

Appendix G

Inland Star Transportation Impact Analysis



Inland Star

Draft Transportation Impact Analysis

Prepared for:
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1. INTRODUCTION

This report documents the assumptions, methodologies, and findings of a transportation impact study conducted by Fehr & Peers to evaluate the potential traffic impacts of the Carson Inland Star Distribution Center in the City of Carson, California. The project is located on Dominguez Street, east of Wilmington Avenue and north of the Interstate 405 (I-405), in the eastern portion of the City.

PROJECT DESCRIPTION

The Project is located in the City of Carson in the South Bay area of Los Angeles County approximately fifteen miles south of downtown Los Angeles and approximately 10 miles east of the Pacific Ocean. The Project site is bounded by industrial land uses to the south, east and west and Dominguez Street to the north. The site currently occupies 188,495 square foot of an existing 254,411 square foot industrial warehouse building, which is part of an established industrial park. Access to the Project is provided by one shared driveway to the Industrial Park off Dominguez Street. . In 2014 the Applicant entered into a lease for the project site and upgraded the warehouse facility to accommodate a packaged chemical warehouse operation in full compliance with the most current State regulations. No additional square footage or loading docks were added. Facility upgrades included dividing the building into four segregated storage areas (A through D); each individual storage area functions as its own separate building Figure 1 illustrates the Project site and study area. Figure 2 includes the site plan.

STUDY SCOPE

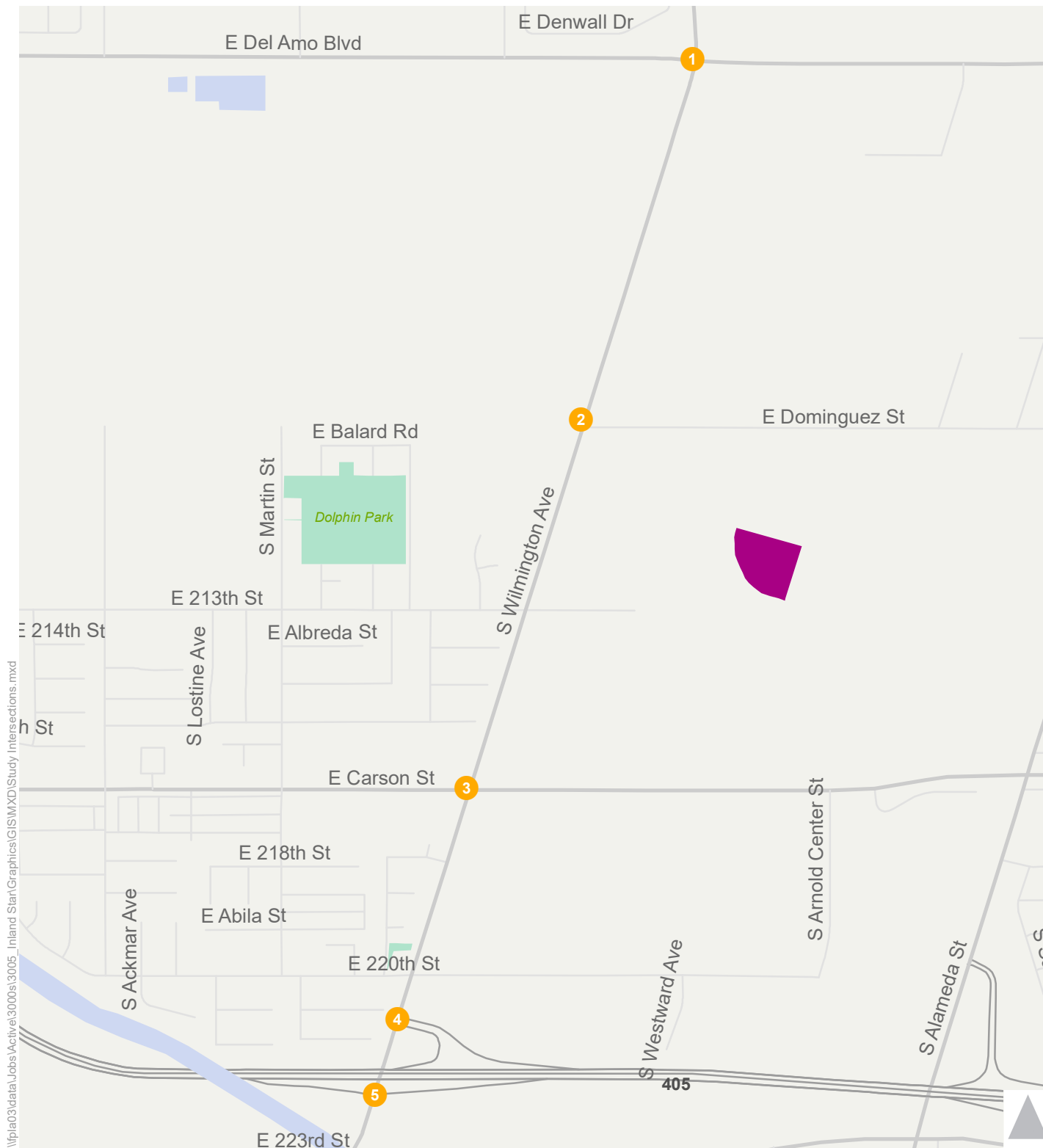
The scope of work for this study was determined in conjunction with the City of Carson's Transportation staff.

Traffic Scenarios

As the Project has been operational since 2015, the study analyzes the potential project-generated traffic impacts on the local street system retroactively. The following traffic scenarios have been developed and analyzed as part of this study:

- Existing Conditions – The existing conditions analysis includes a description of the transportation system serving the Project site, existing 2018 traffic volumes, and an assessment of the operating conditions at the study analysis locations described below.
- Existing Base Conditions – As the project is currently operational and the project trips are included in the existing 2018 traffic counts, an existing baseline scenario was developed to provide a basis for the impact analysis which represents traffic conditions without the operation of the project facility. The trip generation, distribution, and assignment of project trips were developed and subtracted from the existing counts to develop the existing base conditions as described in detail in Chapter 3.
- Existing Base plus Project Conditions – This traffic scenario provides an assessment of operating conditions with the Project site in operation. The impacts of the Project on existing traffic operating conditions were then identified. This scenario is the same as the existing conditions scenario. This scenario and the Project volume development is described in detail in Chapter 4.





- Study Intersections
- Project Site



Figure 1
Study Intersections

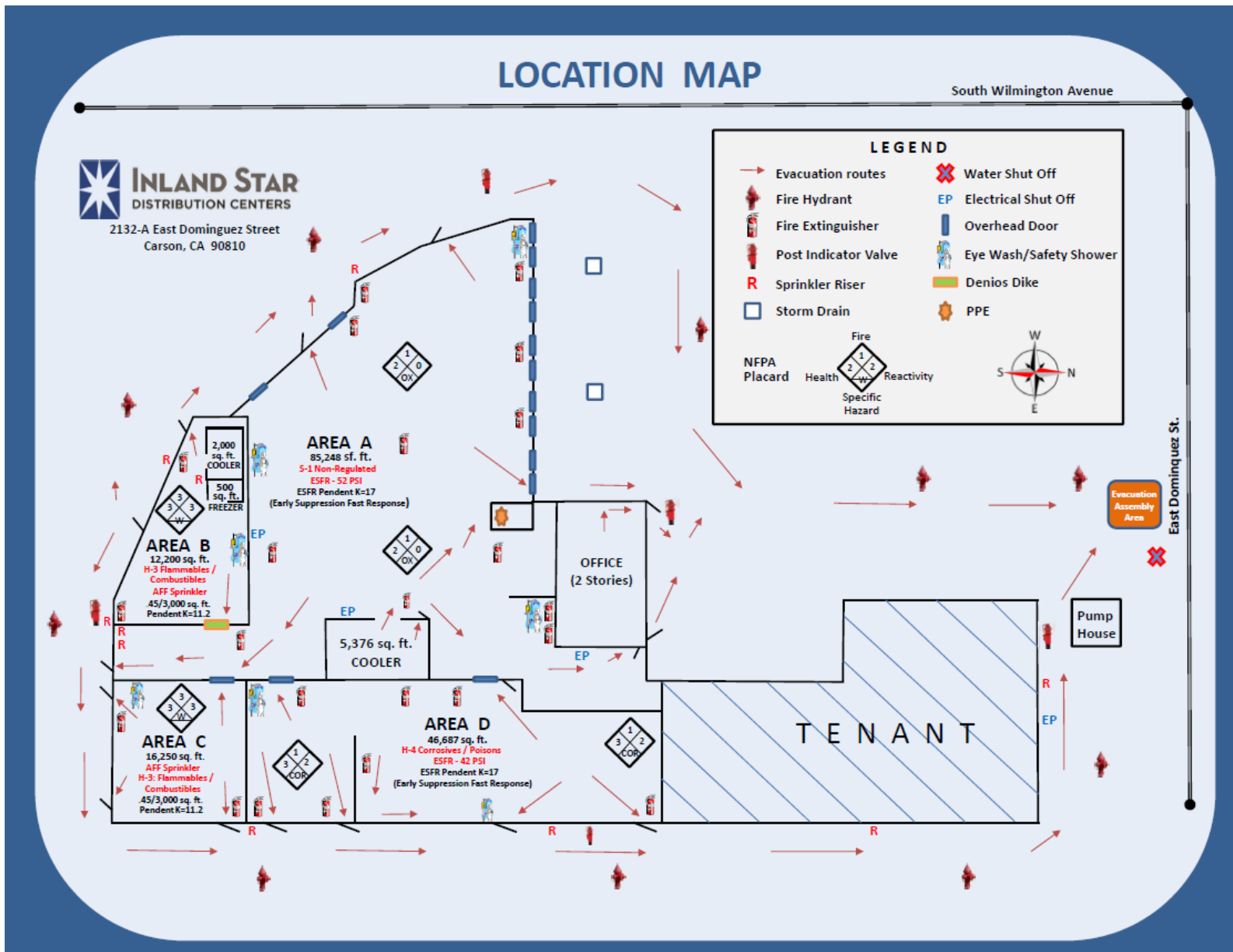


Figure 2
Site Plan

STUDY INTERSECTIONS

A total of five intersections were selected for the analysis of the Project in consultation with the City of Carson. All five intersections are signalized (Figure 1) and located in the City of Carson. One intersection is located on the edge of City of Carson and Los Angeles County.

Signalized Intersections

The following signalized intersections, illustrated in Figure 1, were identified in conjunction with the City of Carson to be analyzed as part of the scope of work for this Project:

1. Wilmington Avenue & Del Amo Boulevard (City of Carson and Los Angeles County)
2. Wilmington Avenue & Dominguez Street (City of Carson)
3. Wilmington Avenue & Carson Street (City of Carson)
4. Wilmington Avenue & I-405 Northbound On/Off Ramps (Caltrans)
5. Wilmington Avenue & I-405 Southbound On/Off Ramps (Caltrans)

Freeway Analysis

The *Congestion Management Program for Los Angeles County* (CMP) (Metro, 2010) requires that all CMP mainline freeway monitoring locations where a Project will add 150 or more trips, in either direction, during either the AM or PM peak hours be analyzed. The closest CMP freeway monitoring station to the Project is located on the I-710 immediately east of the Project site, and the I-405 west of the interchange with I-710. The proposed Project is not expected to add 150 or more vehicle trips during the AM or PM peak hours on nearby freeways. Therefore, no analysis of freeway segments is required for CMP purposes. Chapter 5 discusses the regional transportation impact analysis including a discussion of CMP arterial monitoring stations, freeway impact analysis, and regional transit impact analysis.

ORGANIZATION OF REPORT

This report is divided into 6 chapters, including this introduction. Chapter 2 describes the existing conditions including an inventory of the streets, highways, and transit service in the study area. The methodologies used to develop traffic forecasts for the Existing and Existing plus Project scenarios are included in Chapter 3. Chapter 4 presents an assessment of potential intersection traffic impacts of the Project. Chapter 5 provides a regional transportation impact analysis. Chapter 6 provides the summary and conclusions.



2. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the study area. The assessment of conditions relevant to this study includes a description of the study area, an inventory of the local street system in the vicinity of the Project site, a review of traffic volumes on these facilities, an assessment of the resulting operating conditions, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

STUDY AREA

The Project site is located within the City of Carson. The study area selected for analysis primarily runs along Wilmington Avenue and extends to include Del Amo Boulevard to the north and I-405 ramps to the south.

EXISTING STREET SYSTEM

As illustrated in Figure 1, the Project site is located east of Wilmington Avenue. Interstate 405 (I-405), I-710, and State Route 91 (SR 91) provide regional access to the Project site. Major arterials serving the study area include Wilmington Avenue in the north/south direction, and Del Amo Boulevard, Dominguez Street, and Carson Street in the east/west direction. The characteristics of the freeways and major roadways serving the study area are described below.

FREEWAYS

- **Interstate 405** runs in the northwest-southeast direction approximately one mile from the Project site, extending from San Fernando Valley, north of the study area, to San Diego, south of the study area. In the vicinity of the study area, the freeway provides four lanes and one carpool lane in each direction plus auxiliary lanes. Ramps are provided at Wilmington Avenue, Carson Street, and Avalon Boulevard.
- **Interstate 710** runs in the north-south direction approximately one and a half miles east of the Project site, extending from the port of Long Beach, south of the study area, to Alhambra, north of the study area. In the vicinity of the study area, the freeway provides four lanes in each direction plus auxiliary lanes. Ramps are provided at Del Amo Boulevard and Long Beach Boulevard.
- **State Route 91** runs in the east-west direction approximately two and a half miles north of the Project site, extending from I-110, west of the study area, east through Anaheim. In the vicinity of the study area, the freeway provides four lanes and one carpool lane in each direction plus auxiliary lanes. Ramps are provided at Avalon Boulevard, Central Avenue, and Wilmington Avenue.

NORTH/SOUTH STREETS

- **Wilmington Avenue** runs in the north/south direction west of the Project site. Wilmington Avenue has two travel lanes in each direction near the Project site. The travel lanes are separated by a landscaped center median through the majority of the study area and left-turn pockets are provided



at major intersections. Parking is not permitted on either side of the street and the speed limit along the corridor is 40 miles per hour. The corridor is also a designated truck route per the City of Carson.

- **Alameda Street, also known as State Route 47**, runs in the north-south direction approximately half a mile east of the Project site, extending from Long Beach, south of the study area, to SR-91, north of the study area. In the vicinity of the study area, the route provides two lanes in each direction separated by a center landscaped median through the majority of the study area and left turn pockets at major intersections. Parking is not permitted on either side of the corridor and the speed limit along the corridor is 45 miles per hour. The corridor is also a designated truck route per the City of Carson.

EAST/WEST STREETS

- **Del Amo Boulevard** runs in the east/west direction north of the Project site. It has two travel lanes in each direction east of the SR 47 off ramp and three travel lanes in each direction west of the SR 47 off-ramp. The travel lanes are separated by a raised center median through the majority of the study area and left turn pockets at major intersections. Parking is not permitted on either side of the street and the speed limit along the corridor is 50 miles per hour. The corridor is also a designated truck route per the City of Carson.
- **Dominguez Street** runs in the east/west direction north of the Project site. It has two to three travel lanes in each direction. The travel lanes are separated by a two-way left-turn lane through the majority of the study area and left-turn pockets at major intersections. Parking is permitted on both sides of the street and the speed limit along the street is 40 miles per hour. The street is not a designated truck route per the City of Carson.
- **Carson Street** runs in the east/west direction south of the Project site. It has two travel lanes in each direction. The travel lanes are separated by a two-way left-turn lane through the majority of the study area and left-turn pockets at major intersections. Parking is permitted on both sides of the street and the speed limit along the street is 35 miles per hour. The street is also a designated truck route per the City of Carson.

Lane configurations of the study intersections are provided in Appendix A.

EXISTING PUBLIC TRANSIT SERVICE

The Project site is not served directly by public transit as shown in Figure 3. The nearest bus stop is located approximately 0.5 miles away at the intersection of Wilmington Avenue and Del Amo Boulevard. Service available in proximity to the Project site is the Metro Local Route 202 (north-south service from Wilmington to Willowbrook) and Route 205 (north-south service from downtown LA to San Pedro), Carson Circuit Route A (South Bay Pavilion to Cal State Dominguez Hills), Route D (South Bay Pavilion to Del Amo and Wilmington), Route E (South Bay Pavilion to Home Depot Center), Route F (South Bay Pavilion to Dolores Street), and Route G (South Bay Pavilion to Del Amo & Wilmington Ave), and Long Beach Transit Routes 191/193 (north-south service from Long Beach to Lakewood). Table 1 details the existing transit service serving the Project site.

