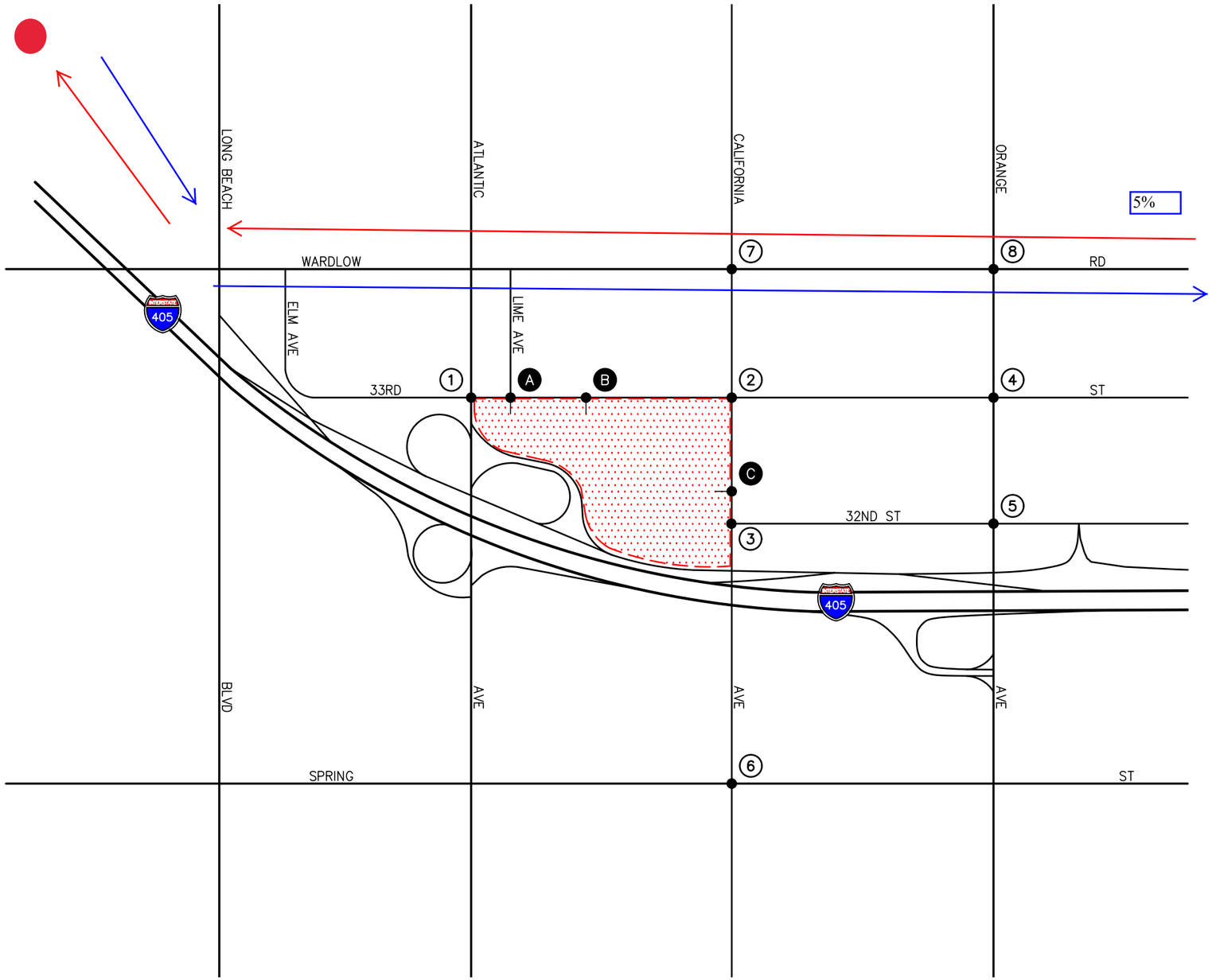
(#) = STUDY INTERSECTION

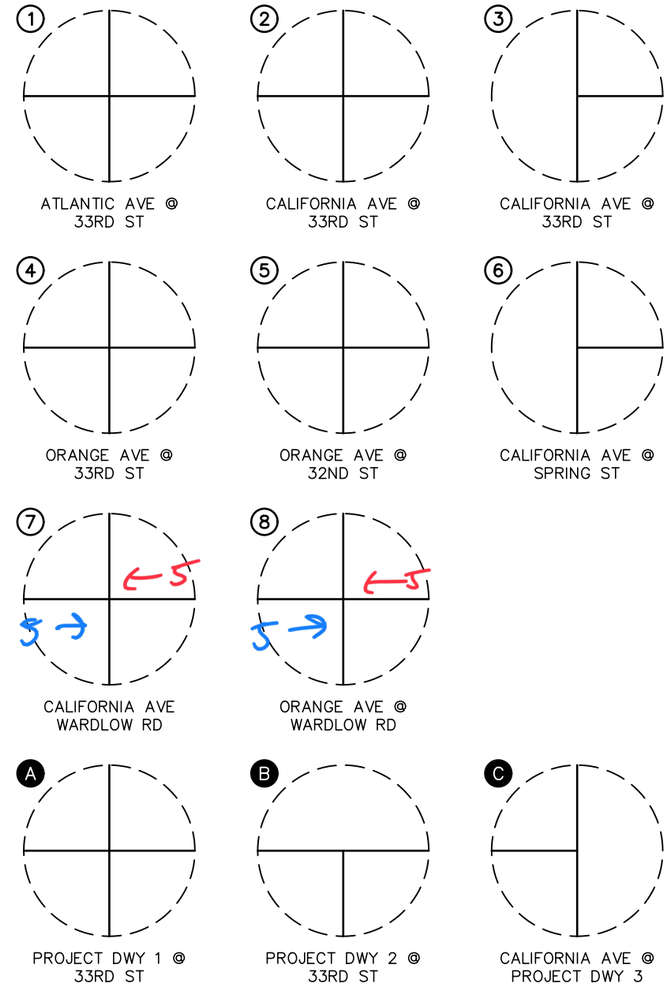
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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N NO SCALE

