

APPENDIX F
Traffic Impact Analysis and VMT
Analysis

PANATTONI PROJECT TRAFFIC IMPACT ANALYSIS

City of Carson

March 17, 2020



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

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City of Carson

March 17, 2020

prepared by

Perrie Ilercil, P.E. (AZ)
Giancarlo Ganddini, PE, PTP



GANDDINI GROUP, INC.

550 Parkcenter Drive, Suite 202
Santa Ana, California 92705
714.795.3100 | ganddini.com

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EXECUTIVE SUMMARY

The purpose of this traffic impact analysis is to provide an assessment of traffic operations resulting from development of the proposed Panattoni Project and to identify measures necessary to mitigate potentially significant traffic impacts. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA). The City of Carson is the lead agency responsible for evaluation of potential environmental impacts associated with the proposed project. This report analyzes traffic impacts for the anticipated project opening year in 2021.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

PROJECT DESCRIPTION

The 14.8-acre project site is located south of Interstate 405 (I-405) between Wilmington Avenue and Alameda Street at 2112 East 223rd Street in the City of Carson, California. The project site is currently zoned for manufacturing land use. The project site is currently undeveloped and vacant.

The proposed project consists of developing the project site with three new industrial buildings totaling 292,400 square feet. The proposed project includes two land use options:

- Option A: 165,200 square feet of warehousing and 127,200 square feet of manufacturing land uses.
- Option B: 292,400 square feet of warehousing land uses.

The building footprints and exterior improvements would remain the same under both development options. Of the two options, a mix of warehouse and manufacturing uses (Option A) is forecast to generate more trips and therefore is the land use scenario considered throughout this analysis. Vehicular access is proposed via three driveways at East 223rd Street. The proposed project is anticipated to be constructed and fully operational by Year 2021.

EXISTING CONDITIONS

The study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions (see Table 1).

PROJECT TRIPS

The proposed project is forecast to generate a total maximum of approximately 788 daily vehicle trips, including 108 vehicles trips during the AM peak hour and 117 vehicle trips during the PM peak hour. In Passenger Car Equivalent (PCE) trips, the proposed project is forecast to generate a total maximum of approximately 1,018 daily PCE trips, including 165 PCE trips during the AM peak hour and 160 PCE trips during the PM peak hour.

FUTURE CONDITIONS

Existing Plus Project Conditions

The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions (see Table 6). The proposed project is forecast to result in no

significant traffic impacts at the study intersections for Existing Plus Project conditions based on the City-established thresholds of significance (see Table 7).

Opening Year (2021) Without Project

The study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2021) Without Project conditions (see Table 8).

Opening Year (2021) With Project

The study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2021) With Project conditions, with the exception of the east project driveway that is forecast to operate at Level of Service E during the PM peak hour (see Table 9). The proposed project is forecast to result in no significant traffic impacts at the study intersections for Opening Year (2021) With Project conditions based on the City-established thresholds of significance (see Table 10).

STATE HIGHWAY ANALYSIS

The proposed project is forecast to result in no significant traffic impacts at the State highway study intersections and freeway off-ramps for the scenarios analyzed based on the Caltrans-established thresholds of significance (see Table 12 and Table 13).

MITIGATION MEASURES

No off-site mitigation measure improvements were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed.

1. INTRODUCTION

This section describes the purpose of this traffic impact analysis, project location, proposed development, and study area. Figure 1 shows the regional vicinity map and Figure 2 shows the project location map. Figure 3 shows the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this traffic impact analysis is to provide an assessment of traffic operations resulting from development of the proposed Panattoni Project and to identify measures necessary to mitigate potentially significant traffic impacts. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA). The City of Carson is the lead agency responsible for evaluation of potential environmental impacts associated with the proposed project. This report analyzes traffic impacts for the anticipated project opening year in 2021.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

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- Option A: 165,200 square feet of warehousing and 127,200 square feet of manufacturing land uses.
- Option B: 292,400 square feet of warehousing land uses.

The building footprints and exterior improvements would remain the same under both development options. Of the two options, a mix of warehouse and manufacturing uses (Option A) is forecast to generate more trips and therefore is the land use scenario considered throughout this analysis. Vehicular access is proposed via three driveways at East 223rd Street. The proposed project is anticipated to be constructed and fully operational by Year 2021.

STUDY AREA

As specified in the City of Carson application review letter, the study area shall consist of the following study intersection:

| Study Intersections | Jurisdiction ¹ |
|--|---------------------------|
| 1. Wilmington Avenue at I-405 Northbound Ramps | Carson / Caltrans |
| 2. Wilmington Avenue at I-405 Southbound Ramps | Carson / Caltrans |
| 3. Wilmington Avenue at 223rd Street | Carson |
| 4. Alameda Street at I-405 Northbound Ramps | Carson / Caltrans |
| 5. I-405 Southbound Ramps at 223rd Street | Carson / Caltrans |

| Study Intersections | Jurisdiction ¹ |
|---|---------------------------|
| 6. Alameda Street (Connector) at 223rd Street | Carson |
| 7. East Project Driveway at 223rd Street | Carson |
| 8. Center Project Driveway at 223rd Street | Carson |
| 9. West Project Driveway at 223rd Street | Carson |

Notes: (1) Caltrans = California Department of Transportation

ANALYSIS SCENARIOS

The following analysis scenarios are evaluated for typical weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2021) Without Project
- Opening Year (2021) With Project

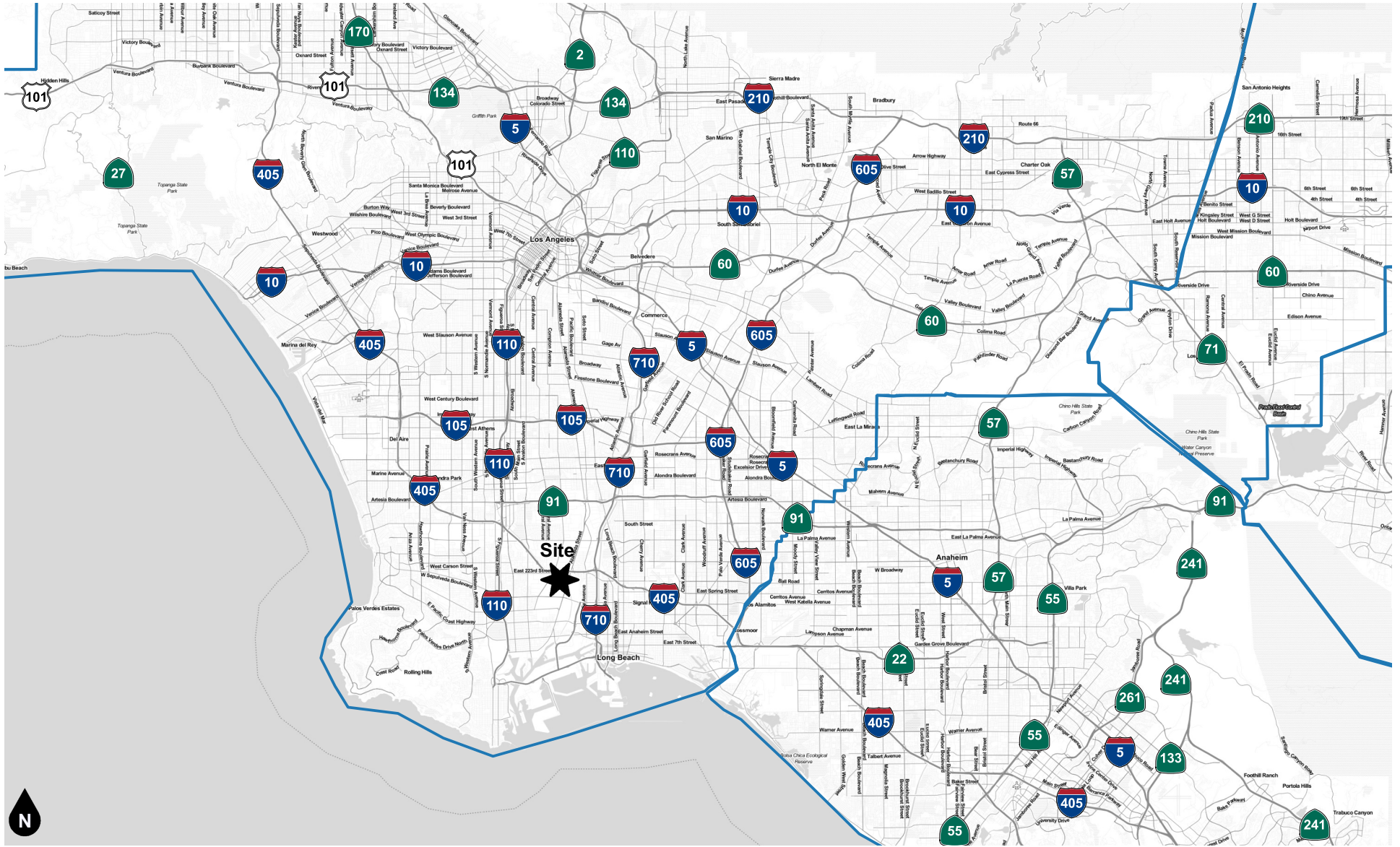
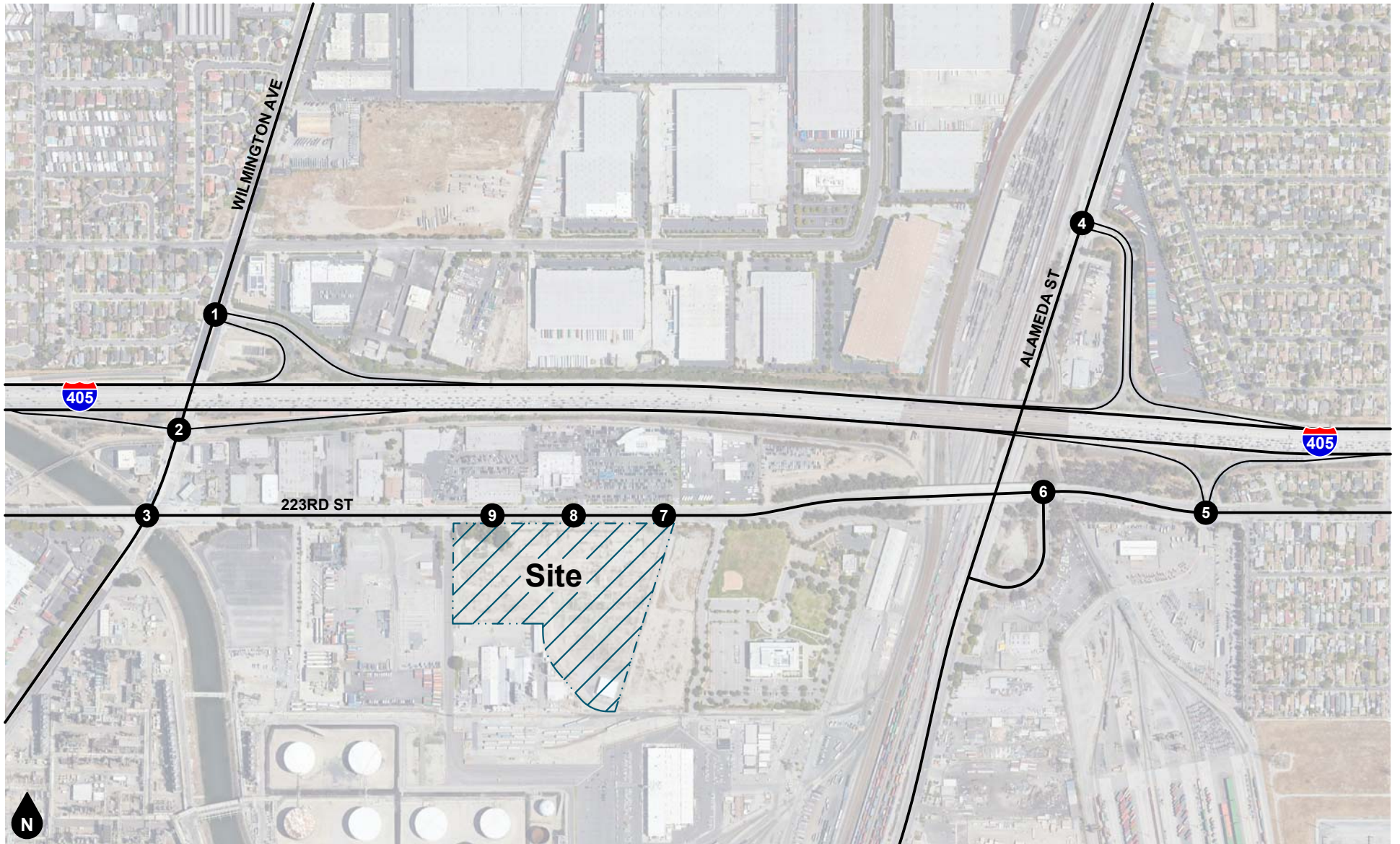


Figure 1
Regional Vicinity



Legend
 # Study Intersection

Figure 2
Project Location Map

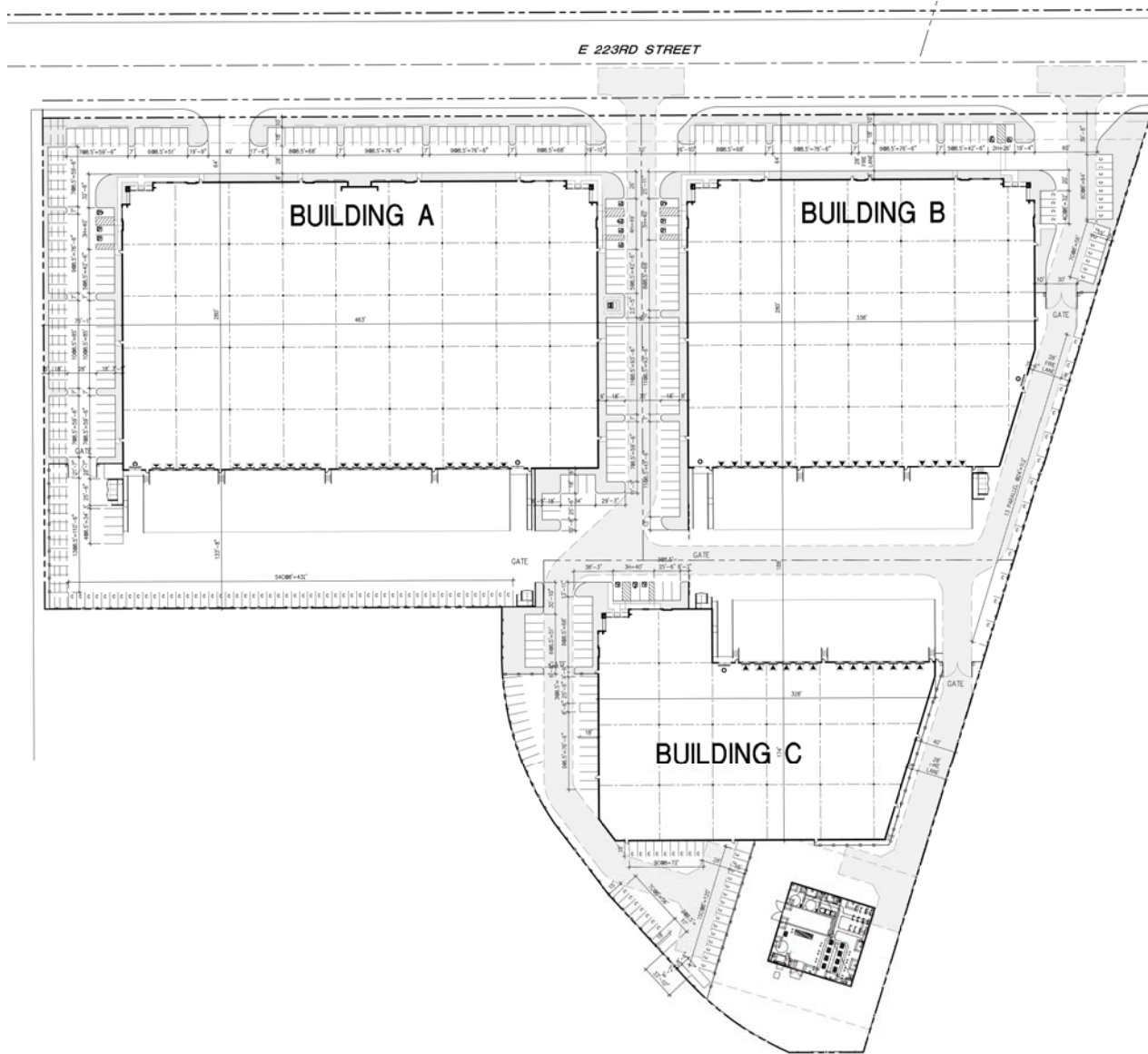


Figure 3
Site Plan

2. METHODOLOGY

This section describes the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

INTERSECTION CAPACITY UTILIZATION METHODOLOGY

The City of Carson measures intersection performance using the Intersection Capacity Utilization (ICU) methodology in accordance with the parameters established by the County of Los Angeles Traffic Impact Analysis Report Guidelines (December 2013). The ICU methodology compares the volume of traffic using the intersection to the capacity of the intersection. The resulting volume-to-capacity (V/C) ratio represents that portion of the total hourly capacity required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The volume-to-capacity ratio is then correlated to a performance measure known as Level of Service based on the following thresholds:

| Level of Service | Volume/Capacity Ratio |
|------------------|-----------------------|
| A | ≤ 0.600 |
| B | 0.601 to 0.700 |
| C | 0.701 to 0.800 |
| D | 0.801 to 0.900 |
| E | 0.901 to 1.000 |
| F | > 1.000 |

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

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). ICU analysis was performed using the Vistro (Version 6.00-00) software.

Consistent with City of Carson requirements, this analysis uses the following input parameters for the ICU analysis: capacity of individual lanes be used in the ICU calculations is 1,600 vehicles per hour per lane for through and turn lanes, 2,880 vehicles per hour for dual left-turn lanes, and a total clearance adjustment of 10 percent (i.e., 0.10 added to critical Volume/Capacity).

INTERSECTION DELAY METHODOLOGY

Unsignalized intersections within City of Carson and Caltrans jurisdiction are analyzed using the intersection delay methodology based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

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

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

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane). Intersection delay analysis was performed using the Vistro (Version 6.00-00) software using default values recommended in the Highway Capacity Manual.

PERFORMANCE STANDARDS

City of Carson

The City of Carson General Plan has established the following minimum acceptable Level of Service (LOS) D for roadway segment and peak hour intersection operations with the exception that the County of Los Angeles Congestion Management Program network may operate up to LOS E.

California Department of Transportation

As stated in the [Guide for the Preparation of Traffic Impact Studies](#) (State of California, 2002), "California Department of Transportation endeavors to maintain a target LOS [Level of Service] at the transition between LOS "C" and LOS "D" on State highway facilities". The California Department of Transportation acknowledges this may not always be feasible and recommends consultation with the California Department of Transportation to determine the appropriate target Level of Service. For consistency with local requirements, this analysis defines Level of Service D as the minimum acceptable Level of Service for State Highway facilities.

THRESHOLDS OF SIGNIFICANCE

City of Carson

Based on the County of Los Angeles guidelines, a project traffic impact at a signalized intersection is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Pre-Project Conditions | | Project Increase in V/C |
|------------------------|--------------|-------------------------|
| LOS | V/C | |
| C | 0.71 to 0.80 | 0.04 or more |
| D | 0.81 to 0.90 | 0.02 or more |
| E/F | 0.91 or more | 0.01 or more |

Unsignalized Intersections: It should be noted that many jurisdictions, including the City of Carson, and County of Los Angeles, do not have established significant impact thresholds for unsignalized intersections. For unsignalized intersections operating at Level of Service E or F, a signal warrant analysis shall be conducted.

California Department of Transportation

Based on the California Department of Transportation established performance standards, a potentially significant traffic impact is defined to occur if the addition of project generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F).

MITIGATION REQUIREMENTS

If a project is forecast to cause a significant impact, feasible mitigation measures that will reduce the impact to a less than significant level are identified. Mitigation measures can be in many forms, including the addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, the impact will remain significant and unavoidable and a statement of overriding considerations will be required.

To mitigate a significant project impact at facilities with acceptable Level of Service under pre-project conditions, the project shall provide or contribute to improvements that would, at a minimum, provide Level of Service D for the City of Carson.

To mitigate a significant project impact at facilities with unacceptable Level of Service under pre-project conditions, the project shall provide or contribute to improvements that would, at a minimum, provide Level of Service that is equal to or better than pre-project conditions.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 4 shows the lane geometry and intersection traffic controls for existing conditions based on a field survey of the study area. Regional access to the project area is provided by I-405 north of the project site. The key north-south roadways providing local circulation include Wilmington Avenue and Alameda Street. The key east-west roadway providing local circulation is 223rd Street.

I-405 is a 12-lane freeway in the project vicinity providing north-south regional access from its southerly terminus in Irvine to its northern terminus near San Fernando. I-405 freeway access is provided via grade separated interchanges at Wilmington Avenue and Alameda Street. It currently carries approximately 258,000 to 281,000 vehicles per day in the project vicinity.

Wilmington Avenue is a four- to six-lane divided roadway trending in a north-south direction in the study area. Wilmington Avenue is classified as a Major Highway and designated truck route in the City of Carson General Plan Circulation Element. On-street vehicle parking is prohibited on Wilmington Avenue and the posted speed limit is 40 miles per hour in the project vicinity.

Alameda Street is a four- to six-lane divided roadway trending in a north-south direction in the study area. Alameda Street is classified as a Major Highway and designated truck route in the City of Carson General Plan Circulation Element. On-street vehicle parking is generally prohibited on Alameda Street and the posted speed limit is 45 miles per hour in the project vicinity.

223rd Street is a four-lane divided roadway with a two-way left turn painted median trending in an east-west direction in the study area. 223rd Street is classified as a Major Highway and designated truck route in the City of Carson General Plan Circulation Element. On-street vehicle parking is generally permitted on both sides of 223rd Street and the posted speed limit is 45 miles per hour in the project vicinity.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 5. As shown on Figure 5, a pedestrian sidewalk is currently provided along the project site frontage.

TRANSIT FACILITIES

Figure 6 shows the existing Los Angeles Metro bus and rail transit routes available in the project vicinity. As shown in Figure 6, the study area is currently served by Route 202 along Alameda Street.

GENERAL PLAN CONTEXT

Figure 7 shows the City of Carson General Plan Circulation Element map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Carson standard roadway cross-sections are illustrated on Figure 8.

Bicycle Routes

There are no dedicated bicycle routes planned for the study area roadways. The City of Carson General Plan Bike Routes is depicted on Figure 9.

EXISTING ROADWAY VOLUMES

Figure 10 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from the [2017 Traffic Volumes on California State Highways by the California Department of Transportation](#) and factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

$$\text{Evening Peak Hour (Approach Volume + Exit Volume)} \times 10 = \text{Leg Volume.}$$

Existing peak hour intersection turning movement volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in February 2020 during typical weekday conditions. The weekday AM peak period was counted between 7:00 AM and 9:00 AM, the weekday PM peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

To account for truck volumes, the peak hour intersection volume counts were collected by vehicle classification and converted into Passenger Car Equivalent (PCE) trips in accordance with PCE factors recommended by the San Bernardino Association of Governments (SANBAG) Congestion Management Program (1.5 PCEs for 2-axle trucks, 2.0 PCEs for 3-axle trucks, and 3.0 PCEs for trucks with 4 or more axles).

Figure 11 and Figure 12 show the existing AM and PM peak hour intersection turning movement volumes (in PCE). All subsequent figures showing roadway and intersection volumes are in PCE.

EXISTING INTERSECTION LEVEL OF SERVICE

The study intersection Levels of Service for Existing conditions are shown in Table 1. Existing Level of Service worksheets are provided in Appendix D.

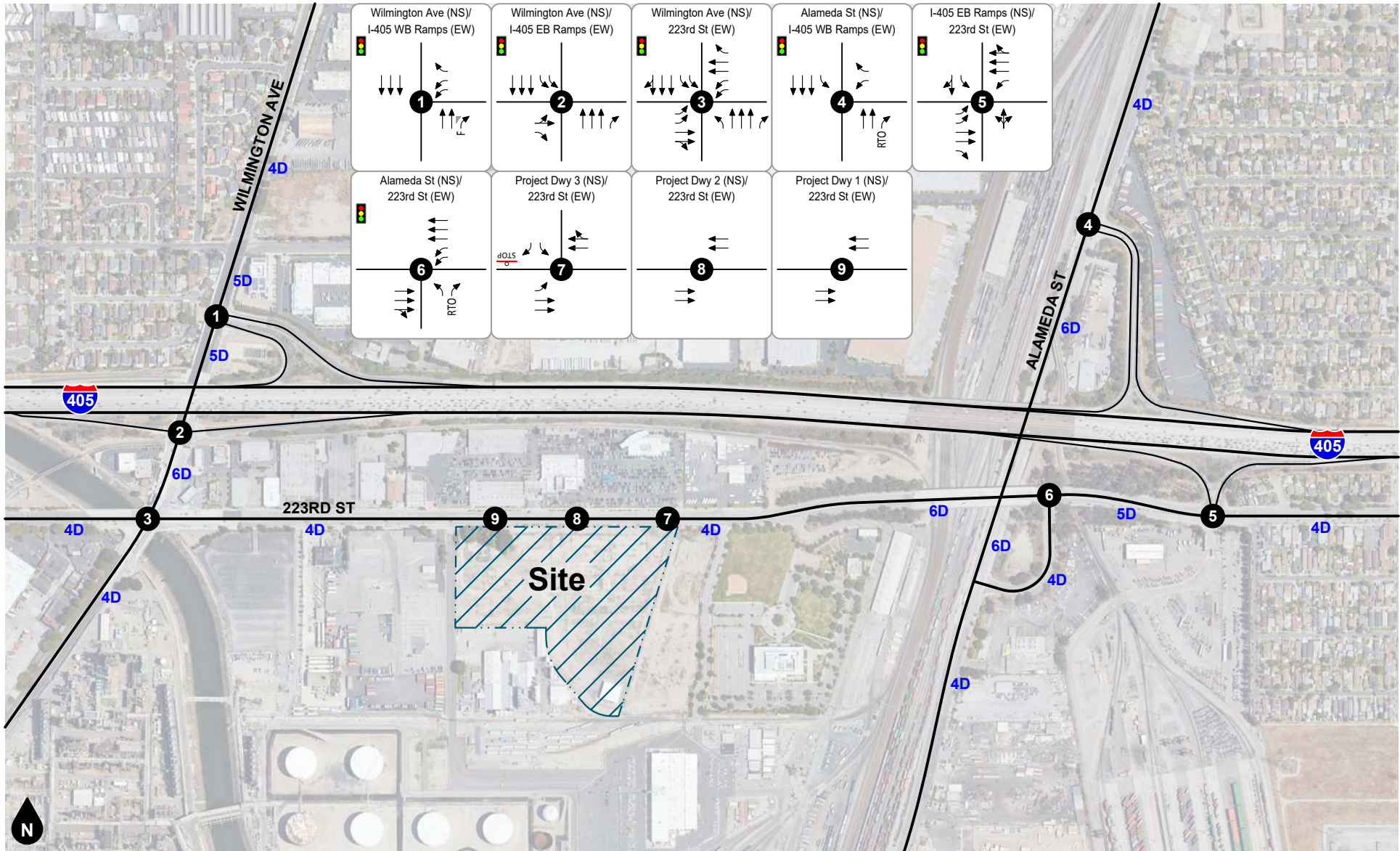
As shown in Table 1, the study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions.

Table 1
Existing Intersection Levels of Service

| ID | Study Intersection | Traffic Control ¹ | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|------------------|------------------|--------------|-----|
| | | | V/C ² | LOS ³ | V/C | LOS |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.639 | B | 0.714 | C |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.870 | D | 0.761 | C |
| 3. | Wilmington Ave at 223rd St | TS | 0.710 | C | 0.722 | C |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.568 | A | 0.829 | D |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.547 | A | 0.558 | A |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.565 | A | 0.840 | D |

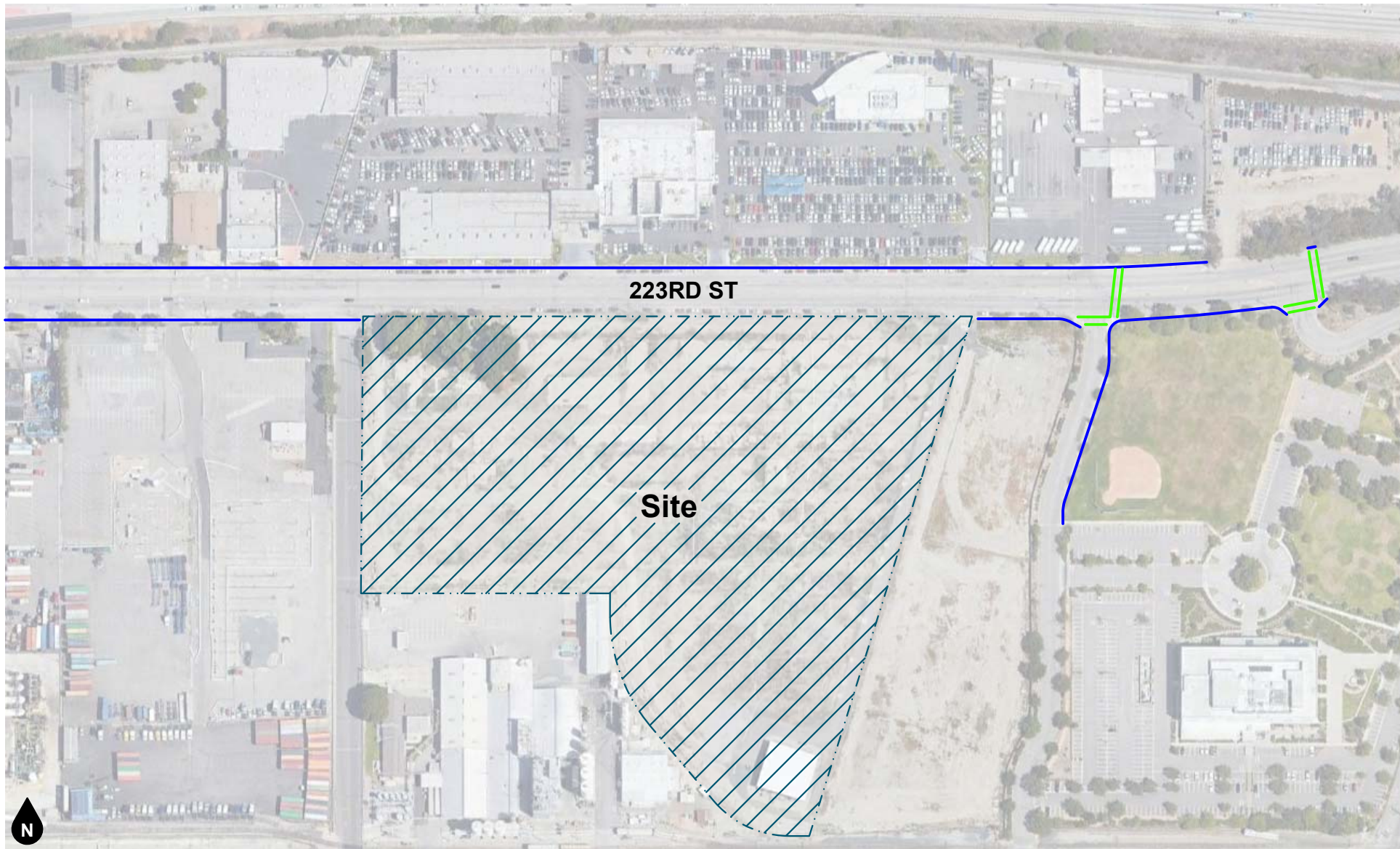
Notes:

- (1) TS = Traffic Signal
- (2) V/C = Volume/Capacity
- (3) LOS = Level of Service



- Legend**
- Traffic Signal
 - #D #-Lane Divided Roadway
 - Existing Lane
 - RTO Right Turn Overlap
 - F Free Right Turn Lane