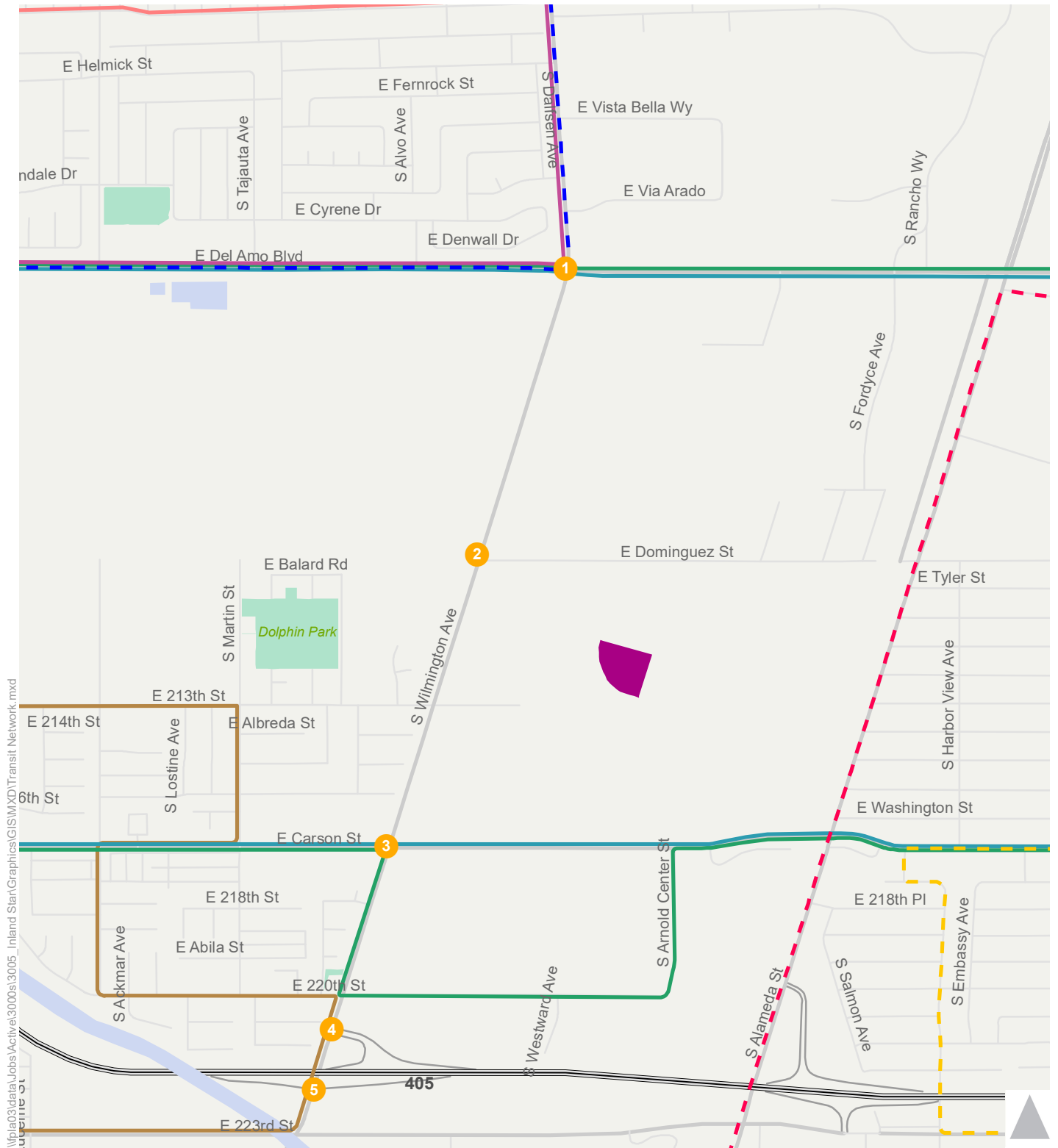


EXISTING BICYCLE AND PEDESTRIAN FACILITIES

The study area has a limited existing bikeway network which includes a Class II bicycle lane that runs east/west along Del Amo Boulevard, west of Wilmington Avenue as shown in Figure 4. Additional facilities and improvements are planned as part of the LA Metro *Active Transportation Strategic Plan*, including a Class II facility on Wilmington Avenue, Carson Street, 223rd Street, Rancho Way, Santa Fe Avenue, and Del Amo east of Wilmington Avenue. A Class III facility is also proposed along 213th Street west of Wilmington Avenue, along Wilmington Avenue south of 220th Street to 223rd street, and Ackmar Avenue south of Carson Street.

Per Caltrans, a Class I bike facility is a bike path, which has exclusive right of way for bicyclists and pedestrians away from the roadway with crossflows by motor traffic minimized. A Class II bike facility is a bike lane established along the street and is defined by pavement striping and signage to delineate a portion of the roadway dedicated for bicycle travel. The bike lane can also be buffered to provide a greater separation from adjacent traffic. A Class III bicycle facility is a bike route which designates a preferred route for bicyclists on streets shared with motor traffic and is not designated as a separate facility. A Class IV bike facility is a separated bikeway, often referred to as a protected bike lane that is physically separated from motor traffic with a vertical feature.





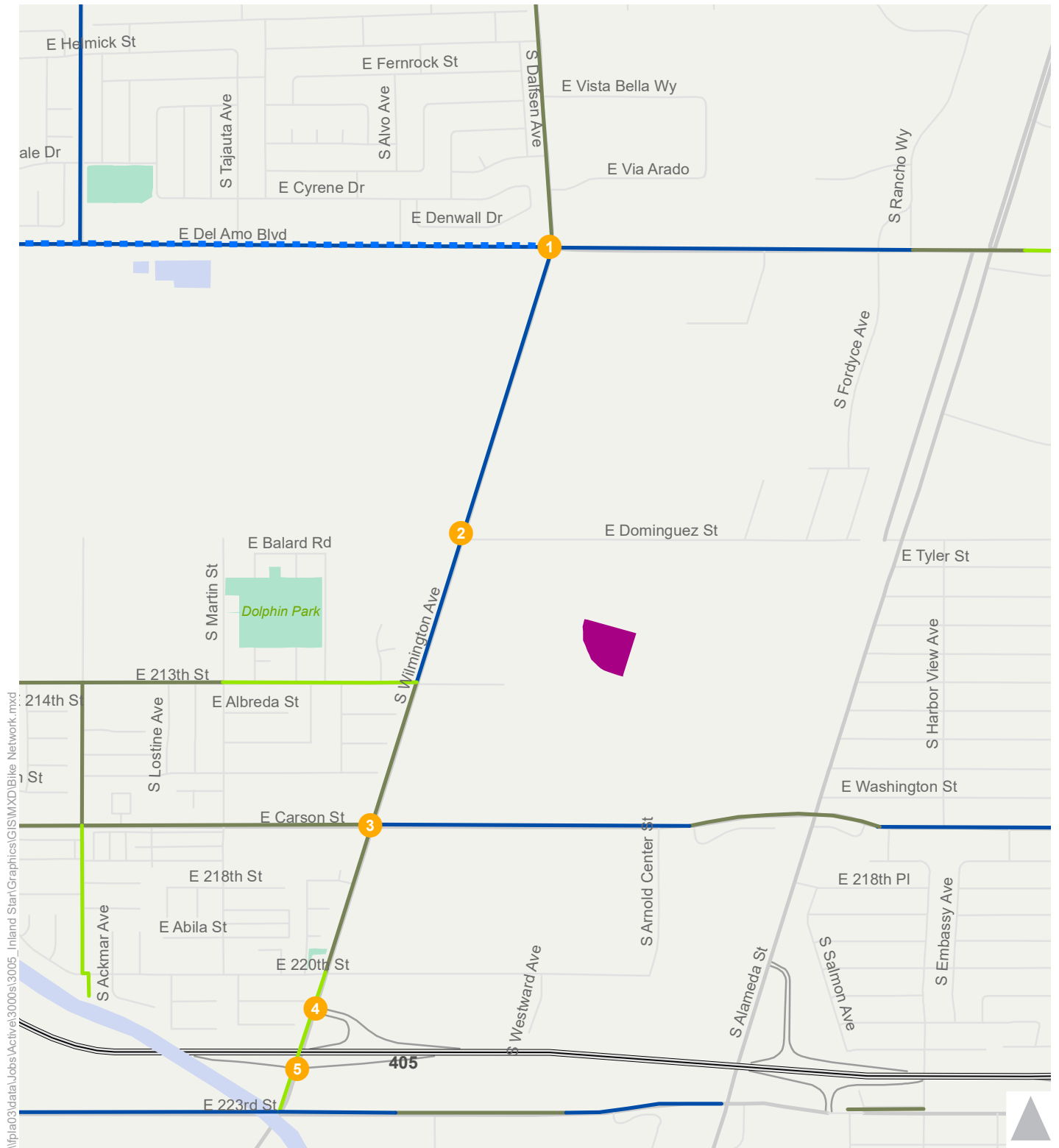
Carson Circuit Other Bus Routes

- | | | |
|--|---|---|
| — A | - - - LBT 191/193 | ■ Project Site |
| — D | - - - MTA 202 | ● Study Intersections |
| — E | - - - MTA 205 | |
| — F | | |
| — G | | |

Figure 3
Existing Transit Service

TABLE 1
CARSON INLAND STAR DISTRIBUTION PROJECT
EXISTING TRANSIT SERVICE

Transit Route	Operator	Service Type	Service From	Via	Weekday Headways	
					AM	PM
A	Carson Circuit	Shuttle & Circulator	South Bay Pavilion to Cal State Dominguez Hills	Victoria Street	40 min	40 min
D	Carson Circuit	Shuttle & Circulator	South Bay Pavilion to Del Amo & Wilmington	Avalon Blvd, Del Amo Blvd, Carson St	40 min	40 min
E	Carson Circuit	Shuttle & Circulator	South Bay Pavilion to Home Depot Center	Avalon Blvd and Del Amo Blvd	40 min	40 min
F	Carson Circuit	Shuttle & Circulator	South Bay Pavillian to 213th Dolores Street	Wilmington Ave and Carson St	40 min	40 min
G	Carson Circuit	Shuttle & Circulator	South Bay Pavilion to Del Amo & Wilmington Ave	Avalon Blvd, Del Amo Blvd, Carson St	40 min	40 min
205	Metro	Local	San Pedro to Willowbrook	Vermont Ave	20-30 min	30-50 min
202	Metro	Local	Wilmigton to Willowbrook	Alameda Street and Del Amo Blvd	15-20 min	20-30 min
191/193	Long Beach Transit	Local	Long Beach to Lakewood	Carson St	20-30 min	30-40 min



- Study Intersections
- Project Site
- Proposed Class II Bike Lane
- Proposed Class III Bike Route
- Proposed Class II Buffered Bike Lane
- - - Existing Bike Lane

Figure 4
Existing Bike Network

EXISTING TRAFFIC VOLUMES AND LEVEL OF SERVICE

This section presents the development of the Existing peak hour traffic volumes, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each, indicating volume-to-capacity (V/C) ratios and levels of service (LOS).

EXISTING TRAFFIC VOLUMES

Weekday AM and PM peak hour turning movement counts were collected at the study intersections on Tuesday, February 20, 2018 and Tuesday, March 20, 2018. Since the Project has been operational since 2015, the turning movement volumes include the Project traffic as well as traffic generated by the surrounding land uses. Therefore, the traffic counts reflect the Existing plus Project traffic volumes used in this analysis. The weekday morning and afternoon peak hour volumes at the study intersections are provided in Appendix A. Traffic count worksheets for these intersections are contained in Appendix B.

LEVEL OF SERVICE METHODOLOGY

The Level of Service (LOS) methodology is the same for the City of Carson and Los Angeles County. Both the study area jurisdictions utilize the Intersection Capacity Utilization (ICU) methodology to determine LOS. The ICU method estimates the V/C ratio for an intersection based on the individual V/C ratios for the conflicting traffic movements. The ICU value represents the percent signal green time of capacity of the intersection movements. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing. The intersection V/C ratio is assigned an LOS value to describe intersection operations in Table 2. LOS ranges from LOS A (free flow) to LOS F (jammed condition).. Study intersections are analyzed according to the methodology of the appropriate jurisdiction.

EXISTING LEVELS OF SERVICE

Existing year traffic volumes presented in Appendix A were analyzed using the methodologies described above to determine the existing operating conditions at the study intersections. Table 3 summarizes the results of the analysis of the existing weekday morning and evening peak hour V/C ratio and corresponding LOS at each of the analyzed intersections. Existing LOS were analyzed with the current lane configurations observed in the field. Of the five signalized intersections, four intersections operate at LOS D or better during the AM or PM peak hours and one intersection (Wilmington Avenue & I-405 Southbound On/Off Ramp) operates at LOS F during the PM peak hour. Detailed LOS analysis sheets for the Project are provided in Appendix C.



TABLE 2
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS
ICU METHODOLOGY

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	>0.600 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat what restricted within groups of vehicles.
C	>0.700 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.800 - 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	>0.900 - 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. Tremendous delays with continuously increasing queue lengths

Source: *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*,
Transportation Research Board, 1980.

TABLE 3
CARSON INLAND STAR DISTRIBUTION CENTER
EXISTING CONDITIONS INTERSECTION LEVELS OF SERVICE

ID	N/S Street Name	E/W Street Name	Intersection Control	Analyzed Period	Existing (2018)	
					V/C	LOS
1	Wilmington Ave	Del Amo Blvd	Signalized	AM	0.718	C
				PM	0.830	D
2	Wilmington Ave	Dominguez St	Signalized	AM	0.533	A
				PM	0.550	A
3	Wilmington Ave	Carson St	Signalized	AM	0.653	B
				PM	0.702	C
4	Wilmington Ave	I-405 Northbound On/Off Ramps	Signalized	AM	0.563	A
				PM	0.669	B
5	Wilmington Ave	I-405 Southbound On/Off Ramps	Signalized	AM	0.833	D
				PM	1.051	F

Notes

[1] Methodologies and impact thresholds vary by Jurisdiction.

3. TRAFFIC PROJECTIONS

PROJECT TRAFFIC

The development of trip generation estimates for the proposed Project involves the use of a 3-step process: trip generation, trip distribution, and traffic assignment. Trip generation was developed using two methods, both the Institute of Transportation Engineers (ITE) method and through a programmatic method described below.

PROJECT TRIP GENERATION

ITE Method

Trip generation rates from *Trip Generation, 10th Edition* (Institute of Transportation Engineers [ITE], 2017) were used to estimate the number of trips associated with the Project during the AM and PM peak hours.

Using the ITE *Trip Generation, 10th Edition* rates for Warehousing (150), the Project would generate approximately 331 total daily heavy vehicle trips, including 32 (25 inbound trips and 7 outbound trips) trips and 36 (10 inbound and 26 outbound trips) trips in the weekday AM and PM peak hours respectively as shown in Table 4.

Programmatic/Operational Method

As the site is currently operational, driveway trips could have been an option to inform the trip generation for the project. However, the operation of the site varies considerably from day to day without advanced notice; therefore, the driveway trips were not considered to be a viable approach for estimating trip generation for the site. Absent driveway count data, trip generation estimates were based on a review of truck activity at the Project site between July 1st and September 30th, 2017, which are the reported busiest months for the facility. On a typical day with the site fully utilized, approximately 55 vehicles were observed to enter/exit the site with the purpose of either delivering bulk materials to the site or for distributing small batch quantities of materials to clients. With 55 inbound trips and 55 outbound trips on average on a single day, the Project site generates a total of 110 daily heavy vehicle trips. A PCE factor of 2.5 was also used to convert the truck trips to passenger car equivalent (PCE) trips. The use of this factor results in a total of 275 daily vehicle trips.

During the AM peak hour, the Project site is capable of processing three trucks entering the Project site every 30 minutes or six trucks every hour with trucks arriving and departing within the same hour. Therefore, in a given peak hour, the facility may process up to 6 trucks equating to 6 inbound trips and 6 outbound trips, for a total of 12 AM peak hour heavy vehicle trips. The use of the PCE factor of 2.5 results in 30 trips (15 inbound and 15 outbound trips) in the AM peak hour.

During the PM peak hour, the Project site processes a maximum of fifteen freight carrier trucks which arrive and depart within the same hour. Therefore, in the PM peak hour, the facility typically processes 15 trucks equating to 15 inbound trips and 15 outbound trips, for a total of 30 PM peak hour heavy vehicle trips. The use of the PCE factor of 2.5 results in 75 trips (38 inbound and 38 outbound trips) in the PM peak hour.

In addition to truck trips, employee trips were also used to calculate the trip generation for the Project site. The facility has approximately 17 employees on site in any given day, inclusive of customer service



representatives, warehouse personnel, and executives. All employees arrive and depart in the AM and PM peak hours. Therefore, the employees generate approximately 34 total daily vehicle trips, including 17 AM peak hour trips (17 inbound/0 outbound) and 17 PM peak hour trips (0 inbound/17 outbound).

Thus, the total trip generation for the Project, including trucks and employees, is approximately 309 total daily vehicle trips, 47 AM peak hour trips (32 inbound/15 outbound) and 92 PM peak hour trips (38 inbound/55 outbound) as shown in Table 3.

As the programmatic trip generation estimate reflects site-specific information about the trip activities at the Project site, and has a higher trip generation during peak hours than the ITE method, the programmatic trip generation estimates were used for the traffic impact analysis.

PROJECT TRAFFIC DISTRIBUTION

The geographic distribution of traffic generated by the Project depends on several factors. These include the type and density of the project land use, the locations of industrial and commercial centers to which Project's trucks may be drawn, and the location of the Project's access points in relation to the surrounding street system. The truck activity origin information at the Project site was provided for the AM and PM deliveries to help inform the trip distribution for the site.

During the AM peak periods, 49% of the trucks were reported travel from the Port of Los Angeles or the Port of Long Beach to the site, 23% of the trucks travel from elsewhere within the State of California, and 28% of the trucks travel from outside of the State of California to the site. During the PM peak period, 27% of the trucks travel from the Port of Los Angeles or the Port of Long Beach, 38% of the trucks travel from elsewhere within the State of California, and 35% of the trucks travel from outside of the State of California.

Considering those factors and a review of trucks activity to and from the Project site, a trip distribution pattern was developed for the Project with the corresponding percentage of traffic likely to be regionally oriented and using the freeway as opposed to the local street system for both AM and PM peak hours. Figure 5 illustrates the Project's trip distribution pattern during the AM peak hours and Figure 6 illustrates the Project's trip distribution during the PM peak hours.

PROJECT TRAFFIC ASSIGNMENT

The traffic generated by the Project based on the review of truck activity at the Project site (programmatic method) was assigned to the street network using the distribution patterns described in Figure 5 and Figure 6. Appendix A shows the assignment of Project-only traffic volumes for the morning and afternoon peak hours at the five analyzed intersection locations.

EXISTING BASELINE TRAFFIC CONDITIONS

As discussed in Chapter 2, existing counts were collected when the Project site was operational. As such, the 2018 counts would not be a valid representation of the existing baseline conditions. Therefore, to analyze Project impacts at the study intersections against a baseline that does not include the Project traffic, the project trips were subtracted from the existing counts to develop the Existing Baseline conditions.

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

The existing 2018 counts shown in Chapter 2, were collected when the Project site was operational. As such, the 2018 counts were used for the Existing plus Project conditions.



TABLE 4 CARSON INLAND STAR DISTRIBUTION CENTER ITE TRIP GENERATION - 10TH EDITION									
Trip Generation Rates									
Land Use	ITE Land Use Code[a]	Rate	Daily Trips	Trips					
				AM Peak Hour			PM Peak Hour		
				In	Out	Rate	In	Out	Rate
Warehousing	150	ksf	1.74	77%	23%	0.17	27%	73%	0.19
Trip Generation Estimates									
Land Use	ITE Land Use Code[a]	Rate per	Daily Trips	Trips					
				AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Carson Inland Star Distribution Centers, Inc Warehousing	150	188 ksf	328	25	7	32	10	26	36
TOTAL			328	25	7	32	10	26	36

Notes:

[a] Source: Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2017.