33. 2005-08

SOURCE: GOOGLE

KEY

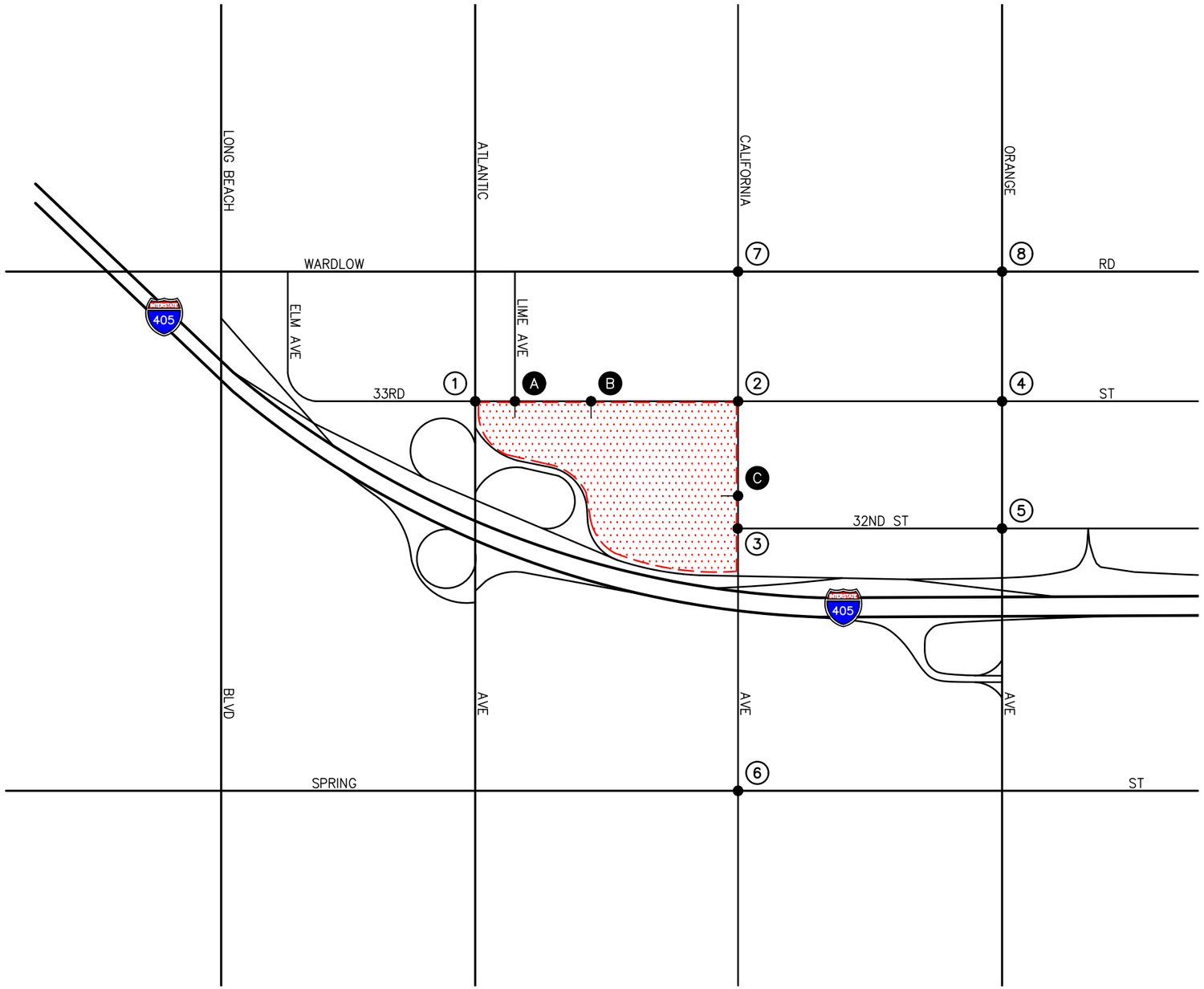
(#) = STUDY INTERSECTION

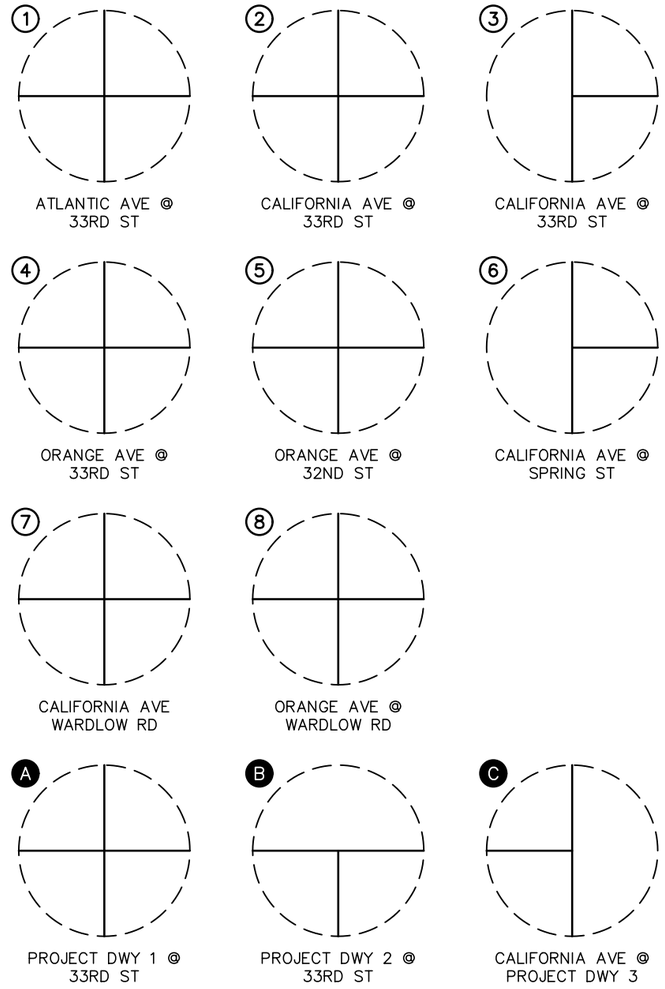
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





No Trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

34. Las Ventanas Apts

SOURCE: GOOGLE

KEY

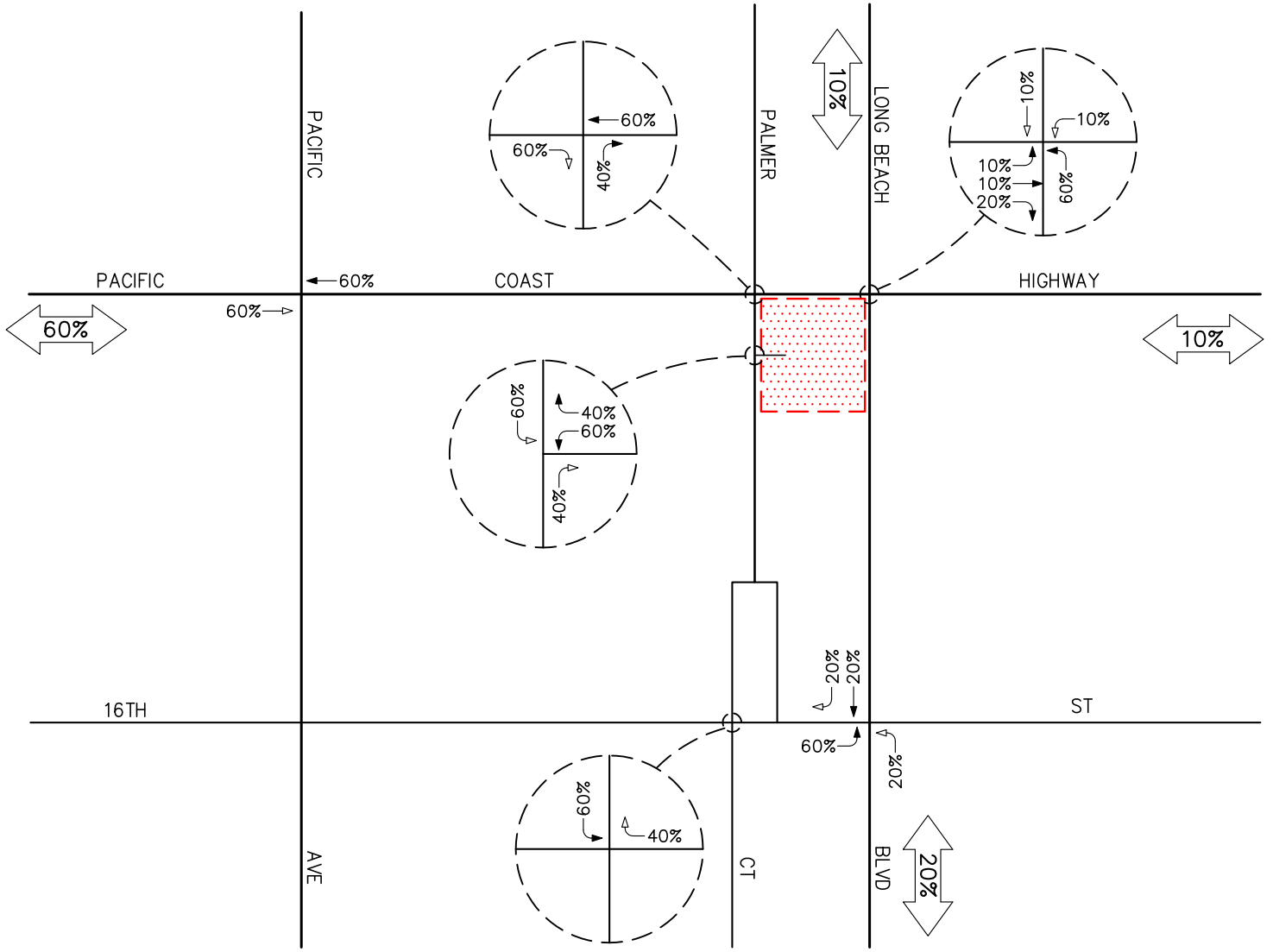
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= INBOUND PERCENTAGE