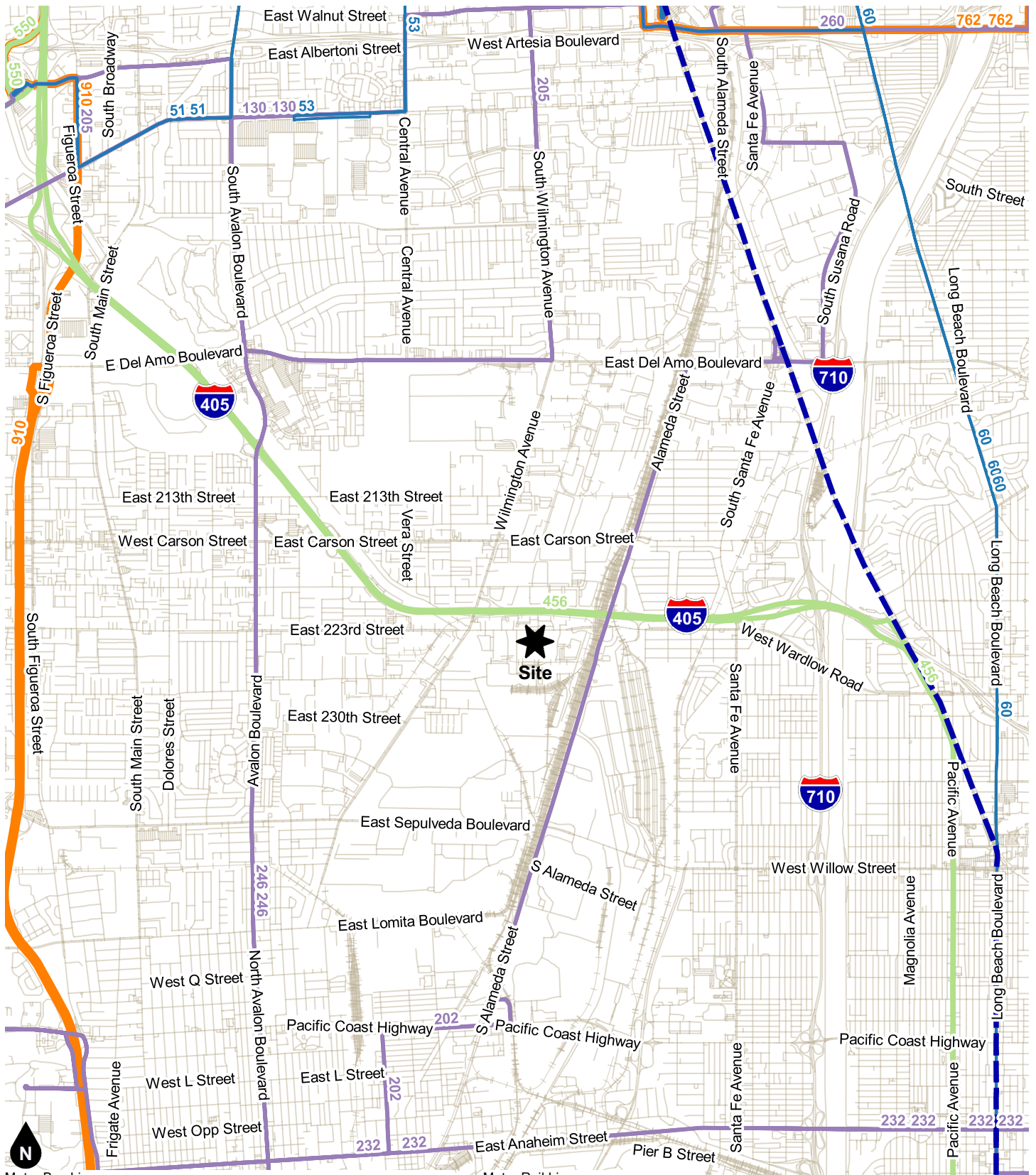
Figure 4
Existing Lane Geometry and Intersection Traffic Controls



Legend

- Sidewalk
- Cross Walk

Figure 5
Existing Pedestrian Facilities



Metro Bus Lines

- Local CBD (Lines 2-96)
- Local NonCBD (Lines 102-292)
- Limited or Express (Lines 344-577 and 788)
- Community Circulator (Lines 603-687)
- Rapid and Orange (Lines 704-794, except 788, and Lines 901-910)

Source: L.A. Metro

Metro Rail Lines

- Blue Line
- Red Purple Lines
- Green Line
- Gold Line
- Expo Line

Figure 6
City of Carson Transit Routes

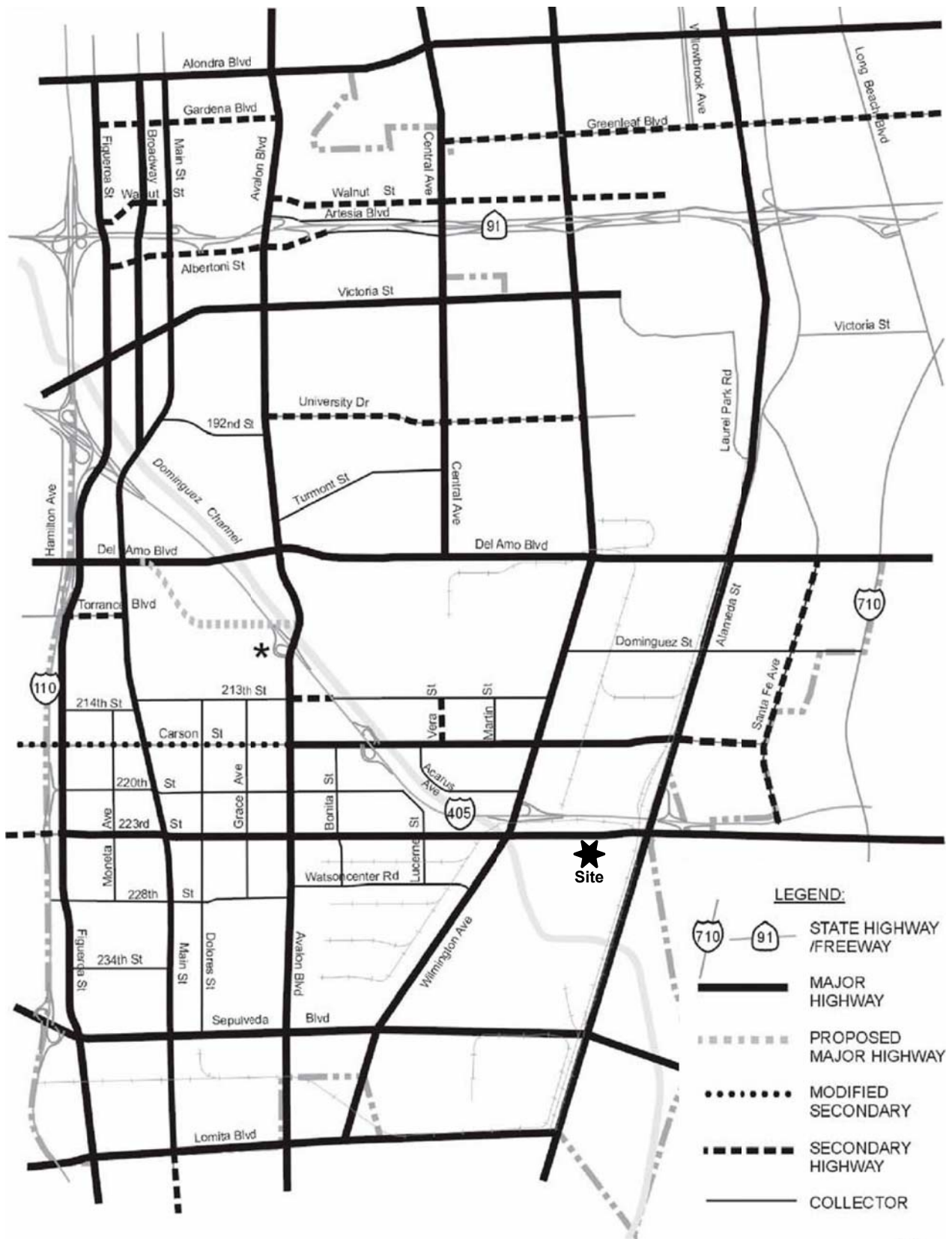


Figure 7
City of Carson General Plan Circulation Element

Source: City of Carson



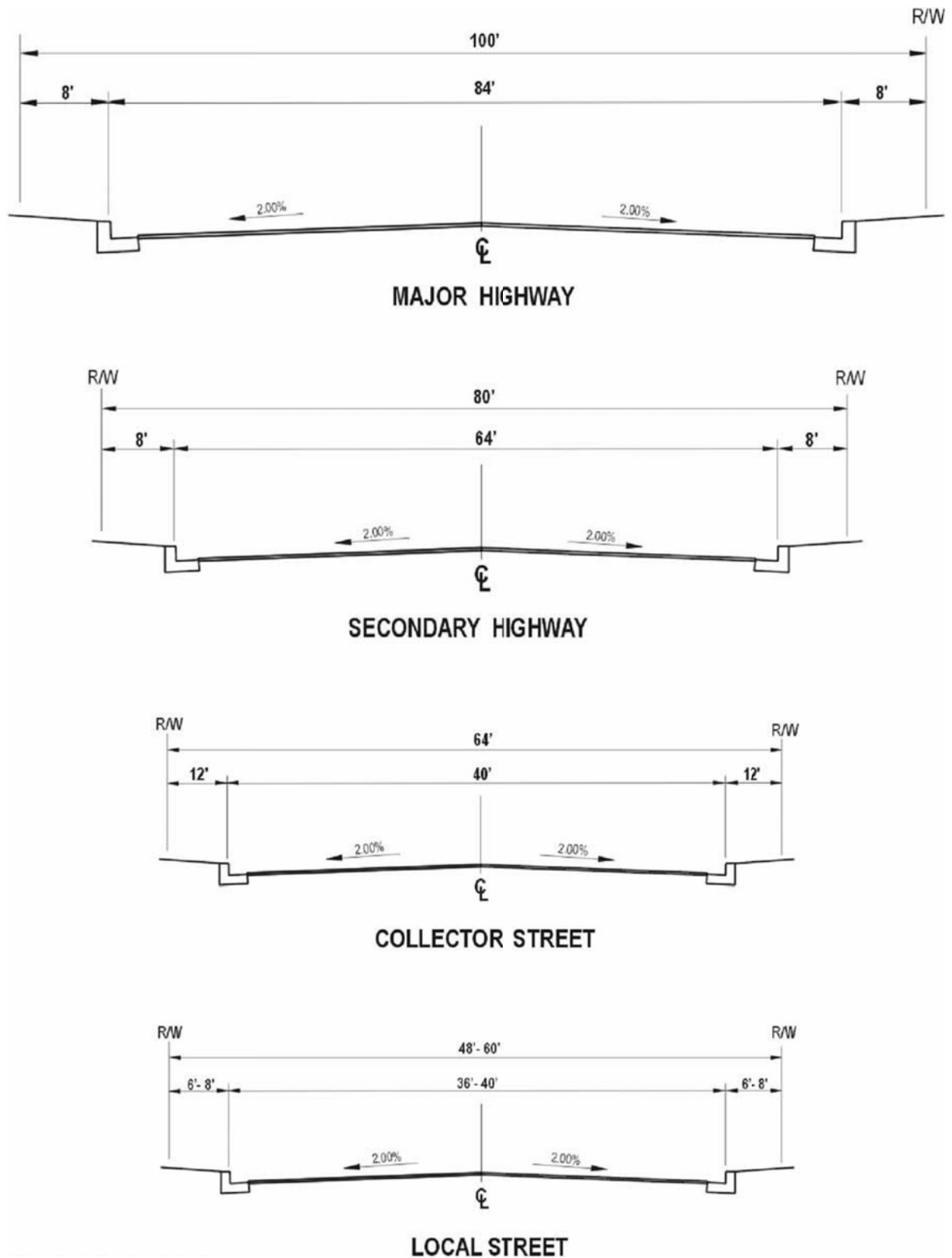


Figure 8
City of Carson General Plan Roadway Cross-Sections

Source: City of Carson



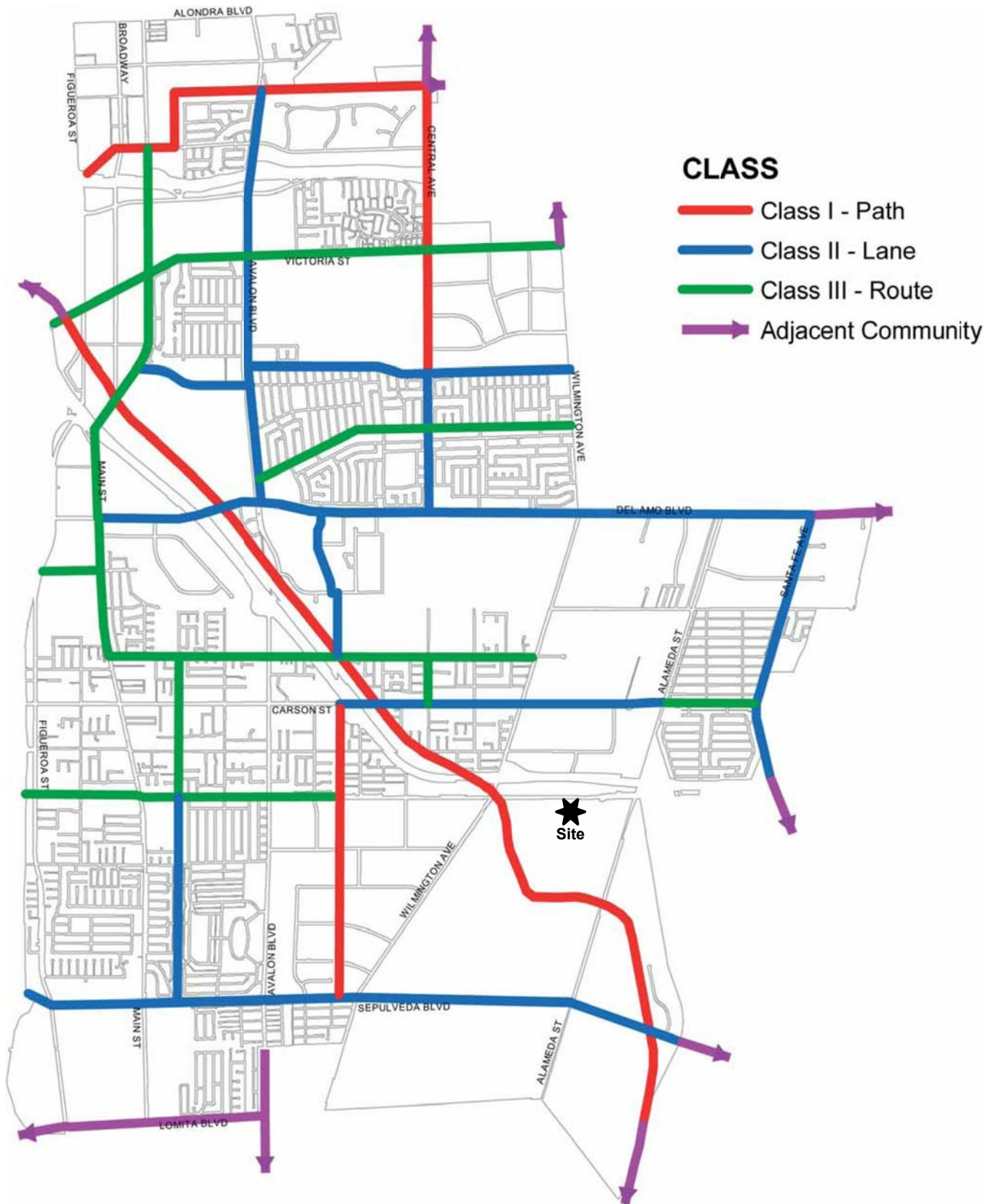
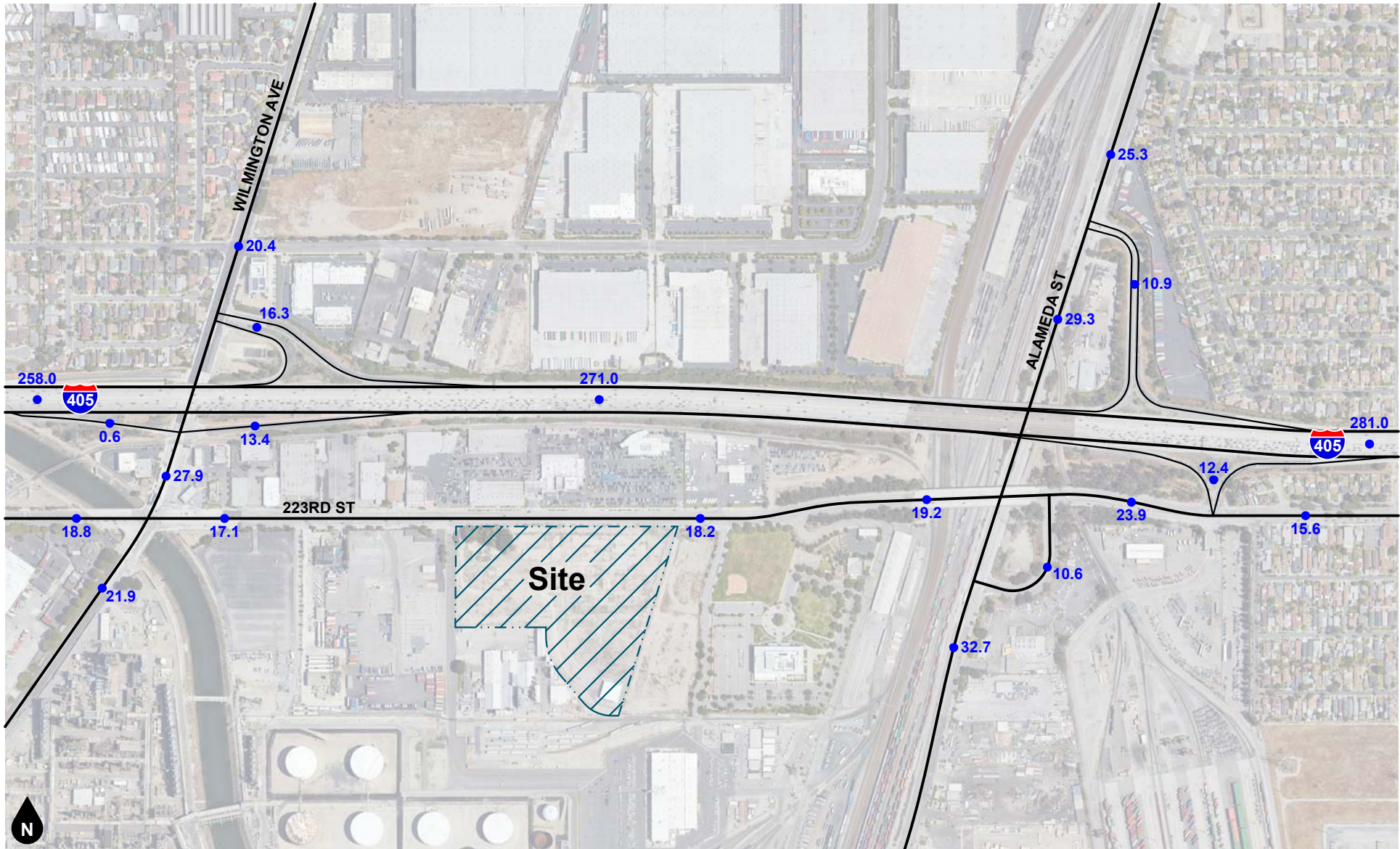


Figure 9
City of Carson General Plan Bike Routes

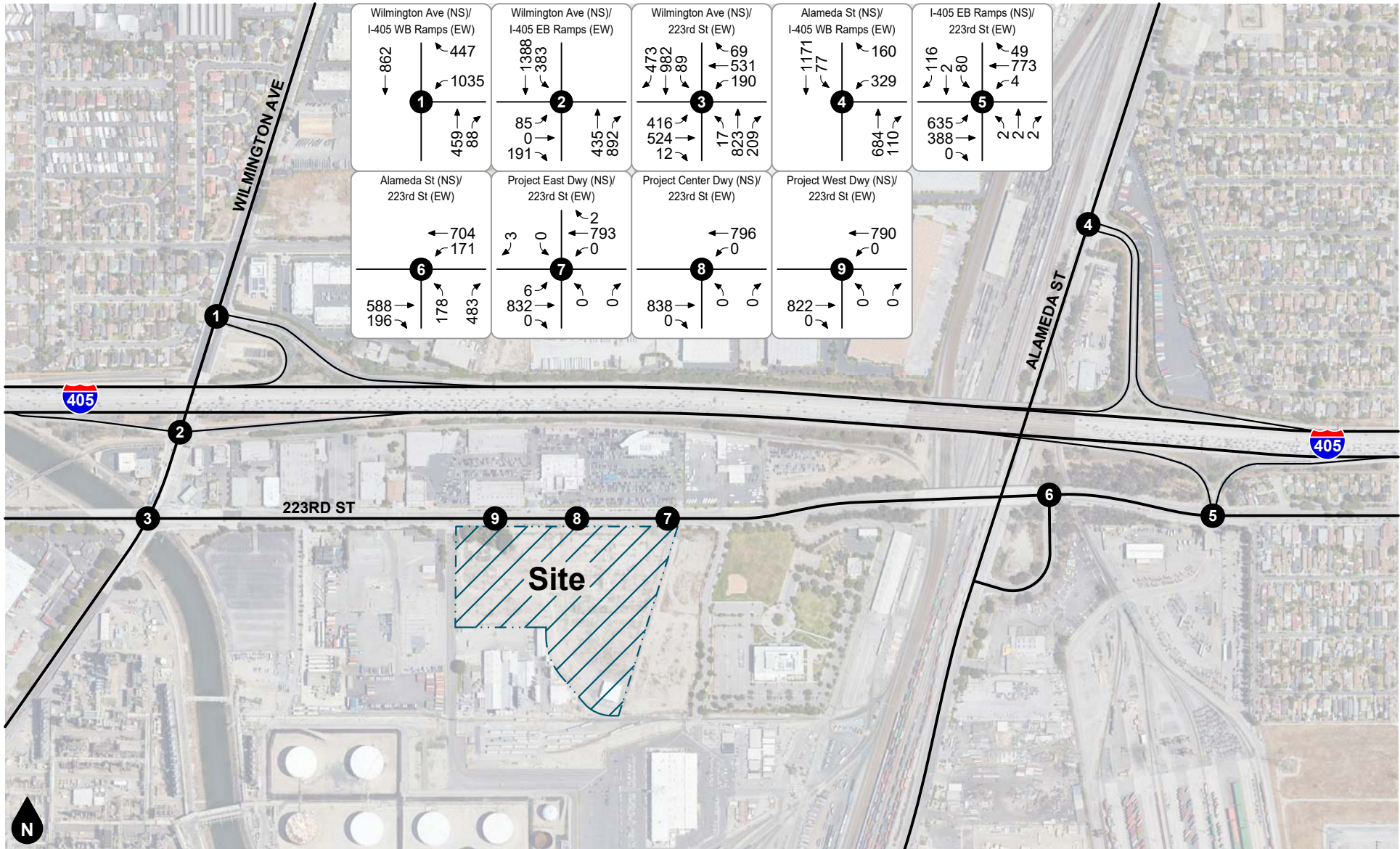
Source: City of Carson





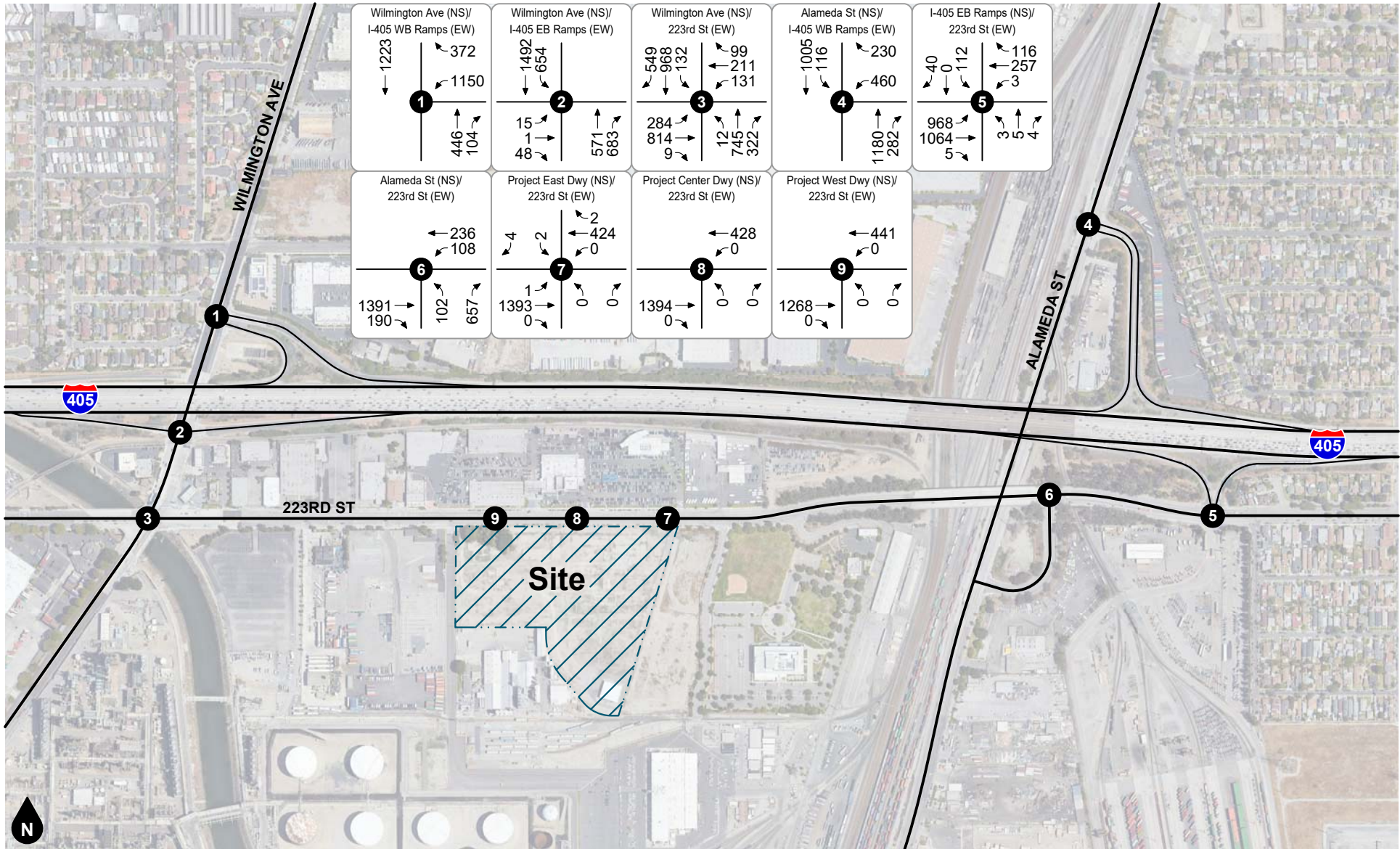
Legend
 ●## Vehicles Per Day (1,000's)

Figure 10
Existing Average Daily Traffic Volumes



Legend
 # Study Intersection

Figure 11
 Existing AM Peak Hour Intersection Turning Movement Volumes



Legend
 # Study Intersection

Figure 12
 Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

TRIP GENERATION

Table 2 and Table 3 show the project trip generation for each land use option based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) Land Use Codes 130 and 150. The total number of vehicle trips forecast to be generated by the proposed project is determined by multiplying the trip generation rates by the land use quantities.

Table 2 and Table 3 also show the project-generated vehicle trips separated into passenger cars and trucks (by number of axles) and converted to Passenger Car Equivalent (PCE) trips. The total percentage of truck trips for warehousing land use was obtained from the City of Fontana Truck Trip Generation Study (August 2003) for the heavy warehouse land use. The total percentage of truck trips for manufacturing land use was obtained from the City of Fontana Truck Trip Generation Study for the light industrial land use. The total number of truck trips are converted into PCE trips based on PCE factors recommended by the County of San Bernardino Congestion Management Program (1.5 PCEs for 2-axle trucks, 2.0 PCEs for 3-axle trucks, and 3.0 PCEs for trucks with 4 or more axles).

Option A (Warehouse and Manufacturing)

As shown in Table 2, Option A is forecast to generate a total of approximately 788 daily vehicle trips, including 108 vehicles trips during the AM peak hour and 117 vehicle trips during the PM peak hour. As also shown in Table 2, Option A is forecast to generate a total of approximately 1,018 daily PCE trips, including 165 PCE trips during the AM peak hour and 160 PCE trips during the PM peak hour.

Option B (Warehouse Only)

As shown in Table 3, Option B is forecast to generate approximately 509 daily vehicle trips, including 50 vehicles trips during the AM peak hour and 56 vehicle trips during the PM peak hour. As also shown in Table 3, Option B is forecast to generate approximately 669 daily PCE trips, including 78 PCE trips during the AM peak hour and 85 PCE trips during the PM peak hour.

Trip Generation Comparison

Table 4 shows the trip generation for both options in vehicles and PCE. Of the two options, a mix of warehouse and manufacturing uses (Option A) is forecast to generate more trips and therefore is the land use scenario considered throughout this analysis. Any potential impacts and mitigation identified under Option A (Warehouse and Manufacturing) would also be mitigated for Option B (Warehouse Only) since this Option B is forecast to generate fewer trips.

TRIP DISTRIBUTION & ASSIGNMENT

Figure 13 and Figure 14 show the forecast directional distribution patterns for the project-generated car and truck trips. Passenger car trips are generally more localized with residential or commercial origin/destination points, whereas truck trips generally have a more regional distribution travelling to/from other industrial uses or ports/terminals via the freeway system. The project trip distribution patterns were determined in consultation with City staff based on review of existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 15. The project AM peak hour and PM peak hour intersection turning movement volumes for are shown on Figure 16 and Figure 17. All volumes are shown in PCE.

PROJECT CONSTRUCTION TRIPS

Compared to the project trip generation, construction activity is expected to be relatively minor and temporary. Temporary traffic controls are required by State law in accordance with the standards set forth in the California Manual of Uniform Traffic Control Devices (2014). Site development would require the use of haul trucks during site clearing and excavation and the use of a variety of other construction vehicles throughout the construction work at the site. Use of oversized vehicles will require the appropriate transportation permit.

A construction work site traffic control plan shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of any construction work. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

Table 2
Project Trip Generation for Option A (Warehouse and Manufacturing)

| Land Use/Vehicle Type | Source ¹ | Trip Generation Rates per TSF ² | | | | | | Daily |
|-----------------------|---------------------|--|-------|--------|--------------|-------|--------|--------|
| | | AM Peak Hour | | | PM Peak Hour | | | |
| | | % In | % Out | Total | % In | % Out | Total | |
| Warehouse | ITE 150 | 77% | 23% | 0.17 | 27% | 73% | 0.19 | 1.74 |
| Percent Cars | [a] | -- | -- | 62.86% | -- | -- | 64.38% | 79.57% |
| Percent Trucks | [a] | -- | -- | 37.14% | -- | -- | 35.62% | 20.43% |
| Car Trips per TSF | | 0.082 | 0.025 | 0.107 | 0.033 | 0.089 | 0.122 | 1.385 |
| Truck Trips per TSF | | 0.049 | 0.015 | 0.064 | 0.018 | 0.049 | 0.067 | 0.355 |
| Manufacturing | ITE 130 | 77% | 23% | 0.62 | 31% | 69% | 0.67 | 3.93 |
| Percent Cars | [b] | -- | -- | 60.53% | -- | -- | 76.83% | 78.60% |
| Percent Trucks | [b] | -- | -- | 39.47% | -- | -- | 23.17% | 21.40% |
| Car Trips per TSF | | 0.289 | 0.086 | 0.375 | 0.160 | 0.355 | 0.515 | 3.089 |
| Truck Trips per TSF | | 0.188 | 0.056 | 0.244 | 0.048 | 0.107 | 0.155 | 0.841 |

| Vehicle Trips Generated | | | | | | | | | |
|--------------------------------------|-----------------------------|-----------------------|--------------|-----------|------------|--------------|-----------|------------|------------|
| Land Use/Vehicle Type | Quantity (TSF) ³ | Land use in Buildings | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | 1, 2 & 3 | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | | | 8 | 3 | 11 | 3 | 8 | 11 | 59 |
| Manufacturing | 127.200 | 1, 2 & 3 | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | | | 24 | 7 | 31 | 6 | 14 | 20 | 107 |
| TOTAL VEHICLE TRIPS GENERATED | | | 83 | 25 | 108 | 34 | 83 | 117 | 788 |

| Passenger Car Equivalent (PCE) Trips Generated | | | | | | | | | |
|--|-------------------------|----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
| Land Use/Vehicle Type | Quantity (TSF) | Truck Percent ⁴ | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | PCE Factor ⁵ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 16.95% | 2 | 1 | 3 | 1 | 2 | 3 | 15 |
| 3-Axle Trucks | 2.0 | 22.71% | 4 | 1 | 5 | 1 | 4 | 5 | 26 |
| 4+ Axle Trucks | 3.0 | 60.34% | 15 | 4 | 19 | 5 | 15 | 20 | 105 |
| Subtotal Trucks | -- | | 21 | 6 | 27 | 7 | 21 | 28 | 146 |
| Manufacturing | 127.200 | | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | PCE Factor ⁴ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 32.70% | 12 | 3 | 15 | 3 | 7 | 10 | 53 |
| 3-Axle Trucks | 2.0 | 17.90% | 9 | 2 | 11 | 2 | 5 | 7 | 38 |
| 4+ Axle Trucks | 3.0 | 49.40% | 35 | 11 | 46 | 9 | 20 | 29 | 159 |
| Subtotal Trucks | -- | | 56 | 16 | 72 | 14 | 32 | 46 | 250 |
| Subtotal Cars | | | 51 | 15 | 66 | 25 | 61 | 86 | 622 |
| Subtotal Trucks | | | 77 | 22 | 99 | 21 | 53 | 74 | 396 |
| TOTAL PCE TRIPS GENERATED | | | 128 | 37 | 165 | 46 | 114 | 160 | 1,018 |

Notes:

(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.