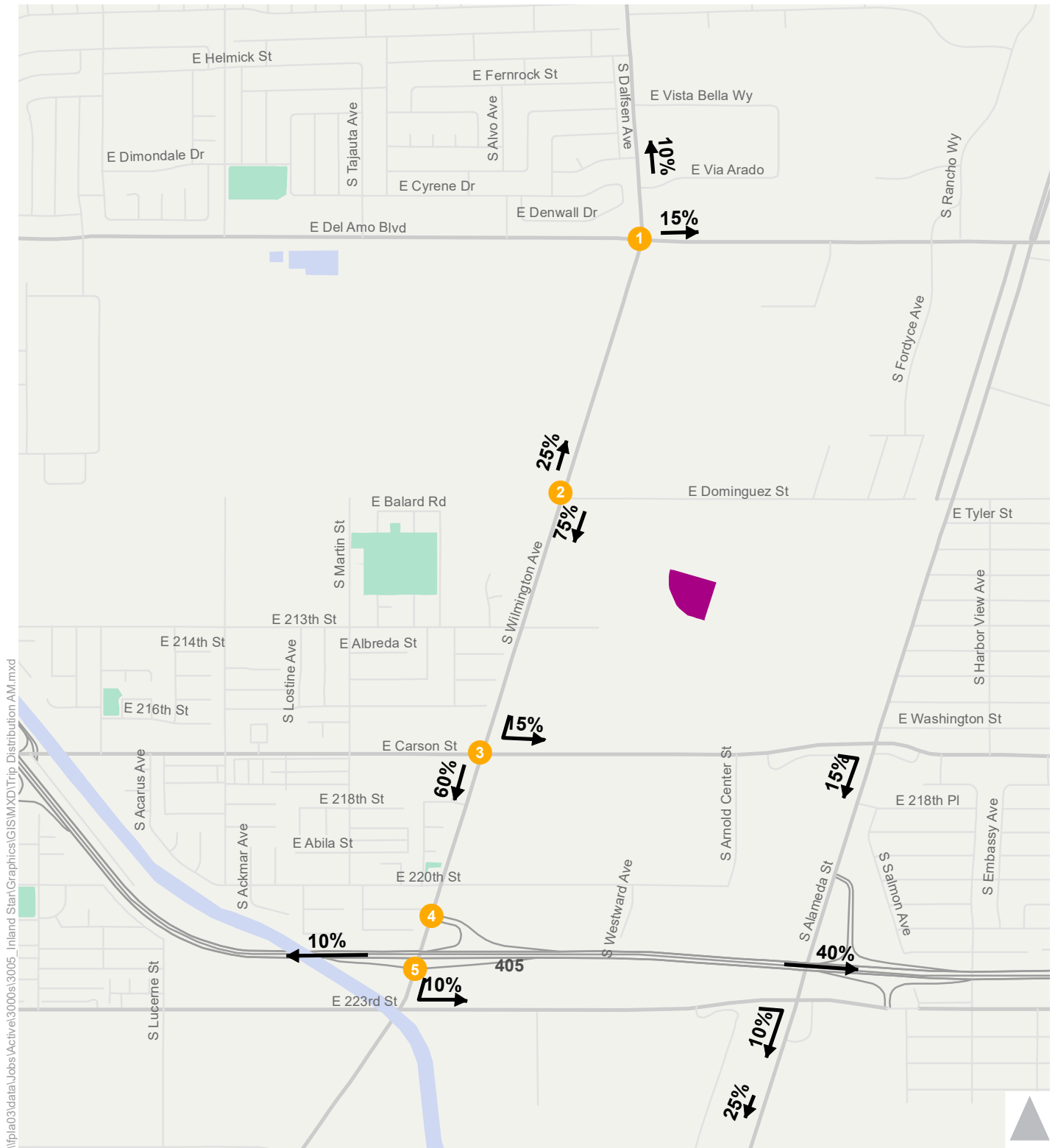
TABLE 5
CARSON INLAND STAR DISTRIBUTION CENTER
TRIP GENERATION - PROGRAMMATIC METHOD

Land Use	ITE Land Use Code [a]	Daily Trips	Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Carson Inland Star Distribution Centers, Inc								
Inland Star Truck Trips	[a]	110	6	6	12	15	15	30
PCE Factor Adjustment [b]		275	15	15	30	38	38	75
Employee Trips	[a]	34	17	0	17	0	17	17
TOTAL		309	32	15	47	38	55	92

Notes:

[a] Trip generation based on typical day of operations for the facility. The facility processes 55 daily vehicles, up to 6 vehicles in the AM peak hour, and up to 15 vehicles in the PM peak hour. It also has 17 employees on site in any given day, all of whom are anticipated to arrive in the AM peak hour and depart in the PM peak hour.

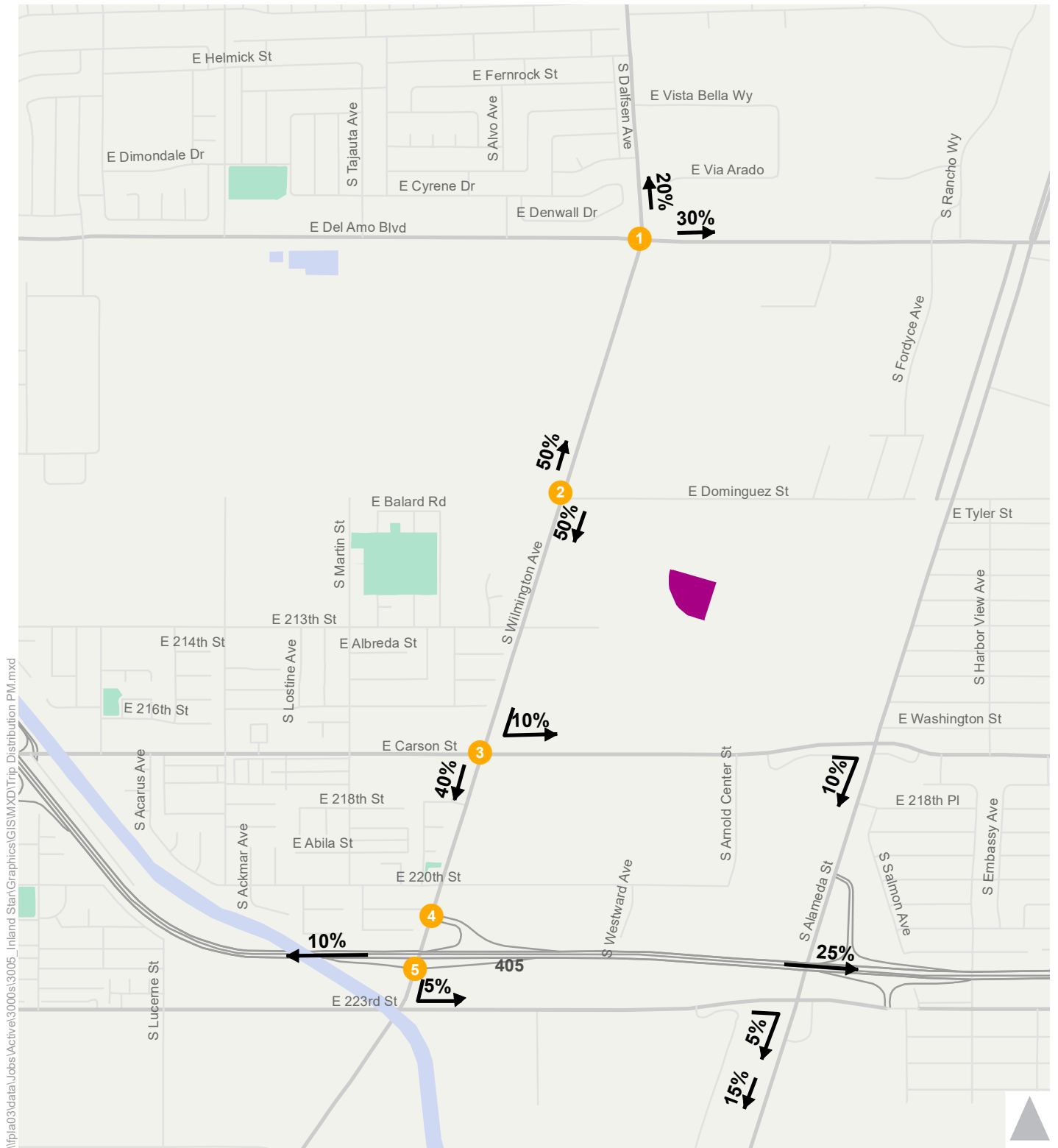
[b] Passenger Car Equivalent (PCE) of 2.5 per truck was used to estimate vehicle trips.



- Study Intersections
- Project Site
- ➔ Trip Distribution (AM)



Figure 5
Trip Distribution (AM)



- Study Intersections
- Project Site
- ➔ Trip Distribution (PM)



Figure 6
Trip Distribution (PM)

4. INTERSECTION TRAFFIC IMPACT ANALYSIS

The traffic impact analysis evaluates projected LOS at each study intersection under the Existing Base and Existing plus Project conditions to estimate the incremental increase in the V/C ratio caused by the Project. This provides the information needed to assess the potential impact of the Project using significance criteria established by the City of Carson and Los Angeles County.

CRITERIA FOR DETERMINATION OF SIGNIFICANT TRAFFIC IMPACT

SIGNALIZED INTERSECTIONS

City of Carson

The City of Carson has established threshold criteria to determine significant traffic impact of a proposed project in its jurisdiction. A signalized intersection would be significantly impacted with an increase in V/C ratio equal to or greater than 0.02 for intersections operating at LOS E or F after the addition of project traffic. Intersections operating at LOS A, B, C, or D after the addition of project traffic are not considered significantly impacted regardless of the increase in V/C ratio. The following summarizes the significant impact criteria:

City of Carson Traffic Impact Criteria, Signalized Intersections		
LOS	Final V/C Ratio	Project-Related Increase in V/C
E or F	> 0.900	equal to or greater than 0.020

Los Angeles County

The County of Los Angeles utilize the criteria defined in the County's *Traffic Impact Analysis Report Guidelines* to assess project impacts:

Los Angeles County Traffic Impact Criteria, Signalized Intersections		
LOS	Pre-Project V/C Ratio	Project-Related Increase in V/C
C	> 0.700 - 0.800	equal to or greater than 0.040
D	> 0.800 - 0.900	equal to or greater than 0.020
E or F	> 0.900	equal to or greater than 0.010



EXISTING PLUS PROJECT IMPACT ANALYSIS

EXISTING BASELINE TRAFFIC LEVEL OF SERVICE

The Existing Baseline traffic volumes presented in Appendix A were analyzed to determine the V/C ratios and LOS for each of the analyzed signalized intersections under this scenario. Table 6 summarizes the Existing Baseline LOS results. Analysis sheets are provided in Appendix C. As indicated in Table 6, four of the five analyzed with Project intersections are projected to operate at LOS D or better during either of the morning and/or evening peak hours. The intersection of Wilmington Avenue & I-405 Southbound On/Off Ramps operates at LOS F during the PM peak hour.

Detailed LOS analysis sheets for the Project are provided in Appendix C.

EXISTING PLUS PROJECT TRAFFIC LEVEL OF SERVICE

The Existing plus Project traffic volumes presented in Appendix A were analyzed to determine the V/C ratios and LOS for each of the analyzed signalized intersections under this scenario. Table 6 summarizes the Existing plus Project LOS. Analysis sheets are provided in Appendix C. As indicated in Table 6, four of the five analyzed with Project intersections are projected to operate at LOS D or better during either of the morning and/or evening peak hours. The intersection of Wilmington Avenue & I-405 Southbound On/Off Ramps operates at LOS F during the PM peak hour.

Detailed LOS analysis sheets for the Project are provided in Appendix C.

EXISTING PLUS PROJECT INTERSECTION IMPACTS

Table 6 shows that the Project does not result in significant traffic impacts at any of the five study intersections under either the City of Carson or Los Angeles County significance impact criteria.



TABLE 6
CARSON INLAND STAR DISTRIBUTION CENTER
EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE AND IMPACT ANALYSIS

ID	N/S Street Name	E/W Street Name	Intersection Control	Analyzed Period	Existing Base		Existing Base + Project		Project Increase	Significant Impact?
					V/C	LOS	V/C	LOS		
1	Wilmington Ave	Del Amo Blvd	Signalized	AM PM	0.717 0.820	C D	0.718 0.830	C D	0.001 0.010	No No
2	Wilmington Ave	Dominguez St	Signalized	AM PM	0.524 0.539	A A	0.533 0.550	A A	0.009 0.011	No No
3	Wilmington Ave	Carson St	Signalized	AM PM	0.646 0.694	B B	0.653 0.702	B C	0.007 0.008	No No
4	Wilmington Ave	I-405 Northbound On/Off Ramps	Signalized	AM PM	0.561 0.664	A B	0.563 0.669	A B	0.002 0.005	No No
5	Wilmington Ave	I-405 Southbound On/Off Ramps	Signalized	AM PM	0.831 1.046	D F	0.833 1.051	D F	0.002 0.005	No No

Notes

[1] Methodologies and impact thresholds vary by Jurisdiction.

5. REGIONAL TRANSPORTATION SYSTEM ANALYSIS

This section presents an analysis of potential impacts on the regional transportation system. Analysis at CMP monitoring stations was conducted in accordance with the procedures outlined in the *Congestion Management Program for Los Angeles County*. The CMP requires that, when an environmental impact report is prepared for a project, traffic and transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use those facilities.

CMP REGIONAL TRAFFIC IMPACT ANALYSIS

The CMP guidelines require that the first issue to be addressed is the determination of the geographic scope of the study area. The criteria for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the AM or PM peak hours of adjacent street traffic.
- All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the AM or PM peak hours.

SIGNIFICANT CMP TRAFFIC IMPACT CRITERIA

The CMP traffic impact analysis guidelines establish that a significant project impact occurs when the following threshold is exceeded:

- The proposed project increases traffic demand on a CMP facility by 2% 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 2% of capacity ($V/C \geq 0.02$)

ARTERIAL CMP MONITORING STATION ANALYSIS

None of the study area intersections are CMP arterial monitoring locations. The CMP arterial monitoring stations nearest to the Project study area are:

- Alameda Street & Del Amo Boulevard (City of Carson)
- Alameda Street & SR-91 EB Ramps (City of Compton)

The CMP arterial monitoring station closest to the proposed Project site is at Alameda Street & Del Amo Boulevard, located 0.7 miles north of the proposed Project site. Alameda Street & SR-91 EB Ramps monitoring station is located approximately 2.5 miles north of the Project site. The majority of Project trips are anticipated to disperse among the transportation network within close proximity to the study area and less than 30% of total Project trips (or a maximum of 28 trips during the highest peak hour) are expected



at any of the CMP monitoring stations. Since the Project adds fewer than 50 trips at the monitoring stations, no further CMP arterial analysis is required.

FREEWAY CMP IMPACT ANALYSIS

Regional access to the Project site is provided by the I-405 located approximately 0.8 miles south of the Project site, the I-710 located approximately 1.5 miles east of the Project site, and SR-91 located approximately 2.5 miles north of the Project site. Approximately 40% (19 trips) during the AM and 25% (23 trips) during the PM will be added to I-405, 15% (7 trips) during the AM and 30% (28 trips) during the PM will be added I-710, and 10% (5 trips) during the AM and 20% (18 trips) during the PM will be added to SR-91.

Since fewer than 150 trips would be added during the AM or PM peak hours in either direction at any of the freeway segments in the vicinity of the study area, no further analysis of the freeway segments is required for CMP purposes.

REGIONAL TRANSIT IMPACT ANALYSIS

Potential transit related person-trips generated by the proposed Project were estimated. Appendix D.8.4 of the 2010 CMP provides a methodology for estimating the number of transit trips expected to result from a proposed Project based on the projected number of vehicle trips. This methodology assumes an average vehicle ridership (AVR) factor of 1.4 in order to estimate the number of person trips to and from the Project and then provides guidance regarding the percentage of person trips assigned to public transit depending on the type of use (commercial/other versus residential) and the proximity to transit services. Appendix D.8.4 of the 2010 CMP recommends summarizing the fixed-route local bus services within ¼ mile of the Project site and express bus routes and rail service within two miles of the Project site.

The Project is not located within ¼ mile of any bus stop but it is located within 2 miles of the Metro Blue Line Del Amo station. Therefore, the CMP guidelines provide that approximately 3.5% of total person trips generated are assumed to use transit to travel to and from the site. As the function of the site is to serve deliveries on trucks, it was assumed that only the employee trips would be applicable to the regional transit impact analysis. The Project has had an estimated increase in employee vehicle trip generation of approximately 17 vehicle trips during the AM peak hour and 17 during the PM peak hour. Applying the AVR factor of 1.4 to the estimated vehicle trips would result in an estimated increase of approximately 24 person trips during the AM and PM peak hours. Applying the 3.5% transit use would result in approximately 1 new transit person trip during the weekday AM and PM peak hours.

Within the two miles of the Project site, Metro operates the Blue Line (801) with 12-minute headways during peak hours. This service has an estimated seating capacity of 1,500 persons per hour during the peak periods based on a seating capacity of 300 persons for a light rail vehicle. The proposed Project would utilize less than 1% of available transit capacity during the peak hours. At this level of transit capacity utilization, the Project is not anticipated to result in a significant CMP transit impact.



6. SUMMARY AND CONCLUSIONS

PROJECT SUMMARY

The following summarizes the results of the Project transportation impact analysis:

- The Project consists of 190,411 square feet of industrial warehouse building. The site currently operates as a third-party bulk materials - storage site for hazardous materials.
- The Project is estimated to generate approximately 309 PCE daily trips, including 47 trips during the AM peak hour, and 92 trips during the PM peak hour.
- The LOS analysis for the Existing Base and Existing plus Project scenarios determined that the Project would not result in significant impacts at any of the five study intersections.
- The project would not result in a significant impact to any CMP arterial or freeway monitoring stations. The projected level of additional transit riders generated by the proposed Project would not result in a significant impact on public transit services in the vicinity of the Project.



REFERENCES

2010 Highway Capacity Manual, Transportation Research Board, 2010.

Carson Street Mixed-Use District Master Plan, City of Carson, June 2006.

Traffic Impact Analysis Report Guidelines, Los Angeles County Public Works, December 2013.

Trip Generation, 10th Edition, ITE, 2017.