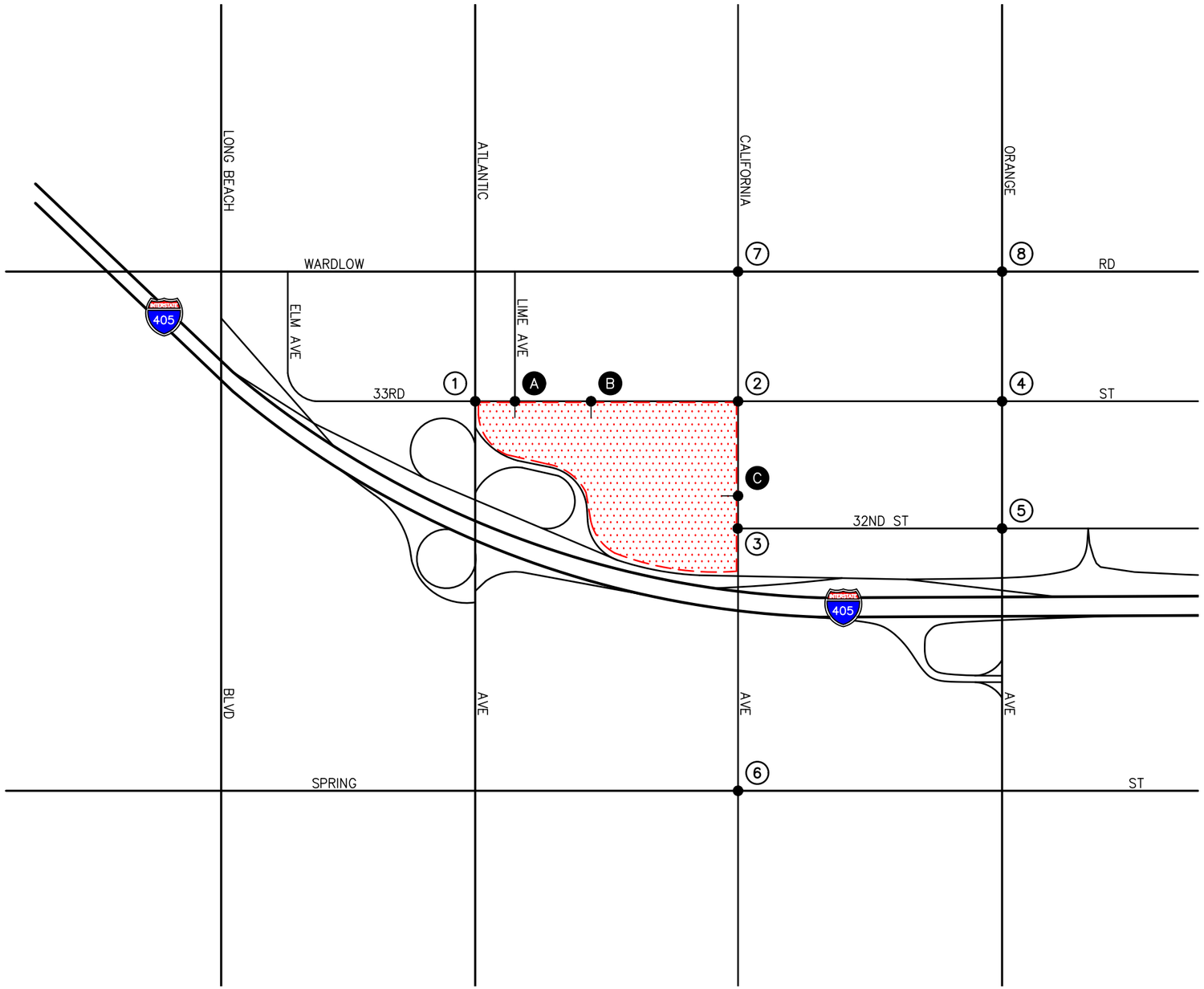
= OUTBOUND PERCENTAGE

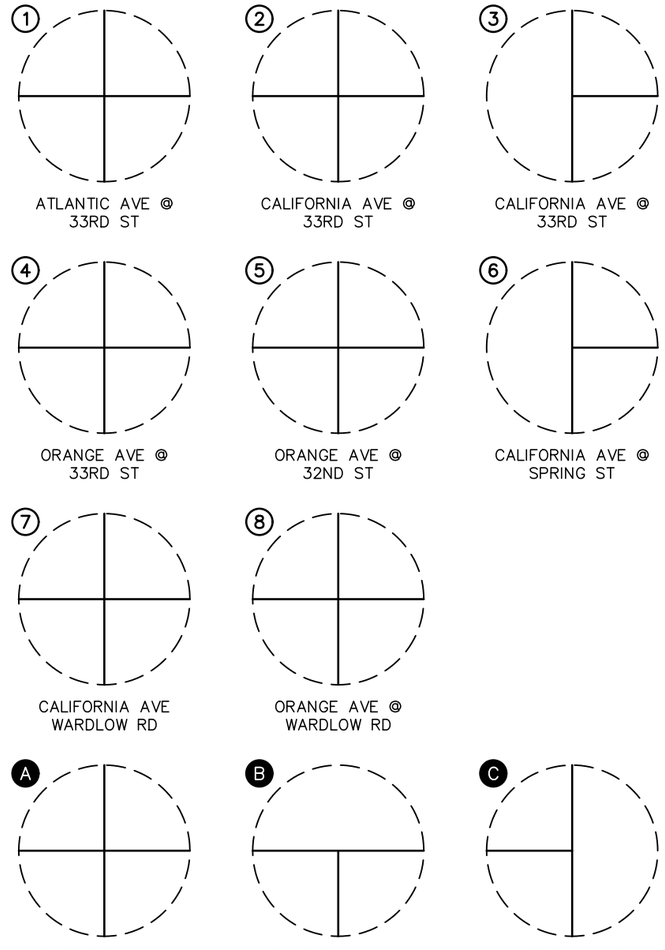
= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

1795 LONG BEACH BOULEVARD, LONG BEACH





no trips

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LINSCOTT LAW & GREENSPAN engineers