[a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.

[b] City of Fontana, Truck Trip Generation Study, August 2003. Light industrial values used for car to truck and truck by axle percentages.

(2) TSF = Thousand Square Feet

(3) Source: Site Plan A1.1.; dated November 19, 2019

(4) Truck by axle percentages obtained from City of Fontana, Truck Trip Generation Study, August 2003.

(5) Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program.

PCE factor of 1.0 is used for passenger cars (such as employee vehicles); light duty trucks use a PCE factor of 1.5; medium duty trucks with 3 axles use a PCE factor of 2.0; and heavy duty trucks with 4 or more axles use a PCE factor of 3.0.

**Table 3
Project Trip Generation for Option B (Warehouse Only)**

| Land Use/Vehicle Type | Source ¹ | Trip Generation Rates per TSF ² | | | | | | |
|-----------------------|---------------------|--|-------|--------|--------------|-------|--------|--------|
| | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | % In | % Out | Total | % In | % Out | Total | |
| Warehouse | ITE 150 | 77% | 23% | 0.17 | 27% | 73% | 0.19 | 1.74 |
| Percent Cars | [a] | -- | -- | 62.86% | -- | -- | 64.38% | 79.57% |
| Percent Trucks | [a] | -- | -- | 37.14% | -- | -- | 35.62% | 20.43% |
| Car Trips per TSF | | 0.082 | 0.025 | 0.107 | 0.033 | 0.089 | 0.122 | 1.385 |
| Truck Trips per TSF | | 0.049 | 0.015 | 0.064 | 0.018 | 0.049 | 0.067 | 0.355 |

| Vehicle Trips Generated | | | | | | | | | |
|--------------------------------------|-----------------------------|----------------------|--------------|-----------|-----------|--------------|-----------|-----------|------------|
| Land Use/Vehicle Type | Quantity (TSF) ³ | Land use in Building | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 292,400 | 1, 2 & 3 | | | | | | | |
| Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Trucks | | | 14 | 5 | 19 | 5 | 15 | 20 | 104 |
| TOTAL VEHICLE TRIPS GENERATED | | | 38 | 12 | 50 | 15 | 41 | 56 | 509 |

| Passenger Car Equivalent (PCE) Trips Generated | | | | | | | | | |
|--|-------------------------|----------------------------|--------------|-----------|-----------|--------------|-----------|-----------|------------|
| Land Use/Vehicle Type | Quantity (TSF) | Truck Percent ⁴ | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 292,400 | | | | | | | | |
| Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Trucks | PCE Factor ⁵ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 16.95% | 4 | 1 | 5 | 1 | 4 | 5 | 27 |
| 3-Axle Trucks | 2.0 | 22.71% | 7 | 1 | 8 | 2 | 7 | 9 | 48 |
| 4+ Axle Trucks | 3.0 | 60.34% | 26 | 8 | 34 | 10 | 25 | 35 | 189 |
| Subtotal Trucks | -- | | 37 | 10 | 47 | 13 | 36 | 49 | 264 |
| Subtotal Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Subtotal Trucks | | | 37 | 10 | 47 | 13 | 36 | 49 | 264 |
| TOTAL PCE TRIPS GENERATED | | | 61 | 17 | 78 | 23 | 62 | 85 | 669 |

Notes:

(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.

[a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.

(2) TSF = Thousand Square Feet

(3) Source: Site Plan A1.1; dated November 19, 2019, and Project Description for Option 2 warehouse only.

(4) Truck by axle percentages obtained from City of Fontana, Truck Trip Generation Study, August 2003.

(5) Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program.

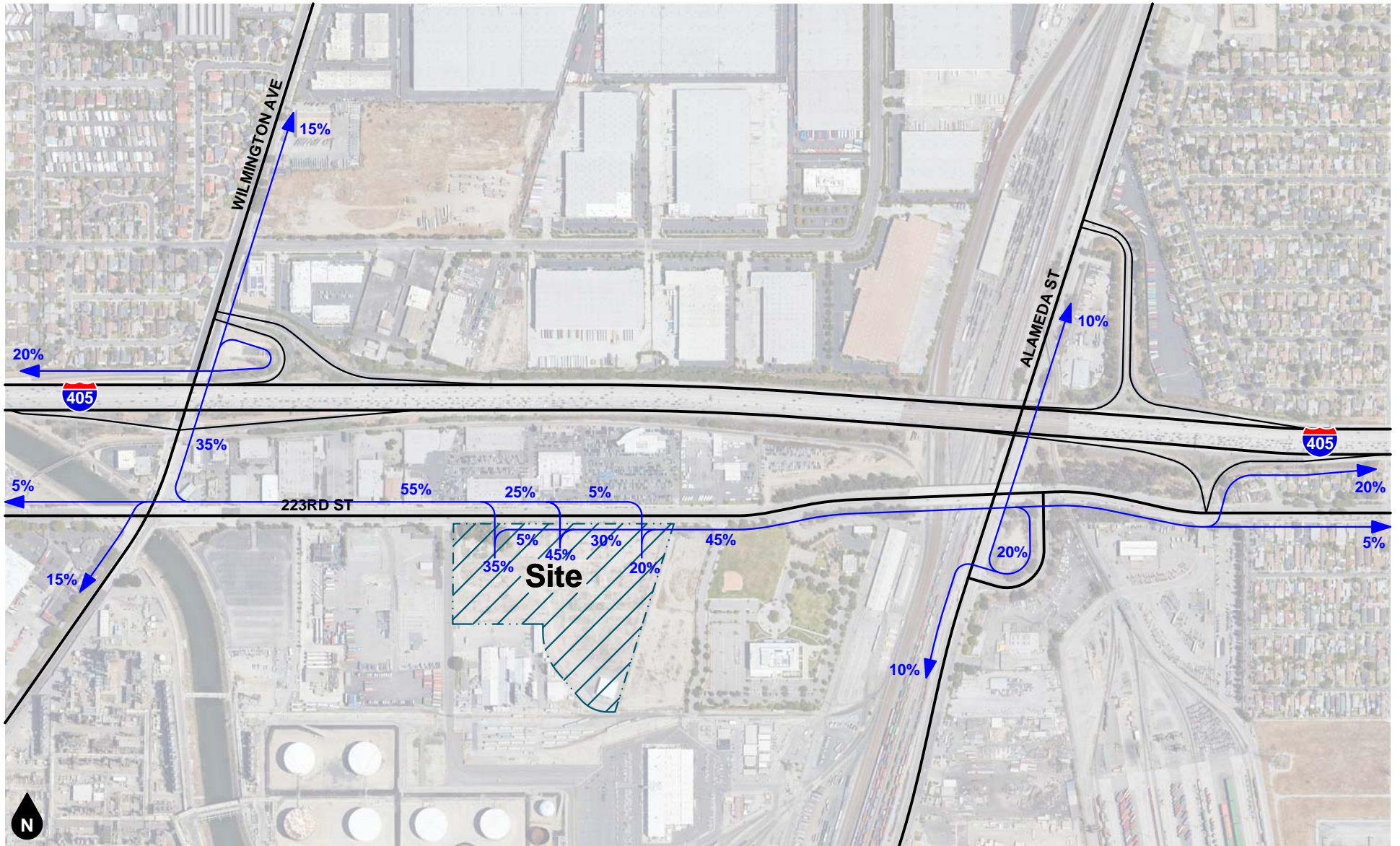
PCE factor of 1.0 is used for passenger cars (such as employee vehicles); light duty trucks use a PCE factor of 1.5; medium duty trucks with 3 axles use a PCE factor of 2.0; and heavy duty trucks with 4 or more axles use a PCE factor of 3.0.

**Table 4
Trip Generation Comparison**

| Alternative | Land Use/Vehicle Type | Quantity (TSF) ² | Vehicle Percent ^{3,4} | Trip Generation ¹ | | | | | | |
|-------------|--|----------------------------------|-----------------------------------|------------------------------|-----------|------------|--------------|------------|------------|--------------|
| | | | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | | In | Out | Total | In | Out | Total | |
| Option A | Warehouse [a] | 165.200 | | 22 | 7 | 29 | 8 | 23 | 31 | 288 |
| | Manufacturing [b] | 127.200 | | 61 | 18 | 79 | 26 | 60 | 86 | 500 |
| | Subtotal Cars | | 61.1% | 51 | 15 | 66 | 25 | 61 | 86 | 622 |
| | Subtotal Truck PCE (Single-unit 2 or 3 axle) | | 13.0% | 27 | 7 | 34 | 7 | 18 | 25 | 132 |
| | Subtotal Truck PCE (Semi-trailer 4 or more axle) | | 25.9% | 50 | 15 | 65 | 14 | 35 | 49 | 264 |
| | TOTAL PCE TRIPS GENERATED | 292.400 | | 128 | 37 | 165 | 46 | 114 | 160 | 1,018 |
| Option B | Warehouse | 292.400 | | 38 | 12 | 50 | 15 | 41 | 56 | 509 |
| | Subtotal Cars | | 60.5% | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| | Subtotal Truck PCE (Single-unit 2 or 3 axle) | | 11.2% | 11 | 2 | 13 | 3 | 11 | 14 | 75 |
| | Subtotal Truck PCE (Semi-trailer 4 or more axle) | | 28.3% | 26 | 8 | 34 | 10 | 25 | 35 | 189 |
| | | TOTAL PCE TRIPS GENERATED | 292.400 | | 61 | 17 | 78 | 23 | 62 | 85 |

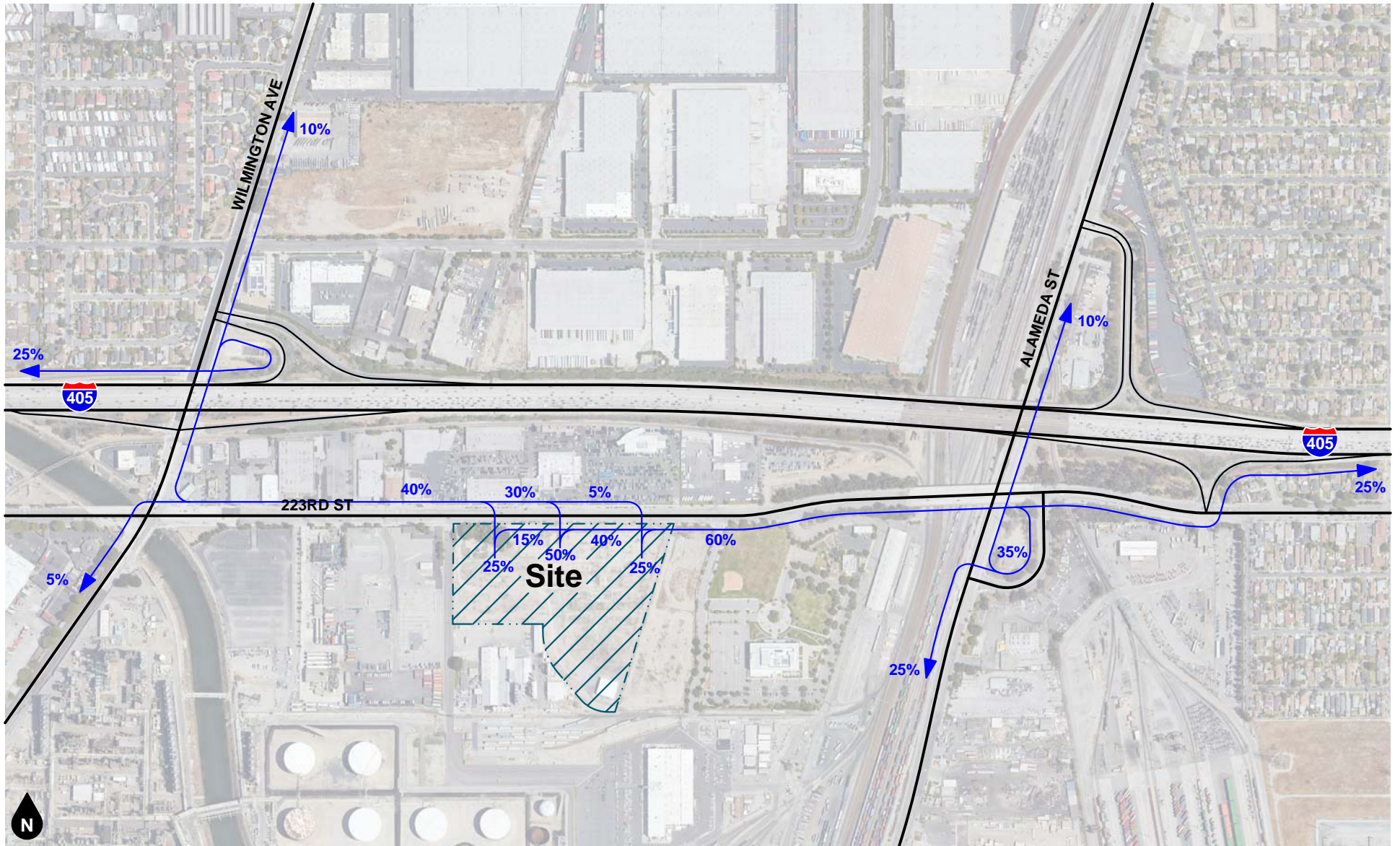
Notes:

- (1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.
- (2) TSF = Thousand Square Feet
- (3) Industrial trips are in passenger car equivalent (PCE) trips to provide a more conservative analysis of trips.
- (4) Total Vehicle composition percentage. See Tables 1 and 2 for computational breakdown of cars to trucks and trucks by axle.
 - [a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.
 - [b] City of Fontana, Truck Trip Generation Study, August 2003. Light industrial values used for car to truck and truck by axle percentages.



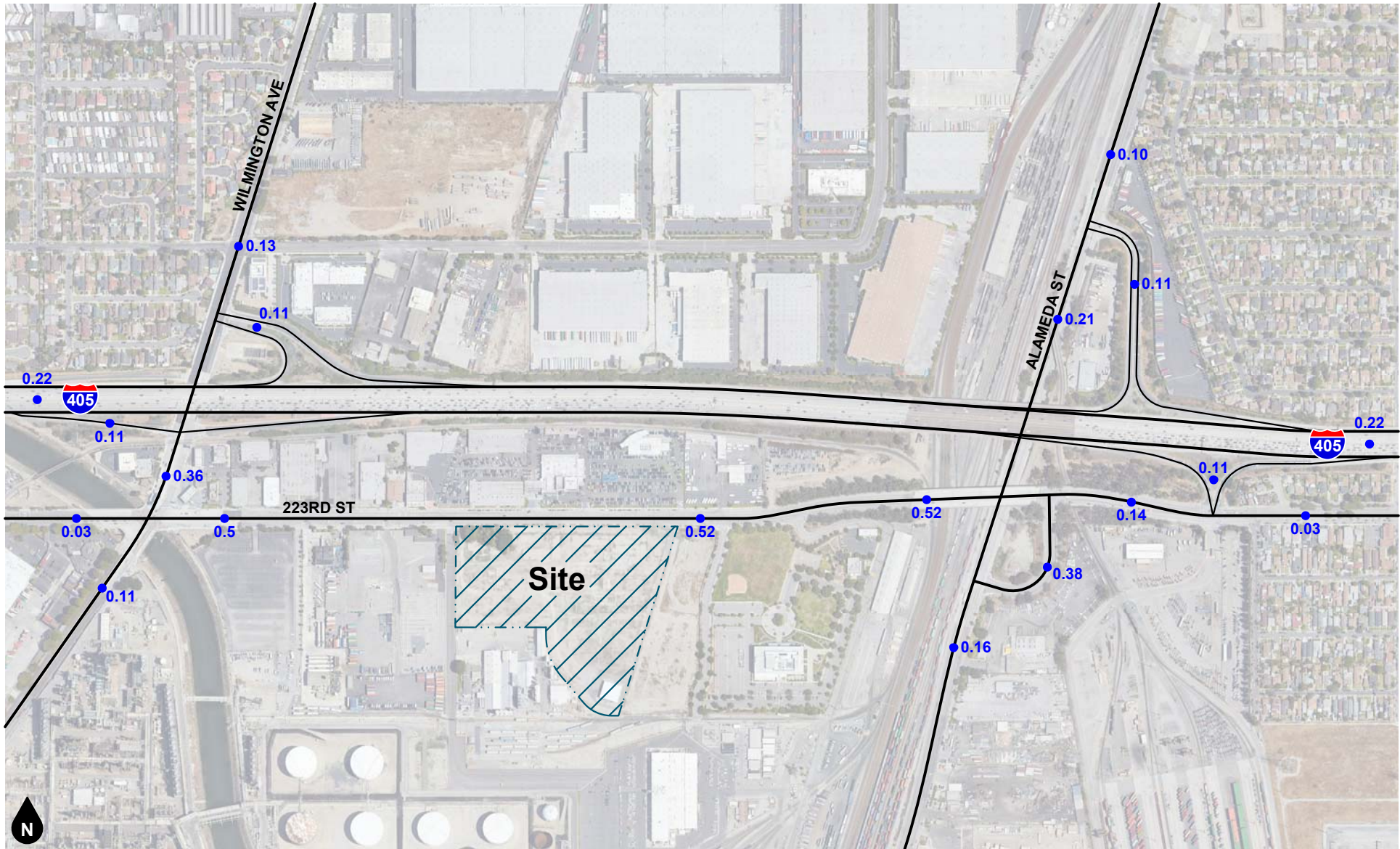
Legend
 ← 10% Percent To/From Project

Figure 13
Project Trip Distribution (Cars)



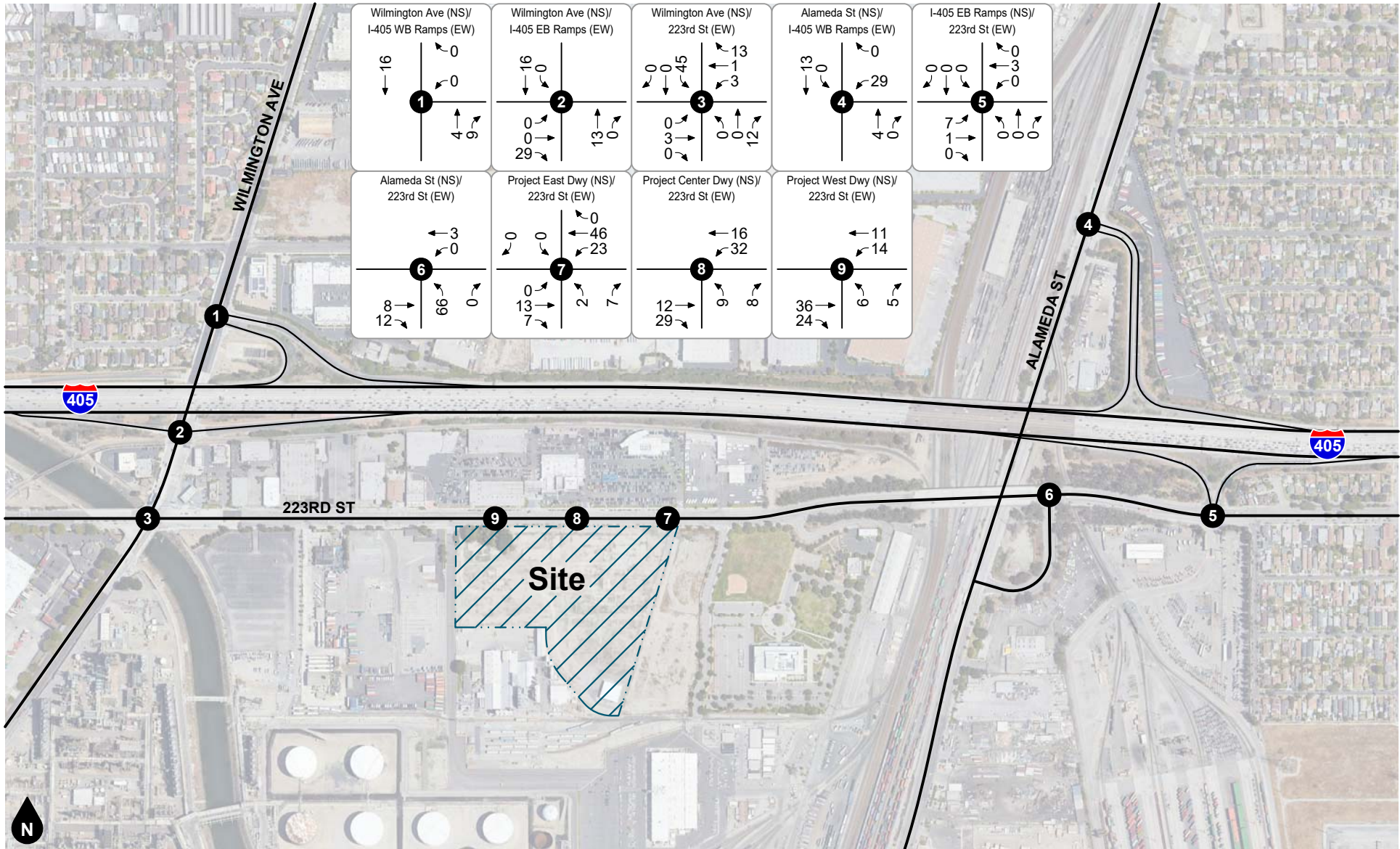
Legend
 ← 10% Percent To/From Project

Figure 14
Project Trip Distribution (Trucks)



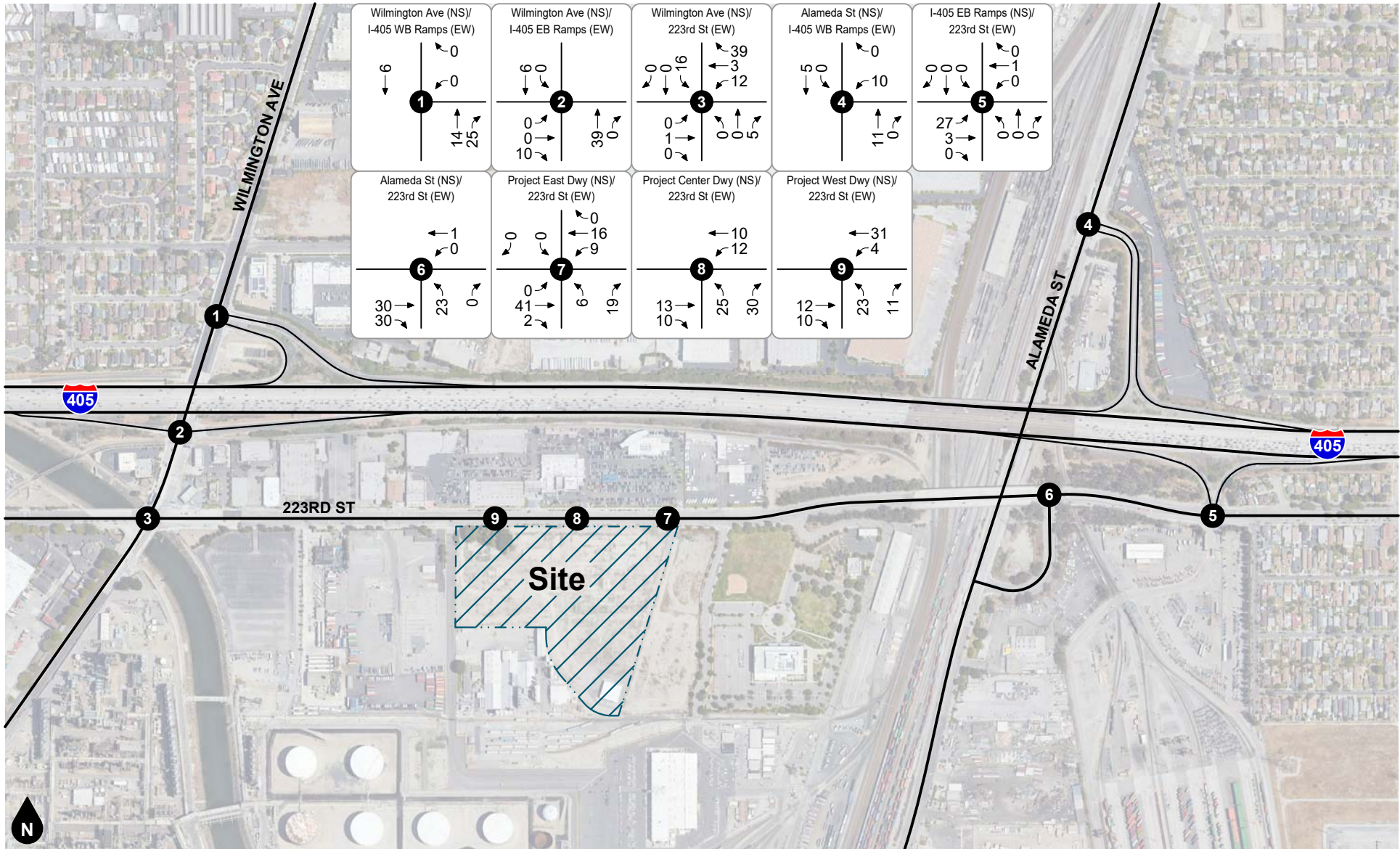
Legend
 ●## Vehicles Per Day (1,000's)

Figure 15
Project Average Daily Traffic Volumes



Legend
 # Study Intersection

Figure 16
 Project AM Peak Hour Intersection Turning Movement Volumes



Legend
 # Study Intersection

Figure 17
 Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes and illustrates the future volume forecasts for each analysis scenario. All roadway and intersection volume figures are in shown in PCE.

METHOD OF PROJECTION

To assess future conditions, existing roadway volumes is combined with project trips, ambient growth, and other development trips. The project completion year for analysis purposes in this report is 2021.

Ambient Growth

To account for ambient growth on roadways, existing traffic volumes were increased by one-half percent (0.5%) per year over a one (1) year period. The ambient growth factor was derived from the modeled traffic growth factors contained in the Los Angeles County 2010 Congestion Management Program (Exhibit D-1) for the Regional Statistical Area (RSA) for the City. This is a conservative assumption since the ambient growth was applied to all movements at the study intersections.

Other Developments

Other pending or approved developments within a 1.5-mile radius were identified and included in the trip generation summary shown in Table 5. The regional ambient growth is assumed to account for any additional trips generated by other developments outside the 1.5-mile radius not specifically identified in Table 5. Figure 18 shows the other development location map.

Other developments average daily traffic volumes are shown on Figure 19. Figure 20, and Figure 21 show the forecast AM peak hour and PM peak hour intersection turning movement volumes for trips generated by other developments.

FUTURE TRAFFIC VOLUMES

Existing Plus Project

The Existing Plus Project volume forecast was developed by adding project-generated trips to existing roadway and intersection volumes. Existing Plus Project average daily traffic volumes are shown on Figure 22. Existing Plus Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 23, and Figure 24.

Opening Year (2021) Without Project

The Opening Year (2021) Without Project volume forecast was developed by applying the ambient growth factor to existing roadway and intersection volumes and adding trips generated by other developments. Opening Year (2021) Without Project average daily traffic volumes are shown on Figure 25. Opening Year (2021) Without Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 26 and Figure 27.

Opening Year (2021) With Project

The Opening Year (2021) With Project volume forecast was developed by adding project-generated trips to Opening Year (2021) Without Project roadway and intersection volumes. Opening Year (2021) With Project average daily traffic volumes are shown on Figure 28. Opening Year (2021) With Project AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 29 and Figure 30.

Table 5 (1 of 2)
Other Developmet Trip Generation

| ID | Other Development Name/Address | Land Use | Quantity | Units ² | Source ¹ | Trips Generated | | | | | | Daily |
|----------------|---|---|------------|--------------------|---------------------|-----------------|------|-------|--------------|------|-------|--------|
| | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | | | | In | Out | Total | In | Out | Total | |
| City of Carson | | | | | | | | | | | | |
| C1 | Warehouse Project (No. 14-014) / 2254 E 223rd Street | Warehousing | 120,650 | TSF | | | | | | | | |
| | | - Passenger Cars | - | - | [a] | 25 | 7 | 31 | 8 | 25 | 34 | 374 |
| | | - Trucks (PCE) | - | - | [a] | 11 | 3 | 14 | 4 | 11 | 15 | 168 |
| | | Subtotal | - | - | [a] | 36 | 10 | 46 | 12 | 36 | 49 | 541 |
| C2 | AL2 420k Warehouse / 21900 S Wilmington Avenue | High Cube Warehouse | 420,000 | TSF | | | | | | | | |
| | | - Passenger Cars | - | - | [b] | 23 | 10 | 33 | 10 | 23 | 33 | 437 |
| | | - Trucks (PCE) | - | - | [b] | 22 | 9 | 31 | 13 | 29 | 42 | 670 |
| | | Subtotal | - | - | [b] | 45 | 19 | 64 | 23 | 52 | 75 | 1,107 |
| C3 | Vera Lane / 21801 Vera Street ³ | Multi-Family Residential | 5 | DU | ITE 220 | 1 | 1 | 2 | 2 | 1 | 3 | 37 |
| C4 | Carson Truck Operations Project 223rd Street to 236th Street | Truck Trailer Parking - Trucks (PCE) | 565 - | Stalls - | [c] | 50 | 50 | 100 | 50 | 50 | 100 | 1,750 |
| C5 | Highline Truck Yard Project / 20915 Lambertson Ave | Truck Yard Facility | 2.8 | AC | | | | | | | | |
| | | - Passenger Cars | - | - | [d] | 6 | 2 | 8 | 3 | 6 | 9 | 119 |
| | | - Trucks (PCE) | - | - | [d] | 5 | 19 | 24 | 11 | 12 | 23 | 367 |
| | | Subtotal | - | - | [d] | 11 | 21 | 32 | 14 | 18 | 32 | 486 |
| C6 | Shippers Transport Express Container Storage / 2149 East Sepulveda Blvd | Container Storage | 20.0 | AC | | | | | | | | |
| | | - Passenger Cars | - | - | [e] | 5 | 5 | 10 | 15 | 5 | 20 | 150 |
| | | - Trucks (PCE) | - | - | [e] | 30 | 40 | 70 | 60 | 50 | 110 | 900 |
| | | Existing Displaced Site | -60.0 | AC | | | | | | | | |
| | | - Passenger Cars | - | - | [e] | -15 | -10 | -25 | -42 | -22 | -64 | -445 |
| | | - Trucks (PCE) | - | - | [e] | -76 | -110 | -186 | -176 | -162 | -338 | -2,620 |
| | | Subtotal | - | - | [e] | -56 | -75 | -131 | -143 | -129 | -272 | -2,015 |
| C7 | Inland Star Distribution Center / 2132 E Dominguez Street | - Passenger Cars | - | - | [f] | 17 | 0 | 17 | 0 | 17 | 17 | 34 |
| | | - Trucks (PCE) | - | - | [f] | 15 | 15 | 30 | 38 | 37 | 75 | 275 |
| | | Subtotal | - | - | [f] | 32 | 15 | 47 | 38 | 54 | 92 | 309 |
| C8 | Tesoro Tank Farm ⁵ / 1150 E Sepulveda Blvd | Refinery - Trucks (PCE) | 6,000 - | bbl/day - | [g] | 0 | 1 | 1 | 1 | 0 | 1 | 10 |
| C9 | Bella Vita Residential / 402 E Sepulveda Blvd | Senior Attached Housing | 65 | DU | [h] | 5 | 8 | 13 | 9 | 8 | 17 | 224 |
| | | Specialty Retail | 3,000 | TSF | [h] | 4 | 5 | 9 | 10 | 11 | 21 | 133 |
| | | Subtotal | - | - | [h] | 9 | 13 | 22 | 19 | 19 | 38 | 357 |
| C10 | Jefferson on Avalon ⁶ / Avalon Blvd & 213 th Street | Multi-Family Residential | 1,048 | DU | ITE 220 | 111 | 371 | 482 | 370 | 217 | 587 | 7,671 |
| | | Hotel | 150 | RM | ITE 310 | 42 | 29 | 71 | 46 | 44 | 90 | 1,254 |
| | | Food Pavillion | 10,000 | TSF | ITE 932 | 55 | 44 | 99 | 61 | 37 | 98 | 1,122 |
| | | Coffee/Donut Shop | 2,500 | TSF | ITE 937 | 113 | 109 | 222 | 54 | 54 | 108 | 2,051 |
| | | Internal Capture | - | - | ITE Hbk | -45 | -43 | -88 | -46 | -29 | -75 | -163 |
| | | Pass-by | - | - | ITE Hbk | - | - | - | -26 | -16 | -42 | -1,825 |
| | | | | Subtotal | - | - | | 276 | 510 | 786 | 459 | 307 |

**Table 5 (2 of 2)
Other Developmet Trip Generation**

| ID | Other Development Name/Address | Land Use | Quantity | Units ² | Source ¹ | Trips Generated | | | | | | |
|-------------------------------|--|--------------------------|----------|--------------------|---------------------|-----------------|-----|-------|--------------|-----|-------|--------|
| | | | | | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | | | | In | Out | Total | In | Out | Total | |
| City of Los Angeles | | | | | | | | | | | | |
| LA1 | Southern California International Gateway | Rail Intermodal Facility | - | - | [i] | 70 | 300 | 370 | 120 | 65 | 185 | 8,155 |
| Total Other Development Trips | | | | | | 474 | 865 | 1,338 | 595 | 473 | 1,069 | 20,848 |

Notes:

(1) Sources:

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

[a] = Warehouse Project (No. 14-014) Traffic Impact Analysis, (Arch Beach Consulting, June 6, 2014).