APPENDIX A:
LANE CONFIGURATIONS AND TRAFFIC VOLUMES

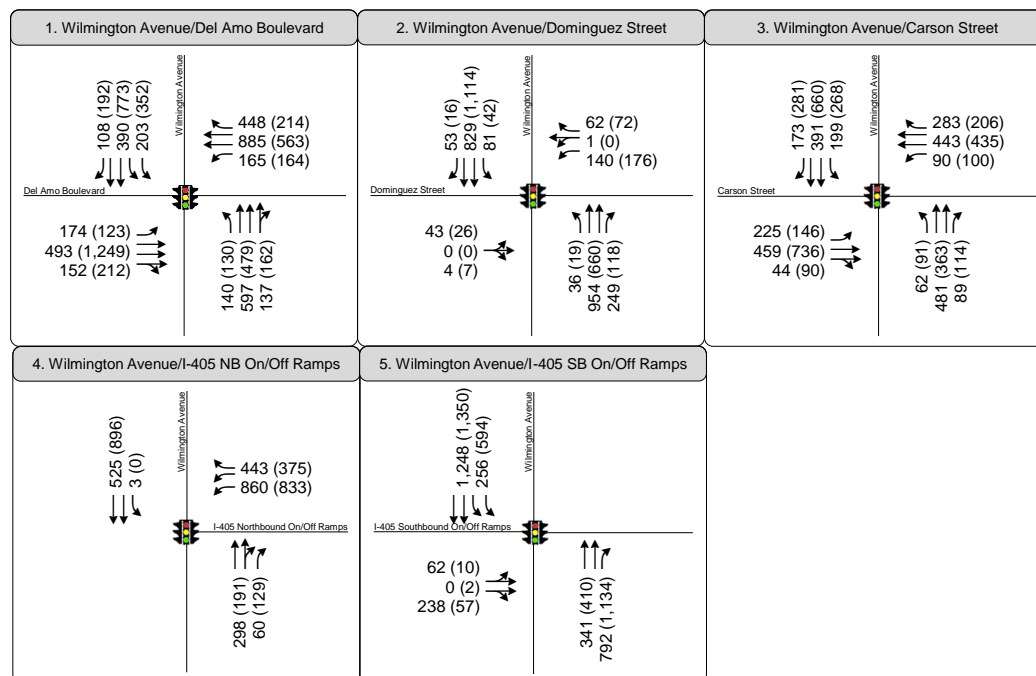
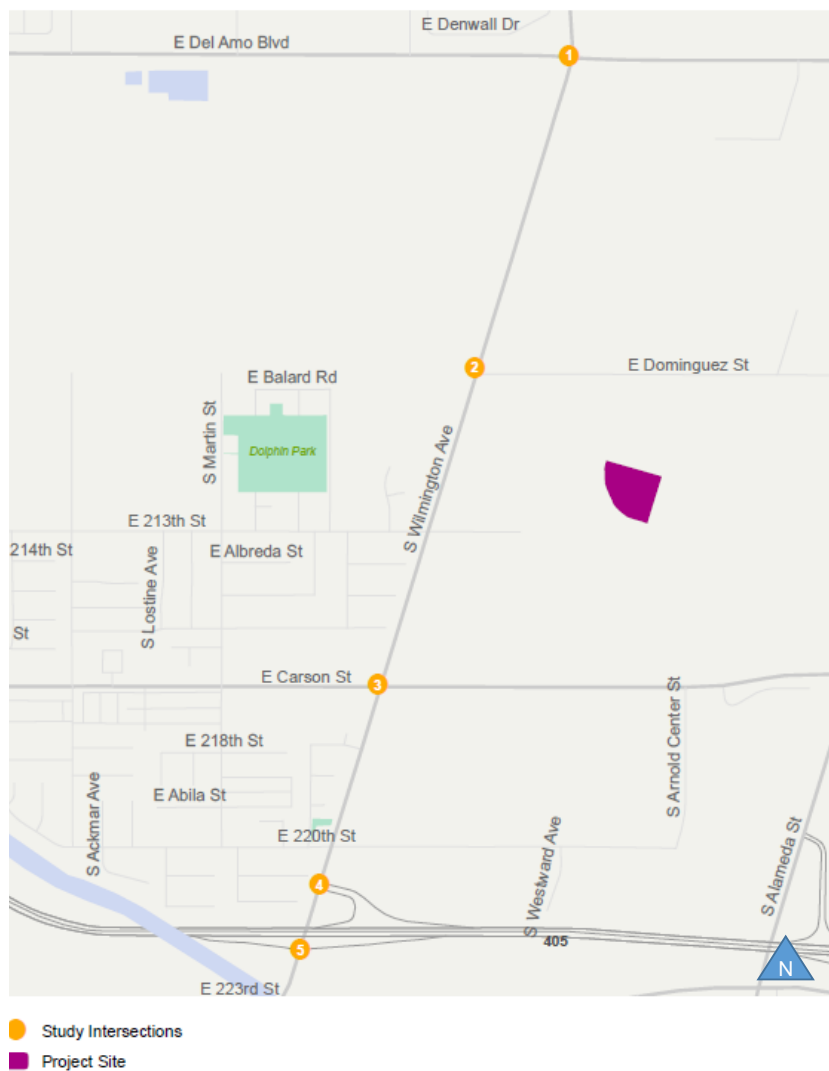


Figure 2
Peak Hour Traffic Volumes and Lane Configurations
Existing 2018 & Existing plus Project



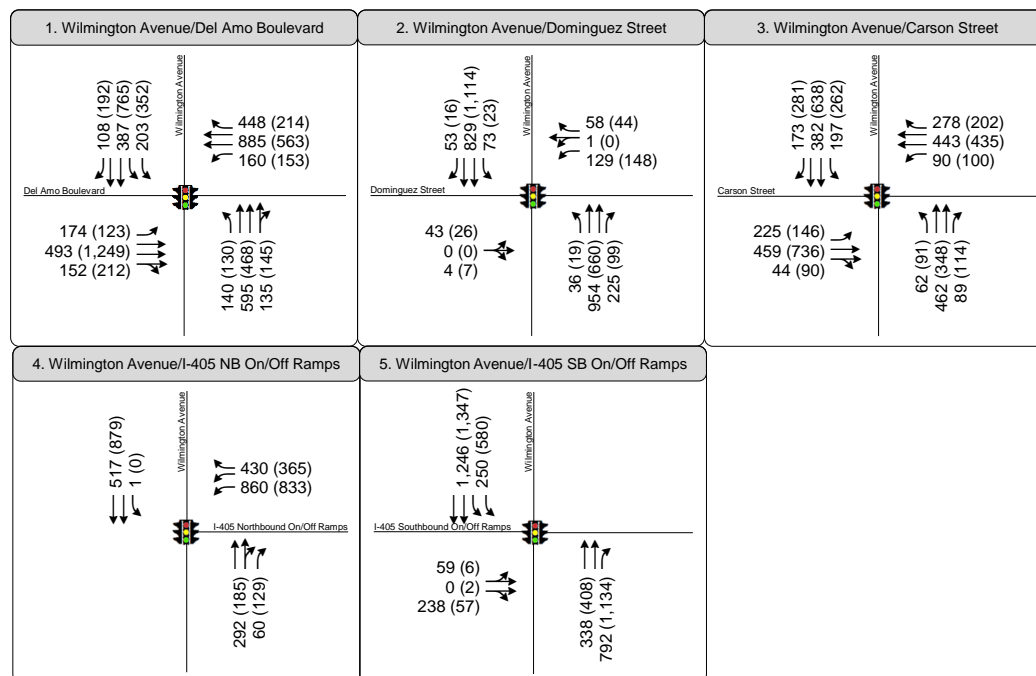
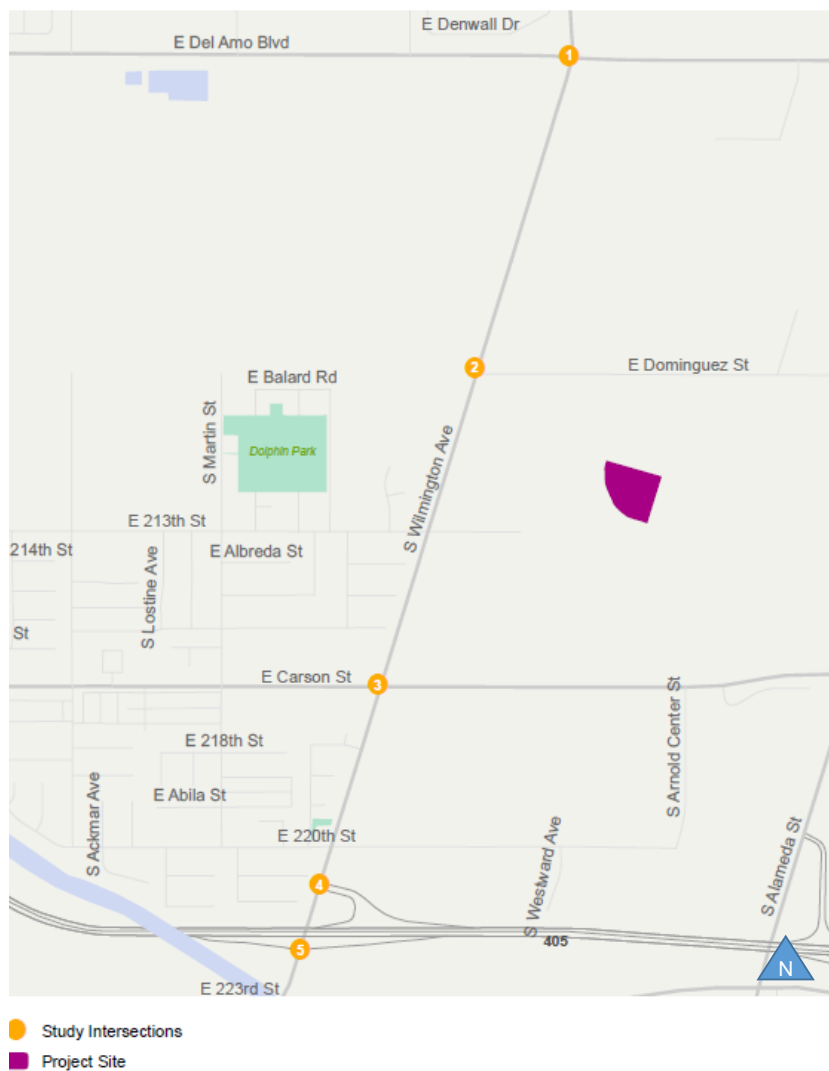
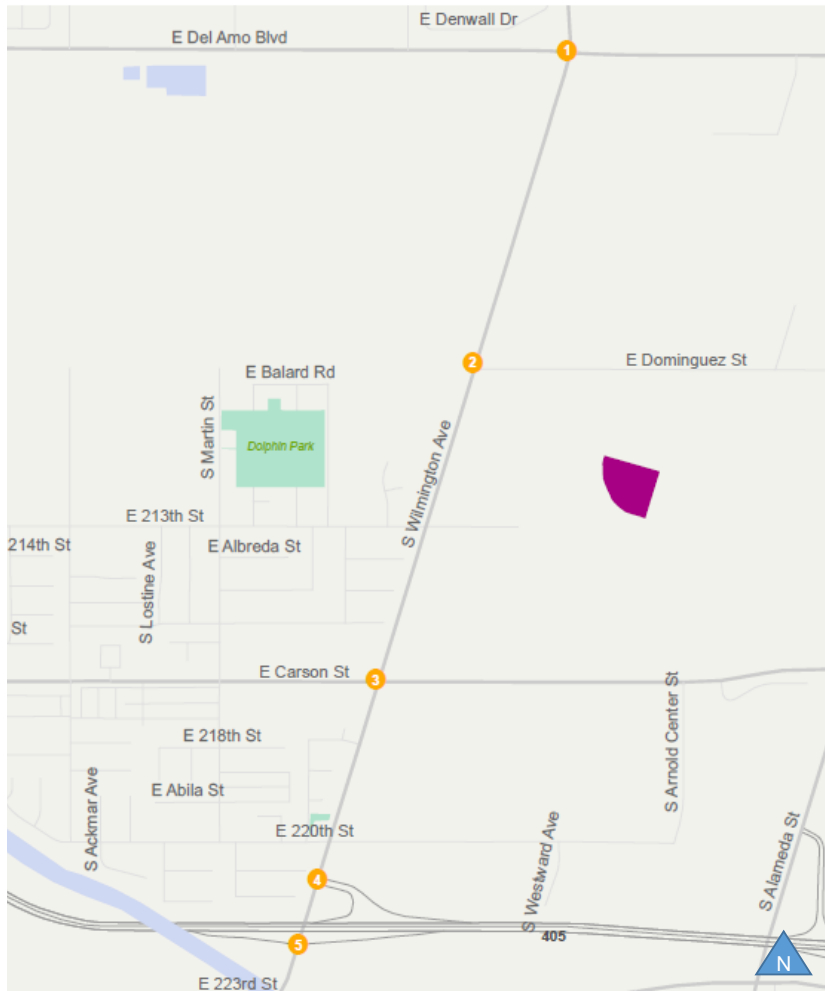


Figure 1
Peak Hour Traffic Volumes and Lane Configurations
Existing Base Conditions





- Study Intersections
- Project Site

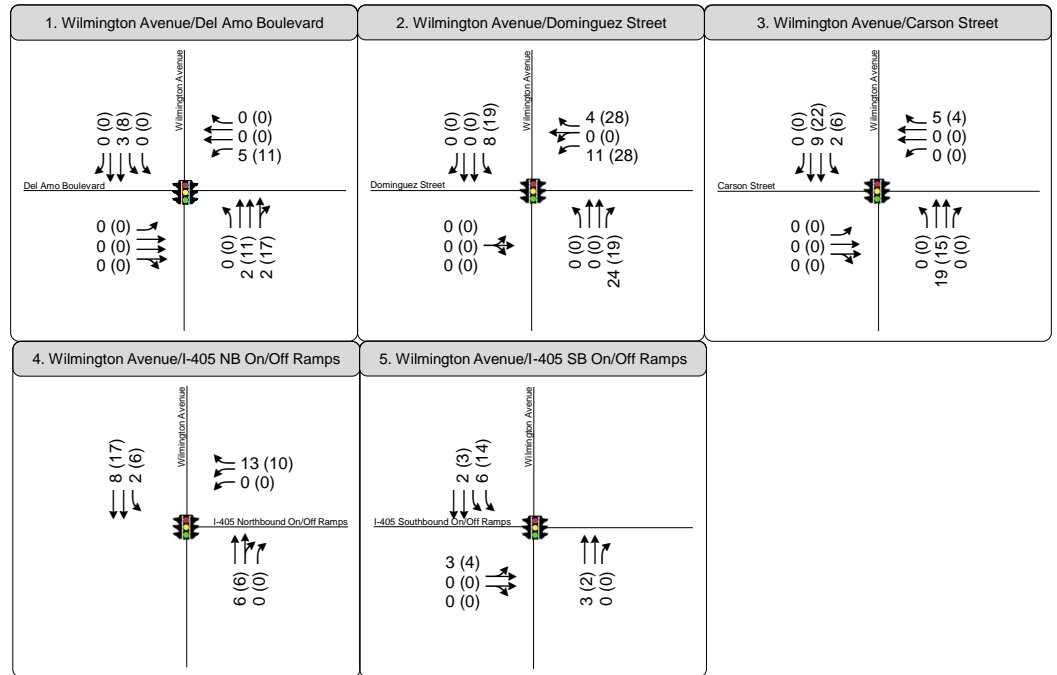


Figure 1
Peak Hour Traffic Volumes and Lane Configurations
Project Only



APPENDIX B:
COUNT SHEETS

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05105-001
Date: 2/20/2018

Total

NS/EW Streets:		Wilmington Ave				Wilmington Ave				E Del Amo Blvd				E Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1 NL	3 NT	0 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU		
7:00 AM	22	98	23	0	31	59	24	0	30	76	22	1	26	206	68	0	686	
7:15 AM	26	90	25	0	35	64	30	0	20	97	12	5	34	243	74	0	755	
7:30 AM	23	123	17	0	37	83	17	0	26	104	32	0	45	215	87	1	810	
7:45 AM	36	158	30	0	47	104	19	0	44	150	42	3	29	226	111	0	999	
8:00 AM	38	145	31	0	40	71	20	0	49	108	32	3	19	213	106	0	875	
8:15 AM	34	111	23	1	35	60	23	0	30	105	32	1	30	190	103	0	778	
8:30 AM	34	108	30	1	29	75	21	0	36	95	25	0	31	189	72	0	746	
8:45 AM	23	73	18	0	32	61	21	0	31	87	25	1	22	178	68	0	640	
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
	236 17.60%	906 67.56%	197 14.69%	2 0.15%	286 27.55%	577 55.59%	175 16.86%	0 0.00%	266 20.09%	822 62.08%	222 16.77%	14 1.06%	236 9.13%	1660 64.19%	689 26.64%	1 0.04%	6289	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL	
PEAK HR VOL :	131	537	101	1	159	318	79	0	149	467	138	7	123	844	407	1	3462	
PEAK HR FACTOR :	0.862	0.850	0.815	0.250	0.846	0.764	0.859	0.000	0.760	0.778	0.821	0.583	0.683	0.934	0.917	0.250	0.866	
	0.859				0.818				0.796				0.939					

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	29	78	47	0	77	144	45	0	30	263	53	1	27	150	61	0	1005
4:15 PM	28	75	34	0	47	133	30	0	33	235	32	1	23	127	47	0	845
4:30 PM	32	104	31	0	63	158	46	0	27	236	44	4	31	142	48	0	966
4:45 PM	31	103	29	0	72	135	33	0	22	284	40	2	39	138	45	0	973
5:00 PM	28	99	51	0	92	177	56	0	24	294	42	4	30	164	42	0	1103
5:15 PM	24	84	27	0	71	196	45	0	27	298	49	0	33	127	41	0	1022
5:30 PM	34	101	17	1	63	157	43	0	23	319	52	1	26	108	39	0	984
5:45 PM	29	84	24	0	65	117	28	0	29	272	46	2	26	156	34	1	913
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	235 19.20%	728 59.48%	260 21.24%	1 0.08%	550 26.28%	1217 58.15%	326 15.58%	0 0.00%	215 7.71%	2201 78.92%	358 12.84%	15 0.54%	235 13.78%	1112 65.22%	357 20.94%	1 0.06%	7811
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	117	387	124	1	298	665	177	0	96	1195	183	7	128	537	167	0	4082
PEAK HR FACTOR :	0.860	0.939	0.608	0.250	0.810	0.848	0.790	0.000	0.889	0.937	0.880	0.438	0.821	0.819	0.928	0.000	0.925
	0.883				0.877				0.937				0.881				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05105-001
Date: 2/20/2018