NO SCALE

35. Mendoza Project

SOURCE: GOOGLE

KEY

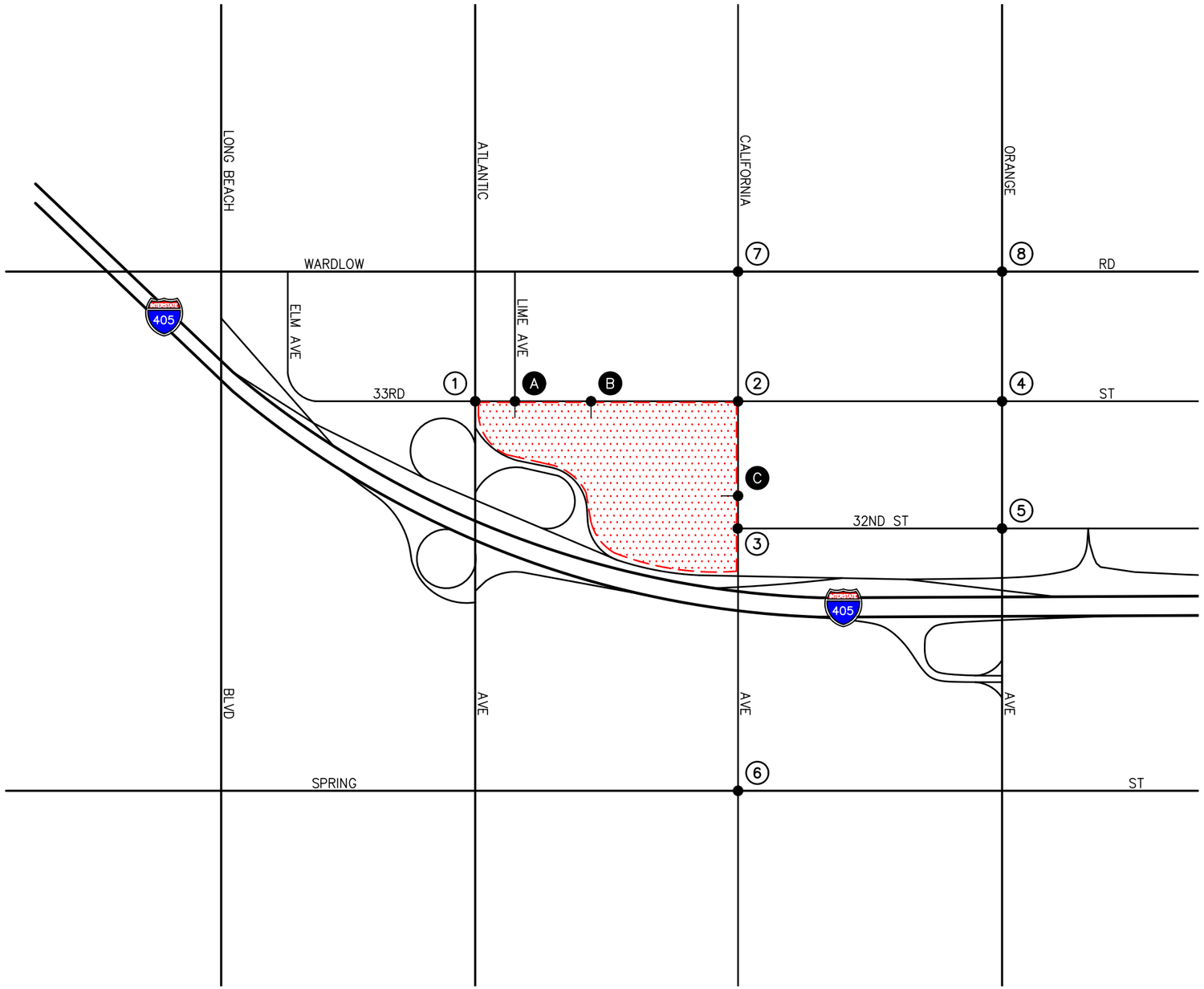
(#) = STUDY INTERSECTION

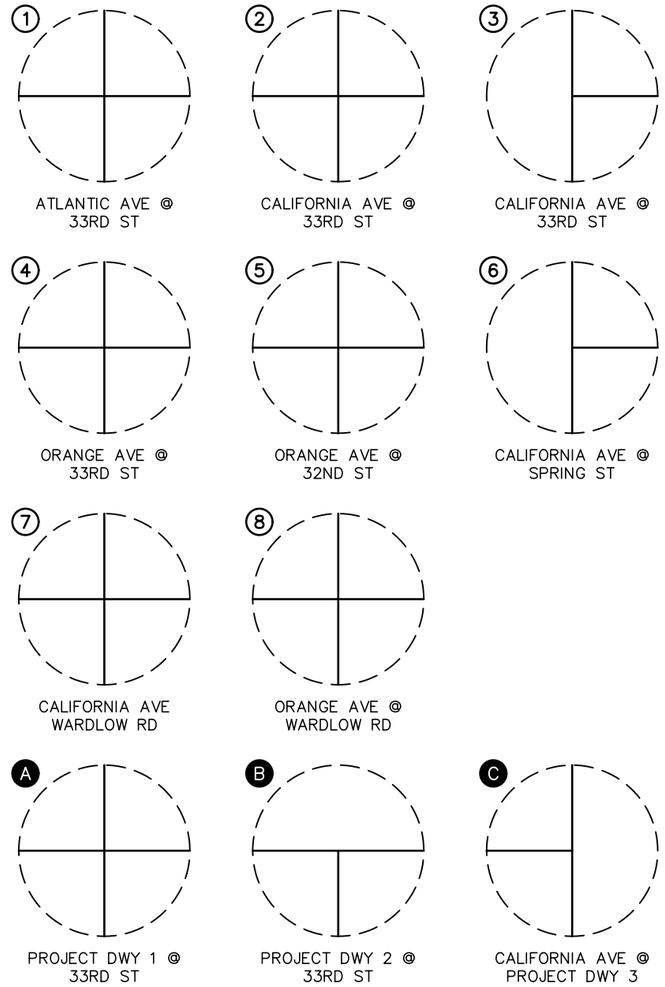
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





no trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

36. 1807-12

SOURCE: GOOGLE

KEY

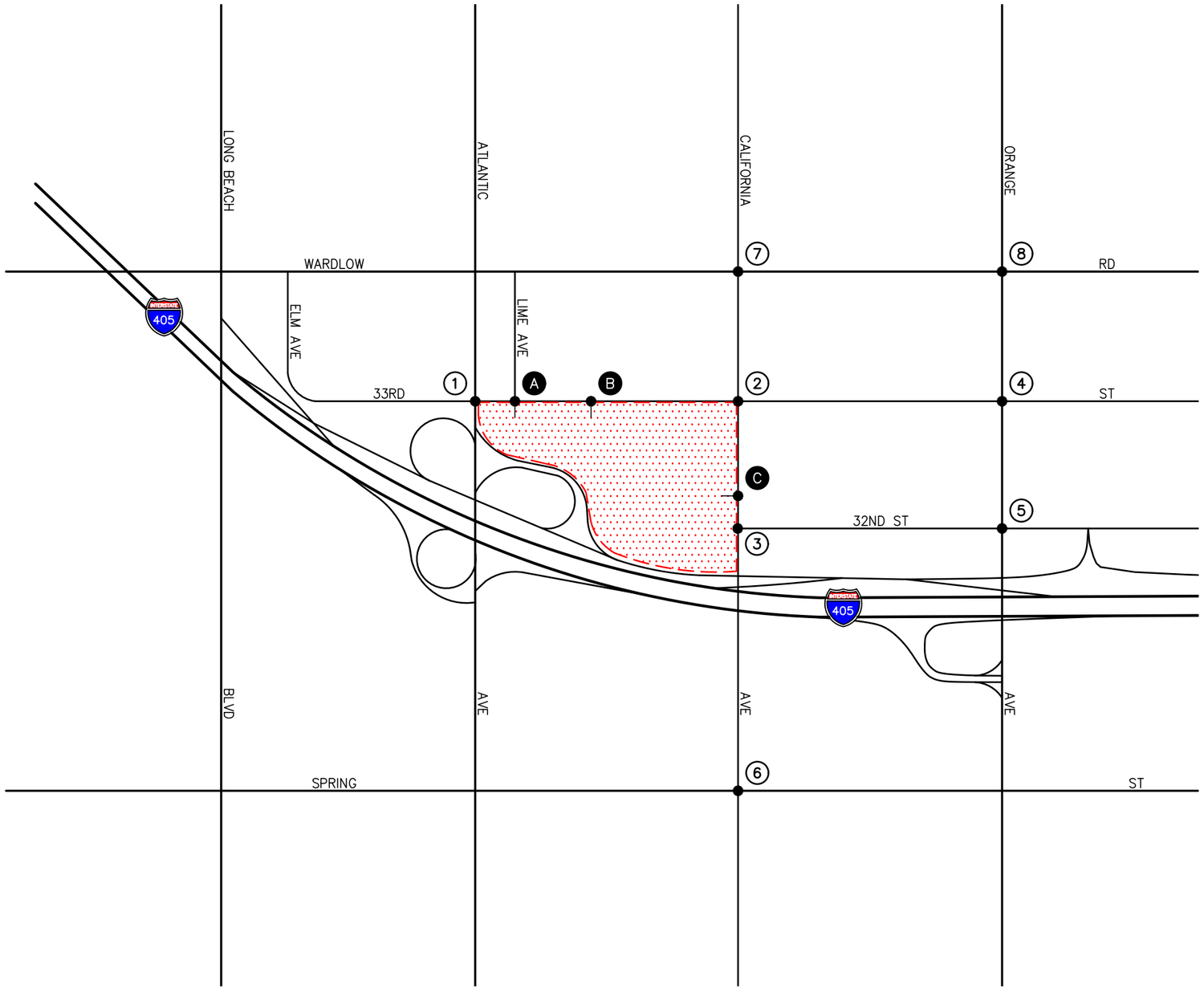
(#) = STUDY INTERSECTION

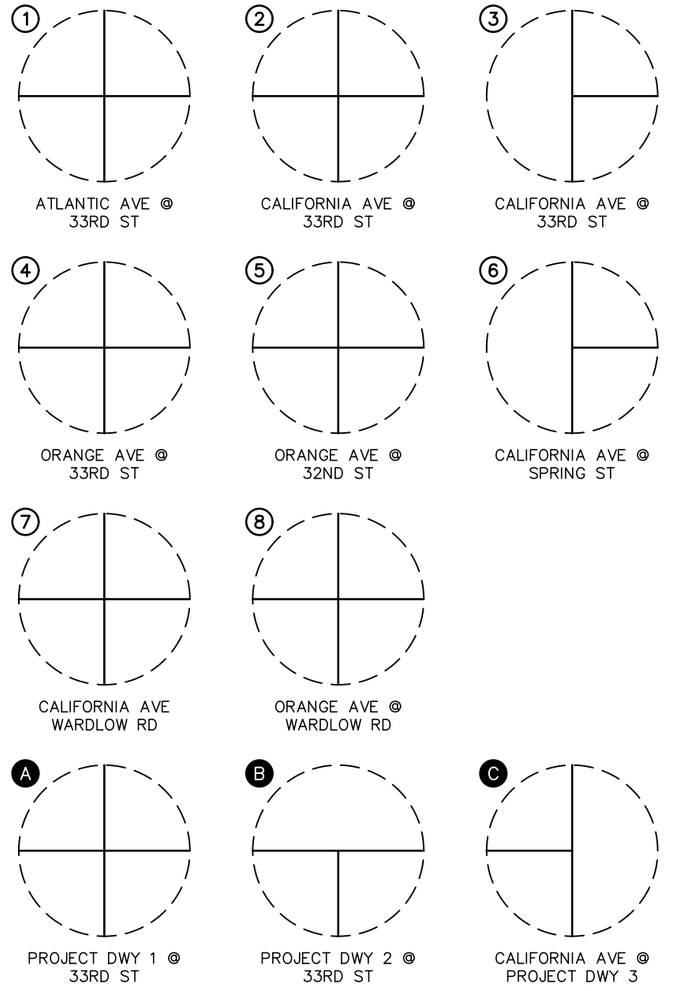
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