[b] = AL2 Carson Warehouse Traffic Impact Analysis, (Urban Crossroads, July 22, 2016).

[c] = Traffic Impact Study Carson Truck Operations Project for Linear Properties (Kimley-Horn, June, 2018).

[d] = Highline Truck Yard Trip Generation Analysis Technical Memorandum (Dudek, August, 2019).

[e] = Shippers Transport Express Container Storage Project Technical Memorandum (Iteris, Inc. October 3, 2019)

[f] = Inland Star Draft Transportation Impact Analysis (Fehr & Peers May 18, 2018).

[g] = Tesoro LA Refinery Environmental Impact Report (Environmental Audit, Inc. May 2017)

[h] = Sepulveda and Panama Mixed Use Project Traffic Impact Analysis (RBF Baker, March 25, 2015).

[i] = Southern California International Gateway; City of Los Angeles Related Projects CLAT Listing, February 18, 2020.

Hbk = ITE Trip Generation Handbook (3rd Edition, 2017).

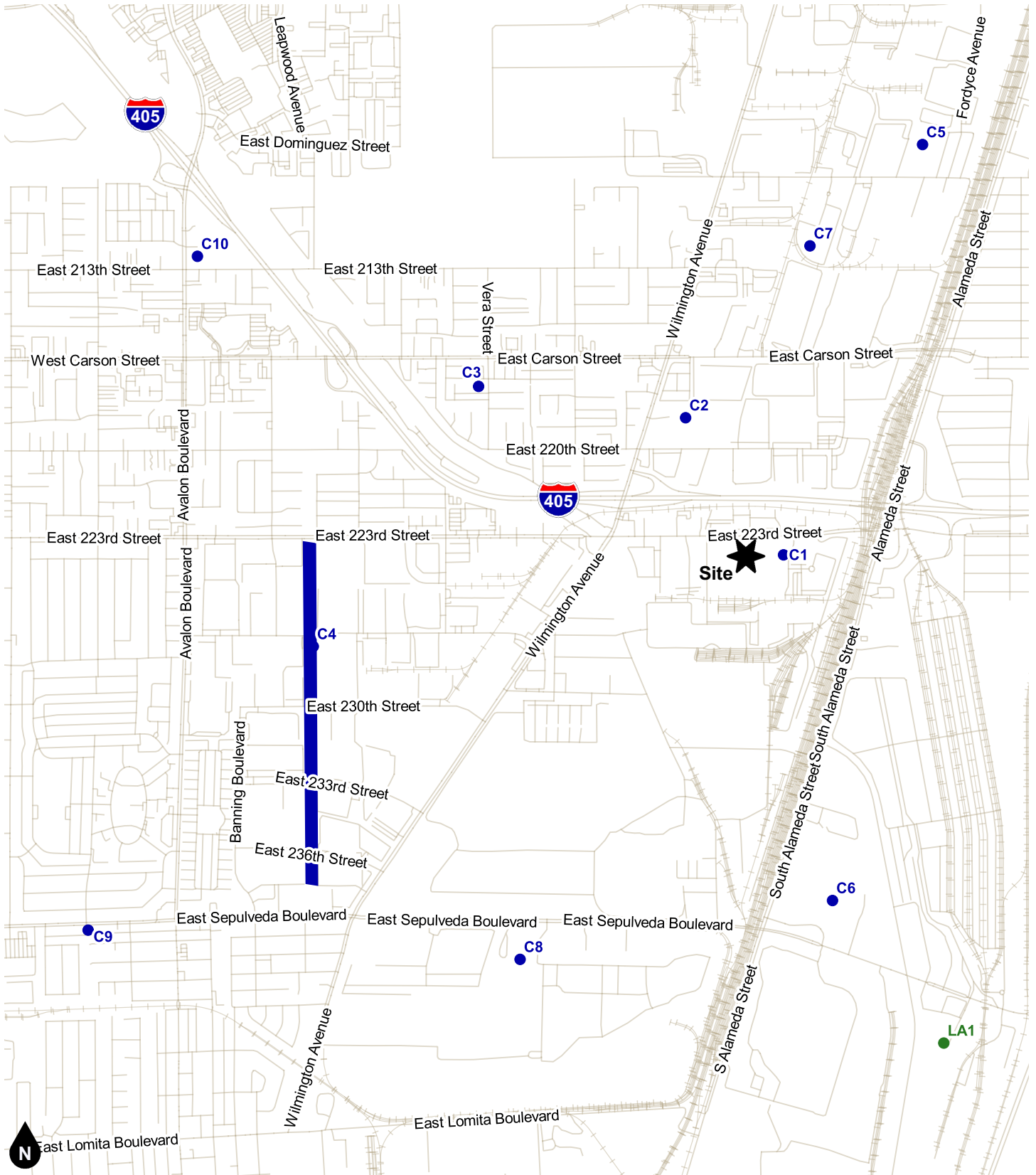
(2) DU = Dwelling Units; TSF = Thousand Square Feet; RM = Hotel Rooms; bbl = barrel

(3) Vera Lane, 18-unit condominium complex, construction complete. The number of dwelling units and trips are reduced to an estimated 75% occupancy.

(4) Shippers Transport Express Container Storage daily trips calculated from peak hour rates listed in the report.

(5) The Tesoro Refinery operations are forecast to increase by 10 daily trips. It is conservatively assumed that one inbound or outbound trip occurs during the peak hours.

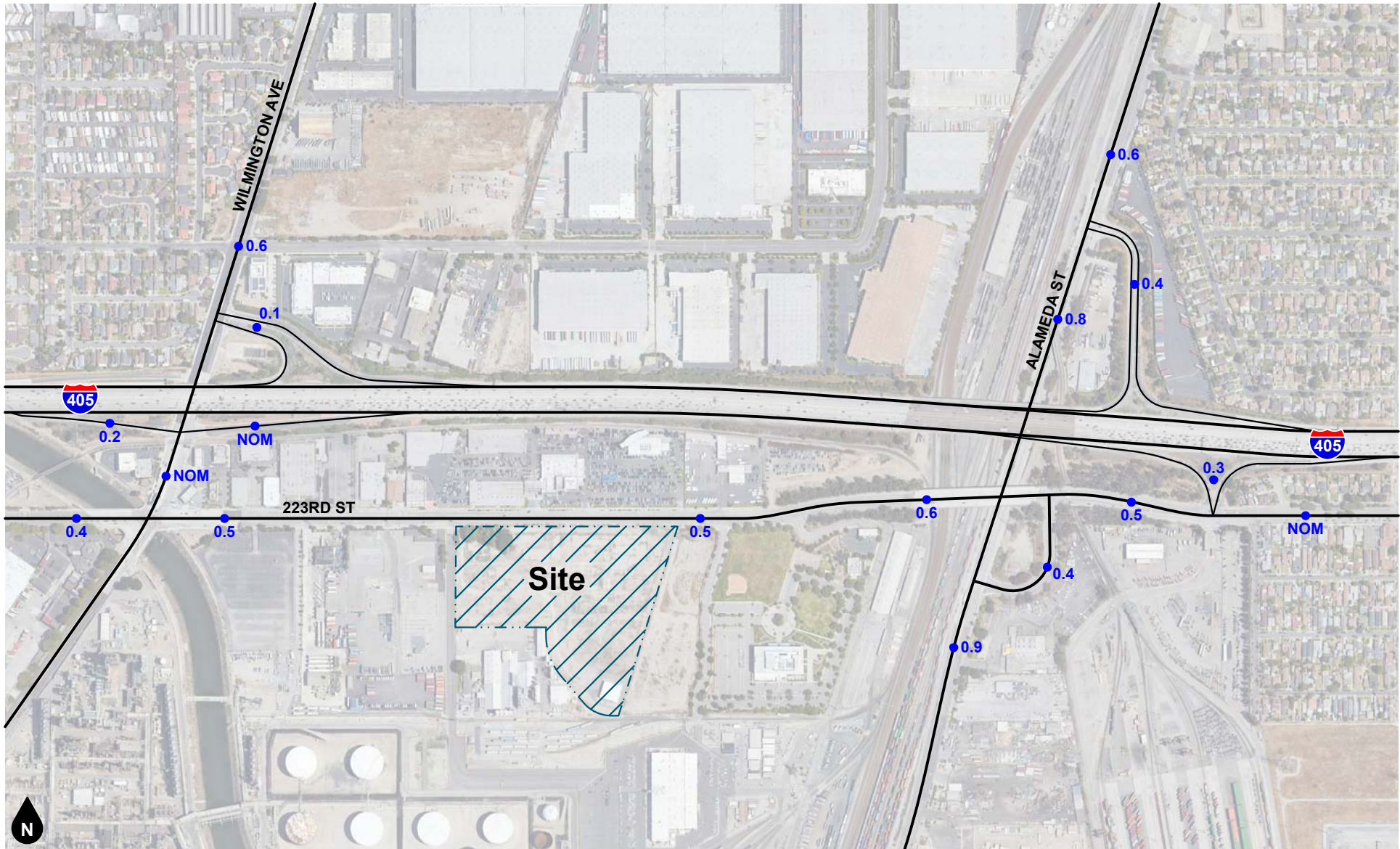
(6) Land use and quantities based on Site Plan SD-1 Master Project Summary, dated 2019.07.23.



Legend

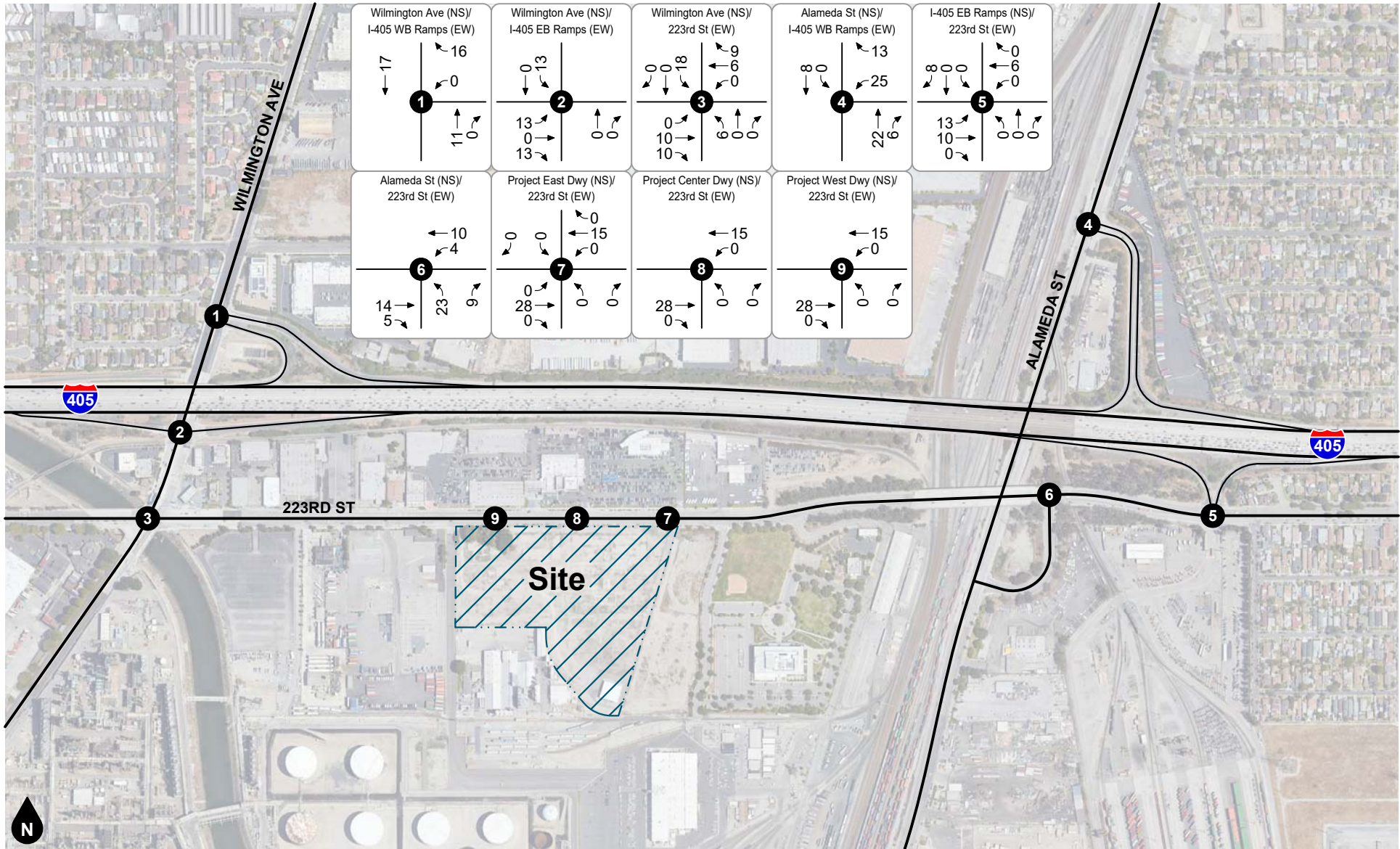
- # Other Development ID in:
- City of Carson (C)
- City of Los Angeles (LA)
- █ Carson Truck Operations Project for Linear Properties

Figure 18
Other Development Location Map



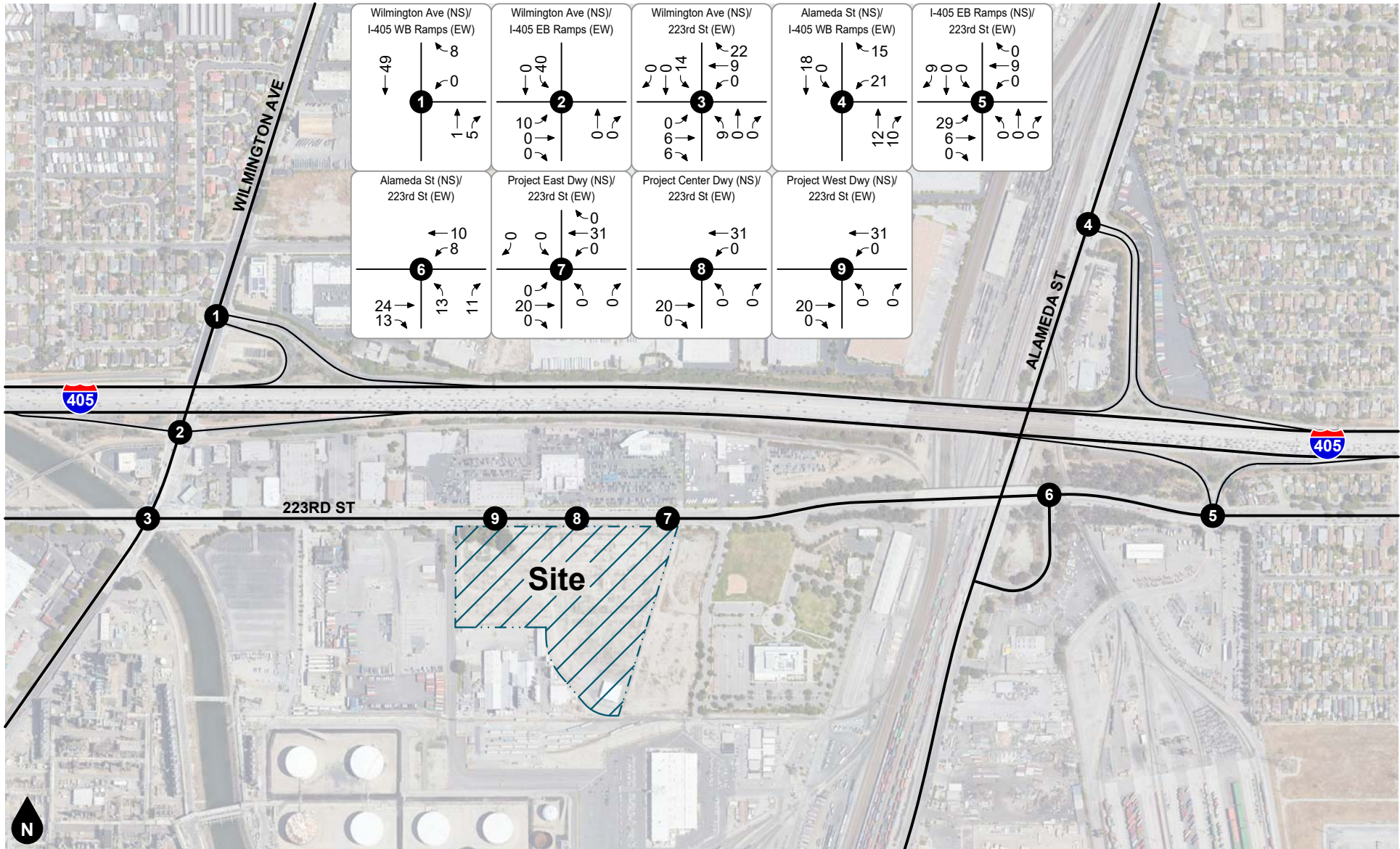
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 ● ## Vehicles Per Day (1,000's)
 NOM Nominal; Less Than 50 Vehicles Per Day

Figure 19
Other Development Average Daily Traffic Volumes



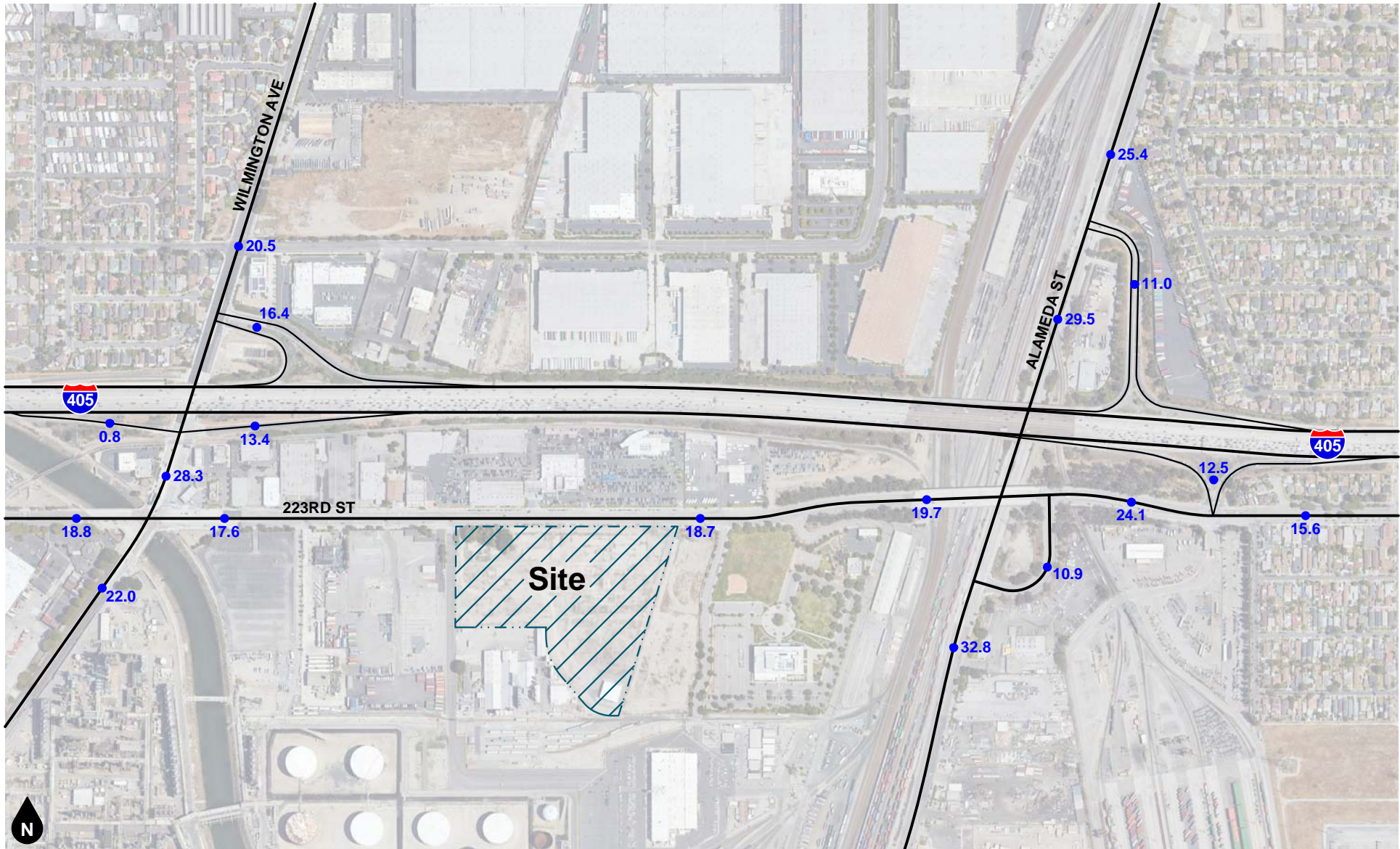
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 # Study Intersection

Figure 20
Other Development
AM Peak Hour Intersection Turning Movement Volumes



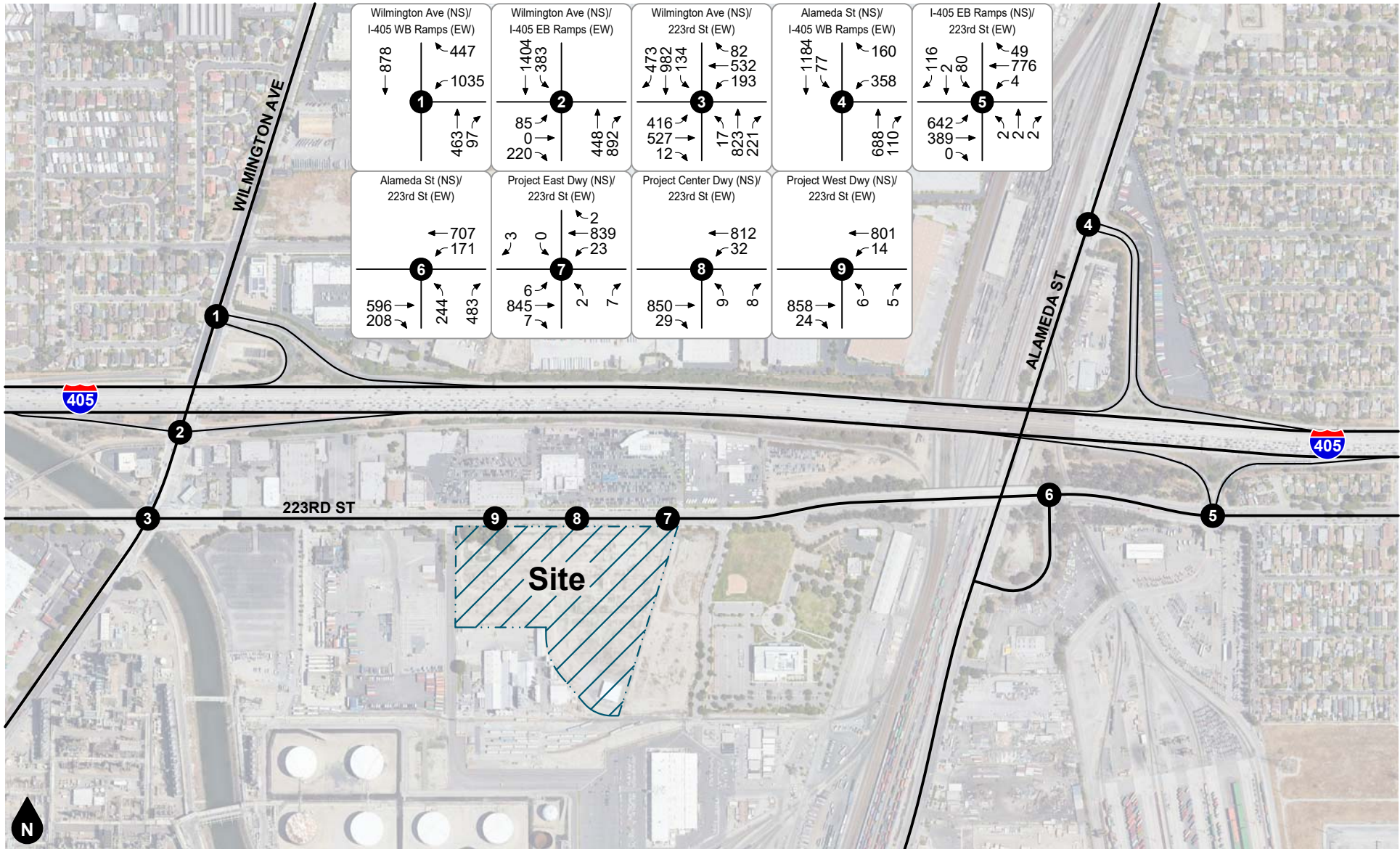
Legend
 # Study Intersection

Figure 21
Other Development
PM Peak Hour Intersection Turning Movement Volumes



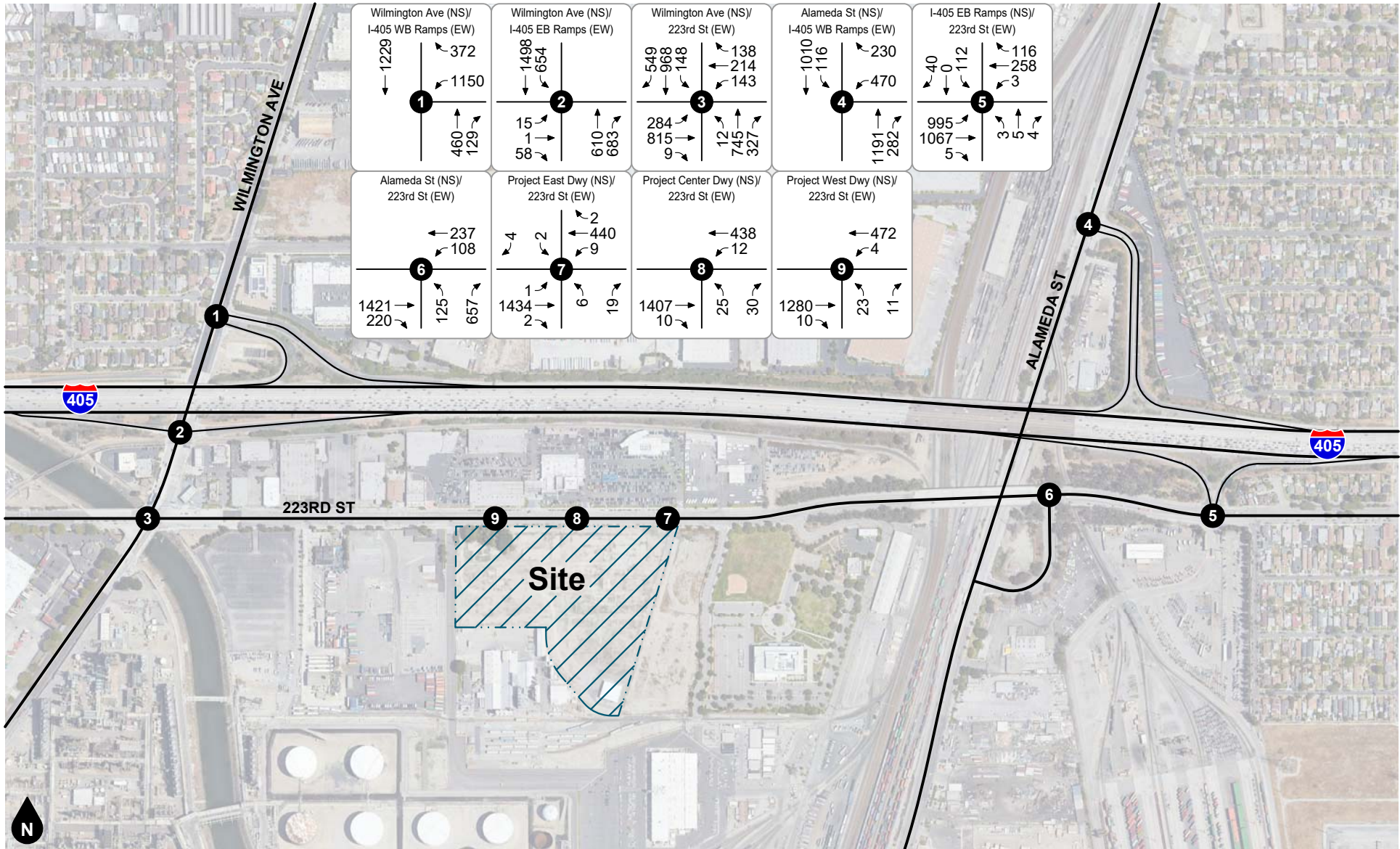
Legend
 ●## Vehicles Per Day (1,000's)