Cars

NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Del Amo Blvd				E Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	20	88	17	0	19	47	21	0	29	72	20	1	21	196	64	0	615
7:15 AM	23	84	19	0	23	51	26	0	15	91	12	5	21	233	67	0	670
7:30 AM	23	114	10	0	29	73	12	0	24	100	30	0	37	209	81	1	743
7:45 AM	34	148	27	0	42	94	16	0	40	147	38	3	20	215	100	0	924
8:00 AM	35	136	21	0	34	61	14	0	44	104	32	3	15	207	103	0	809
8:15 AM	34	99	19	1	25	42	18	0	29	99	29	1	24	186	96	0	702
8:30 AM	32	100	23	1	21	58	15	0	33	88	22	0	23	178	63	0	657
8:45 AM	21	62	10	0	26	40	16	0	24	82	20	1	15	171	56	0	544
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	222	831	146	2	219	466	138	0	238	783	203	14	176	1595	630	1	5664
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	126	497	77	1	130	270	60	0	137	450	129	7	96	817	380	1	3178
PEAK HR FACTOR :	0.90	0.840	0.713	0.250	0.774	0.718	0.833	0.000	0.778	0.765	0.849	0.583	0.649	0.950	0.922	0.250	0.860
	0.839				0.757				0.793				0.966				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	0 NR	0 NU	2 SL	3 ST	0 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	28	61	44	0	67	131	39	0	25	253	45	1	21	142	46	0	903
4:15 PM	27	64	30	0	43	113	25	0	25	220	30	1	16	122	37	0	753
4:30 PM	29	83	23	0	52	144	42	0	22	225	38	4	25	136	38	0	861
4:45 PM	31	82	23	0	67	117	32	0	17	272	37	2	30	135	38	0	883
5:00 PM	25	88	42	0	81	161	54	0	18	284	37	4	27	159	32	0	1012
5:15 PM	22	75	20	0	60	175	40	0	26	291	40	0	25	121	32	0	927
5:30 PM	32	81	14	0	54	140	41	0	22	312	50	1	22	105	34	0	908
5:45 PM	29	68	22	0	60	106	26	0	26	269	43	2	25	151	24	1	852
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	21.38%	57.72%	20.90%	0.00%	25.88%	58.13%	15.99%	0.00%	6.85%	80.47%	12.11%	0.57%	12.37%	69.37%	18.20%	0.06%	7099
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	110	326	99	0	262	593	167	0	83	1159	164	7	104	520	136	0	3730
PEAK HR FACTOR :	0.86	0.926	0.589	0.000	0.809	0.847	0.773	0.000	0.798	0.929	0.820	0.438	0.867	0.818	0.895	0.000	0.921
	0.863				0.863				0.918				0.872				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Del Amo Blvd
City: Carson
Control: Signalized

Project ID: 18-05105-001
Date: 2/20/2018

HT

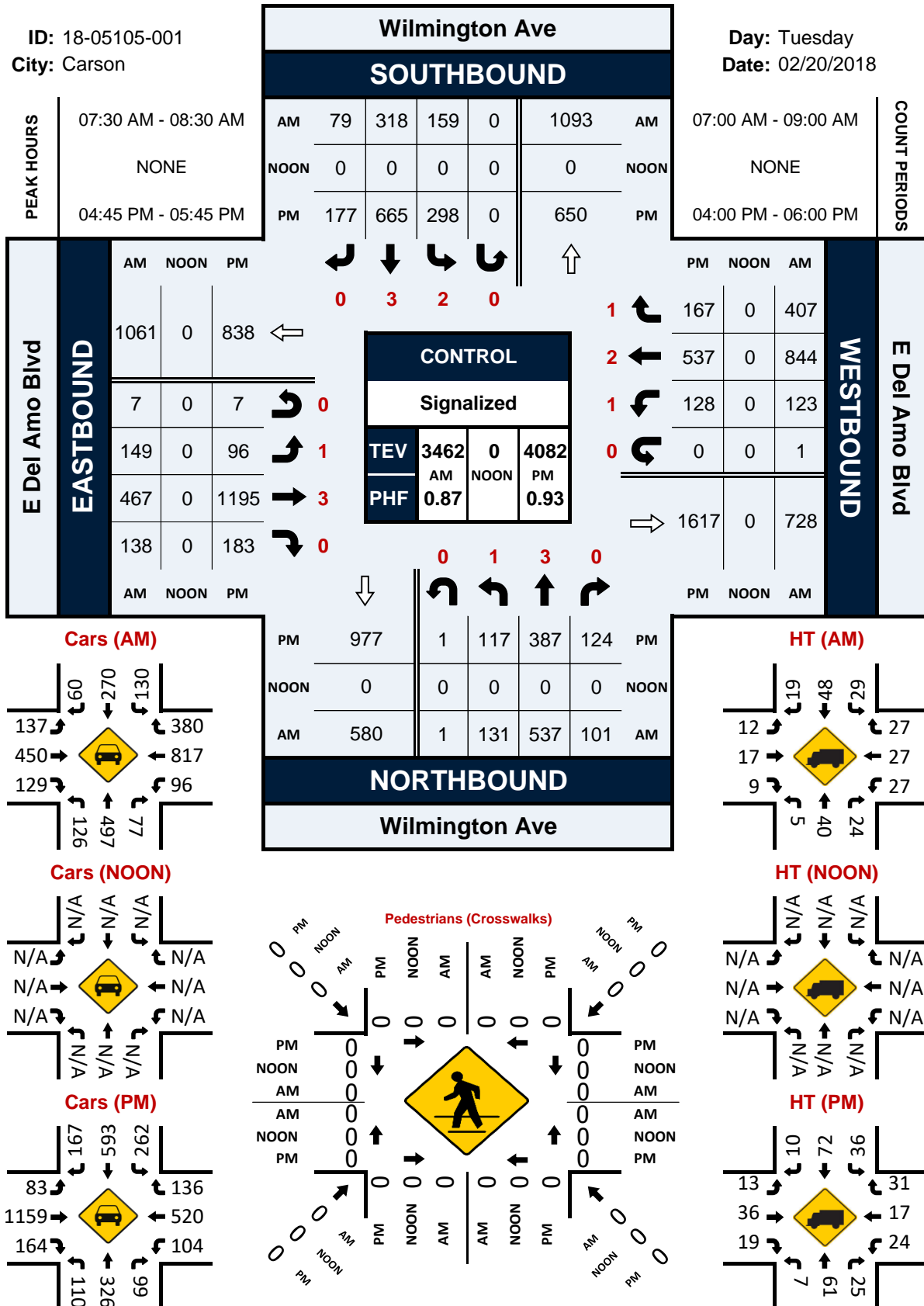
NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Del Amo Blvd				E Del Amo Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	3	0	0	2	3	0	0	1	3	0	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	2	10	6	0	12	12	3	0	1	4	2	0	5	10	4	0	71
7:15 AM	3	6	6	0	12	13	4	0	5	6	0	0	13	10	7	0	85
7:30 AM	0	9	7	0	8	10	5	0	2	4	2	0	8	6	6	0	67
7:45 AM	2	10	3	0	5	10	3	0	4	3	4	0	9	11	11	0	75
8:00 AM	3	9	10	0	6	10	6	0	5	4	0	0	4	6	3	0	66
8:15 AM	0	12	4	0	10	18	5	0	1	6	3	0	6	4	7	0	76
8:30 AM	2	8	7	0	8	17	6	0	3	7	3	0	8	11	9	0	89
8:45 AM	2	11	8	0	6	21	5	0	7	5	5	0	7	7	12	0	96
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	14	75	51	0	67	111	37	0	28	39	19	0	60	65	59	0	625
	10.00%	53.57%	36.43%	0.00%	31.16%	51.63%	17.21%	0.00%	32.56%	45.35%	22.09%	0.00%	32.61%	35.33%	32.07%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	5	40	24	0	29	48	19	0	12	17	9	0	27	27	27	0	284
PEAK HR FACTOR :	0.417	0.833	0.600	0.000	0.725	0.667	0.792	0.000	0.600	0.708	0.563	0.000	0.750	0.614	0.614	0.000	0.934
	0.784				0.727				0.864				0.653				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1	3	0	0	2	3	0	0	1	3	0	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	1	17	3	0	10	13	6	0	5	10	8	0	6	8	15	0	102
4:15 PM	1	11	4	0	4	20	5	0	8	15	2	0	7	5	10	0	92
4:30 PM	3	21	8	0	11	14	4	0	5	11	6	0	6	6	10	0	105
4:45 PM	0	21	6	0	5	18	1	0	5	12	3	0	9	3	7	0	90
5:00 PM	3	11	9	0	11	16	2	0	6	10	5	0	3	5	10	0	91
5:15 PM	2	9	7	0	11	21	5	0	1	7	9	0	8	6	9	0	95
5:30 PM	2	20	3	1	9	17	2	0	1	7	2	0	4	3	5	0	76
5:45 PM	0	16	2	0	5	11	2	0	3	3	3	0	1	5	10	0	61
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	12	126	42	1	66	130	27	0	34	75	38	0	44	41	76	0	712
	6.63%	69.61%	23.20%	0.55%	29.60%	58.30%	12.11%	0.00%	23.13%	51.02%	25.85%	0.00%	27.33%	25.47%	47.20%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	61	25	1	36	72	10	0	13	36	19	0	24	17	31	0	352
PEAK HR FACTOR :	0.58	0.726	0.694	0.250	0.818	0.857	0.500	0.000	0.542	0.750	0.528	0.000	0.667	0.708	0.775	0.000	0.926
	0.870				0.797				0.810				0.783				

Wilmington Ave & E Del Amo Blvd

Peak Hour Turning Movement Count

ID: 18-05105-001
City: Carson

Day: Tuesday
Date: 02/20/2018



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Dominguez St
City: Carson
Control: Signalized

Project ID: 18-05105-002
Date: 2/20/2018

Total

NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Dominguez St				E Dominguez St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	4	133	28	0	10	89	3	0	2	0	9	0	17	0	6	0	301
7:15 AM	2	145	33	1	5	98	5	0	1	0	1	0	17	0	6	0	314
7:30 AM	3	155	35	2	9	147	3	1	2	0	0	0	21	1	3	0	382
7:45 AM	1	234	56	1	15	156	4	0	2	0	2	0	14	0	9	0	494
8:00 AM	2	188	34	1	11	111	2	0	3	0	2	0	20	0	6	0	380
8:15 AM	2	166	37	6	8	109	4	0	3	0	0	0	8	0	5	0	348
8:30 AM	0	141	32	2	13	112	5	1	4	0	1	0	10	0	12	0	333
8:45 AM	0	120	32	1	11	99	2	0	1	0	3	0	12	0	4	0	285
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	14	1282	287	14	82	921	28	2	18	0	18	0	119	1	51	0	2837
	0.88%	80.28%	17.97%	0.88%	7.94%	89.16%	2.71%	0.19%	50.00%	0.00%	50.00%	0.00%	69.59%	0.58%	29.82%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM				43	523	13	1	10	0	4	0	63	1	23	0	TOTAL
PEAK HR VOL :	8	743	162	10	0.717	0.838	0.813	0.250	0.833	0.000	0.500	0.000	0.750	0.250	0.639	0.000	1604
PEAK HR FACTOR :	0.667	0.794	0.723	0.417	0.829				0.700				0.837				0.812

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
4:00 PM	1	138	19	4	10	216	1	0	6	0	8	0	48	0	11	0	462
4:15 PM	1	128	25	5	3	183	2	0	5	0	4	0	24	0	9	0	389
4:30 PM	1	139	20	5	8	219	4	0	7	0	2	0	57	0	19	0	481
4:45 PM	0	140	20	0	13	202	0	0	2	0	3	0	23	0	9	0	412
5:00 PM	1	140	24	8	2	250	1	0	4	0	1	0	56	0	10	0	497
5:15 PM	0	127	22	2	5	282	3	0	1	0	1	0	22	0	14	0	479
5:30 PM	1	123	18	1	6	229	1	0	0	0	2	0	58	0	28	0	467
5:45 PM	0	118	18	2	3	191	0	0	1	0	1	0	26	0	8	0	368
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	5	1053	166	27	50	1772	12	0	26	0	22	0	314	0	108	0	3555
	0.40%	84.17%	13.27%	2.16%	2.73%	96.62%	0.65%	0.00%	54.17%	0.00%	45.83%	0.00%	74.41%	0.00%	25.59%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM				28	953	8	0	14	0	7	0	158	0	52	0	TOTAL
PEAK HR VOL :	2	546	86	15	0.538	0.845	0.500	0.000	0.500	0.000	0.583	0.000	0.693	0.000	0.684	0.000	1869
PEAK HR FACTOR :	0.500	0.975	0.896	0.469	0.853				0.583				0.691				0.940

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Dominguez St
City: Carson
Control: Signalized

Project ID: 18-05105-002
Date: 2/20/2018

Cars

NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Dominguez St				E Dominguez St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	4	123	20	0	10	75	0	0	0	0	9	0	10	0	3	0	254
7:15 AM	2	130	29	0	4	77	3	0	0	0	1	0	13	0	3	0	262
7:30 AM	3	145	32	0	7	129	2	0	0	0	0	0	15	1	1	0	335
7:45 AM	1	218	51	1	13	138	0	0	0	0	2	0	10	0	9	0	443
8:00 AM	1	175	31	0	10	99	1	0	0	0	2	0	12	0	5	0	336
8:15 AM	2	153	32	3	6	85	2	0	0	0	0	0	5	0	2	0	290
8:30 AM	0	132	29	0	9	93	1	1	1	0	1	0	6	0	8	0	281
8:45 AM	0	101	22	1	6	74	0	0	0	0	3	0	9	0	2	0	218
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	13	1177	246	5	65	770	9	1	1	0	18	0	80	1	33	0	2419
	0.90%	81.68%	17.07%	0.35%	7.69%	91.12%	1.07%	0.12%	5.26%	0.00%	94.74%	0.00%	70.18%	0.88%	28.95%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	7	691	146	4	36	451	5	0	0	0	4	0	42	1	17	0	1404
PEAK HR FACTOR :	0.58	0.792	0.716	0.333	0.692	0.817	0.625	0.000	0.000	0.000	0.500	0.000	0.700	0.250	0.472	0.000	0.792
	0.782				0.815				0.500				0.789				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
4:00 PM	1	120	12	4	6	194	0	0	5	0	7	0	44	0	9	0	402
4:15 PM	1	110	21	5	3	155	0	0	5	0	4	0	23	0	6	0	333
4:30 PM	1	111	13	5	5	201	2	0	4	0	2	0	55	0	16	0	415
4:45 PM	0	123	16	0	8	173	0	0	1	0	3	0	21	0	7	0	352
5:00 PM	1	122	17	7	1	228	1	0	1	0	1	0	50	0	8	0	437
5:15 PM	0	114	19	2	5	244	0	0	0	0	1	0	20	0	8	0	413
5:30 PM	1	101	16	1	5	209	0	0	0	0	2	0	57	0	26	0	418
5:45 PM	0	104	18	2	1	177	0	0	0	0	1	0	25	0	7	0	335
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	5	905	132	26	34	1581	3	0	16	0	21	0	295	0	87	0	3105
	0.47%	84.74%	12.36%	2.43%	2.10%	97.71%	0.19%	0.00%	43.24%	0.00%	56.76%	0.00%	77.23%	0.00%	22.77%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	470	65	14	19	846	3	0	6	0	7	0	146	0	39	0	1617
PEAK HR FACTOR :	0.50	0.955	0.855	0.500	0.594	0.867	0.375	0.000	0.375	0.000	0.583	0.000	0.664	0.000	0.609	0.000	0.925
	0.937				0.871				0.542				0.651				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Dominguez St
City: Carson
Control: Signalized

Project ID: 18-05105-002
Date: 2/20/2018

HT

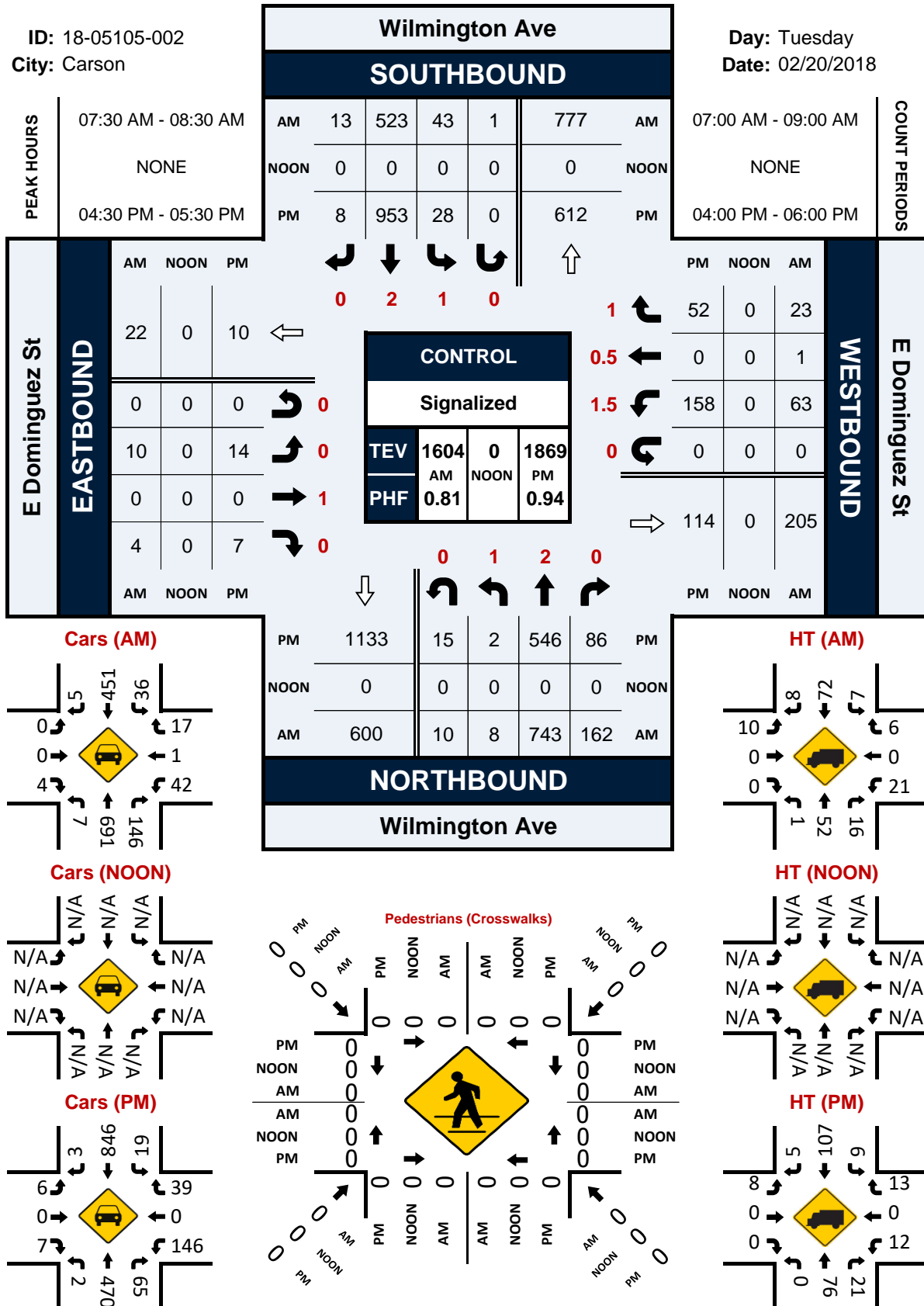
NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Dominguez St				E Dominguez St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	0	10	8	0	0	14	3	0	2	0	0	0	7	0	3	0	47
7:15 AM	0	15	4	1	1	21	2	0	1	0	0	0	4	0	3	0	52
7:30 AM	0	10	3	2	2	18	1	1	2	0	0	0	6	0	2	0	47
7:45 AM	0	16	5	0	2	18	4	0	2	0	0	0	4	0	0	0	51
8:00 AM	1	13	3	1	1	12	1	0	3	0	0	0	8	0	1	0	44
8:15 AM	0	13	5	3	2	24	2	0	3	0	0	0	3	0	3	0	58
8:30 AM	0	9	3	2	4	19	4	0	3	0	0	0	4	0	4	0	52
8:45 AM	0	19	10	0	5	25	2	0	1	0	0	0	3	0	2	0	67
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	105	41	9	17	151	19	1	17	0	0	0	39	0	18	0	418
	0.64%	67.31%	26.28%	5.77%	9.04%	80.32%	10.11%	0.53%	100.00%	0.00%	0.00%	0.00%	68.42%	0.00%	31.58%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	52	16	6	7	72	8	1	10	0	0	0	21	0	6	0	200
PEAK HR FACTOR :	0.250	0.813	0.800	0.500	0.875	0.750	0.500	0.250	0.833	0.000	0.000	0.000	0.656	0.000	0.500	0.000	0.862
	0.893				0.786				0.833				0.750				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0 EL	1 ET	0 ER	0 EU	1.5 WL	0.5 WT	1 WR	0 WU	
4:00 PM	0	18	7	0	4	22	1	0	1	0	1	0	4	0	2	0	60
4:15 PM	0	18	4	0	0	28	2	0	0	0	0	0	1	0	3	0	56
4:30 PM	0	28	7	0	3	18	2	0	3	0	0	0	2	0	3	0	66
4:45 PM	0	17	4	0	5	29	0	0	1	0	0	0	2	0	2	0	60
5:00 PM	0	18	7	1	1	22	0	0	3	0	0	0	6	0	2	0	60
5:15 PM	0	13	3	0	0	38	3	0	1	0	0	0	2	0	6	0	66
5:30 PM	0	22	2	0	1	20	1	0	0	0	0	0	1	0	2	0	49
5:45 PM	0	14	0	0	2	14	0	0	1	0	0	0	1	0	1	0	33
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	148	34	1	16	191	9	0	10	0	1	0	19	0	21	0	450
	0.00%	80.87%	18.58%	0.55%	7.41%	88.43%	4.17%	0.00%	90.91%	0.00%	9.09%	0.00%	47.50%	0.00%	52.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	76	21	1	9	107	5	0	8	0	0	0	12	0	13	0	252
PEAK HR FACTOR :	0.00	0.679	0.750	0.250	0.450	0.704	0.417	0.000	0.667	0.000	0.000	0.000	0.500	0.000	0.542	0.000	0.955
	0.700				0.738				0.667				0.781				