no trips

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

37. 1810-23

SOURCE: GOOGLE

KEY

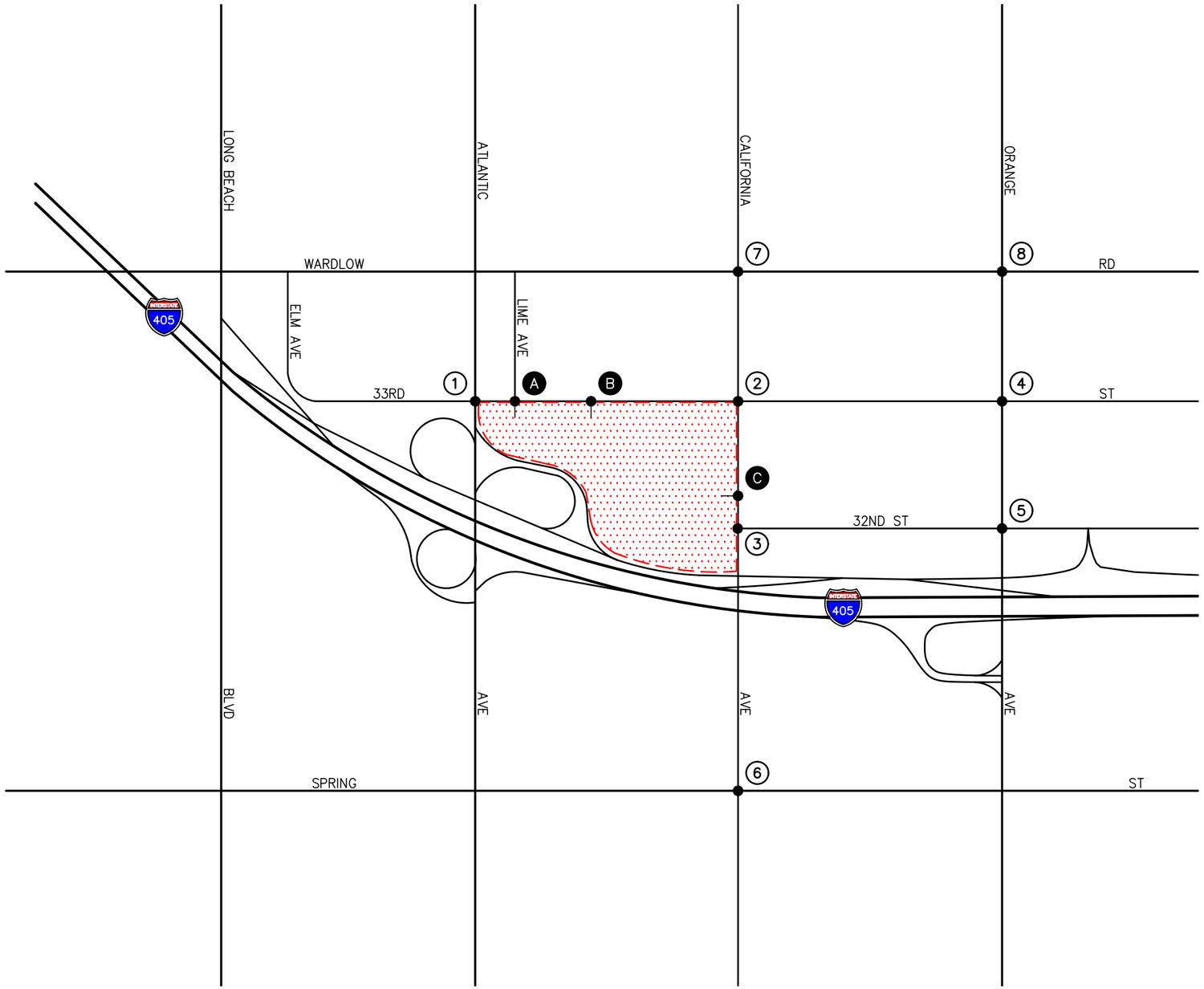
(#) = STUDY INTERSECTION

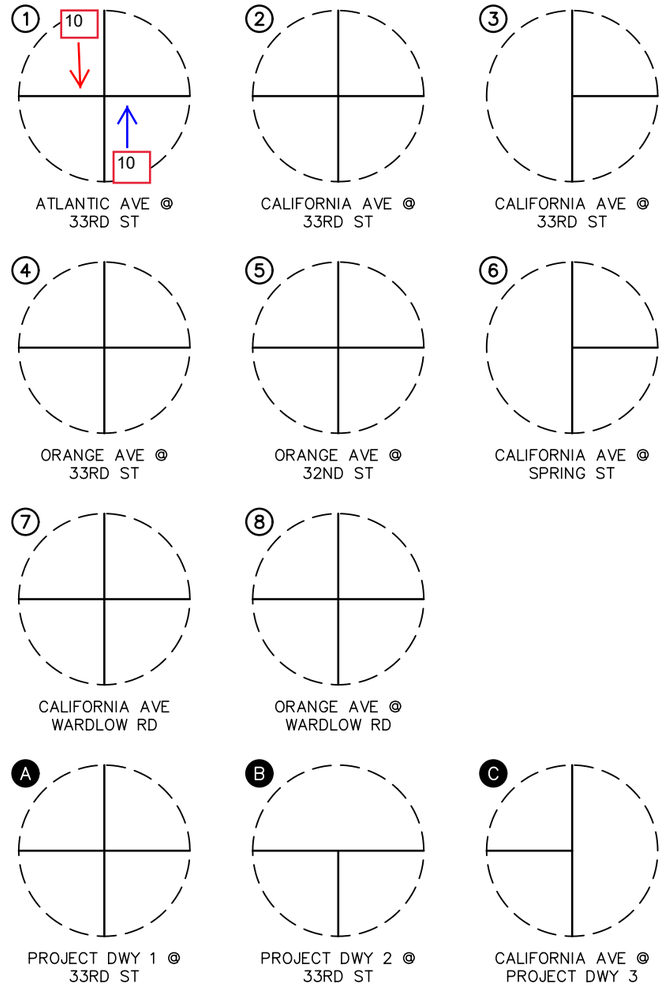
= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL





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LINSCOTT LAW & GREENSPAN engineers

NO SCALE

38. 1910-23

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE

RELATED PROJECT DISTRIBUTION

TARGET RETAIL CENTER & SELF STORAGE, SIGNAL HILL