Figure 22
 Existing Plus Project Average Daily Traffic Volumes



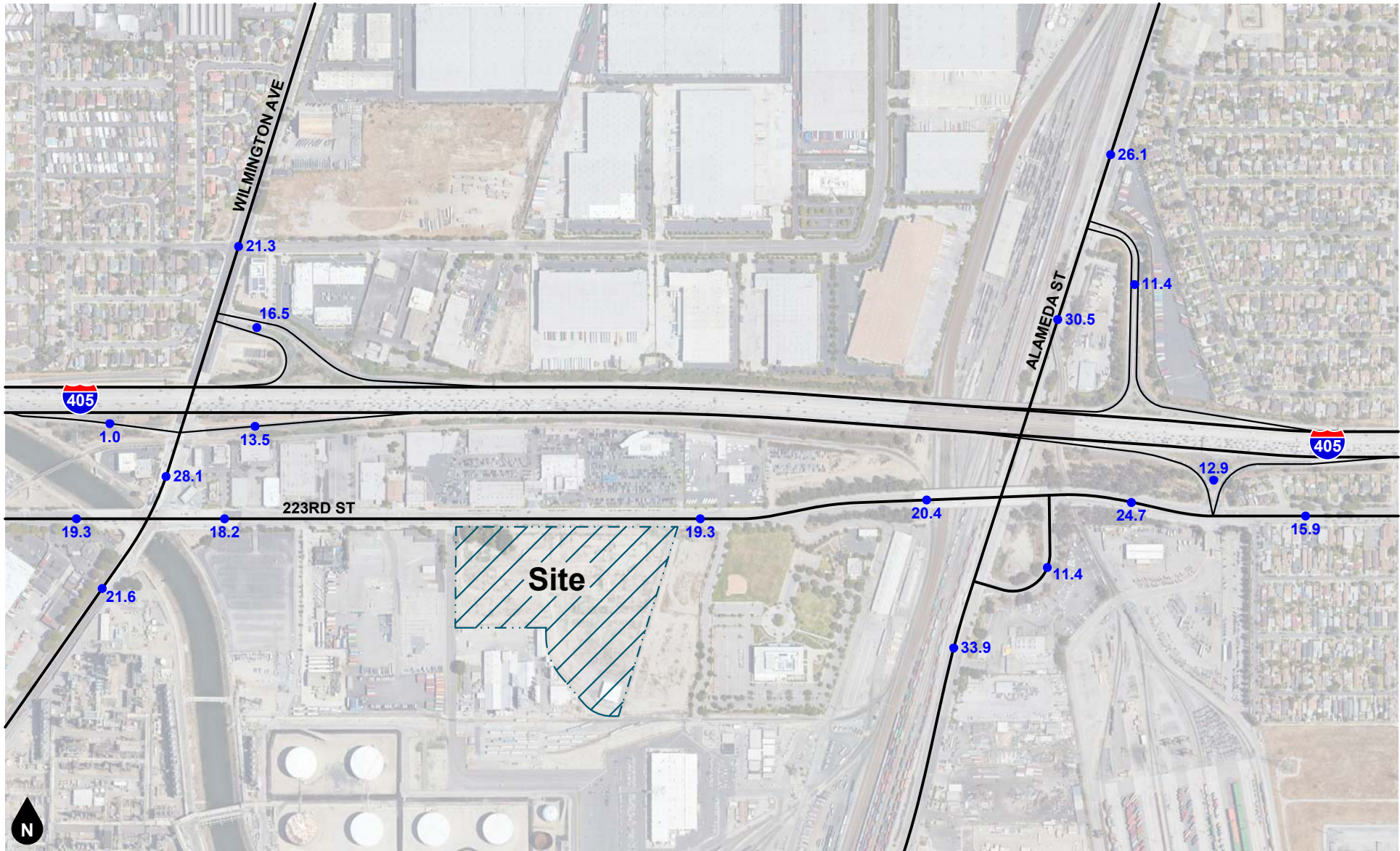
Legend
 # Study Intersection

Figure 23
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



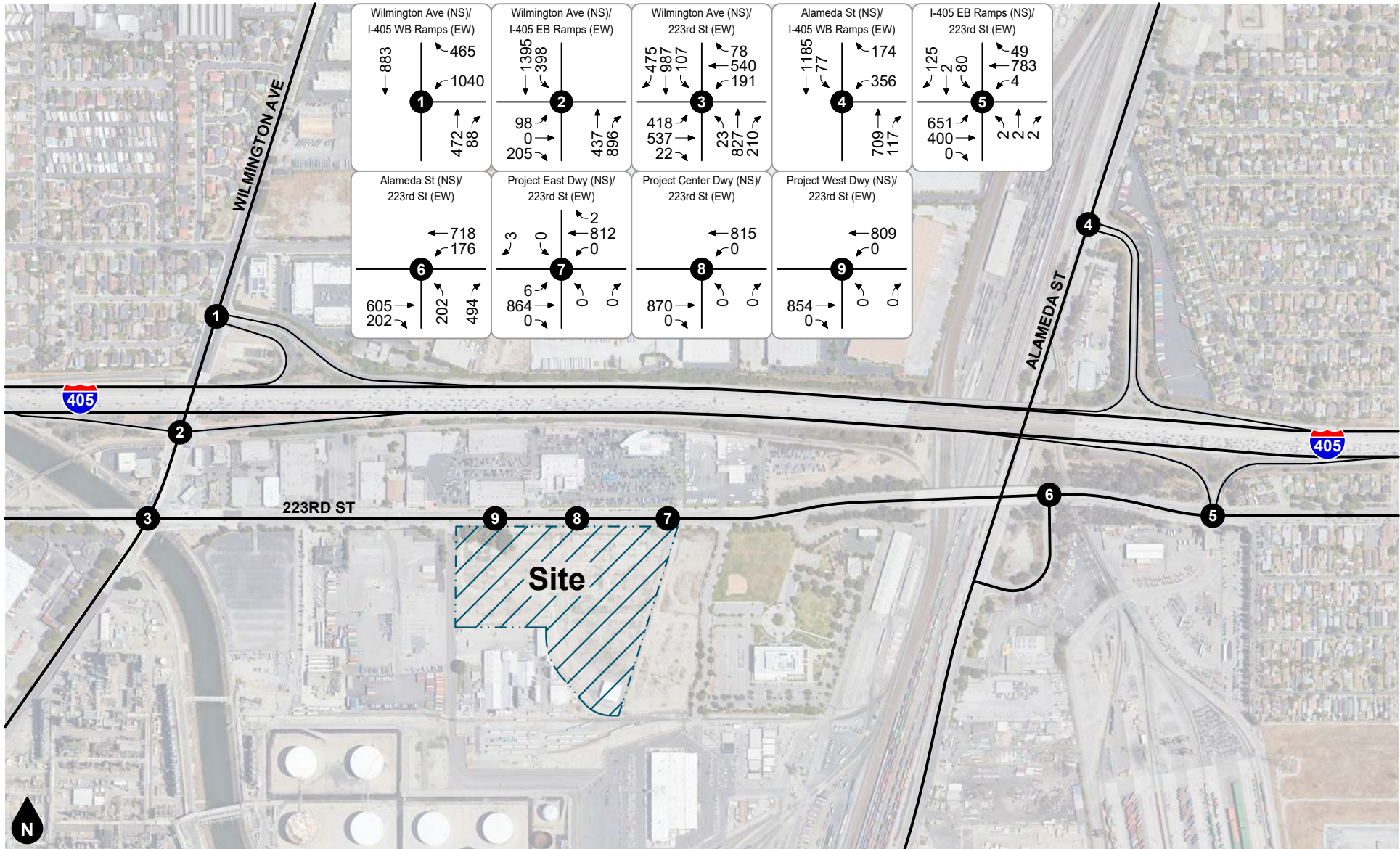
Legend
 # Study Intersection

Figure 24
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



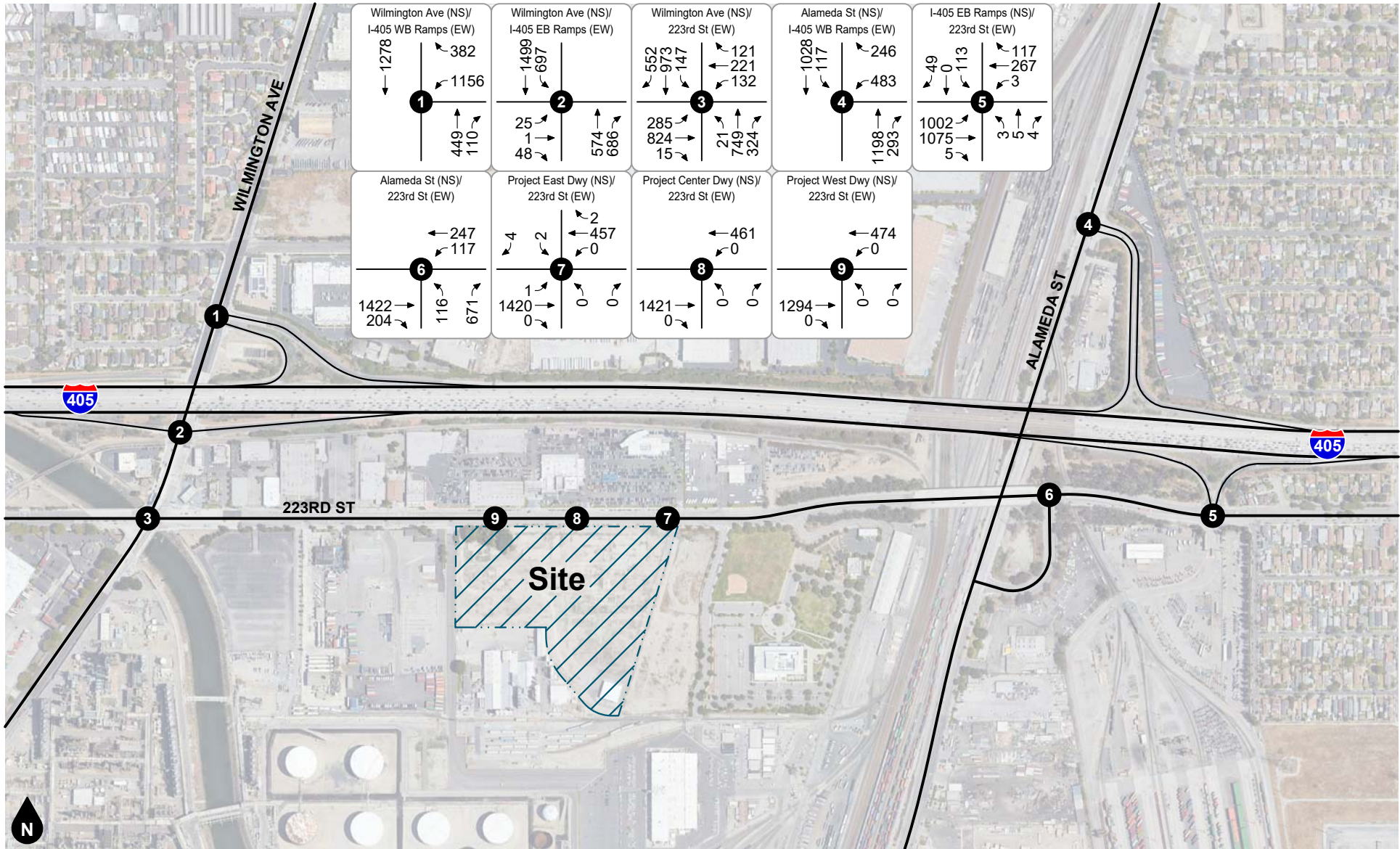
Legend
 ●## Vehicles Per Day (1,000's)

Figure 25
Opening Year (2021) Without Project Average Daily Traffic Volumes



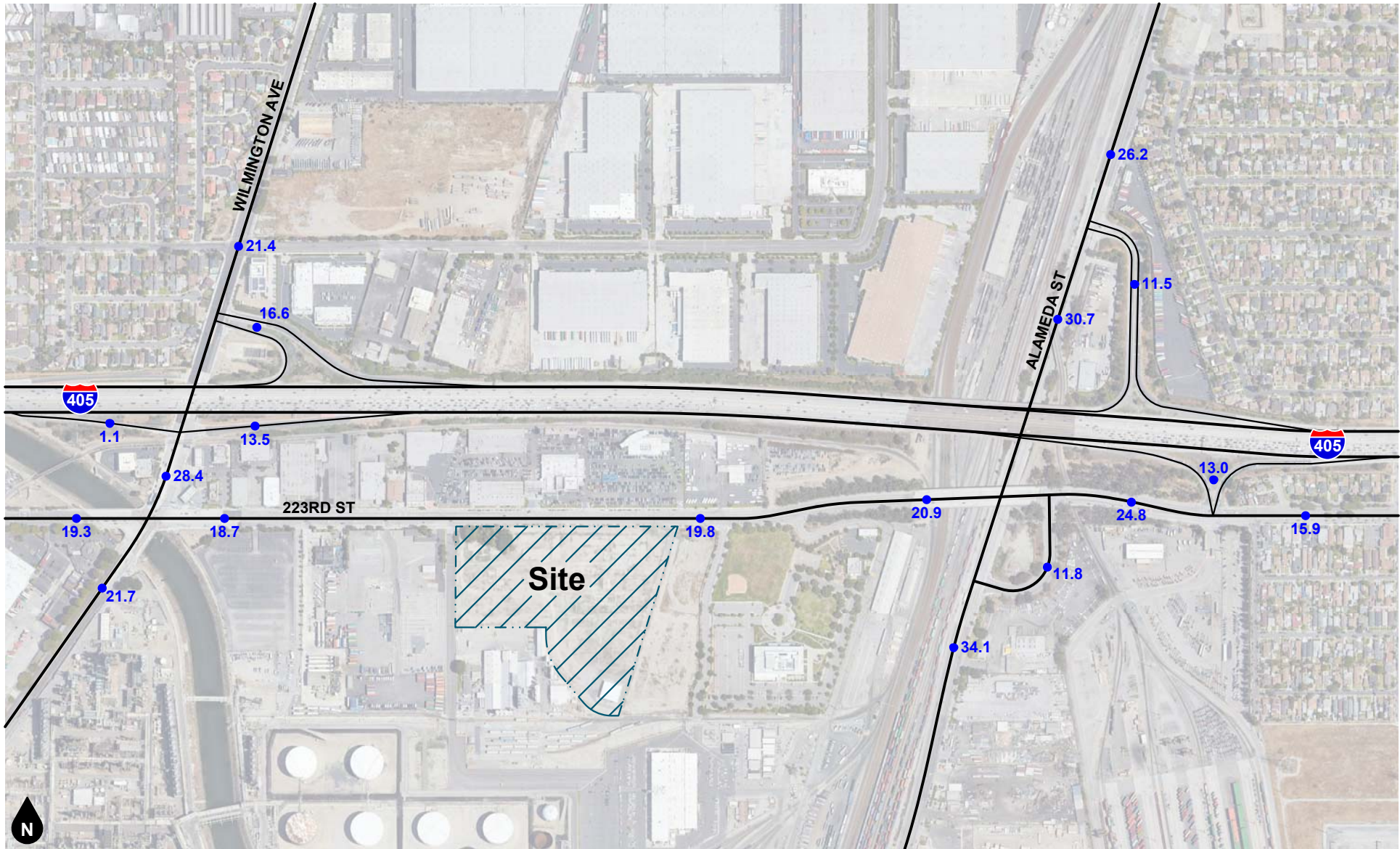
Legend
 # Study Intersection

Figure 26
Opening Year (2021) Without Project
AM Peak Hour Intersection Turning Movement Volumes



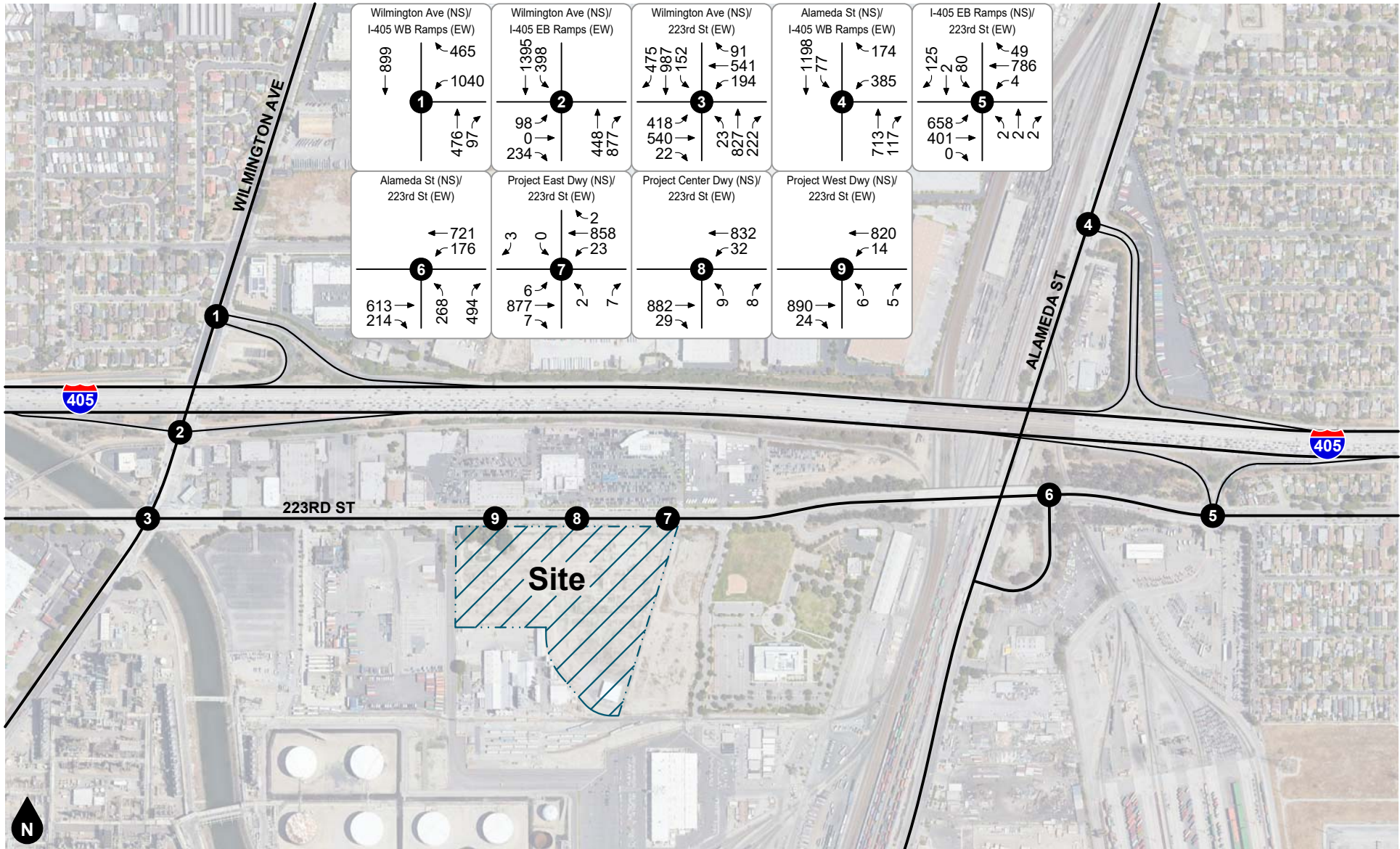
Legend
 # Study Intersection

Figure 27
Opening Year (2021) Without Project
PM Peak Hour Intersection Turning Movement Volumes



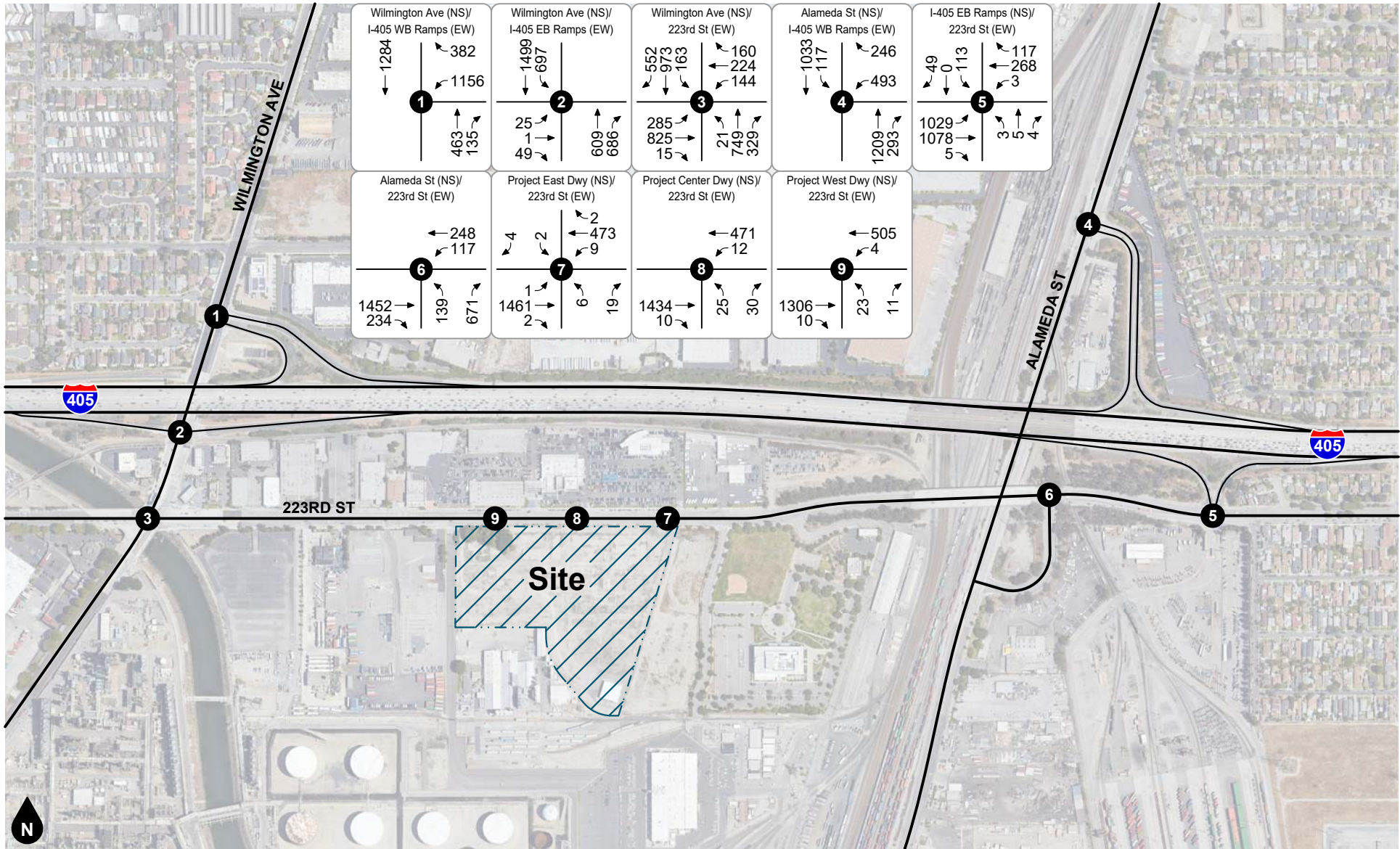
Legend
 ●## Vehicles Per Day (1,000's)

Figure 28
 Opening Year (2021) With Project Average Daily Traffic Volumes



Legend
 # Study Intersection

Figure 29
Opening Year (2021) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend
 # Study Intersection

Figure 30
Opening Year (2021) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE OPERATIONAL ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

EXISTING PLUS PROJECT

The intersection Levels of Service for Existing Plus Project conditions are shown in Table 6. As shown in Table 6, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions.

Table 7 evaluates the project impact at the study intersections for Existing Plus Project conditions. As shown in Table 7, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions based on the City-established thresholds of significance.

OPENING YEAR (2021) WITHOUT PROJECT

The intersection Levels of Service for Opening Year (2021) Without Project conditions are shown in Table 8. As shown in Table 8, the study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2021) Without Project conditions.

OPENING YEAR (2021) WITH PROJECT

The intersection Levels of Service for Opening Year (2021) With Project conditions are shown in Table 9. As shown in Table 9, the study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2021) With Project conditions, with the exception of the east project driveway that is forecast to operate at Level of Service E during the PM peak hour.

Table 10 evaluates the project impact at the study intersections for Opening Year conditions. As shown in Table 10, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Opening Year (2021) With Project conditions based on the City-established thresholds of significance.

As noted in Table 10, Level of Service E at the east project driveway is not considered significant because the project driveway is not forecast to satisfy the Caltrans peak hour traffic signal warrant. Additionally, the major roadway is uncontrolled and forecast to operate at Level of Service A; only the northbound left turn movement at the proposed private driveway is forecast to marginally exceed Level of Service D. The shared lane for the northbound approach is forecast to operate at Level of Service C.

Table 6
Existing Plus Project Intersection Levels of Service

| ID | Study Intersection | Traffic Control ¹ | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|-----------------------------|------------------|----------------|-----|
| | | | V/C or [Delay] ² | LOS ³ | V/C or [Delay] | LOS |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.642 | B | 0.715 | C |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.888 | D | 0.768 | C |
| 3. | Wilmington Ave at 223rd St | TS | 0.710 | C | 0.726 | C |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.587 | A | 0.838 | D |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.550 | A | 0.566 | A |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.569 | A | 0.853 | D |
| 7. | East Driveway at 223rd St | CSS | [21.8] | C | [34.2] | D |
| 8. | Center Driveway at 223rd St | CSS | [17.7] | C | [32.6] | D |
| 9. | West Driveway at 223rd St | CSS | [17.4] | C | [27.6] | D |

Notes:

- (1) TS = Traffic Signal; CSS = Cross Street Stop
- (2) V/C = Volume/Capacity. Delay is shown in [seconds/vehicle]. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).
- (3) LOS = Level of Service

**Table 7
Existing Plus Project Significant Impact Evaluation**

| ID | Study Intersection | Traffic Control ¹ | Existing | | | | Existing Plus Project | | | | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|-----------------------------|------------------|----------------|-----|-----------------------|-----|----------------|-----|----------------|---------------------|----------------|---------------------|
| | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | Project Change | Significant Impact? | Project Change | Significant Impact? |
| | | | V/C or [Delay] ² | LOS ³ | V/C or [Delay] | LOS | V/C or [Delay] | LOS | V/C or [Delay] | LOS | | | | |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.639 | B | 0.714 | C | 0.642 | B | 0.715 | C | +0.003 | NO | +0.001 | NO |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.870 | D | 0.761 | C | 0.888 | D | 0.768 | C | +0.018 | NO | +0.007 | NO |
| 3. | Wilmington Ave at 223rd St | TS | 0.710 | C | 0.722 | C | 0.710 | C | 0.726 | C | +0.000 | NO | +0.004 | NO |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.568 | A | 0.829 | D | 0.587 | A | 0.838 | D | +0.019 | NO | +0.009 | NO |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.547 | A | 0.558 | A | 0.550 | A | 0.566 | A | +0.003 | NO | +0.008 | NO |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.565 | A | 0.840 | D | 0.569 | A | 0.853 | D | +0.004 | NO | +0.013 | NO |
| 7. | East Driveway at 223rd St | CSS | - | - | - | - | [21.8] | C | [34.2] | D | - | NO | - | NO |
| 8. | Center Driveway at 223rd St | CSS | - | - | - | - | [17.7] | C | [32.6] | D | - | NO | - | NO |
| 9. | West Driveway at 223rd St | CSS | - | - | - | - | [17.4] | C | [27.6] | D | - | NO | - | NO |

Notes:

- (1) TS = Traffic Signal; CSS = Cross Street Stop
- (2) V/C = Volume/Capacity. Delay is shown in [seconds/vehicle]. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).
- (3) LOS = Level of Service

**Table 8
Opening Year (2021) Without Project Intersection Levels of Service**

| ID | Study Intersection | Traffic Control ¹ | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|------------------|------------------|------------------|------------------|
| | | | V/C ² | LOS ³ | V/C ² | LOS ³ |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.645 | B | 0.728 | C |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.886 | D | 0.777 | C |
| 3. | Wilmington Ave at 223rd St | TS | 0.718 | C | 0.734 | C |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.592 | A | 0.849 | D |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.560 | A | 0.571 | A |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.577 | A | 0.858 | D |

Notes:

- (1) TS = Traffic Signal
- (2) V/C = Volume/Capacity
- (3) LOS = Level of Service

**Table 9
Opening Year (2021) With Project Intersection Levels of Service**

| ID | Study Intersection | Traffic Control ¹ | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|------------------|------------------|--------------------|------------------|
| | | | V/C ² | LOS ³ | Delay ² | LOS ³ |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.648 | B | 0.729 | C |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.893 | D | 0.777 | C |
| 3. | Wilmington Ave at 223rd St | TS | 0.719 | C | 0.738 | C |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.612 | B | 0.859 | D |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.563 | A | 0.580 | A |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.581 | A | 0.871 | D |
| 7. | East Driveway at 223rd St | CSS | [22.4] | C | [35.4] | E |
| 8. | Center Driveway at 223rd St | CSS | [18.4] | C | [28.8] | D |
| 9. | West Driveway at 223rd St | CSS | [17.9] | C | [24.8] | C |

Notes:

- (1) TS = Traffic Signal
- (2) V/C = Volume/Capacity
- (3) LOS = Level of Service

Table 10
Opening Year Significant Impact Evaluation

| ID | Study Intersection | Traffic Control ¹ | Opening Year (2021) Without Project | | | | Opening Year (2021) With Project | | | | AM Peak Hour | | PM Peak Hour | |
|----|------------------------------------|------------------------------|-------------------------------------|------------------|----------------|-----|----------------------------------|-----|----------------|-----|----------------|---------------------|----------------|---------------------|
| | | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | Project Change | Significant Impact? | Project Change | Significant Impact? |
| | | | V/C or [Delay] ² | LOS ³ | V/C or [Delay] | LOS | V/C or [Delay] | LOS | V/C or [Delay] | LOS | | | | |
| 1. | Wilmington Ave at I-405 NB Ramps | TS | 0.645 | B | 0.728 | C | 0.648 | B | 0.729 | C | +0.003 | NO | +0.001 | NO |
| 2. | Wilmington Ave at I-405 SB Ramps | TS | 0.886 | D | 0.777 | C | 0.893 | D | 0.777 | C | +0.007 | NO | +0.000 | NO |
| 3. | Wilmington Ave at 223rd St | TS | 0.718 | C | 0.734 | C | 0.719 | C | 0.738 | C | +0.001 | NO | +0.004 | NO |
| 4. | Alameda St at I-405 NB Ramps | TS | 0.592 | A | 0.849 | D | 0.612 | B | 0.859 | D | +0.020 | NO | +0.010 | NO |
| 5. | 223rd St at I-405 SB Ramps | TS | 0.560 | A | 0.571 | A | 0.563 | A | 0.580 | A | +0.003 | NO | +0.009 | NO |
| 6. | Alameda St (Connector) at 223rd St | TS | 0.577 | A | 0.858 | D | 0.581 | A | 0.871 | D | +0.004 | NO | +0.013 | NO |
| 7. | East Driveway at 223rd St | CSS | - | - | - | - | [22.4] | C | [35.4] | E | - | NO | - | NO ⁴ |
| 8. | Center Driveway at 223rd St | CSS | - | - | - | - | [18.4] | C | [28.8] | D | - | NO | - | NO |
| 9. | West Driveway at 223rd St | CSS | - | - | - | - | [17.9] | C | [24.8] | C | - | NO | - | NO |

Notes:

- (1) TS = Traffic Signal; CSS = Cross Street Stop.
- (2) V/C = Volume/Capacity. Delay is shown in [seconds/vehicle]. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).
- (3) LOS = Level of Service
- (4) The project driveway is not forecast to satisfy the Caltrans peak hour traffic signal warrant. The major roadway is uncontrolled and forecast to operate at LOS A; only the northbound left turn movement at the proposed private driveway is forecast to marginally exceed Level of Service D. The shared lane for the northbound approach is forecast to operate at Level of Service C.

7. SITE ACCESS & CIRCULATION

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

Project East Driveway (NS) at 223rd Street (EW) - #7

- Install northbound stop control.
- Construct the northbound approach to provide one shared left/right turn lane.

Project Center Driveway (NS) at 223rd Street (EW) - #8

- Install northbound stop control.
- Construct the northbound approach to provide one left turn lane and one right turn lane.

Project West Driveway (NS) at 223rd Street (EW) - #9

- Install northbound stop control.
- Construct the northbound approach to provide one shared left/right turn lane.

This analysis also assumes the project shall comply with the following conditions as part of the City of Carson's standard development review process:

- All roadway design, signing/stripping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable engineering standards and approved by City of Carson Public Works Department.
- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development.
- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met in accordance with applicable City of Carson/California Department of Transportation sight distance standards.
- A construction work site traffic control plan shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of any construction work. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

SITE ACCESS QUEUEING

Table 11 summarizes the results of a queue analysis for left turn, right turn, or shared through/turn lanes at project driveways based on the forecast 95th-percentile queue lengths shown in the delay calculation worksheets (see Appendix D). Based on the queueing analysis, adequate storage length is forecast to be provided for the right-only turn lanes and the shared-turn lanes at the project driveways.

TRAFFIC SIGNAL WARRANT ANALYSIS

The potential need for installation of a traffic signal at the project driveways was evaluated based on the [California Manual on Uniform Traffic Control Devices](#) ("[California MUTCD](#)"), Section 4C.04, peak hour volume Warrant 3. The project driveways are not forecast to satisfy the [California MUTCD](#) peak hour volume warrant. Traffic signal warrant worksheets are provided in Appendix E.

Table 11
Project Driveway Queueing Analysis (Opening Year With Project)

| ID | Intersection | Approach | Lane | Storage Length (Feet) ¹ | 95th-Percentile Queue Length (Feet) ² | | Adequate Storage Provided? |
|----|-----------------------------|------------|------------|------------------------------------|--|--------------|----------------------------|
| | | | | | AM Peak Hour | PM Peak Hour | |
| 7. | East Driveway at 223rd St | Northbound | Left-Right | 75 | <25 | <25 | YES |
| | | Eastbound | Thru-Right | 300 | <25 | <25 | YES |
| | | Westbound | Left | 30 | <25 | <25 | YES |
| 8. | Center Driveway at 223rd St | Northbound | Left | 75 | <25 | <25 | YES |
| | | Eastbound | Thru-Right | 325 | <25 | <25 | YES |
| | | Westbound | Left | 60 | <25 | <25 | YES |
| 9. | West Driveway at 223rd St | Northbound | Left-Right | 75 | <25 | <25 | YES |
| | | Eastbound | Thru-Right | 140 | <25 | <25 | YES |
| | | Westbound | Left | 215 | <25 | <25 | YES |

Notes:

- (1) Distance to the adjacent driveway (existing or proposed future development).
- (2) The forecast 95th-percentile queue lengths reported in the delay/Level of Service calculation worksheets have been rounded up to nearest 5-foot increment.

8. STATE HIGHWAY ANALYSIS

This section provides analysis of the project impacts at State highway facilities in accordance with typical California Department of Transportation (Caltrans) requirements.