Wilmington Ave & E Dominguez St

Peak Hour Turning Movement Count

ID: 18-05105-002
City: Carson

Day: Tuesday
Date: 02/20/2018



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Carson St
City: Carson
Control: Signalized

Project ID: 18-05105-003
Date: 2/20/2018

Total

NS/EW Streets:		Wilmington Ave				Wilmington Ave				E Carson St				E Carson St				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
	7:00 AM	7	77	11	1	17	62	27	1	31	47	6	1	15	70	36	0	409
	7:15 AM	12	85	11	1	22	71	28	1	46	68	12	2	15	114	44	0	532
	7:30 AM	11	86	8	0	29	69	47	1	50	111	11	1	18	118	54	0	614
	7:45 AM	16	135	23	1	49	83	38	1	55	110	14	1	14	111	90	1	742
	8:00 AM	10	115	11	1	37	79	33	1	60	104	6	1	19	81	63	0	621
	8:15 AM	12	88	21	2	29	67	26	1	44	108	8	2	13	119	50	2	592
	8:30 AM	8	96	12	2	30	68	23	1	39	74	12	1	6	73	43	2	490
	8:45 AM	10	92	15	1	25	75	36	1	42	54	11	0	14	67	26	0	469
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		86	774	112	9	238	574	258	8	367	676	80	9	114	753	406	5	4469
PEAK HR :		07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :		49	424	63	4	144	298	144	4	209	433	39	5	64	429	257	3	2569
PEAK HR FACTOR :		0.766	0.785	0.685	0.500	0.735	0.898	0.766	1.000	0.871	0.975	0.696	0.625	0.842	0.901	0.714	0.375	0.866
		0.771				0.863				0.953				0.872				
PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
	4:00 PM	22	75	32	0	56	148	67	5	38	172	13	1	16	65	22	0	732
	4:15 PM	14	76	23	0	49	125	64	2	38	176	21	1	11	74	36	0	710
	4:30 PM	22	84	27	0	47	148	66	4	30	184	17	0	20	100	32	1	782
	4:45 PM	13	66	20	0	54	107	46	0	41	180	24	0	21	96	44	0	712
	5:00 PM	27	63	12	0	67	141	79	0	22	174	21	0	9	107	45	1	768
	5:15 PM	26	63	22	1	60	163	72	0	35	181	28	0	15	102	34	0	802
	5:30 PM	22	75	18	0	56	144	62	0	23	202	27	0	11	83	37	0	760
	5:45 PM	17	77	22	1	64	126	42	1	26	159	28	0	15	68	27	0	673
TOTAL VOLUMES :		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :		163	579	176	2	453	1102	498	12	253	1428	179	2	118	695	277	2	5939
PEAK HR :		04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :		88	276	81	1	228	559	263	4	128	719	90	0	65	405	155	2	3064
PEAK HR FACTOR :		0.815	0.821	0.750	0.250	0.851	0.857	0.832	0.250	0.780	0.977	0.804	0.000	0.774	0.946	0.861	0.500	0.955
		0.838				0.893				0.956				0.968				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Carson St
City: Carson
Control: Signalized

Project ID: 18-05105-003
Date: 2/20/2018

Cars

NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Carson St				E Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	7	72	8	1	11	42	24	1	30	45	5	1	12	68	33	0	360
7:15 AM	10	79	9	1	13	50	17	1	44	67	11	2	11	112	40	0	467
7:30 AM	9	81	8	0	21	58	41	1	48	109	10	1	13	115	49	0	564
7:45 AM	15	119	19	1	43	69	34	1	54	106	13	1	10	109	87	1	682
8:00 AM	8	106	9	1	24	62	29	1	59	99	6	1	15	80	58	0	558
8:15 AM	11	80	10	2	22	47	21	1	41	102	7	2	11	116	46	2	521
8:30 AM	7	87	5	2	16	52	18	1	35	71	12	1	5	67	36	2	417
8:45 AM	10	67	6	1	13	57	27	1	41	51	9	0	7	64	23	0	377
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	77	691	74	9	163	437	211	8	352	650	73	9	84	731	372	5	3946
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	43	386	46	4	110	236	125	4	202	416	36	5	49	420	240	3	2325
PEAK HR FACTOR :	0.72	0.811	0.605	0.500	0.640	0.855	0.762	1.000	0.856	0.954	0.692	0.625	0.817	0.905	0.690	0.375	0.852
	0.778				0.808				0.947				0.860				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	21	56	22	0	46	137	63	4	36	169	12	1	11	62	18	0	658
4:15 PM	14	53	14	0	42	106	59	2	36	170	20	1	2	71	24	0	614
4:30 PM	21	62	16	0	43	134	65	4	25	182	17	0	13	96	26	1	705
4:45 PM	13	54	17	0	47	89	45	0	38	178	24	0	12	91	29	0	637
5:00 PM	27	48	9	0	60	127	76	0	20	169	21	0	7	101	37	1	703
5:15 PM	26	54	17	1	54	142	65	0	33	179	28	0	11	97	29	0	736
5:30 PM	22	61	15	0	54	127	62	0	18	198	25	0	8	77	29	0	696
5:45 PM	16	63	18	1	60	114	42	1	23	158	28	0	11	66	23	0	624
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	160	451	128	2	406	976	477	11	229	1403	175	2	75	661	215	2	5373
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	87	218	59	1	204	492	251	4	116	708	90	0	43	385	121	2	2781
PEAK HR FACTOR :	0.81	0.879	0.868	0.250	0.850	0.866	0.826	0.250	0.763	0.973	0.804	0.000	0.827	0.953	0.818	0.500	0.945
	0.922				0.904				0.952				0.943				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & E Carson St
City: Carson
Control: Signalized

Project ID: 18-05105-003
Date: 2/20/2018

HT

NS/EW Streets:	Wilmington Ave				Wilmington Ave				E Carson St				E Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	0	5	3	0	6	20	3	0	1	2	1	0	3	2	3	0	49
7:15 AM	2	6	2	0	9	21	11	0	2	1	1	0	4	2	4	0	65
7:30 AM	2	5	0	0	8	11	6	0	2	2	1	0	5	3	5	0	50
7:45 AM	1	16	4	0	6	14	4	0	1	4	1	0	4	2	3	0	60
8:00 AM	2	9	2	0	13	17	4	0	1	5	0	0	4	1	5	0	63
8:15 AM	1	8	11	0	7	20	5	0	3	6	1	0	2	3	4	0	71
8:30 AM	1	9	7	0	14	16	5	0	4	3	0	0	1	6	7	0	73
8:45 AM	0	25	9	0	12	18	9	0	1	3	2	0	7	3	3	0	92
TOTAL VOLUMES :	NL 9	NT 83	NR 38	NU 0	SL 75	ST 137	SR 47	SU 0	EL 15	ET 26	ER 7	EU 0	WL 30	WT 22	WR 34	WU 0	TOTAL 523
APPROACH %'s :	6.92%	63.85%	29.23%	0.00%	28.96%	52.90%	18.15%	0.00%	31.25%	54.17%	14.58%	0.00%	34.88%	25.58%	39.53%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	6	38	17	0	34	62	19	0	7	17	3	0	15	9	17	0	244
PEAK HR FACTOR :	0.750	0.594	0.386	0.000	0.654	0.775	0.792	0.000	0.583	0.708	0.750	0.000	0.750	0.750	0.850	0.000	0.859
	0.726				0.846				0.675				0.788				

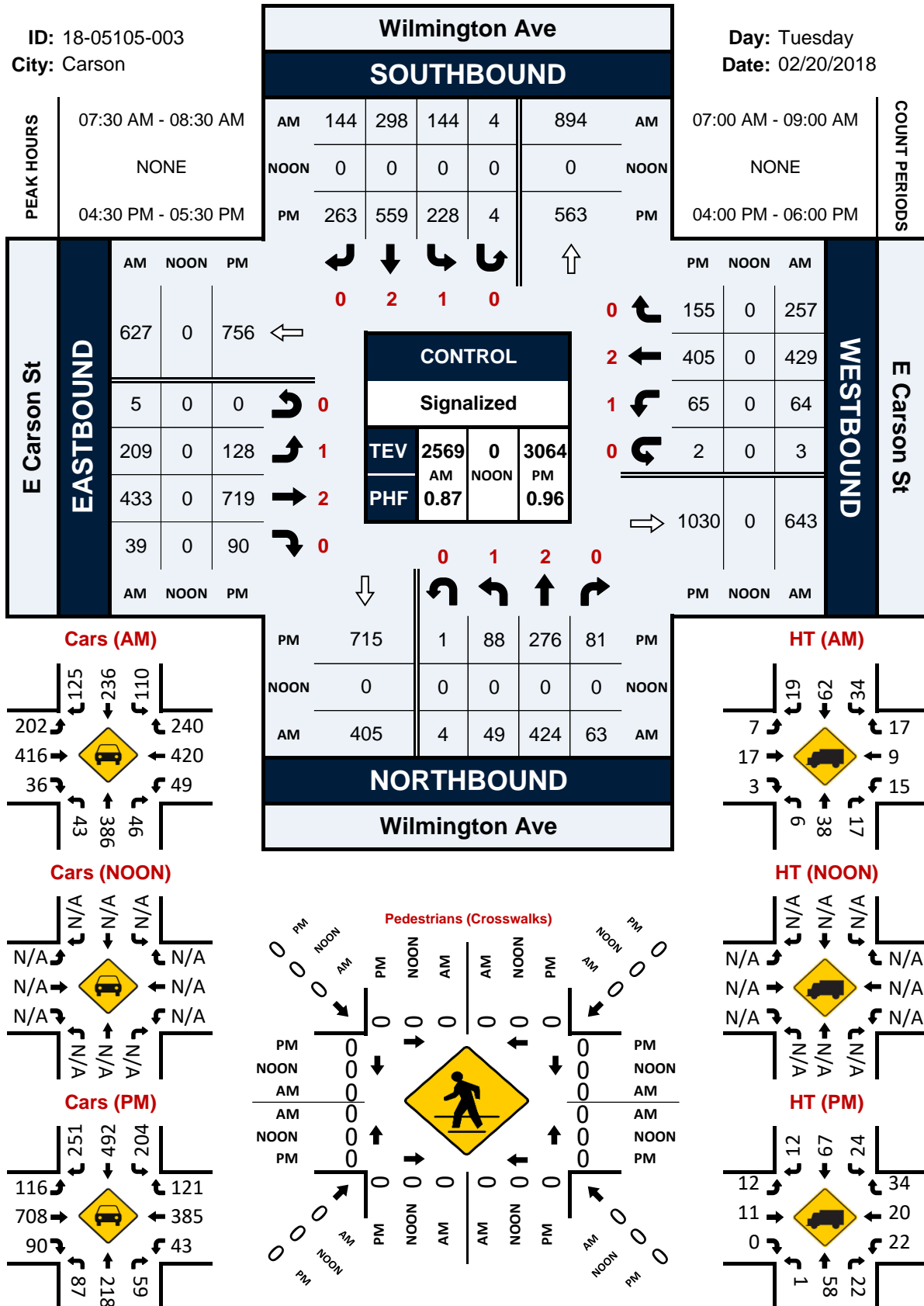
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	1	19	10	0	10	11	4	1	2	3	1	0	5	3	4	0	74
4:15 PM	0	23	9	0	7	19	5	0	2	6	1	0	9	3	12	0	96
4:30 PM	1	22	11	0	4	14	1	0	5	2	0	0	7	4	6	0	77
4:45 PM	0	12	3	0	7	18	1	0	3	2	0	0	9	5	15	0	75
5:00 PM	0	15	3	0	7	14	3	0	2	5	0	0	2	6	8	0	65
5:15 PM	0	9	5	0	6	21	7	0	2	2	0	0	4	5	5	0	66
5:30 PM	0	14	3	0	2	17	0	0	5	4	2	0	3	6	8	0	64
5:45 PM	1	14	4	0	4	12	0	0	3	1	0	0	4	2	4	0	49
TOTAL VOLUMES :	NL 3	NT 128	NR 48	NU 0	SL 47	ST 126	SR 21	SU 1	EL 24	ET 25	ER 4	EU 0	WL 43	WT 34	WR 62	WU 0	TOTAL 566
APPROACH %'s :	1.68%	71.51%	26.82%	0.00%	24.10%	64.62%	10.77%	0.51%	45.28%	47.17%	7.55%	0.00%	30.94%	24.46%	44.60%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	58	22	0	24	67	12	0	12	11	0	0	22	20	34	0	283
PEAK HR FACTOR :	0.25	0.659	0.500	0.000	0.857	0.798	0.429	0.000	0.600	0.550	0.000	0.000	0.611	0.833	0.567	0.000	0.919
	0.596				0.757				0.821				0.655				

Wilmington Ave & E Carson St

Peak Hour Turning Movement Count

ID: 18-05105-003
City: Carson

Day: Tuesday
Date: 02/20/2018



National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & I-405 on/off Ramps
City: Carson
Control: Signalized

Project ID: 18-05105-004
Date: 2/20/2018

Total

NS/EW Streets:		Wilmington Ave				Wilmington Ave				I-405 on/off Ramps				I-405 on/off Ramps				
AM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
		0 NL	1.5 NT	0.5 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	
7:00 AM		0	33	7	0	0	99	0	0	0	0	0	0	187	0	86	0	412
7:15 AM		0	50	8	0	0	109	0	0	0	0	0	0	192	0	80	0	439
7:30 AM		0	54	9	0	0	100	0	0	0	0	0	0	182	0	95	0	440
7:45 AM		0	84	14	0	1	111	0	0	0	0	0	0	194	0	116	0	520
8:00 AM		0	66	14	0	0	89	0	0	0	0	0	0	188	0	110	0	467
8:15 AM		0	66	7	0	0	109	0	0	0	0	0	0	148	0	107	0	437
8:30 AM		0	51	8	0	0	92	0	0	0	0	0	0	146	0	109	0	406
8:45 AM		0	56	5	0	1	103	0	0	0	0	0	0	145	0	93	0	403
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:		0	460	72	0	2	812	0	0	0	0	0	0	1382	0	796	0	3524
		0.00%	86.47%	13.53%	0.00%	0.25%	99.75%	0.00%	0.00%					63.45%	0.00%	36.55%	0.00%	
PEAK HR:		07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL:		0	254	45	0	1	409	0	0	0	0	0	0	756	0	401	0	1866
PEAK HR FACTOR:		0.000	0.756	0.804	0.000	0.250	0.921	0.000	0.000	0.000	0.000	0.000	0.000	0.974	0.000	0.864	0.000	0.897
		0.763				0.915								0.933				