STATE HIGHWAY SYSTEM

I-405 is a 12-lane freeway in the project vicinity providing north-south regional access from its southerly terminus in Irvine to its northern terminus near San Fernando. I-405 freeway access is provided via grade separated interchanges at Wilmington Avenue and Alameda Street. It currently carries approximately 258,000 to 281,000 vehicles per day in the project vicinity.

METHODOLOGIES

Intersection Delay Methodology

As previously noted, the technique used to assess the performance of intersections within the California Department of Transportation jurisdiction is known as the intersection delay methodology based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). Refer to the earlier Methodology section for further explanation.

Off-Ramp Queueing Methodology

Off-ramp queueing is evaluated based on the 95th-percentile back-of-queue method based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition) and reported in the delay/Level of Service calculation worksheets.

Thresholds of Significance

As previously noted, a project impact is considered significant if the addition of project-generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable operation (Level of Service D or better) to deficient operation (Level of Service E or F).

For freeway off-ramps, a project impact is considered significant if the addition of project-generated trips is forecast to cause or worsen a condition where the queue length exceeds 85 percent of off-ramp storage capacity.

STATE HIGHWAY INTERSECTION ANALYSIS

Intersection Delay Methodology

As previously noted, the technique used to assess the performance of intersections within the California Department of Transportation jurisdiction is known as the intersection delay methodology based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). Refer to the earlier Methodology section for further explanation.

Intersection Levels of Service

Table 12 shows the intersection Levels of Service at the State highway study intersections using the delay methodology. As shown in Table 12, the State highway study intersections are forecast to operate at Level of Service C or better during the peak hour conditions. Detailed intersection delay/Level of Service calculation worksheets for the State highway study intersections are provided in Appendix F.

FREEWAY MAINLINE AND OFF-RAMP SCREENING CRITERIA

Caltrans District 7 generally requires freeway mainline and/or off-ramp queueing analysis if a project meets any of the following screening criteria:

- The project's peak hour trips would result in a one percent (1%) or more increase to the freeway mainline capacity of a freeway segment operating at Level of Service E or F (based on an assumed capacity of 2,000 vehicles per hour per lane).
- The project's peak hour trips would result in a two percent (2%) or more increase to the freeway mainline capacity of a freeway segment operating at Level of Service D (based on an assumed capacity of 2,000 vehicles per hour per lane).
- The project's peak hour trips would result in a one percent (1%) or more increase to the capacity of a freeway off-ramp operating at Level of Service E or F (based on an assumed ramp capacity of 850 vehicles per hour per lane).
- The project's peak hour trips would result in a two percent (2%) or more increase to the capacity of a freeway off-ramp operating at Level of Service D (based on an assumed ramp capacity of 850 vehicles per hour per lane).

Project Trip Contribution

The project PM peak hour trip contribution to State highway facilities is shown on Figure 31. As shown on Figure 31, the project is forecast to contribute no more than 37 two-way peak hour trips to the I-405 freeway mainline and no more than 10 peak hour trips to I-405 southbound off-ramps at Wilmington Avenue and northbound off-ramps at Alameda Street.

Assuming the I-405 freeway mainline is operating at Level of Service E or worse, one percent of hourly capacity is equal 100 trips for a five-lane segment (i.e., one-way and excluding high-occupancy vehicle (HOV) lanes). The proposed project is forecast to contribute fewer than 100 trips to I-405 in any direction; therefore, the project impact at freeway mainline facilities is considered less than significant.

Based on the State highway study intersection analysis, the freeway ramp terminus intersections are operating at Level of Service C or better. Therefore, the project would typically not be required to perform off-ramp queueing analysis, however, off-ramp queueing analysis has been performed for the two off-ramps expected to be most utilized by the project.

OFF-RAMP QUEUEING ANALYSIS

Off-Ramp Queueing

Table 13 summarizes the results of a queueing analysis for the I-405 freeway off-ramps at Wilmington Avenue and Alameda. As shown in Table 13, adequate off-ramp storage capacity is forecast to be provided at the study off-ramps with the addition of project-generated trips; therefore, the project impact is considered less than significant.

Table 12
State Highway Intersection Levels of Service

| ID | Study Intersection | Existing | | | | Existing Plus Project | | | | Opening Year (2021) Without Project | | | | Opening Year (2021) With Project | | | |
|----|----------------------------------|--------------------|------------------|--------------|-----|-----------------------|-----|--------------|-----|--|-----|--------------|-----|-------------------------------------|-----|--------------|-----|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | Delay ¹ | LOS ² | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| 1. | Wilmington Ave at I-405 NB Ramps | 22.1 | C | 21.3 | C | 22.0 | C | 21.3 | C | 22.2 | C | 21.2 | C | 22.1 | C | 21.2 | C |
| 2. | Wilmington Ave at I-405 SB Ramps | 20.8 | C | 14.5 | B | 22.8 | C | 14.6 | B | 21.5 | C | 14.8 | B | 23.9 | C | 15.0 | B |
| 4. | Alameda St at I-405 NB Ramps | 17.8 | B | 21.7 | C | 18.8 | B | 21.9 | C | 18.8 | B | 22.4 | C | 20.0 | B | 22.7 | C |
| 5. | 223rd St at I-405 SB Ramps | 24.8 | C | 21.5 | C | 24.8 | C | 21.5 | C | 25.1 | C | 21.6 | C | 25.1 | C | 21.6 | C |

Notes:

(1) Delay is shown in seconds/vehicle.

(2) LOS = Level of Service

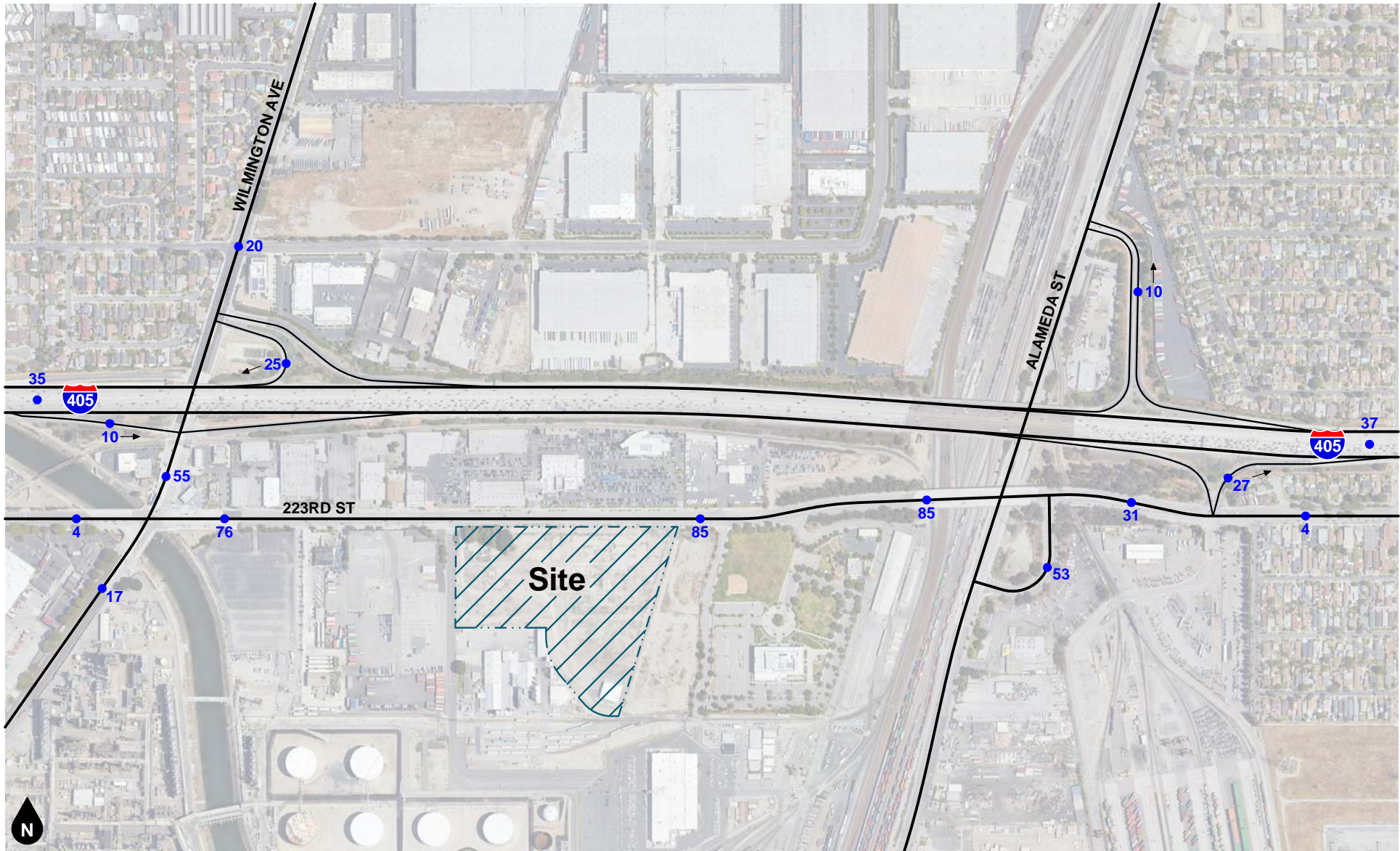
**Table 13
Freeway Off-Ramp Queuing Analysis**

| ID | Intersection | Approach | Lane(s) | Designated Turning Lane Storage Length (Feet) ¹ | Queue Length / Distance (Feet) | | | | | | | | Adequate Storage Provided? | | |
|----|----------------------------------|------------|------------|--|---|-----|---|----|---|-----|---|-----------------------------------|----------------------------|-----|-----|
| | | | | | Peak Hour 95th-Percentile Queue Length ² | | Queue Length Exceeding Turning Lane Storage | | Sum of Queue Lengths Exceeding Turning Lane Storage | | 85% Off-Ramp Length (Feet) ¹ | Off-Ramp Storage Length Remaining | | | |
| | | | | | AM | PM | AM | PM | AM | PM | | AM | PM | AM | PM |
| 1. | Wilmington Ave at I-405 NB Ramps | Westbound | Left | 400 | 460 | 485 | 60 | 85 | 150 | 170 | 820 | 670 | 650 | YES | YES |
| | | | Left | 400 | 460 | 485 | 60 | 85 | | | | | | | |
| | | | Right | 400 | 430 | 320 | 30 | 0 | | | | | | | |
| 2. | Wilmington Ave at I-405 SB Ramps | Eastbound | Left-Thru | 75 | 105 | 35 | 30 | 0 | 230 | 0 | 720 | 490 | 720 | YES | YES |
| | | | Right | 75 | 275 | 65 | 200 | 0 | | | | | | | |
| 4. | Alameda St at I-405 NB Ramps | Eastbound | Left | 730 | 520 | 545 | 0 | 0 | 0 | 0 | 750 | 750 | 750 | YES | YES |
| | | | Right | 730 | 205 | 235 | 0 | 0 | | | | | | | |
| 5. | 223rd St at I-405 SB Ramps | Southbound | Left | 260 | 105 | 105 | 0 | 0 | 0 | 0 | 600 | 600 | 600 | YES | YES |
| | | | Thru-Right | 260 | 185 | 185 | 0 | 0 | | | | | | | |

Notes:

(1) Length shown in feet per lane.

(2) Queue length shown per lane for Opening Year (Year 2021) With Project conditions.



Legend
 ●## PM Peak Hour Volumes

Figure 31
Project Trip Contribution

9. CONGESTION MANAGEMENT PROGRAM (CMP)

This section provides analysis of the project impacts at County facilities in accordance with typical Los Angeles County Congestion Management Program requirements.

CMP ANALYSIS REQUIREMENTS

The Los Angeles County 2010 Congestion Management Program (CMP), Appendix D - Guidelines for CMP Transportation Impact Analysis states that:

“In general, a CMP TIA [Transportation Impact Analysis] is required for all projects required to prepare an Environmental Impact Report (EIR) based on local determination. A TIA is not required if the lead agency for the EIR finds that traffic is not a significant issue, and does not require local or regional traffic impact analysis in the EIR.”

Furthermore, the Los Angeles County CMP states that the study area for CMP TIA must include the following:

- All CMP arterial monitoring intersections, including freeway on- and off-ramp intersections, where a proposed project is expected to add 50 or more trips during either the weekday AM or PM peak hours (of adjacent street traffic).
- If CMP arterial segments are being analyzed rather than intersections (see Section D.3), the study area must include all segments where the proposed project will add 50 or more peak hour trips (total of both directions).
- Mainline freeway monitoring locations where a project is expected to add 150 or more trips, in either direction, during either the weekday AM or PM peak hours.
- Caltrans must also be consulted through the Notice of Preparation (NOP) process to identify other specific locations to be analyzed on the state highway system.

If the TIA identifies no facilities for study based on the above criteria, no further traffic analysis is required. However, projects must still consider transit impacts.

Based on the project trip assignment, the proposed project is forecast to contribute fewer than 50 or more weekday peak hour trips to a CMP-monitored intersection or 150 or more weekday peak hour trips to a mainline freeway monitoring location. Therefore, a Congestion Management Program impact analysis is not required for this project.

CMP TRANSIT IMPACT REVIEW

The Los Angeles County 2010 Congestion Management Program requires documentation of existing transit services in the project vicinity and estimation of the number of trips assigned to transit.

There are no fixed route transit services within a one-quarter mile radius of the project site or Express bus routes and rail service within a two-mile radius of the project site. The nearest fixed route service is Metro Bus Line 202 along Alameda Street approximately 0.3 miles east of the project site. The nearest express bus route is Metro Line 456 Express Route providing service between Downtown Long Beach and Downtown Los Angeles with a stop at the Wardlow Station approximately 2.25 miles east of the project site.

The Los Angeles County CMP Section D.8.4 provides the following guidelines for estimating project trips assigned to transit:

- 1) Multiply the total trips generated by 1.4 to convert vehicle trips to person trips.
- 2) For each time period, multiply the result by one of the following factors:

3.5% of Total Person Trips Generated for most cases, except:
10% primarily Residential within 1/4 mile of a CMP transit center
15% primarily Commercial within 1/4 mile of a CMP transit center
7% primarily Residential within 1/4 mile of a CMP multi-modal transportation center
9% primarily Commercial within 1/4 mile of a CMP multi-modal transportation center
5% primarily Residential within 1/4 mile of a CMP transit corridor
7% primarily Commercial within 1/4 mile of a CMP transit corridor
0% if no fixed route transit services operate within one mile of the project

Accordingly, the proposed project-generated transit trips are calculated as follows based on the passenger car trip generation previously calculated in Table 2:

- Daily: 622 passenger vehicle trips x 1.4 person-trip factor x 3.5% ≈ 30 transit trips
- AM Peak Hour: 66 passenger vehicle trips x 1.4 person-trip factor x 3.5% ≈ 3 transit trips
- PM Peak Hour: 86 passenger vehicle trips x 1.4 person-trip factor x 3.5% ≈ 4 transit trips

The proposed project is forecast to generate approximately 30 daily transit trips, including 3 transit trips during the AM peak hour and 4 transit trips during the PM peak hour. Based on the relatively low project-generated transit trip estimate, the proposed project is expected to have a marginal impact on transit service capacity.

10. CONCLUSIONS

This section summarizes the findings and mitigation measures identified through the operational analysis in described previous sections.

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

Project East Driveway (NS) at 223rd Street (EW) - #7

- Install northbound stop control.
- Construct the northbound approach to provide one shared left/right turn lane.

Project Center Driveway (NS) at 223rd Street (EW) - #8

- Install northbound stop control.
- Construct the northbound approach to provide one left turn lane and one right turn lane.

Project West Driveway (NS) at 223rd Street (EW) - #9

- Install northbound stop control.
- Construct the northbound approach to provide one shared left/right turn lane.

This analysis also assumes the project shall comply with the following conditions as part of the City of Carson's standard development review process:

- All roadway design, signing/stripping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable engineering standards and approved by City of Carson Public Works Department.
- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development.
- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met in accordance with applicable City of Carson/California Department of Transportation sight distance standards.
- A construction work site traffic control plan shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of any construction work. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

IMPACT SUMMARY

The proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed based on the City and Caltrans-established thresholds of significance.

MITIGATION MEASURES

No off-site mitigation measure improvements were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed..

APPENDICES

Appendix A Glossary

Appendix B Scoping Agreement

Appendix C Intersection Turning Movement Count Worksheets

Appendix D Intersection Level of Service Worksheets

Appendix E Traffic Signal Warrant Worksheets

Appendix F State Highway Level of Service Worksheets

APPENDIX A
GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

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

TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

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

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

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

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

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

FORCED FLOW: Opposite of free flow.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B
SCOPING AGREEMENT



APPROVED

by Ryan Kim on 02.18.20

transportation ▪ noise ▪ air quality | **GANDDINI GROUP**

MEMORANDUM OF UNDERSTANDING

TO: Ryan Kim, City Traffic Engineer | CITY OF CARSON

FROM: Perrie Ilercil, PE (AZ) | GANDDINI GROUP, INC.

DATE: February 14, 2020

SUBJECT: Panattoni Project Traffic Study Assumptions
19230

The purpose of this scoping document is to outline the proposed focused traffic analysis parameters and assumptions for the Panattoni Project for review/concurrence by City of Carson staff.

PROJECT DESCRIPTION

Figure 1 shows the project location map. The 14.8-acre project site is located at 2112 East 223rd Street in the City of Carson. The project site is located south of I-405 freeway between Wilmington Avenue and Alameda Street in an area zoned for manufacturing land use. The project site is currently undeveloped and vacant.

The site plan is illustrated on Figure 2. The proposed project consists of developing the project site with three new industrial buildings totaling 292,400 square feet. Vehicular access is proposed via three driveways at East 223rd Street.

PROJECT TRIP GENERATION & DISTRIBUTION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) and the ITE Trip Generation Handbook, 3rd Edition, 2017. The project trips have been categorized into passenger cars and trucks average truck trip percentage for industrial park from Trip Generation Handbook. Additionally, the project generated truck trips have been converted to Passenger Car Equivalent (PCE) trips based on PCE for trucks.

As shown in Table 1, the proposed is forecast to generate approximately 788 daily vehicle trips, including 108 vehicle trips during the AM peak hour and 117 vehicle trips during the PM peak hour. In PCE trips, the project is forecast to generate approximately 1,018 daily PCE trips, including 165 PCE trips during the AM peak hour and 160 PCE trips during the PM peak hour.

Figures 3 and 4 illustrate the forecast directional distribution patterns of the project generated passenger car and truck trips. Passenger car trips are generally more localized with residential or commercial origin/destination points, whereas truck trips generally have a more regional distribution travelling to/from other industrial uses or ports/terminals via the freeway. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, designated truck routes, and the local and regional roadway facilities in the project vicinity.

STUDY AREA

As specified in the City of Carson application review letter, the study area shall consist of the following study intersection:

| Study Intersections | Jurisdiction |
|--|-------------------|
| 1. Wilmington Avenue (NS) at I-405 WB Ramps (EW) | Carson / Caltrans |
| 2. Wilmington Avenue (NS) at I-405 EB Ramps (EW) | Carson / Caltrans |
| 3. Wilmington Avenue (NS) at E 223rd Street (EW) | Carson |
| 4. Alameda Street (NS) at I-405 WB Ramps (EW) | Carson / Caltrans |
| 5. Alameda Street (Connection) (NS) at E 223rd Street (EW) | Carson |
| 6. E 223rd Street (Connection) at I-405 EB Ramps (EW) | Carson / Caltrans |

TRAFFIC COUNTS

New intersection turning movement counts will be collected at the study intersections during the morning peak period (7:00 AM – 9:00 AM) and evening peak period (4:00 PM – 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday) while local schools are in session. To account for truck volumes, the peak hour intersection turning movement volume counts were collected by vehicle classification and converted into Passenger Car Equivalent (PCE) trips in accordance with PCE factors recommended by the San Bernardino Association of Governments (SANBAG) Congestion Management Program (1.5 PCEs for 2-axle trucks, 2.0 PCEs for 3-axle trucks, and 3.0 PCEs for trucks with 4 or more axles).

INTERSECTION ANALYSIS METHODOLOGY

The study non-State highway signalized intersections shall be analyzed using the Intersection Capacity Utilization (ICU) methodology in accordance with the parameters established by the County of Los Angeles guidelines¹. The capacity of individual lanes to be used in the ICU calculations is 1,600 vehicles per hour per lane for through and turn lanes, 2,880 vehicles per hour for dual left-turn lanes, and a total clearance adjustment of 10 percent (i.e., 0.10 added to critical Volume/Capacity).

The unsignalized intersections and intersections within the California Department of Transportation jurisdiction shall be analyzed using the intersection delay methodology based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). Default values not specifically identified in the City or County guidelines will be based on Highway Capacity Manual recommended values. Intersection analysis shall be performed using the Vistro software (Version 6.00-00).

PERFORMANCE STANDARDS

City of Carson / County of Los Angeles. Level of Service D is typically recognized as the minimum acceptable Level of Service for key intersections of the arterial system in the City of Carson, and County of Los Angeles.

California Department of Transportation. As stated in the Guide for the Preparation of Traffic Impact Studies (State of California, 2002), "California Department of Transportation endeavors to maintain a target LOS [Level

¹ County of Los Angeles Traffic Impact Analysis (TIA) Report Guidelines; December 2013.

of Service] at the transition between LOS “C” and LOS “D” on State highway facilities”. The California Department of Transportation acknowledges this may not always be feasible and recommends consultation with the California Department of Transportation to determine the appropriate target Level of Service. For consistency with local requirements, this analysis defines Level of Service D as the minimum acceptable Level of Service for State Highway facilities.

THRESHOLDS OF SIGNIFICANCE

City of Carson /County of Los Angeles: Based on the County of Los Angeles guidelines, a project traffic impact at a signalized intersection is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

| Pre-Project Conditions | | Project Increase in V/C |
|------------------------|--------------|----------------------------|
| LOS | V/C | |
| C | 0.71 to 0.80 | 0.04 or more |
| D | 0.81 to 0.90 | 0.02 or more |
| E/F | 0.91 or more | 0.01 or more |

California Department of Transportation (Caltrans): Based on the Caltrans guidelines, project traffic impact is considered significant if the addition of project generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable operation (Level of Service D or better) to deficient operation (Level of Service E or F).

Unsignalized Intersections: It should be noted that many jurisdictions, including the City of Carson, and County of Los Angeles, do not have established significant impact thresholds for unsignalized intersections. For unsignalized intersections operating at Level of Service E or F, a signal warrant analysis shall be conducted.

ANALYSIS SCENARIOS

The traffic study shall evaluate the following analysis scenarios for typical weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2021) Without Project (Ambient Growth + Other Development)
- Opening Year (2021) With Project (Ambient Growth + Other Development + Project)

OPENING YEAR (2021) FORECASTING METHODOLOGY

Regional Ambient Growth

To account for ambient growth, existing roadway volumes shall be increased by a growth rate of one percent (0.5%)² per year over a one-year period for Opening Year (2021) conditions.

² Source: Congestion Management Program for the County of Los Angeles, 2010 The annual areawide growth rate has been obtained from the modeled traffic volume growth factors based on the Regional Statistical Area (RSA) for the City.

Ryan Kim, City Traffic Engineer | CITY OF CARSON
Panattoni Project Traffic Study Assumptions
February 14, 2020

Other Development

In addition, a list of pending and approved other development projects shall be requested from the City of Carson and City of Long Beach. Trip forecasts for other development projects within the project study area shall be determined from the other development traffic study or calculated based on the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017 and will be assigned to the study intersections as appropriate.

CONCLUSION

We appreciate the opportunity to provide this memorandum of understanding for your review. Should you have any questions or comments regarding the proposed scope, please contact me.

Sincerely,

Perrie Ilercil,
Senior Engineer
c. 949 257-3126

**Table 1
Project Trip Generation - (Warehouse and Manufacturing)**

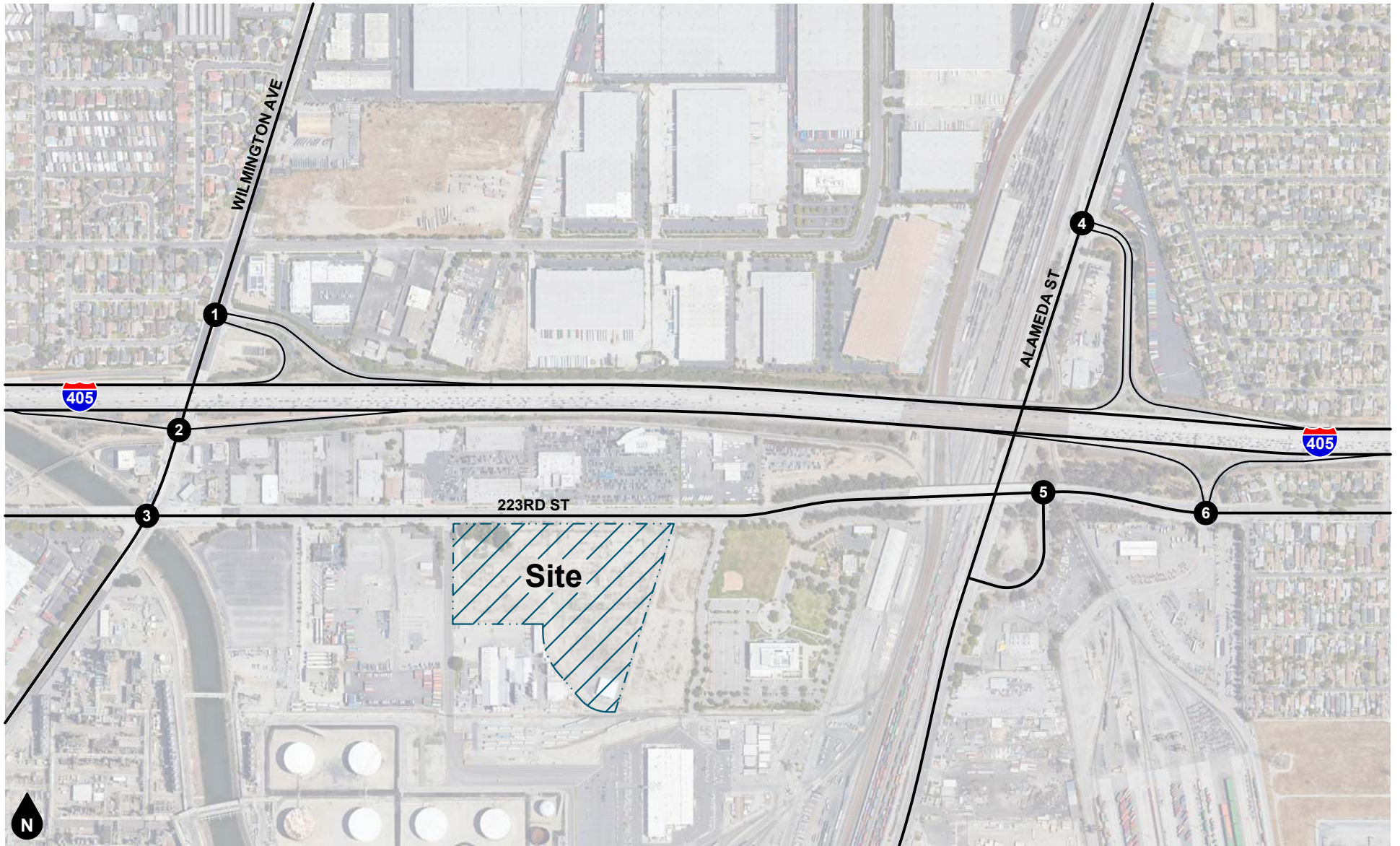
| Land Use/Vehicle Type | Source ¹ | Trip Generation Rates per TSF ² | | | | | | |
|-----------------------|---------------------|--|-------|--------|--------------|-------|--------|--------|
| | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | % In | % Out | Total | % In | % Out | Total | |
| Warehouse | ITE 150 | 77% | 23% | 0.17 | 27% | 73% | 0.19 | 1.74 |
| Percent Cars | [a] | -- | -- | 62.86% | -- | -- | 64.38% | 79.57% |
| Percent Trucks | [a] | -- | -- | 37.14% | -- | -- | 35.62% | 20.43% |
| Car Trips per TSF | | 0.082 | 0.025 | 0.107 | 0.033 | 0.089 | 0.122 | 1.385 |
| Truck Trips per TSF | | 0.049 | 0.015 | 0.064 | 0.018 | 0.049 | 0.067 | 0.355 |
| Manufacturing | ITE 130 | 77% | 23% | 0.62 | 31% | 69% | 0.67 | 3.93 |
| Percent Cars | [b] | -- | -- | 60.53% | -- | -- | 76.83% | 78.60% |
| Percent Trucks | [b] | -- | -- | 39.47% | -- | -- | 23.17% | 21.40% |
| Car Trips per TSF | | 0.289 | 0.086 | 0.375 | 0.160 | 0.355 | 0.515 | 3.089 |
| Truck Trips per TSF | | 0.188 | 0.056 | 0.244 | 0.048 | 0.107 | 0.155 | 0.841 |

| Vehicle Trips Generated | | | | | | | | | |
|--------------------------------------|-----------------------------|----------------------|--------------|-----------|------------|--------------|-----------|------------|------------|
| Land Use/Vehicle Type | Quantity (TSF) ³ | Land use in Building | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | 1 2 & 3 | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | | | 8 | 3 | 11 | 3 | 8 | 11 | 59 |
| Manufacturing | 127.200 | 1 2 & 3 | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | | | 24 | 7 | 31 | 6 | 14 | 20 | 107 |
| TOTAL VEHICLE TRIPS GENERATED | | | 83 | 25 | 108 | 34 | 83 | 117 | 788 |

| Passenger Car Equivalent (PCE) Trips Generated | | | | | | | | | |
|--|-------------------------|----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
| Land Use/Vehicle Type | Quantity (TSF) | Truck Percent ⁴ | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | PCE Factor ⁵ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 16.95% | 2 | 1 | 3 | 1 | 2 | 3 | 15 |
| 3-Axle Trucks | 2.0 | 22.71% | 4 | 1 | 5 | 1 | 4 | 5 | 26 |
| 4+ Axle Trucks | 3.0 | 60.34% | 15 | 4 | 19 | 5 | 15 | 20 | 105 |
| Subtotal Trucks | -- | | 21 | 6 | 27 | 7 | 21 | 28 | 146 |
| Manufacturing | 127.200 | | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | PCE Factor ⁴ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 32.70% | 12 | 3 | 15 | 3 | 7 | 10 | 53 |
| 3-Axle Trucks | 2.0 | 17.90% | 9 | 2 | 11 | 2 | 5 | 7 | 38 |
| 4+ Axle Trucks | 3.0 | 49.40% | 35 | 11 | 46 | 9 | 20 | 29 | 159 |
| Subtotal Trucks | -- | | 56 | 16 | 72 | 14 | 32 | 46 | 250 |
| Subtotal Cars | | | 51 | 15 | 66 | 25 | 61 | 86 | 622 |
| Subtotal Trucks | | | 77 | 22 | 99 | 21 | 53 | 74 | 396 |
| TOTAL VEHICLE TRIPS GENERATED | | | 128 | 37 | 165 | 46 | 114 | 160 | 1,018 |

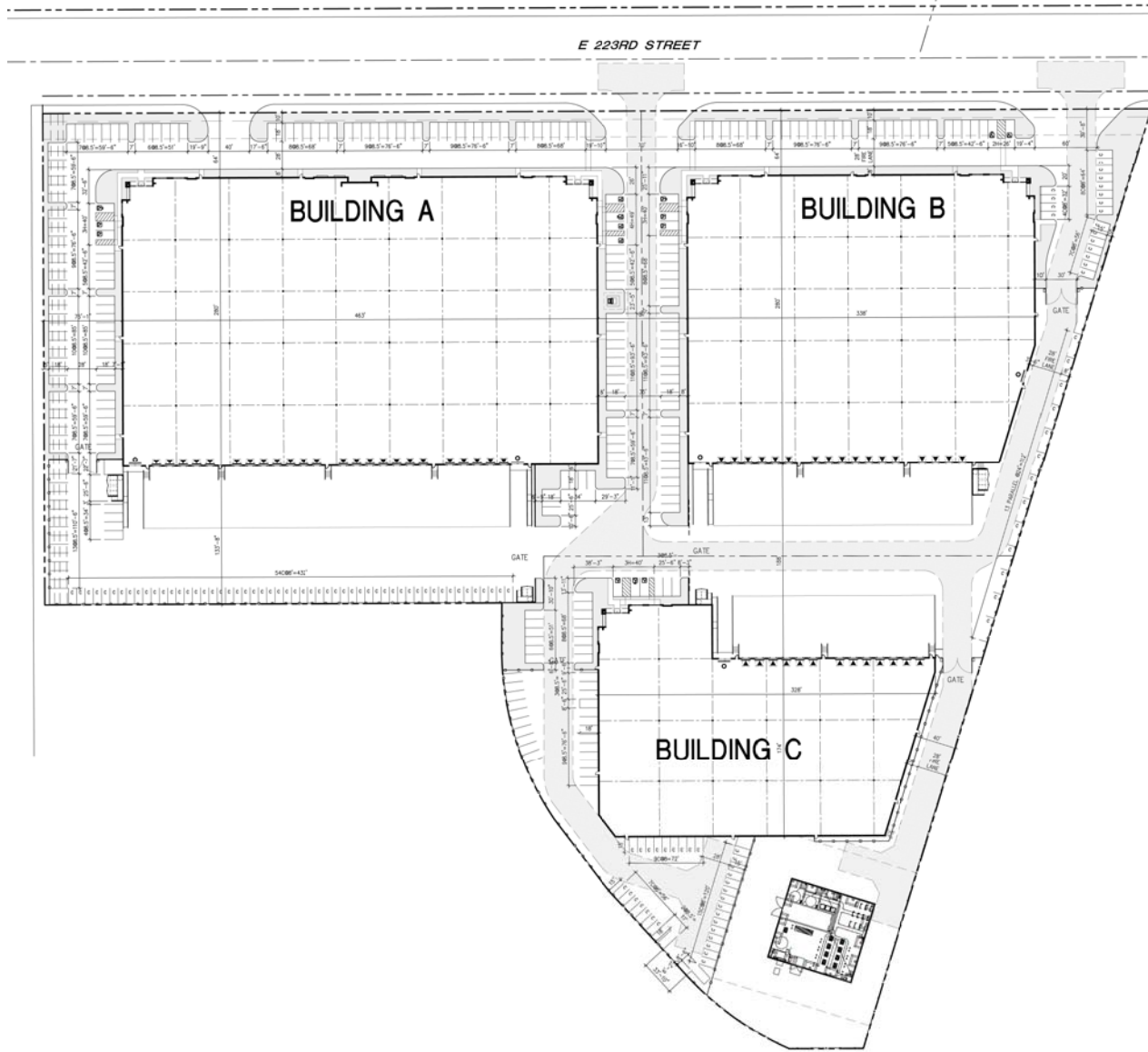
Notes:

- Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.
- [a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.
- [b] City of Fontana, Truck Trip Generation Study, August 2003. Light industrial values used for car to truck and truck by axle percentages.
- TSF = Thousand Square Feet
- Source: Site Plan A1.1; dated November 19, 2019
- Truck by axle percentages obtained from City of Fontana, Truck Trip Generation Study, August 2003.
- Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program.
PCE factor of 1.0 is used for passenger cars (such as employee vehicles); light duty trucks use a PCE factor of 1.5; medium duty trucks with 3 axles use a PCE factor of 2.0; and heavy duty trucks with 4 or more axles use a PCE factor of 3.0.