PM		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
		0 NL	1.5 NT	0.5 NR	0 NU	0 SL	2 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	2 WL	0 WT	1 WR	0 WU	TOTAL
		0	45	19	0	0	200	0	0	0	0	0	0	0	194	0	72	
4:00 PM		0	45	19	0	0	200	0	0	0	0	0	0	194	0	72	0	530
4:15 PM		0	40	20	0	0	184	0	0	0	0	0	0	160	0	79	0	483
4:30 PM		0	46	49	0	0	205	0	0	0	0	0	0	182	0	77	0	559
4:45 PM		0	29	30	0	0	173	0	0	0	0	0	0	188	0	67	0	487
5:00 PM		0	33	24	0	0	195	0	0	0	0	0	0	178	0	74	0	504
5:15 PM		0	33	15	0	0	197	0	0	0	0	0	0	213	0	86	0	544
5:30 PM		0	46	21	0	0	209	0	0	0	0	0	0	183	0	79	0	538
5:45 PM		0	37	22	0	0	171	0	0	0	0	0	0	204	0	71	0	505
TOTAL VOLUMES:		NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s:		0	309	200	0	0	1534	0	0	0	0	0	0	1502	0	605	0	4150
		0.00%	60.71%	39.29%	0.00%	0.00%	100.00%	0.00%	0.00%					71.29%	0.00%	28.71%	0.00%	
PEAK HR:		04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL:		0	141	118	0	0	770	0	0	0	0	0	0	761	0	304	0	2094
PEAK HR FACTOR:		0.000	0.766	0.602	0.000	0.000	0.939	0.000	0.000	0.000	0.000	0.000	0.000	0.893	0.000	0.884	0.000	0.936
		0.682				0.939								0.890				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & I-405 on/off Ramps
City: Carson
Control: Signalized

Project ID: 18-05105-004
Date: 2/20/2018

Cars

NS/EW Streets:	Wilmington Ave				Wilmington Ave				I-405 on/off Ramps				I-405 on/off Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1.5	0.5	0	0	2	0	0	0	0	0	0	2	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	29	5	0	0	72	0	0	0	0	0	0	173	0	78	0	357
7:15 AM	0	45	7	0	0	83	0	0	0	0	0	0	174	0	76	0	385
7:30 AM	0	46	7	0	0	85	0	0	0	0	0	0	170	0	93	0	401
7:45 AM	0	70	9	0	0	96	0	0	0	0	0	0	176	0	108	0	459
8:00 AM	0	64	12	0	0	68	0	0	0	0	0	0	167	0	96	0	407
8:15 AM	0	59	6	0	0	82	0	0	0	0	0	0	130	0	92	0	369
8:30 AM	0	44	6	0	0	73	0	0	0	0	0	0	127	0	101	0	351
8:45 AM	0	40	3	0	0	75	0	0	0	0	0	0	115	0	71	0	304
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	397	55	0	0	634	0	0	0	0	0	0	1232	0	715	0	3033
	0.00%	87.83%	12.17%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	63.28%	0.00%	36.72%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	225	35	0	0	332	0	0	0	0	0	0	687	0	373	0	1652
PEAK HR FACTOR :	0.00	0.804	0.729	0.000	0.000	0.865	0.000	0.000	0.000	0.000	0.000	0.000	0.976	0.000	0.863	0.000	0.900
	0.823				0.865								0.933				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1.5	0.5	0	0	2	0	0	0	0	0	0	2	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	36	19	0	0	179	0	0	0	0	0	0	172	0	54	0	460
4:15 PM	0	27	17	0	0	150	0	0	0	0	0	0	150	0	49	0	393
4:30 PM	0	38	47	0	0	184	0	0	0	0	0	0	169	0	58	0	496
4:45 PM	0	25	29	0	0	149	0	0	0	0	0	0	176	0	54	0	433
5:00 PM	0	23	21	0	0	178	0	0	0	0	0	0	167	0	67	0	456
5:15 PM	0	22	14	0	0	175	0	0	0	0	0	0	201	0	78	0	490
5:30 PM	0	36	19	0	0	184	0	0	0	0	0	0	171	0	71	0	481
5:45 PM	0	30	19	0	0	153	0	0	0	0	0	0	188	0	66	0	456
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	237	185	0	0	1352	0	0	0	0	0	0	1394	0	497	0	3665
	0.00%	56.16%	43.84%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	73.72%	0.00%	26.28%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	108	111	0	0	686	0	0	0	0	0	0	713	0	257	0	1875
PEAK HR FACTOR :	0.00	0.711	0.590	0.000	0.000	0.932	0.000	0.000	0.000	0.000	0.000	0.000	0.887	0.000	0.824	0.000	0.945
	0.644				0.932								0.869				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Wilmington Ave & I-405 on/off Ramps
City: Carson
Control: Signalized

Project ID: 18-05105-004
Date: 2/20/2018

HT

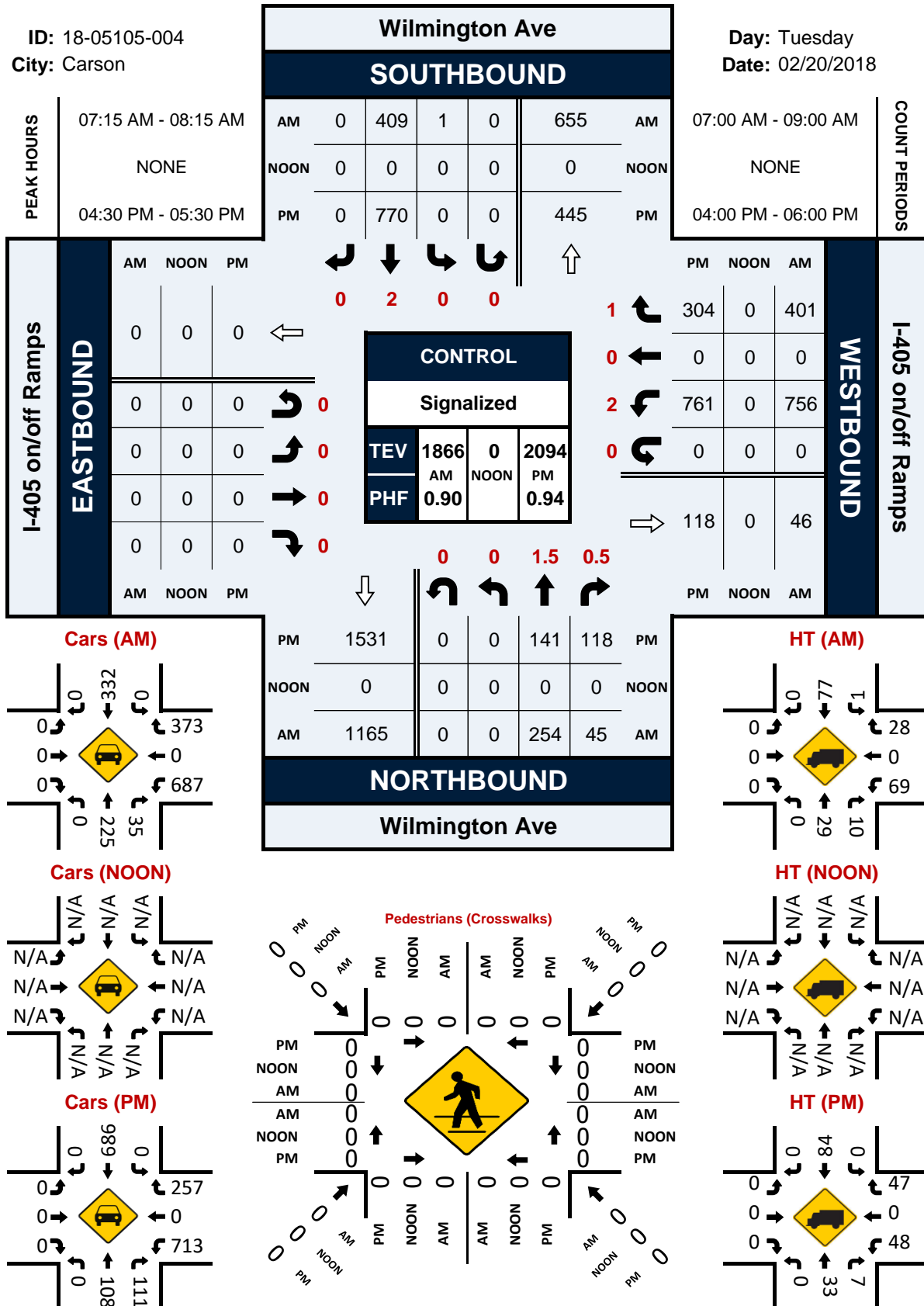
NS/EW Streets:	Wilmington Ave				Wilmington Ave				I-405 on/off Ramps				I-405 on/off Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1.5	0.5	0	0	2	0	0	0	0	0	0	2	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	4	2	0	0	27	0	0	0	0	0	0	14	0	8	0	55
7:15 AM	0	5	1	0	0	26	0	0	0	0	0	0	18	0	4	0	54
7:30 AM	0	8	2	0	0	15	0	0	0	0	0	0	12	0	2	0	39
7:45 AM	0	14	5	0	1	15	0	0	0	0	0	0	18	0	8	0	61
8:00 AM	0	2	2	0	0	21	0	0	0	0	0	0	21	0	14	0	60
8:15 AM	0	7	1	0	0	27	0	0	0	0	0	0	18	0	15	0	68
8:30 AM	0	7	2	0	0	19	0	0	0	0	0	0	19	0	8	0	55
8:45 AM	0	16	2	0	1	28	0	0	0	0	0	0	30	0	22	0	99
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	63	17	0	2	178	0	0	0	0	0	0	150	0	81	0	491
	0.00%	78.75%	21.25%	0.00%	1.11%	98.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	64.94%	0.00%	35.06%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	29	10	0	1	77	0	0	0	0	0	0	69	0	28	0	214
PEAK HR FACTOR :	0.000	0.518	0.500	0.000	0.250	0.740	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.000	0.500	0.000	0.877
	0.513				0.750								0.693				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1.5	0.5	0	0	2	0	0	0	0	0	0	2	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	9	0	0	0	21	0	0	0	0	0	0	22	0	18	0	70
4:15 PM	0	13	3	0	0	34	0	0	0	0	0	0	10	0	30	0	90
4:30 PM	0	8	2	0	0	21	0	0	0	0	0	0	13	0	19	0	63
4:45 PM	0	4	1	0	0	24	0	0	0	0	0	0	12	0	13	0	54
5:00 PM	0	10	3	0	0	17	0	0	0	0	0	0	11	0	7	0	48
5:15 PM	0	11	1	0	0	22	0	0	0	0	0	0	12	0	8	0	54
5:30 PM	0	10	2	0	0	25	0	0	0	0	0	0	12	0	8	0	57
5:45 PM	0	7	3	0	0	18	0	0	0	0	0	0	16	0	5	0	49
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	72	15	0	0	182	0	0	0	0	0	0	108	0	108	0	485
	0.00%	82.76%	17.24%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	33	7	0	0	84	0	0	0	0	0	0	48	0	47	0	219
PEAK HR FACTOR :	0.00	0.750	0.583	0.000	0.000	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.923	0.000	0.618	0.000	0.869
	0.769				0.875								0.742				

Wilmington Ave & I-405 on/off Ramps

Peak Hour Turning Movement Count

ID: 18-05105-004
City: Carson

Day: Tuesday
Date: 02/20/2018



National Data & Surveying Services

Intersection Turning Movement Count

Location: Wilmington Ave & I-405 On/Off Ramps
City: Carson
Control: Signalized

Project ID: 18-05185-001
Date: 3/20/2018

Total																	
NS/EW Streets:	Wilmington Ave				Wilmington Ave				I-405 On/Off Ramps				I-405 On/Off Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	1 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	0	49	183	0	30	239	0	0	10	0	38	0	0	0	0	0	549
7:15 AM	0	54	180	0	49	295	0	0	17	0	43	0	0	0	0	0	638
7:30 AM	0	78	182	0	65	288	0	0	11	0	48	0	0	0	0	0	672
7:45 AM	0	97	145	0	62	265	0	0	22	0	61	0	0	0	0	0	652
8:00 AM	0	67	152	0	39	210	0	0	14	0	38	0	0	0	0	0	520
8:15 AM	0	58	177	0	59	212	0	0	28	0	46	0	0	0	0	0	580
8:30 AM	0	64	159	0	61	214	0	0	14	0	31	0	0	0	0	0	543
8:45 AM	0	60	119	0	33	203	0	0	18	0	41	0	0	0	0	0	474
TOTAL VOLUMES :	NL 0	NT 527	NR 1297	NU 0	SL 398	ST 1926	SR 0	SU 0	EL 134	ET 0	ER 346	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 4628
APPROACH %'s :	0.00%	28.89%	71.11%	0.00%	17.13%	82.87%	0.00%	0.00%	27.92%	0.00%	72.08%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	278	690	0	206	1087	0	0	60	0	190	0	0	0	0	0	2511
PEAK HR FACTOR :	0.000	0.716	0.943	0.000	0.792	0.921	0.000	0.000	0.682	0.000	0.779	0.000	0.000	0.000	0.000	0.000	0.934
	0.931				0.916				0.753								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	1 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	78	250	0	135	241	0	0	7	0	15	0	0	0	0	0	726
4:15 PM	0	68	255	0	95	256	0	0	3	0	14	0	0	0	0	0	691
4:30 PM	0	117	271	0	131	281	0	0	5	1	14	0	0	0	0	0	820
4:45 PM	0	84	279	0	128	300	0	0	1	0	12	0	0	0	0	0	804
5:00 PM	0	95	258	0	128	324	0	0	0	1	15	0	0	0	0	0	821
5:15 PM	0	61	234	0	147	331	0	0	1	0	7	0	0	0	0	0	781
5:30 PM	0	79	271	0	126	267	0	0	3	2	11	0	0	0	0	0	759
5:45 PM	0	56	224	0	112	266	0	0	1	1	13	0	0	0	0	0	673
TOTAL VOLUMES :	NL 0	NT 638	NR 2042	NU 0	SL 1002	ST 2266	SR 0	SU 0	EL 21	ET 5	ER 101	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 6075
APPROACH %'s :	0.00%	23.81%	76.19%	0.00%	30.66%	69.34%	0.00%	0.00%	16.54%	3.94%	79.53%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	357	1042	0	534	1236	0	0	7	2	48	0	0	0	0	0	3226
PEAK HR FACTOR :	0.000	0.763	0.934	0.000	0.908	0.934	0.000	0.000	0.350	0.500	0.800	0.000	0.000	0.000	0.000	0.000	0.982
	0.901				0.926				0.713								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Wilmington Ave & I-405 On/Off Ramps
City: Carson
Control: Signalized

Project ID: 18-05185-001
Date: 3/20/2018

Cars

NS/EW Streets:	Wilmington Ave				Wilmington Ave				I-405 On/Off Ramps				I-405 On/Off Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
7:00 AM	0	42	164	0	26	215	0	0	10	0	33	0	0	0	0	0	490
7:15 AM	0	48	164	0	41	261	0	0	16	0	35	0	0	0	0	0	565
7:30 AM	0	59	165	0	58	265	0	0	11	0	38	0	0	0	0	0	596
7:45 AM	0	87	129	0	48	239	0	0	22	0	52	0	0	0	0	0	577
8:00 AM	0	50	131	0	31	173	0	0	12	0	26	0	0	0	0	0	423
8:15 AM	0	49	147	0	47	174	0	0	25	0	32	0	0	0	0	0	474
8:30 AM	0	49	126	0	46	167	0	0	13	0	25	0	0	0	0	0	426
8:45 AM	0	47	87	0	24	162	0	0	17	0	31	0	0	0	0	0	368
TOTAL VOLUMES :	NL 0	NT 431	NR 1113	NU 0	SL 321	ST 1656	SR 0	SU 0	EL 126	ET 0	ER 272	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 3919
APPROACH %'s :	0.00%	27.91%	72.09%	0.00%	16.24%	83.76%	0.00%	0.00%	31.66%	0.00%	68.34%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	236	622	0	173	980	0	0	59	0	158	0	0	0	0	0	2228
PEAK HR FACTOR :	0.00	0.678	0.942	0.000	0.746	0.925	0.000	0.000	0.670	0.000	0.760	0.000	0.000	0.000	0.000	0.000	0.935
	0.958				0.892				0.733								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	1 NU	1 SL	1 ST	1 SR	1 SU	1 EL	1 ET	1 ER	1 EU	1 WL	1 WT	1 WR	1 WU	
4:00 PM	0	61	229	0	125	220	0	0	4	0	13	0	0	0	0	0	652
4:15 PM	0	54	239	0	88	228	0	0	0	0	14	0	0	0	0	0	623
4:30 PM	0	111	261	0	118	263	0	0	3	1	12	0	0	0	0	0	769
4:45 PM	0	80	259	0	121	281	0	0	1	0	12	0	0	0	0	0	754
5:00 PM	0	81	237	0	120	301	0	0	0	1	13	0	0	0	0	0	753
5:15 PM	0	50	224	0	135	315	0	0	1	0	5	0	0	0	0	0	730
5:30 PM	0	76	261	0	113	244	0	0	2	2	10	0	0	0	0	0	708
5:45 PM	0	48	214	0	106	258	0	0	1	1	12	0	0	0	0	0	640
TOTAL VOLUMES :	NL 0	NT 561	NR 1924	NU 0	SL 926	ST 2110	SR 0	SU 0	EL 12	ET 5	ER 91	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 5629
APPROACH %'s :	0.00%	22.58%	77.42%	0.00%	30.50%	69.50%	0.00%	0.00%	11.11%	4.63%	84.26%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	322	981	0	494	1160	0	0	5	2	42	0	0	0	0	0	3006
PEAK HR FACTOR :	0.00	0.725	0.940	0.000	0.915	0.921	0.000	0.000	0.417	0.500	0.808	0.000	0.000	0.000	0.000	0.000	0.977
	0.876				0.919				0.766								

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Wilmington Ave & I-405 On/Off Ramps
City: Carson
Control: Signalized

Project ID: 18-05185-001
Date: 3/20/2018

HT

NS/EW Streets:	Wilmington Ave				Wilmington Ave				I-405 On/Off Ramps				I-405 On/Off Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	1 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	0	7	19	0	4	24	0	0	0	0	5	0	0	0	0	0	59
7:15 AM	0	6	16	0	8	34	0	0	1	0	8	0	0	0	0	0	73
7:30 AM	0	19	17	0	7	23	0	0	0	0	10	0	0	0	0	0	76
7:45 AM	0	10	16	0	14	26	0	0	0	0	9	0	0	0	0	0	75
8:00 AM	0	17	21	0	8	37	0	0	2	0	12	0	0	0	0	0	97
8:15 AM	0	9	30	0	12	38	0	0	3	0	14	0	0	0	0	0	106
8:30 AM	0	15	33	0	15	47	0	0	1	0	6	0	0	0	0	0	117
8:45 AM	0	13	32	0	9	41	0	0	1	0	10	0	0	0	0	0	106
TOTAL VOLUMES :	NL 0	NT 96	NR 184	NU 0	SL 77	ST 270	SR 0	SU 0	EL 8	ET 0	ER 74	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 709
APPROACH %'s :	0.00%	34.29%	65.71%	0.00%	22.19%	77.81%	0.00%	0.00%	9.76%	0.00%	90.24%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	42	68	0	33	107	0	0	1	0	32	0	0	0	0	0	283
PEAK HR FACTOR :	0.000	0.553	0.895	0.000	0.589	0.787	0.000	0.000	0.250	0.000	0.800	0.000	0.000	0.000	0.000	0.000	0.931
	0.764				0.833				0.825								
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	2 NT	1 NR	0 NU	1 SL	2 ST	0 SR	0 SU	0.5 EL	1 ET	0.5 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	17	21	0	10	21	0	0	3	0	2	0	0	0	0	0	74
4:15 PM	0	14	16	0	7	28	0	0	3	0	0	0	0	0	0	0	68
4:30 PM	0	6	10	0	13	18	0	0	2	0	2	0	0	0	0	0	51
4:45 PM	0	4	20	0	7	19	0	0	0	0	0	0	0	0	0	0	50
5:00 PM	0	14	21	0	8	23	0	0	0	0	2	0	0	0	0	0	68
5:15 PM	0	11	10	0	12	16	0	0	0	0	2	0	0	0	0	0	51
5:30 PM	0	3	10	0	13	23	0	0	1	0	1	0	0	0	0	0	51
5:45 PM	0	8	10	0	6	8	0	0	0	0	1	0	0	0	0	0	33
TOTAL VOLUMES :	NL 0	NT 77	NR 118	NU 0	SL 76	ST 156	SR 0	SU 0	EL 9	ET 0	ER 10	EU 0	WL 0	WT 0	WR 0	WU 0	TOTAL 446
APPROACH %'s :	0.00%	39.49%	60.51%	0.00%	32.76%	67.24%	0.00%	0.00%	47.37%	0.00%	52.63%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	35	61	0	40	76	0	0	2	0	6	0	0	0	0	0	220
PEAK HR FACTOR :	0.00	0.625	0.726	0.000	0.769	0.826	0.000	0.000	0.250	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.809
	0.686				0.935				0.500								

APPENDIX C:
LOS ANALYSIS SHEETS

Project Title: Carson Inland Star Distribution Center
Intersection: 1 - Wilmington Avenue & Del Amo Boulevard
Description: Existing 2018 & Existing plus Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :	EBR,		
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	108	1,600	0.013	N-S(1): 0.232 *
	TH	2.00	390	3,200	0.122	N-S(2): 0.210
	LT	2.00	203	2,560	0.079 *	E-W(1): 0.237
Westbound	RT	1.00	448	1,600	0.240	E-W(2): 0.386 *
	TH	2.00	885	3,200	0.277 *	
	LT	1.00	165	1,600	0.103	V/C: 0.618
Northbound	RT	0.00	137	0	0.000	Lost Time: 0.100
	TH	3.00	597	4,800	0.153 *	ITS: 0.000
	LT	1.00	140	1,600	0.088	
Eastbound	RT	0.00	152	0	0.000	ICU: 0.718
	TH	3.00	493	4,800	0.134	
	LT	1.00	174	1,600	0.109 *	LOS: C

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	192	1,600	0.082	N-S(1): 0.272
	TH	2.00	773	3,200	0.242 *	N-S(2): 0.323 *
	LT	2.00	352	2,560	0.138	E-W(1): 0.407 *
Westbound	RT	1.00	214	1,600	0.065	E-W(2): 0.253
	TH	2.00	563	3,200	0.176	
	LT	1.00	164	1,600	0.103 *	V/C: 0.730
Northbound	RT	0.00	162	0	0.000	Lost Time: 0.100
	TH	3.00	479	4,800	0.134	ITS: 0.000
	LT	1.00	130	1,600	0.081 *	
Eastbound	RT	0.00	212	0	0.000	ICU: 0.830
	TH	3.00	1,249	4,800	0.304 *	
	LT	1.00	123	1,600	0.077	LOS: D

* - Denotes critical movement

Project Title: Carson Inland Star Distribution Center
Intersection: 2 - Wilmington Avenue & Dominguez Street
Description: Existing 2018 & Existing plus Project

Thru Lane: 1600 vph
Left Lane: 1600 vph
Double Lt Penalty: 20 %
ITS: 0 %
OLA Movements :
FF Movements:

N-S Split Phase : N
E-W Split Phase : Y
Lost Time (% of cycle) : 10
V/C Round Off (decs.) : 3

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	53	1,600	0.020	N-S(1): 0.349 *
	TH	2.00	829	3,200	0.259	N-S(2): 0.282
	LT	1.00	81	1,600	0.051 *	E-W(1): 0.084 *
Westbound	RT	1.00	62	1,600	0.013	E-W(2): 0.000
	TH	0.01	1	23	0.044	
	LT	1.99	140	2,542	0.055 *	V/C: 0.433
Northbound	RT	1.00	249	1,600	0.128	Lost Time: 0.100
	TH	2.00	954	3,200	0.298 *	ITS: 0.000
	LT	1.00	36	1,600	0.023	
Eastbound	RT	0.00	4	0	0.000	ICU: 0.533
	TH	1.00	0	1,600	0.029 *	
	LT	0.00	43	1,600	0.027	LOS: A

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	16	1,600	0.002	N-S(1): 0.232
	TH	2.00	1,114	3,200	0.348 *	N-S(2): 0.360 *
	LT	1.00	42	1,600	0.026	E-W(1): 0.090 *
Westbound	RT	1.00	72	1,600	0.032	E-W(2): 0.000
	TH	0.00	0	0	0.000	
	LT	2.00	176	2,560	0.069 *	V/C: 0.450
Northbound	RT	1.00	118	1,600	0.039	Lost Time: 0.100
	TH	2.00	660	3,200	0.206	ITS: 0.000
	LT	1.00	19	1,600	0.012 *	
Eastbound	RT	0.00	7	0	0.000	ICU: 0.550
	TH	1.00	0	1,600	0.021 *	
	LT	0.00	26	1,600	0.016	LOS: A

* - Denotes critical movement

Project Title: Carson Inland Star Distribution Center
Intersection: 3 - Wilmington Avenue & Carson Street
Description: Existing 2018 & Existing plus Project

Thru Lane: 1600 vph
Left Lane: 1600 vph
Double Lt Penalty: 10 %
ITS: 0 %
OLA Movements :
FF Movements:

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10
V/C Round Off (decs.) : 3

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	173	1,600	0.038	N-S(1): 0.274 *
	TH	2.00	391	3,200	0.122	N-S(2): 0.161
	LT	1.00	199	1,600	0.124 *	E-W(1): 0.213
Westbound	RT	1.00	283	1,600	0.115	E-W(2): 0.279 *
	TH	2.00	443	3,200	0.138 *	V/C: 0.553
	LT	1.00	90	1,600	0.056	Lost Time: 0.100
Northbound	RT	1.00	89	1,600	0.028	ITS: 0.000
	TH	2.00	481	3,200	0.150 *	
	LT	1.00	62	1,600	0.039	
Eastbound	RT	0.00	44	0	0.000	ICU: 0.653
	TH	2.00	459	3,200	0.157	
	LT	1.00	225	1,600	0.141 *	LOS: B

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	281	1,600	0.130	N-S(1): 0.281 *
	TH	2.00	660	3,200	0.206	N-S(2): 0.263
	LT	1.00	268	1,600	0.168 *	E-W(1): 0.321 *
Westbound	RT	1.00	206	1,600	0.045	E-W(2): 0.227
	TH	2.00	435	3,200	0.136	V/C: 0.602
	LT	1.00	100	1,600	0.063 *	Lost Time: 0.100
Northbound	RT	1.00	114	1,600	0.040	ITS: 0.000
	TH	2.00	363	3,200	0.113 *	
	LT	1.00	91	1,600	0.057	
Eastbound	RT	0.00	90	0	0.000	ICU: 0.702
	TH	2.00	736	3,200	0.258 *	
	LT	1.00	146	1,600	0.091	LOS: C

* - Denotes critical movement

Project Title: Carson Inland Star Distribution Center
Intersection: 4 - Wilmington Avenue & I-405 Northbound On/Off Ramps
Description: Existing 2018 & Existing plus Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	10 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :	NBR,		
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.095
	TH	2.00	525	3,200	0.164 *	N-S(2): 0.164 *
	LT	1.00	3	1,600	0.002	E-W(1): 0.299 *
Westbound	RT	1.00	443	1,600	0.276	E-W(2): 0.276
	TH	0.00	0	0	0.000	
	LT	2.00	860	2,880	0.299 *	V/C: 0.463
Northbound	RT	1.00	60	1,600	0.038	Lost Time: 0.100
	TH	2.00	298	3,200	0.093	ITS: 0.000
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0.000	ICU: 0.563
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	LOS: A

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.067
	TH	2.00	896	3,200	0.280 *	N-S(2): 0.280 *
	LT	1.00	0	1,600	0.000	E-W(1): 0.289 *
Westbound	RT	1.00	375	1,600	0.234	E-W(2): 0.234
	TH	0.00	0	0	0.000	
	LT	2.00	833	2,880	0.289 *	V/C: 0.569
Northbound	RT	1.21	129	1,935	0.067	Lost Time: 0.100
	TH	1.79	191	2,865	0.067	ITS: 0.000
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0.000	ICU: 0.669
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	LOS: B

* - Denotes critical movement

Project Title: Carson Inland Star Distribution Center
Intersection: 5 - Wilmington Avenue & I-405 Southbound On/Off Ramps
Description: Existing 2018 & Existing plus Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	10 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.584 *
	TH	2.00	1,248	3,200	0.390	N-S(2): 0.390
	LT	2.00	256	2,880	0.089 *	E-W(1): 0.149 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.039
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.733
Northbound	RT	1.00	792	1,600	0.495 *	Lost Time: 0.100
	TH	2.00	341	3,200	0.107	ITS: 0.000
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	238	1,600	0.149 *	ICU: 0.833
	TH	2.00	0	1,600	0.000	
	LT	0.00	62	1,600	0.039	LOS: D

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.915 *
	TH	2.00	1,350	3,200	0.422	N-S(2): 0.422
	LT	2.00	594	2,880	0.206 *	E-W(1): 0.036 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.006
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.951
Northbound	RT	1.00	1,134	1,600	0.709 *	Lost Time: 0.100
	TH	2.00	410	3,200	0.128	ITS: 0.000
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	57	1,600	0.036 *	ICU: 1.051
	TH	2.00	2	1,600	0.001	
	LT	0.00	10	1,600	0.006	LOS: F

* - Denotes critical movement

Project Title: Carson Island Star Distribution Center
Intersection: 1 - Wilmington Avenue & Del Amo Boulevard
Description: Existing Base

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :	EBR,		
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	108	1,600	0.013	N-S(1): 0.231 *
	TH	2.00	387	3,200	0.121	N-S(2): 0.209
	LT	2.00	203	2,560	0.079 *	E-W(1): 0.234
Westbound	RT	1.00	448	1,600	0.240	E-W(2): 0.386 *
	TH	2.00	885	3,200	0.277 *	
	LT	1.00	160	1,600	0.100	V/C: 0.617
Northbound	RT	0.00	135	0	0.000	Lost Time: 0.100
	TH	3.00	595	4,800	0.152 *	ITS: 0.000
	LT	1.00	140	1,600	0.088	
Eastbound	RT	0.00	152	0	0.000	ICU: 0.717
	TH	3.00	493	4,800	0.134	
	LT	1.00	174	1,600	0.109 *	LOS: C

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	192	1,600	0.082	N-S(1): 0.266
	TH	2.00	765	3,200	0.239 *	N-S(2): 0.320 *
	LT	2.00	352	2,560	0.138	E-W(1): 0.400 *
Westbound	RT	1.00	214	1,600	0.065	E-W(2): 0.253
	TH	2.00	563	3,200	0.176	
	LT	1.00	153	1,600	0.096 *	V/C: 0.720
Northbound	RT	0.00	145	0	0.000	Lost Time: 0.100
	TH	3.00	468	4,800	0.128	ITS: 0.000
	LT	1.00	130	1,600	0.081 *	
Eastbound	RT	0.00	212	0	0.000	ICU: 0.820
	TH	3.00	1,249	4,800	0.304 *	
	LT	1.00	123	1,600	0.077	LOS: D

* - Denotes critical movement

Project Title: Carson Island Star Distribution Center
Intersection: 2 - Wilmington Avenue & Dominguez Street
Description: Existing Base

Thru Lane: 1600 vph
Left Lane: 1600 vph
Double Lt Penalty: 20 %
ITS: 0 %

N-S Split Phase : N
E-W Split Phase : Y
Lost Time (% of cycle) : 10
V/C Round Off (decs.) : 3

OLA Movements :
FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	53	1,600	0.020	N-S(1): 0.344 *
	TH	2.00	829	3,200	0.259	N-S(2): 0.282
	LT	1.00	73	1,600	0.046 *	E-W(1): 0.080 *
Westbound	RT	1.00	58	1,600	0.013	E-W(2): 0.000
	TH	0.02	1	25	0.041	
	LT	1.98	129	2,540	0.051 *	V/C: 0.424
Northbound	RT	1.00	225	1,600	0.115	Lost Time: 0.100
	TH	2.00	954	3,200	0.298 *	ITS: 0.000
	LT	1.00	36	1,600	0.023	
Eastbound	RT	0.00	4	0	0.000	ICU: 0.524
	TH	1.00	0	1,600	0.029 *	
	LT	0.00	43	1,600	0.027	LOS: A

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	16	1,600	0.002	N-S(1): 0.220
	TH	2.00	1,114	3,200	0.348 *	N-S(2): 0.360 *
	LT	1.00	23	1,600	0.014	E-W(1): 0.079 *
Westbound	RT	1.00	44	1,600	0.020	E-W(2): 0.000
	TH	0.00	0	0	0.000	
	LT	2.00	148	2,560	0.058 *	V/C: 0.439
Northbound	RT	1.00	99	1,600	0.033	Lost Time: 0.100
	TH	2.00	660	3,200	0.206	ITS: 0.000
	LT	1.00	19	1,600	0.012 *	
Eastbound	RT	0.00	7	0	0.000	ICU: 0.539
	TH	1.00	0	1,600	0.021 *	
	LT	0.00	26	1,600	0.016	LOS: A

* - Denotes critical movement

Project Title: Carson Island Star Distribution Center
Intersection: 3 - Wilmington Avenue & Carson Street
Description: Existing Base

Thru Lane: 1600 vph
Left Lane: 1600 vph
Double Lt Penalty: 10 %
ITS: 0 %
OLA Movements :
FF Movements:

N-S Split Phase : N
E-W Split Phase : N
Lost Time (% of cycle) : 10
V/C Round Off (decs.) : 3

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	173	1,600	0.038	N-S(1): 0.267 *
	TH	2.00	382	3,200	0.119	N-S(2): 0.158
	LT	1.00	197	1,600	0.123 *	E-W(1): 0.213
Westbound	RT	1.00	278	1,600	0.112	E-W(2): 0.279 *
	TH	2.00	443	3,200	0.138 *	V/C: 0.546
	LT	1.00	90	1,600	0.056	Lost Time: 0.100
Northbound	RT	1.00	89	1,600	0.028	ITS: 0.000
	TH	2.00	462	3,200	0.144 *	
	LT	1.00	62	1,600	0.039	
Eastbound	RT	0.00	44	0	0.000	ICU: 0.646
	TH	2.00	459	3,200	0.157	
	LT	1.00	225	1,600	0.141 *	LOS: B

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	281	1,600	0.130	N-S(1): 0.273 *
	TH	2.00	638	3,200	0.199	N-S(2): 0.256
	LT	1.00	262	1,600	0.164 *	E-W(1): 0.321 *
Westbound	RT	1.00	202	1,600	0.044	E-W(2): 0.227
	TH	2.00	435	3,200	0.136	V/C: 0.594
	LT	1.00	100	1,600	0.063 *	Lost Time: 0.100
Northbound	RT	1.00	114	1,600	0.040	ITS: 0.000
	TH	2.00	348	3,200	0.109 *	
	LT	1.00	91	1,600	0.057	
Eastbound	RT	0.00	90	0	0.000	ICU: 0.694
	TH	2.00	736	3,200	0.258 *	
	LT	1.00	146	1,600	0.091	LOS: B

* - Denotes critical movement

Project Title: Carson Island Star Distribution Center
Intersection: 4 - Wilmington Avenue & I-405 Northbound On/Off Ramps
Description: Existing Base

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	10 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :	NBR,		
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.092
	TH	2.00	517	3,200	0.162 *	N-S(2): 0.162 *
	LT	1.00	1	1,600	0.001	E-W(1): 0.299 *
Westbound	RT	1.00	430	1,600	0.268	E-W(2): 0.268
	TH	0.00	0	0	0.000	
	LT	2.00	860	2,880	0.299 *	V/C: 0.461
Northbound	RT	1.00	60	1,600	0.038	Lost Time: 0.100
	TH	2.00	292	3,200	0.091	ITS: 0.000
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0.000	ICU: 0.561
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	LOS: A

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.065
	TH	2.00	879	3,200	0.275 *	N-S(2): 0.275 *
	LT	1.00	0	1,600	0.000	E-W(1): 0.289 *
Westbound	RT	1.00	365	1,600	0.228	E-W(2): 0.228
	TH	0.00	0	0	0.000	
	LT	2.00	833	2,880	0.289 *	V/C: 0.564
Northbound	RT	1.23	129	1,972	0.065	Lost Time: 0.100
	TH	1.77	185	2,828	0.065	ITS: 0.000
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0.000	ICU: 0.664
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	LOS: B

* - Denotes critical movement

Project Title: Carson Island Star Distribution Center
Intersection: 5 - Wilmington Avenue & I-405 Southbound On/Off Ramps
Description: Existing Base

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	10 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.582 *
	TH	2.00	1,246	3,200	0.389	N-S(2): 0.389
	LT	2.00	250	2,880	0.087 *	E-W(1): 0.149 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.037
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.731
Northbound	RT	1.00	792	1,600	0.495 *	Lost Time: 0.100
	TH	2.00	338	3,200	0.106	ITS: 0.000
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	238	1,600	0.149 *	ICU: 0.831
	TH	2.00	0	1,600	0.000	
	LT	0.00	59	1,600	0.037	LOS: D

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.910 *
	TH	2.00	1,347	3,200	0.421	N-S(2): 0.421
	LT	2.00	580	2,880	0.201 *	E-W(1): 0.036 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.004
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.946
Northbound	RT	1.00	1,134	1,600	0.709 *	Lost Time: 0.100
	TH	2.00	408	3,200	0.128	ITS: 0.000
	LT	0.00	0	0	0.000	
Eastbound	RT	0.00	57	1,600	0.036 *	ICU: 1.046
	TH	2.00	2	1,600	0.001	
	LT	0.00	6	1,600	0.004	LOS: F

* - Denotes critical movement