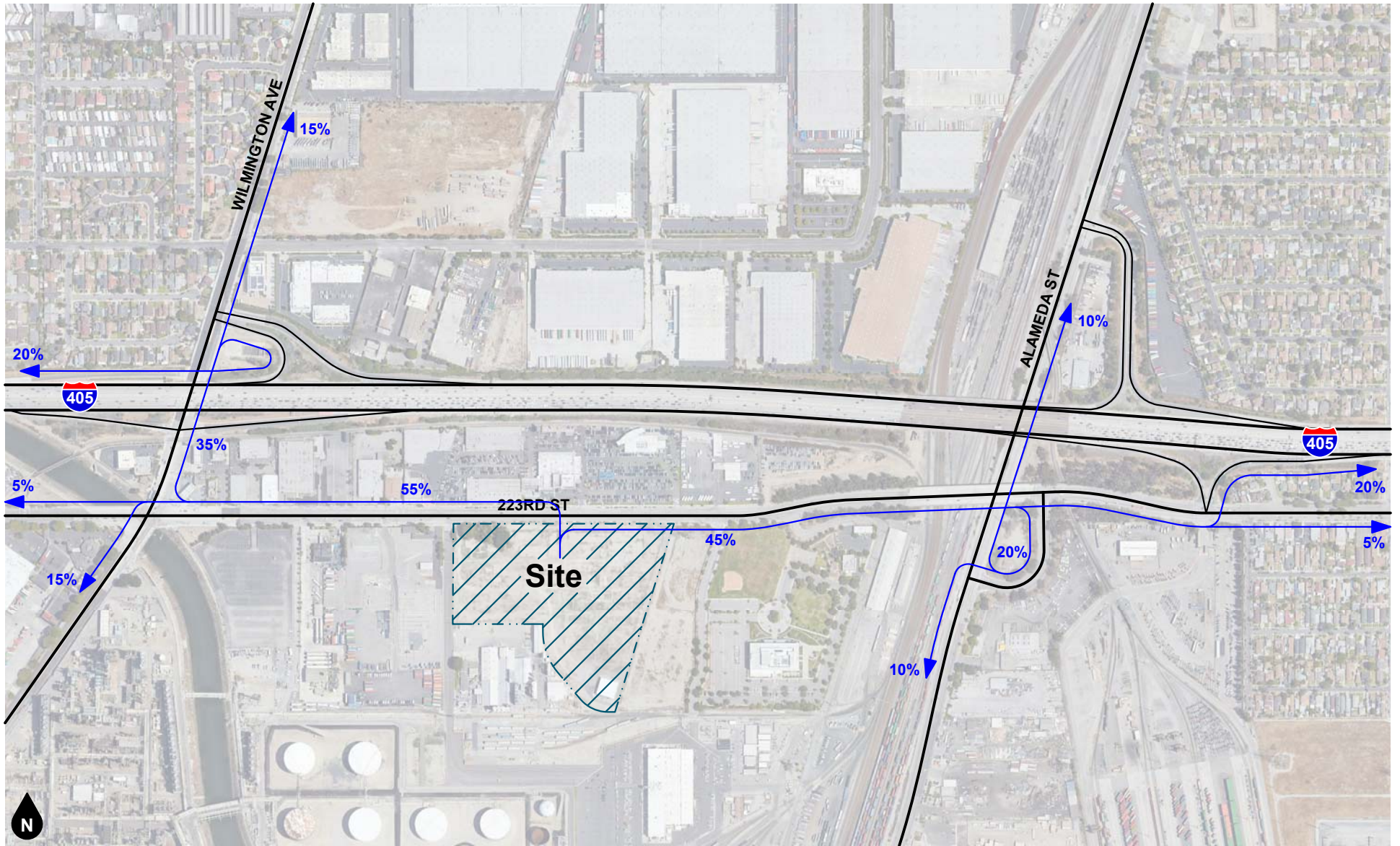


Legend
 # Study Intersection

Figure 1
Project Location Map

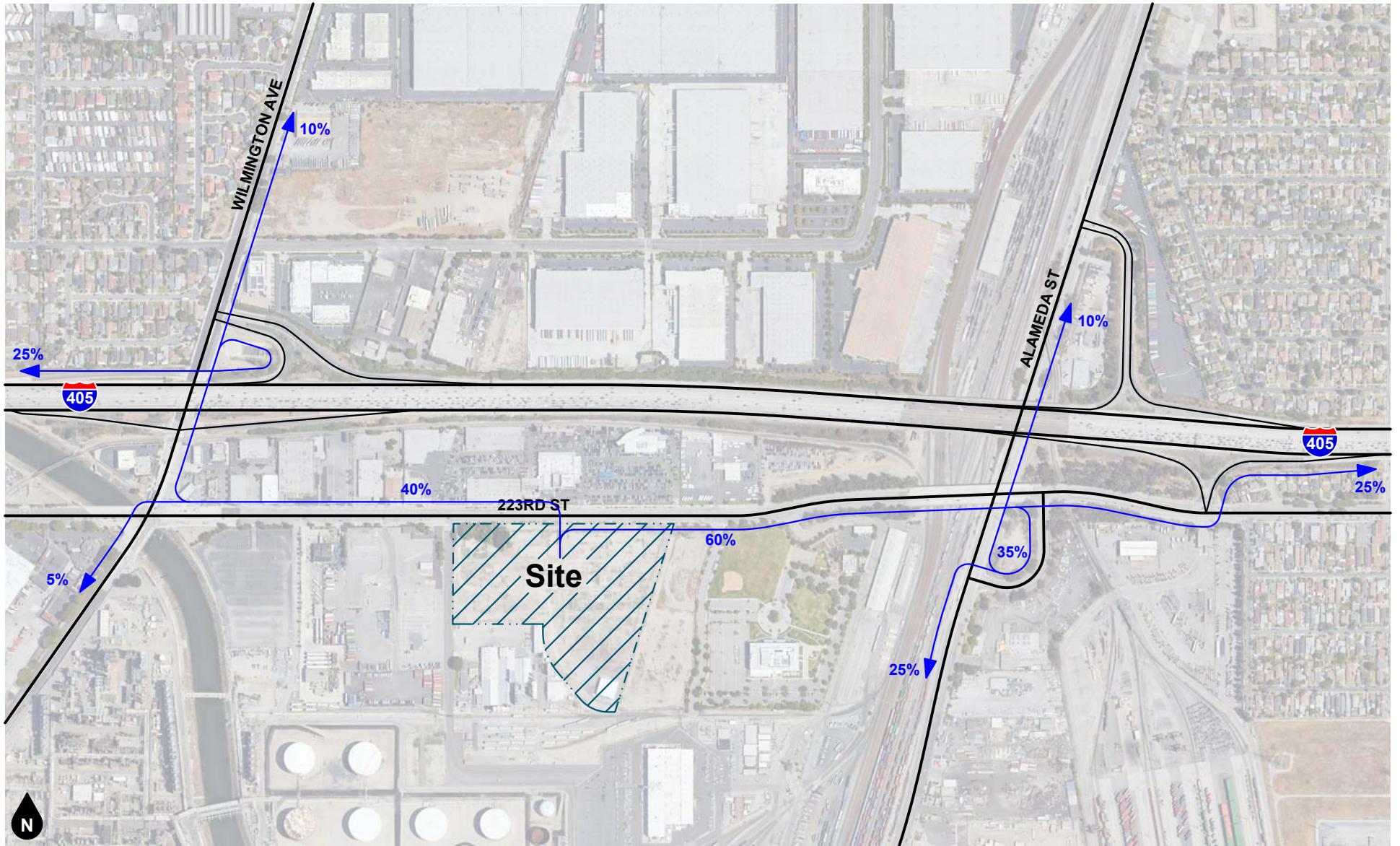


**Figure 2
Site Plan**



Legend
 ← 10% Percent To/From Project

Figure 3
Project Trip Distribution - Cars



Legend
 ← 10% Percent To/From Project

Figure 4
Project Trip Distribution - Trucks

APPENDIX C

INTERSECTION TURNING MOVEMENT COUNT WORKSHEETS

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

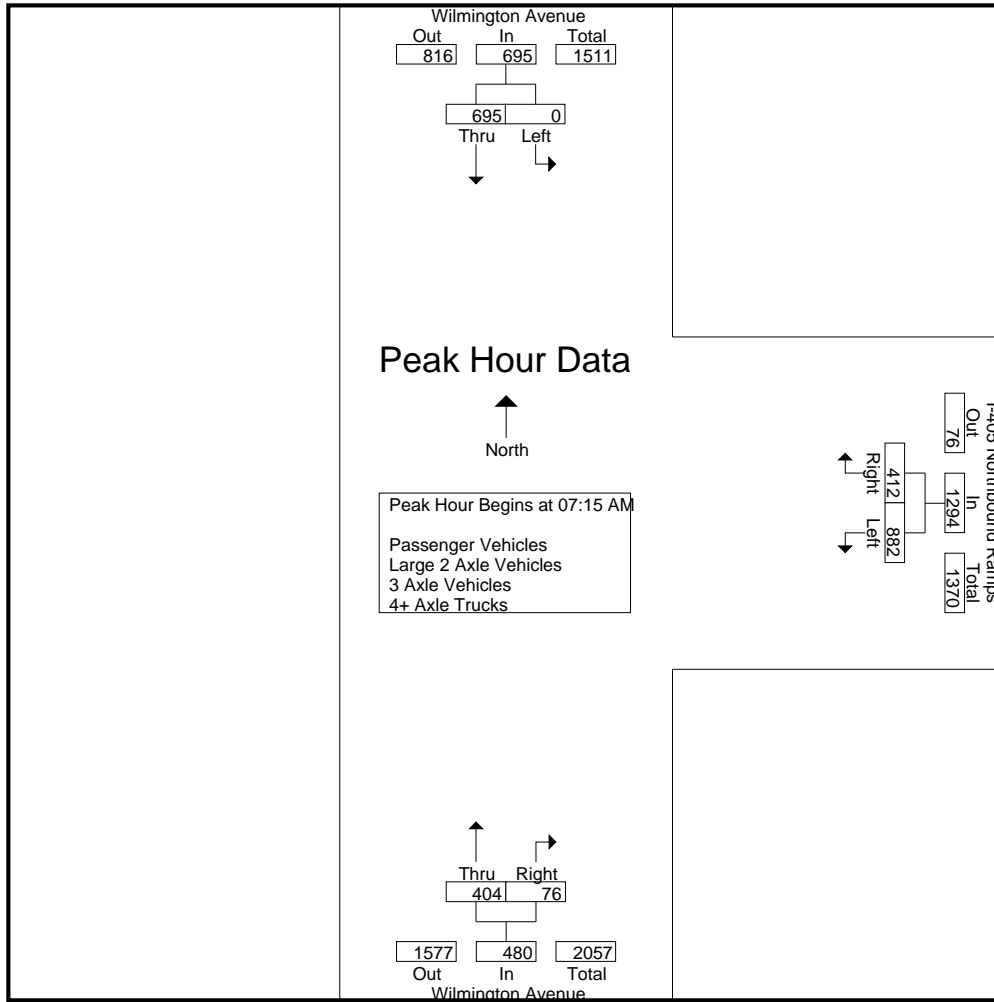
File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 150 | 150 | 237 | 74 | 311 | 71 | 16 | 87 | 548 |
| 07:15 AM | 0 | 170 | 170 | 231 | 95 | 326 | 86 | 19 | 105 | 601 |
| 07:30 AM | 0 | 192 | 192 | 201 | 89 | 290 | 85 | 25 | 110 | 592 |
| 07:45 AM | 0 | 178 | 178 | 215 | 114 | 329 | 123 | 13 | 136 | 643 |
| Total | 0 | 690 | 690 | 884 | 372 | 1256 | 365 | 73 | 438 | 2384 |
| 08:00 AM | 0 | 155 | 155 | 235 | 114 | 349 | 110 | 19 | 129 | 633 |
| 08:15 AM | 0 | 147 | 147 | 181 | 98 | 279 | 96 | 7 | 103 | 529 |
| 08:30 AM | 1 | 158 | 159 | 186 | 99 | 285 | 68 | 15 | 83 | 527 |
| 08:45 AM | 0 | 123 | 123 | 183 | 92 | 275 | 85 | 9 | 94 | 492 |
| Total | 1 | 583 | 584 | 785 | 403 | 1188 | 359 | 50 | 409 | 2181 |
| Grand Total | 1 | 1273 | 1274 | 1669 | 775 | 2444 | 724 | 123 | 847 | 4565 |
| Apprch % | 0.1 | 99.9 | | 68.3 | 31.7 | | 85.5 | 14.5 | | |
| Total % | 0 | 27.9 | 27.9 | 36.6 | 17 | 53.5 | 15.9 | 2.7 | 18.6 | |
| Passenger Vehicles | 0 | 973 | 973 | 1459 | 722 | 2181 | 620 | 108 | 728 | 3882 |
| % Passenger Vehicles | 0 | 76.4 | 76.4 | 87.4 | 93.2 | 89.2 | 85.6 | 87.8 | 86 | 85 |
| Large 2 Axle Vehicles | 0 | 88 | 88 | 51 | 16 | 67 | 35 | 4 | 39 | 194 |
| % Large 2 Axle Vehicles | 0 | 6.9 | 6.9 | 3.1 | 2.1 | 2.7 | 4.8 | 3.3 | 4.6 | 4.2 |
| 3 Axle Vehicles | 0 | 88 | 88 | 18 | 8 | 26 | 25 | 1 | 26 | 140 |
| % 3 Axle Vehicles | 0 | 6.9 | 6.9 | 1.1 | 1 | 1.1 | 3.5 | 0.8 | 3.1 | 3.1 |
| 4+ Axle Trucks | 1 | 124 | 125 | 141 | 29 | 170 | 44 | 10 | 54 | 349 |
| % 4+ Axle Trucks | 100 | 9.7 | 9.8 | 8.4 | 3.7 | 7 | 6.1 | 8.1 | 6.4 | 7.6 |

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------------|------------|----------------------------------|------------|------------|------------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 170 | 170 | 231 | 95 | 326 | 86 | 19 | 105 | 601 |
| 07:30 AM | 0 | 192 | 192 | 201 | 89 | 290 | 85 | 25 | 110 | 592 |
| 07:45 AM | 0 | 178 | 178 | 215 | 114 | 329 | 123 | 13 | 136 | 643 |
| 08:00 AM | 0 | 155 | 155 | 235 | 114 | 349 | 110 | 19 | 129 | 633 |
| Total Volume | 0 | 695 | 695 | 882 | 412 | 1294 | 404 | 76 | 480 | 2469 |
| % App. Total | 0 | 100 | | 68.2 | 31.8 | | 84.2 | 15.8 | | |
| PHF | .000 | .905 | .905 | .938 | .904 | .927 | .821 | .760 | .882 | .960 |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------------|------------|------------|------------|------------|------------|-----------|------------|
| +0 mins. | 0 | 170 | 170 | 231 | 95 | 326 | 86 | 19 | 105 |
| +15 mins. | 0 | 192 | 192 | 201 | 89 | 290 | 85 | 25 | 110 |
| +30 mins. | 0 | 178 | 178 | 215 | 114 | 329 | 123 | 13 | 136 |
| +45 mins. | 0 | 155 | 155 | 235 | 114 | 349 | 110 | 19 | 129 |
| Total Volume | 0 | 695 | 695 | 882 | 412 | 1294 | 404 | 76 | 480 |
| % App. Total | 0 | 100 | | 68.2 | 31.8 | | 84.2 | 15.8 | |
| PHF | .000 | .905 | .905 | .938 | .904 | .927 | .821 | .760 | .882 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

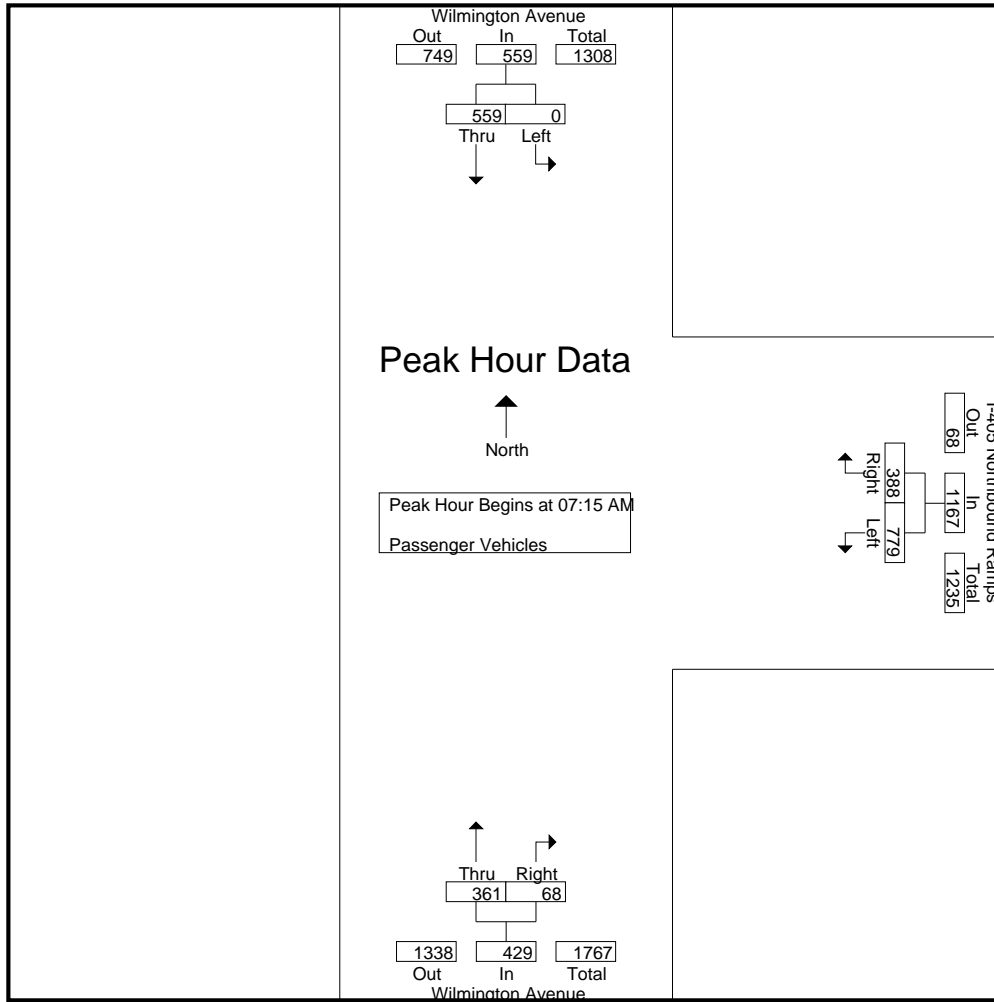
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 102 | 102 | 211 | 68 | 279 | 63 | 13 | 76 | 457 |
| 07:15 AM | 0 | 132 | 132 | 205 | 89 | 294 | 82 | 17 | 99 | 525 |
| 07:30 AM | 0 | 165 | 165 | 182 | 84 | 266 | 74 | 21 | 95 | 526 |
| 07:45 AM | 0 | 140 | 140 | 190 | 108 | 298 | 110 | 12 | 122 | 560 |
| Total | 0 | 539 | 539 | 788 | 349 | 1137 | 329 | 63 | 392 | 2068 |
| 08:00 AM | 0 | 122 | 122 | 202 | 107 | 309 | 95 | 18 | 113 | 544 |
| 08:15 AM | 0 | 115 | 115 | 163 | 90 | 253 | 81 | 6 | 87 | 455 |
| 08:30 AM | 0 | 110 | 110 | 155 | 93 | 248 | 54 | 13 | 67 | 425 |
| 08:45 AM | 0 | 87 | 87 | 151 | 83 | 234 | 61 | 8 | 69 | 390 |
| Total | 0 | 434 | 434 | 671 | 373 | 1044 | 291 | 45 | 336 | 1814 |
| Grand Total | 0 | 973 | 973 | 1459 | 722 | 2181 | 620 | 108 | 728 | 3882 |
| Apprch % | 0 | 100 | | 66.9 | 33.1 | | 85.2 | 14.8 | | |
| Total % | 0 | 25.1 | 25.1 | 37.6 | 18.6 | 56.2 | 16 | 2.8 | 18.8 | |

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------------|------------|----------------------------------|------------|------------|------------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 132 | 132 | 205 | 89 | 294 | 82 | 17 | 99 | 525 |
| 07:30 AM | 0 | 165 | 165 | 182 | 84 | 266 | 74 | 21 | 95 | 526 |
| 07:45 AM | 0 | 140 | 140 | 190 | 108 | 298 | 110 | 12 | 122 | 560 |
| 08:00 AM | 0 | 122 | 122 | 202 | 107 | 309 | 95 | 18 | 113 | 544 |
| Total Volume | 0 | 559 | 559 | 779 | 388 | 1167 | 361 | 68 | 429 | 2155 |
| % App. Total | 0 | 100 | | 66.8 | 33.2 | | 84.1 | 15.9 | | |
| PHF | .000 | .847 | .847 | .950 | .898 | .944 | .820 | .810 | .879 | .962 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------------|------------|------------|------------|------------|------------|-----------|------------|
| +0 mins. | 0 | 132 | 132 | 205 | 89 | 294 | 82 | 17 | 99 |
| +15 mins. | 0 | 165 | 165 | 182 | 84 | 266 | 74 | 21 | 95 |
| +30 mins. | 0 | 140 | 140 | 190 | 108 | 298 | 110 | 12 | 122 |
| +45 mins. | 0 | 122 | 122 | 202 | 107 | 309 | 95 | 18 | 113 |
| Total Volume | 0 | 559 | 559 | 779 | 388 | 1167 | 361 | 68 | 429 |
| % App. Total | 0 | 100 | | 66.8 | 33.2 | | 84.1 | 15.9 | |
| PHF | .000 | .847 | .847 | .950 | .898 | .944 | .820 | .810 | .879 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 13 | 13 | 9 | 2 | 11 | 2 | 2 | 4 | 28 |
| 07:15 AM | 0 | 10 | 10 | 5 | 1 | 6 | 2 | 1 | 3 | 19 |
| 07:30 AM | 0 | 7 | 7 | 5 | 2 | 7 | 2 | 0 | 2 | 16 |
| 07:45 AM | 0 | 13 | 13 | 9 | 1 | 10 | 2 | 1 | 3 | 26 |
| Total | 0 | 43 | 43 | 28 | 6 | 34 | 8 | 4 | 12 | 89 |
| 08:00 AM | 0 | 12 | 12 | 9 | 2 | 11 | 4 | 0 | 4 | 27 |
| 08:15 AM | 0 | 10 | 10 | 4 | 2 | 6 | 7 | 0 | 7 | 23 |
| 08:30 AM | 0 | 13 | 13 | 5 | 1 | 6 | 5 | 0 | 5 | 24 |
| 08:45 AM | 0 | 10 | 10 | 5 | 5 | 10 | 11 | 0 | 11 | 31 |
| Total | 0 | 45 | 45 | 23 | 10 | 33 | 27 | 0 | 27 | 105 |
| Grand Total | 0 | 88 | 88 | 51 | 16 | 67 | 35 | 4 | 39 | 194 |
| Apprch % | 0 | 100 | | 76.1 | 23.9 | | 89.7 | 10.3 | | |
| Total % | 0 | 45.4 | 45.4 | 26.3 | 8.2 | 34.5 | 18 | 2.1 | 20.1 | |

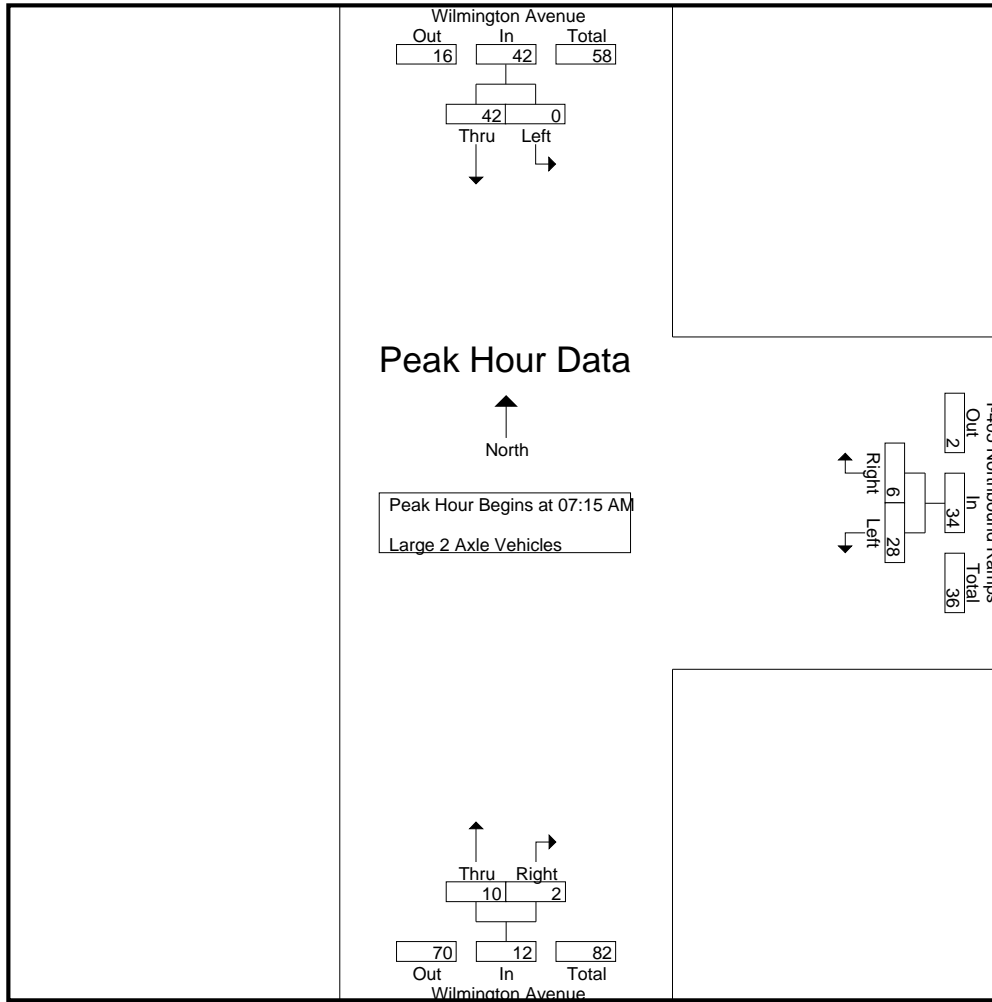
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 10 | 10 | 5 | 1 | 6 | 2 | 1 | 3 | 19 |
| 07:30 AM | 0 | 7 | 7 | 5 | 2 | 7 | 2 | 0 | 2 | 16 |
| 07:45 AM | 0 | 13 | 13 | 9 | 1 | 10 | 2 | 1 | 3 | 26 |
| 08:00 AM | 0 | 12 | 12 | 9 | 2 | 11 | 4 | 0 | 4 | 27 |
| Total Volume | 0 | 42 | 42 | 28 | 6 | 34 | 10 | 2 | 12 | 88 |
| % App. Total | 0 | 100 | | 82.4 | 17.6 | | 83.3 | 16.7 | | |
| PHF | .000 | .808 | .808 | .778 | .750 | .773 | .625 | .500 | .750 | .815 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 10 | 10 | 5 | 1 | 6 | 2 | 1 | 3 |
| +15 mins. | 0 | 7 | 7 | 5 | 2 | 7 | 2 | 0 | 2 |
| +30 mins. | 0 | 13 | 13 | 9 | 1 | 10 | 2 | 1 | 3 |
| +45 mins. | 0 | 12 | 12 | 9 | 2 | 11 | 4 | 0 | 4 |
| Total Volume | 0 | 42 | 42 | 28 | 6 | 34 | 10 | 2 | 12 |
| % App. Total | 0 | 100 | | 82.4 | 17.6 | | 83.3 | 16.7 | |
| PHF | .000 | .808 | .808 | .778 | .750 | .773 | .625 | .500 | .750 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 13 | 13 | 4 | 1 | 5 | 2 | 0 | 2 | 20 |
| 07:15 AM | 0 | 10 | 10 | 4 | 1 | 5 | 1 | 0 | 1 | 16 |
| 07:30 AM | 0 | 7 | 7 | 1 | 1 | 2 | 3 | 1 | 4 | 13 |
| 07:45 AM | 0 | 13 | 13 | 2 | 1 | 3 | 6 | 0 | 6 | 22 |
| Total | 0 | 43 | 43 | 11 | 4 | 15 | 12 | 1 | 13 | 71 |
| 08:00 AM | 0 | 12 | 12 | 4 | 1 | 5 | 6 | 0 | 6 | 23 |
| 08:15 AM | 0 | 10 | 10 | 2 | 2 | 4 | 2 | 0 | 2 | 16 |
| 08:30 AM | 0 | 13 | 13 | 0 | 1 | 1 | 4 | 0 | 4 | 18 |
| 08:45 AM | 0 | 10 | 10 | 1 | 0 | 1 | 1 | 0 | 1 | 12 |
| Total | 0 | 45 | 45 | 7 | 4 | 11 | 13 | 0 | 13 | 69 |
| Grand Total | 0 | 88 | 88 | 18 | 8 | 26 | 25 | 1 | 26 | 140 |
| Apprch % | 0 | 100 | | 69.2 | 30.8 | | 96.2 | 3.8 | | |
| Total % | 0 | 62.9 | 62.9 | 12.9 | 5.7 | 18.6 | 17.9 | 0.7 | 18.6 | |

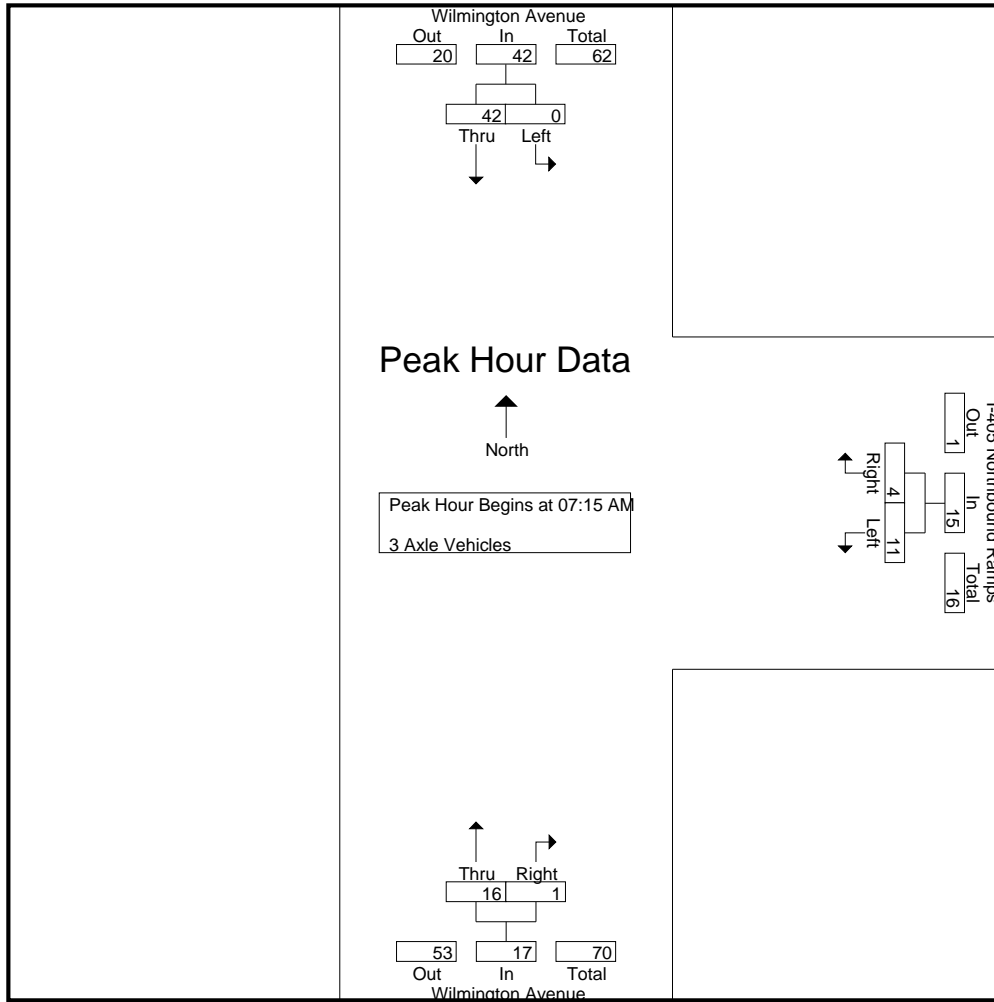
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 10 | 10 | 4 | 1 | 5 | 1 | 0 | 1 | 16 |
| 07:30 AM | 0 | 7 | 7 | 1 | 1 | 2 | 3 | 1 | 4 | 13 |
| 07:45 AM | 0 | 13 | 13 | 2 | 1 | 3 | 6 | 0 | 6 | 22 |
| 08:00 AM | 0 | 12 | 12 | 4 | 1 | 5 | 6 | 0 | 6 | 23 |
| Total Volume | 0 | 42 | 42 | 11 | 4 | 15 | 16 | 1 | 17 | 74 |
| % App. Total | 0 | 100 | | 73.3 | 26.7 | | 94.1 | 5.9 | | |
| PHF | .000 | .808 | .808 | .688 | 1.00 | .750 | .667 | .250 | .708 | .804 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------|------|----------|-------|------|----------|------|------|
| +0 mins. | 0 | 10 | 10 | 4 | 1 | 5 | 1 | 0 | 1 |
| +15 mins. | 0 | 7 | 7 | 1 | 1 | 2 | 3 | 1 | 4 |
| +30 mins. | 0 | 13 | 13 | 2 | 1 | 3 | 6 | 0 | 6 |
| +45 mins. | 0 | 12 | 12 | 4 | 1 | 5 | 6 | 0 | 6 |
| Total Volume | 0 | 42 | 42 | 11 | 4 | 15 | 16 | 1 | 17 |
| % App. Total | 0 | 100 | | 73.3 | 26.7 | | 94.1 | 5.9 | |
| PHF | .000 | .808 | .808 | .688 | 1.000 | .750 | .667 | .250 | .708 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

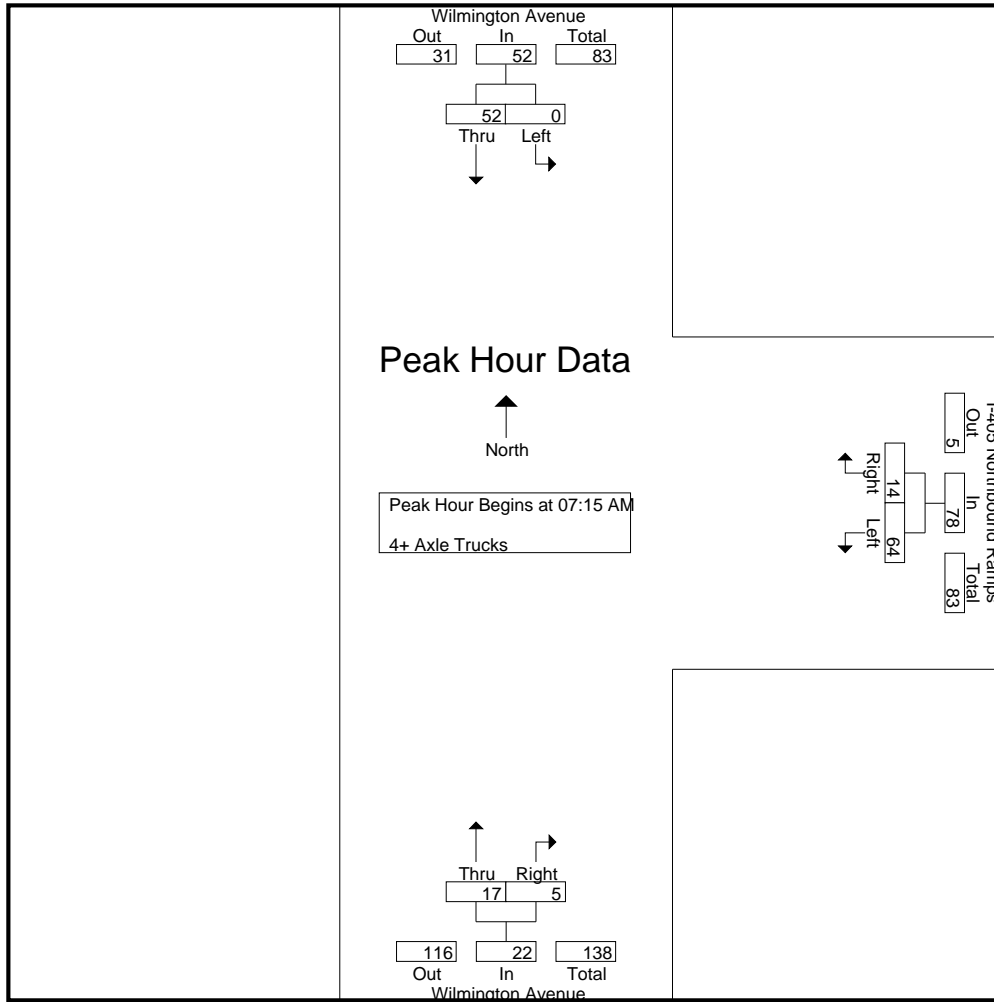
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 22 | 22 | 13 | 3 | 16 | 4 | 1 | 5 | 43 |
| 07:15 AM | 0 | 18 | 18 | 17 | 4 | 21 | 1 | 1 | 2 | 41 |
| 07:30 AM | 0 | 13 | 13 | 13 | 2 | 15 | 6 | 3 | 9 | 37 |
| 07:45 AM | 0 | 12 | 12 | 14 | 4 | 18 | 5 | 0 | 5 | 35 |
| Total | 0 | 65 | 65 | 57 | 13 | 70 | 16 | 5 | 21 | 156 |
| 08:00 AM | 0 | 9 | 9 | 20 | 4 | 24 | 5 | 1 | 6 | 39 |
| 08:15 AM | 0 | 12 | 12 | 12 | 4 | 16 | 6 | 1 | 7 | 35 |
| 08:30 AM | 1 | 22 | 23 | 26 | 4 | 30 | 5 | 2 | 7 | 60 |
| 08:45 AM | 0 | 16 | 16 | 26 | 4 | 30 | 12 | 1 | 13 | 59 |
| Total | 1 | 59 | 60 | 84 | 16 | 100 | 28 | 5 | 33 | 193 |
| Grand Total | 1 | 124 | 125 | 141 | 29 | 170 | 44 | 10 | 54 | 349 |
| Apprch % | 0.8 | 99.2 | | 82.9 | 17.1 | | 81.5 | 18.5 | | |
| Total % | 0.3 | 35.5 | 35.8 | 40.4 | 8.3 | 48.7 | 12.6 | 2.9 | 15.5 | |

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|-----------|------------|----------------------------------|----------|------------|------------------------------|----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 18 | 18 | 17 | 4 | 21 | 1 | 1 | 2 | 41 |
| 07:30 AM | 0 | 13 | 13 | 13 | 2 | 15 | 6 | 3 | 9 | 37 |
| 07:45 AM | 0 | 12 | 12 | 14 | 4 | 18 | 5 | 0 | 5 | 35 |
| 08:00 AM | 0 | 9 | 9 | 20 | 4 | 24 | 5 | 1 | 6 | 39 |
| Total Volume | 0 | 52 | 52 | 64 | 14 | 78 | 17 | 5 | 22 | 152 |
| % App. Total | 0 | 100 | | 82.1 | 17.9 | | 77.3 | 22.7 | | |
| PHF | .000 | .722 | .722 | .800 | .875 | .813 | .708 | .417 | .611 | .927 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|-----------|-----------|-----------|----------|-----------|----------|----------|----------|
| +0 mins. | 0 | 18 | 18 | 17 | 4 | 21 | 1 | 1 | 2 |
| +15 mins. | 0 | 13 | 13 | 13 | 2 | 15 | 6 | 3 | 9 |
| +30 mins. | 0 | 12 | 12 | 14 | 4 | 18 | 5 | 0 | 5 |
| +45 mins. | 0 | 9 | 9 | 20 | 4 | 24 | 5 | 1 | 6 |
| Total Volume | 0 | 52 | 52 | 64 | 14 | 78 | 17 | 5 | 22 |
| % App. Total | 0 | 100 | | 82.1 | 17.9 | | 77.3 | 22.7 | |
| PHF | .000 | .722 | .722 | .800 | .875 | .813 | .708 | .417 | .611 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

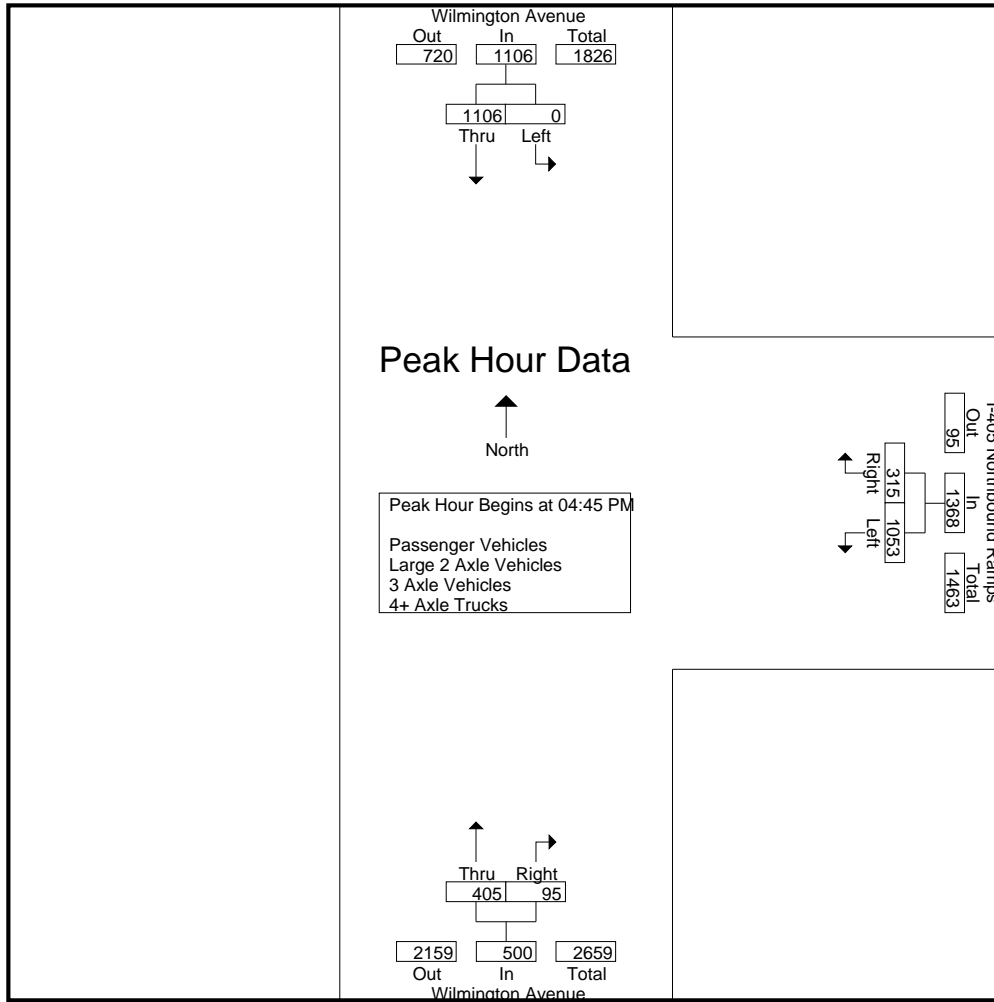
File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 257 | 257 | 234 | 90 | 324 | 84 | 30 | 114 | 695 |
| 04:15 PM | 0 | 196 | 196 | 225 | 78 | 303 | 63 | 27 | 90 | 589 |
| 04:30 PM | 0 | 271 | 271 | 207 | 63 | 270 | 97 | 66 | 163 | 704 |
| 04:45 PM | 0 | 261 | 261 | 278 | 70 | 348 | 97 | 33 | 130 | 739 |
| Total | 0 | 985 | 985 | 944 | 301 | 1245 | 341 | 156 | 497 | 2727 |
| 05:00 PM | 0 | 294 | 294 | 271 | 78 | 349 | 87 | 18 | 105 | 748 |
| 05:15 PM | 0 | 282 | 282 | 270 | 80 | 350 | 113 | 20 | 133 | 765 |
| 05:30 PM | 0 | 269 | 269 | 234 | 87 | 321 | 108 | 24 | 132 | 722 |
| 05:45 PM | 0 | 187 | 187 | 260 | 83 | 343 | 63 | 22 | 85 | 615 |
| Total | 0 | 1032 | 1032 | 1035 | 328 | 1363 | 371 | 84 | 455 | 2850 |
| Grand Total | 0 | 2017 | 2017 | 1979 | 629 | 2608 | 712 | 240 | 952 | 5577 |
| Apprch % | 0 | 100 | | 75.9 | 24.1 | | 74.8 | 25.2 | | |
| Total % | 0 | 36.2 | 36.2 | 35.5 | 11.3 | 46.8 | 12.8 | 4.3 | 17.1 | |
| Passenger Vehicles | 0 | 1849 | 1849 | 1821 | 510 | 2331 | 621 | 223 | 844 | 5024 |
| % Passenger Vehicles | 0 | 91.7 | 91.7 | 92 | 81.1 | 89.4 | 87.2 | 92.9 | 88.7 | 90.1 |
| Large 2 Axle Vehicles | 0 | 43 | 43 | 51 | 45 | 96 | 25 | 7 | 32 | 171 |
| % Large 2 Axle Vehicles | 0 | 2.1 | 2.1 | 2.6 | 7.2 | 3.7 | 3.5 | 2.9 | 3.4 | 3.1 |
| 3 Axle Vehicles | 0 | 43 | 43 | 29 | 28 | 57 | 26 | 1 | 27 | 127 |
| % 3 Axle Vehicles | 0 | 2.1 | 2.1 | 1.5 | 4.5 | 2.2 | 3.7 | 0.4 | 2.8 | 2.3 |
| 4+ Axle Trucks | 0 | 82 | 82 | 78 | 46 | 124 | 40 | 9 | 49 | 255 |
| % 4+ Axle Trucks | 0 | 4.1 | 4.1 | 3.9 | 7.3 | 4.8 | 5.6 | 3.8 | 5.1 | 4.6 |

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------------|------------|----------------------------------|-----------|------------|------------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:45 PM | 0 | 261 | 261 | 278 | 70 | 348 | 97 | 33 | 130 | 739 |
| 05:00 PM | 0 | 294 | 294 | 271 | 78 | 349 | 87 | 18 | 105 | 748 |
| 05:15 PM | 0 | 282 | 282 | 270 | 80 | 350 | 113 | 20 | 133 | 765 |
| 05:30 PM | 0 | 269 | 269 | 234 | 87 | 321 | 108 | 24 | 132 | 722 |
| Total Volume | 0 | 1106 | 1106 | 1053 | 315 | 1368 | 405 | 95 | 500 | 2974 |
| % App. Total | 0 | 100 | | 77 | 23 | | 81 | 19 | | |
| PHF | .000 | .940 | .940 | .947 | .905 | .977 | .896 | .720 | .940 | .972 |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:45 PM | | | 04:30 PM | | |
|--------------|----------|------------|------------|------------|-----------|------------|------------|-----------|------------|
| +0 mins. | 0 | 271 | 271 | 278 | 70 | 348 | 97 | 66 | 163 |
| +15 mins. | 0 | 261 | 261 | 271 | 78 | 349 | 97 | 33 | 130 |
| +30 mins. | 0 | 294 | 294 | 270 | 80 | 350 | 87 | 18 | 105 |
| +45 mins. | 0 | 282 | 282 | 234 | 87 | 321 | 113 | 20 | 133 |
| Total Volume | 0 | 1108 | 1108 | 1053 | 315 | 1368 | 394 | 137 | 531 |
| % App. Total | 0 | 100 | | 77 | 23 | | 74.2 | 25.8 | |
| PHF | .000 | .942 | .942 | .947 | .905 | .977 | .872 | .519 | .814 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 228 | 228 | 200 | 66 | 266 | 69 | 28 | 97 | 591 |
| 04:15 PM | 0 | 178 | 178 | 202 | 59 | 261 | 49 | 25 | 74 | 513 |
| 04:30 PM | 0 | 245 | 245 | 184 | 47 | 231 | 81 | 63 | 144 | 620 |
| 04:45 PM | 0 | 237 | 237 | 258 | 60 | 318 | 86 | 32 | 118 | 673 |
| Total | 0 | 888 | 888 | 844 | 232 | 1076 | 285 | 148 | 433 | 2397 |
| 05:00 PM | 0 | 266 | 266 | 251 | 64 | 315 | 78 | 18 | 96 | 677 |
| 05:15 PM | 0 | 265 | 265 | 257 | 67 | 324 | 107 | 14 | 121 | 710 |
| 05:30 PM | 0 | 252 | 252 | 217 | 73 | 290 | 98 | 24 | 122 | 664 |
| 05:45 PM | 0 | 178 | 178 | 252 | 74 | 326 | 53 | 19 | 72 | 576 |
| Total | 0 | 961 | 961 | 977 | 278 | 1255 | 336 | 75 | 411 | 2627 |
| Grand Total | 0 | 1849 | 1849 | 1821 | 510 | 2331 | 621 | 223 | 844 | 5024 |
| Apprch % | 0 | 100 | | 78.1 | 21.9 | | 73.6 | 26.4 | | |
| Total % | 0 | 36.8 | 36.8 | 36.2 | 10.2 | 46.4 | 12.4 | 4.4 | 16.8 | |

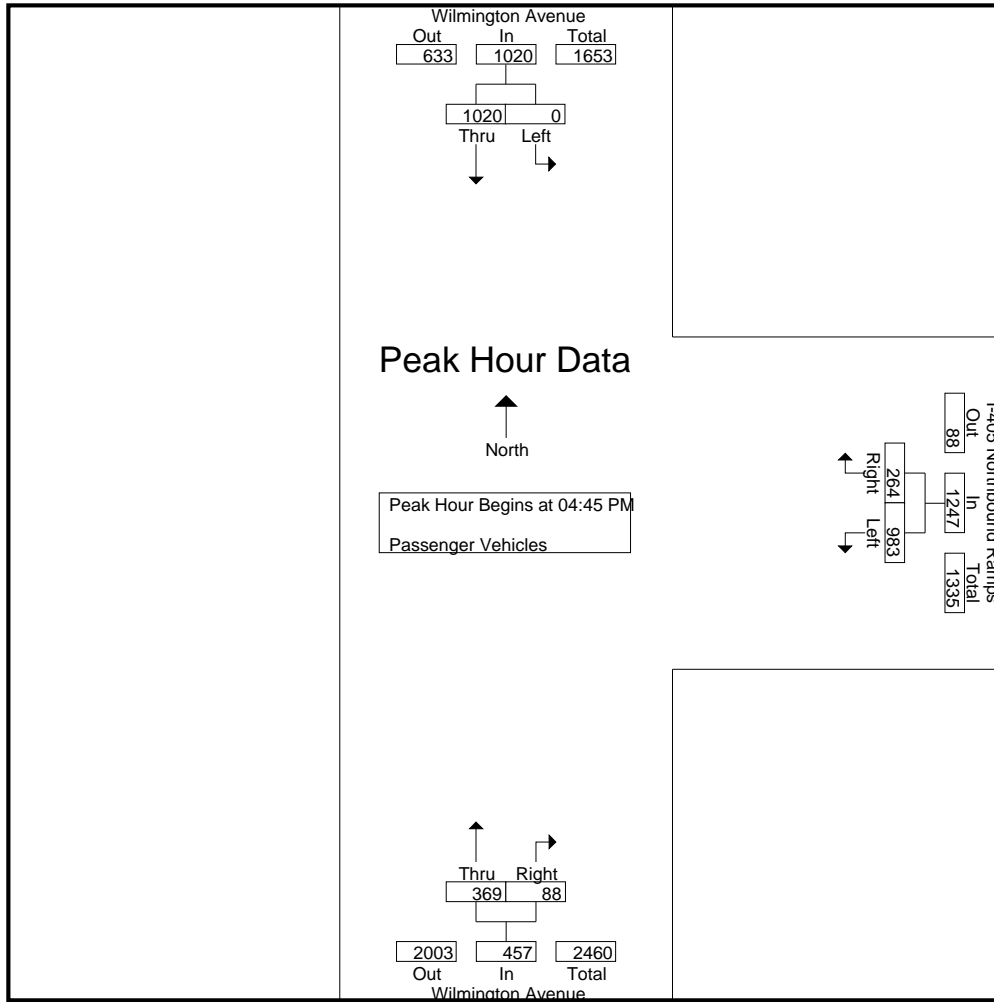
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------------|------------|----------------------------------|-----------|------------|------------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:45 PM | 0 | 237 | 237 | 258 | 60 | 318 | 86 | 32 | 118 | 673 |
| 05:00 PM | 0 | 266 | 266 | 251 | 64 | 315 | 78 | 18 | 96 | 677 |
| 05:15 PM | 0 | 265 | 265 | 257 | 67 | 324 | 107 | 14 | 121 | 710 |
| 05:30 PM | 0 | 252 | 252 | 217 | 73 | 290 | 98 | 24 | 122 | 664 |
| Total Volume | 0 | 1020 | 1020 | 983 | 264 | 1247 | 369 | 88 | 457 | 2724 |
| % App. Total | 0 | 100 | | 78.8 | 21.2 | | 80.7 | 19.3 | | |
| PHF | .000 | .959 | .959 | .953 | .904 | .962 | .862 | .688 | .936 | .959 |

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:45 PM | | | 04:45 PM | | |
|--------------|----------|------------|------------|------------|-----------|------------|------------|-----------|------------|
| +0 mins. | 0 | 237 | 237 | 258 | 60 | 318 | 86 | 32 | 118 |
| +15 mins. | 0 | 266 | 266 | 251 | 64 | 315 | 78 | 18 | 96 |
| +30 mins. | 0 | 265 | 265 | 257 | 67 | 324 | 107 | 14 | 121 |
| +45 mins. | 0 | 252 | 252 | 217 | 73 | 290 | 98 | 24 | 122 |
| Total Volume | 0 | 1020 | 1020 | 983 | 264 | 1247 | 369 | 88 | 457 |
| % App. Total | 0 | 100 | | 78.8 | 21.2 | | 80.7 | 19.3 | |
| PHF | .000 | .959 | .959 | .953 | .904 | .962 | .862 | .688 | .936 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

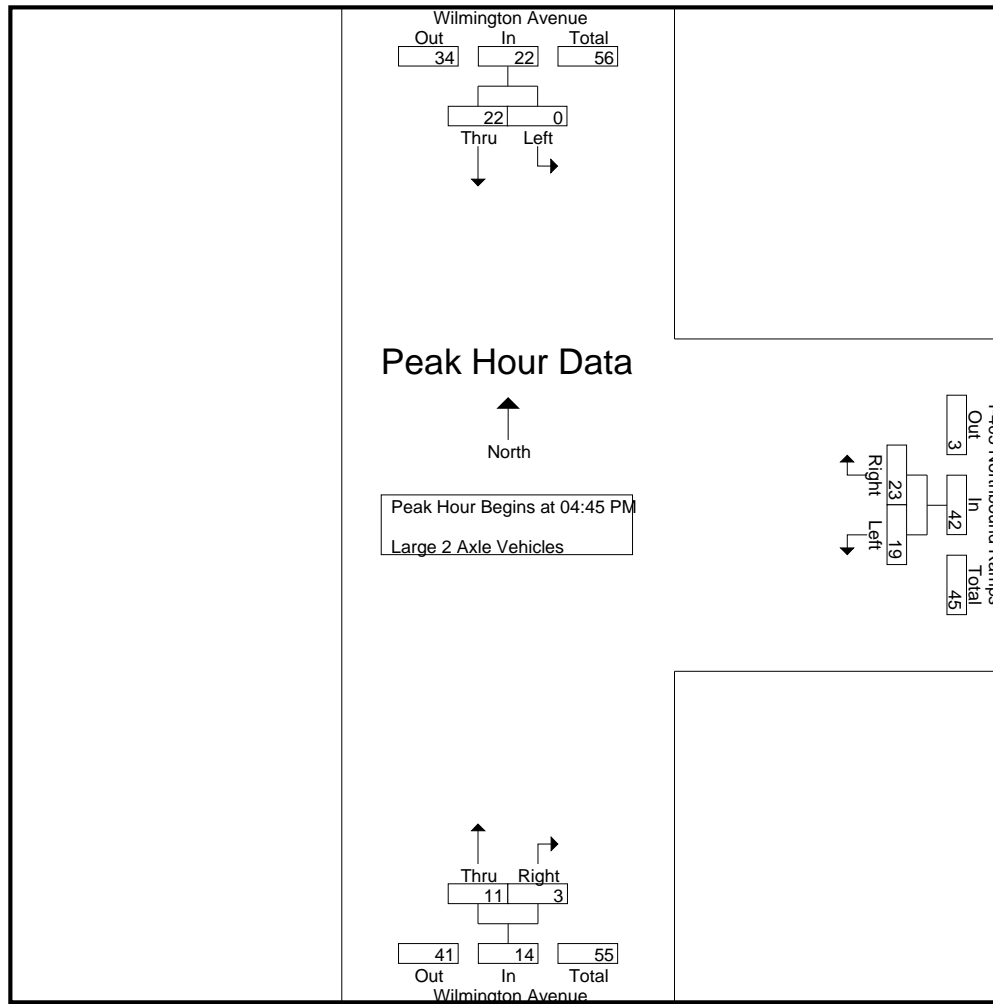
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 6 | 6 | 17 | 7 | 24 | 6 | 1 | 7 | 37 |
| 04:15 PM | 0 | 4 | 4 | 6 | 7 | 13 | 1 | 1 | 2 | 19 |
| 04:30 PM | 0 | 9 | 9 | 8 | 5 | 13 | 5 | 1 | 6 | 28 |
| 04:45 PM | 0 | 8 | 8 | 4 | 2 | 6 | 4 | 1 | 5 | 19 |
| Total | 0 | 27 | 27 | 35 | 21 | 56 | 16 | 4 | 20 | 103 |
| 05:00 PM | 0 | 7 | 7 | 8 | 6 | 14 | 2 | 0 | 2 | 23 |
| 05:15 PM | 0 | 5 | 5 | 4 | 5 | 9 | 3 | 2 | 5 | 19 |
| 05:30 PM | 0 | 2 | 2 | 3 | 10 | 13 | 2 | 0 | 2 | 17 |
| 05:45 PM | 0 | 2 | 2 | 1 | 3 | 4 | 2 | 1 | 3 | 9 |
| Total | 0 | 16 | 16 | 16 | 24 | 40 | 9 | 3 | 12 | 68 |
| Grand Total | 0 | 43 | 43 | 51 | 45 | 96 | 25 | 7 | 32 | 171 |
| Apprch % | 0 | 100 | | 53.1 | 46.9 | | 78.1 | 21.9 | | |
| Total % | 0 | 25.1 | 25.1 | 29.8 | 26.3 | 56.1 | 14.6 | 4.1 | 18.7 | |

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|----------|------------|----------------------------------|-----------|------------|------------------------------|----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:45 PM | 0 | 8 | 8 | 4 | 2 | 6 | 4 | 1 | 5 | 19 |
| 05:00 PM | 0 | 7 | 7 | 8 | 6 | 14 | 2 | 0 | 2 | 23 |
| 05:15 PM | 0 | 5 | 5 | 4 | 5 | 9 | 3 | 2 | 5 | 19 |
| 05:30 PM | 0 | 2 | 2 | 3 | 10 | 13 | 2 | 0 | 2 | 17 |
| Total Volume | 0 | 22 | 22 | 19 | 23 | 42 | 11 | 3 | 14 | 78 |
| % App. Total | 0 | 100 | | 45.2 | 54.8 | | 78.6 | 21.4 | | |
| PHF | .000 | .688 | .688 | .594 | .575 | .750 | .688 | .375 | .700 | .848 |

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:45 PM | | | 04:45 PM | | |
|--------------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|
| +0 mins. | 0 | 8 | 8 | 4 | 2 | 6 | 4 | 1 | 5 |
| +15 mins. | 0 | 7 | 7 | 8 | 6 | 14 | 2 | 0 | 2 |
| +30 mins. | 0 | 5 | 5 | 4 | 5 | 9 | 3 | 2 | 5 |
| +45 mins. | 0 | 2 | 2 | 3 | 10 | 13 | 2 | 0 | 2 |
| Total Volume | 0 | 22 | 22 | 19 | 23 | 42 | 11 | 3 | 14 |
| % App. Total | 0 | 100 | | 45.2 | 54.8 | | 78.6 | 21.4 | |
| PHF | .000 | .688 | .688 | .594 | .575 | .750 | .688 | .375 | .700 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 6 | 6 | 6 | 7 | 13 | 3 | 0 | 3 | 22 |
| 04:15 PM | 0 | 4 | 4 | 2 | 5 | 7 | 3 | 0 | 3 | 14 |
| 04:30 PM | 0 | 9 | 9 | 5 | 4 | 9 | 4 | 1 | 5 | 23 |
| 04:45 PM | 0 | 8 | 8 | 5 | 3 | 8 | 6 | 0 | 6 | 22 |
| Total | 0 | 27 | 27 | 18 | 19 | 37 | 16 | 1 | 17 | 81 |
| 05:00 PM | 0 | 7 | 7 | 3 | 1 | 4 | 4 | 0 | 4 | 15 |
| 05:15 PM | 0 | 5 | 5 | 5 | 5 | 10 | 1 | 0 | 1 | 16 |
| 05:30 PM | 0 | 2 | 2 | 1 | 1 | 2 | 3 | 0 | 3 | 7 |
| 05:45 PM | 0 | 2 | 2 | 2 | 2 | 4 | 2 | 0 | 2 | 8 |
| Total | 0 | 16 | 16 | 11 | 9 | 20 | 10 | 0 | 10 | 46 |
| Grand Total | 0 | 43 | 43 | 29 | 28 | 57 | 26 | 1 | 27 | 127 |
| Apprch % | 0 | 100 | | 50.9 | 49.1 | | 96.3 | 3.7 | | |
| Total % | 0 | 33.9 | 33.9 | 22.8 | 22 | 44.9 | 20.5 | 0.8 | 21.3 | |

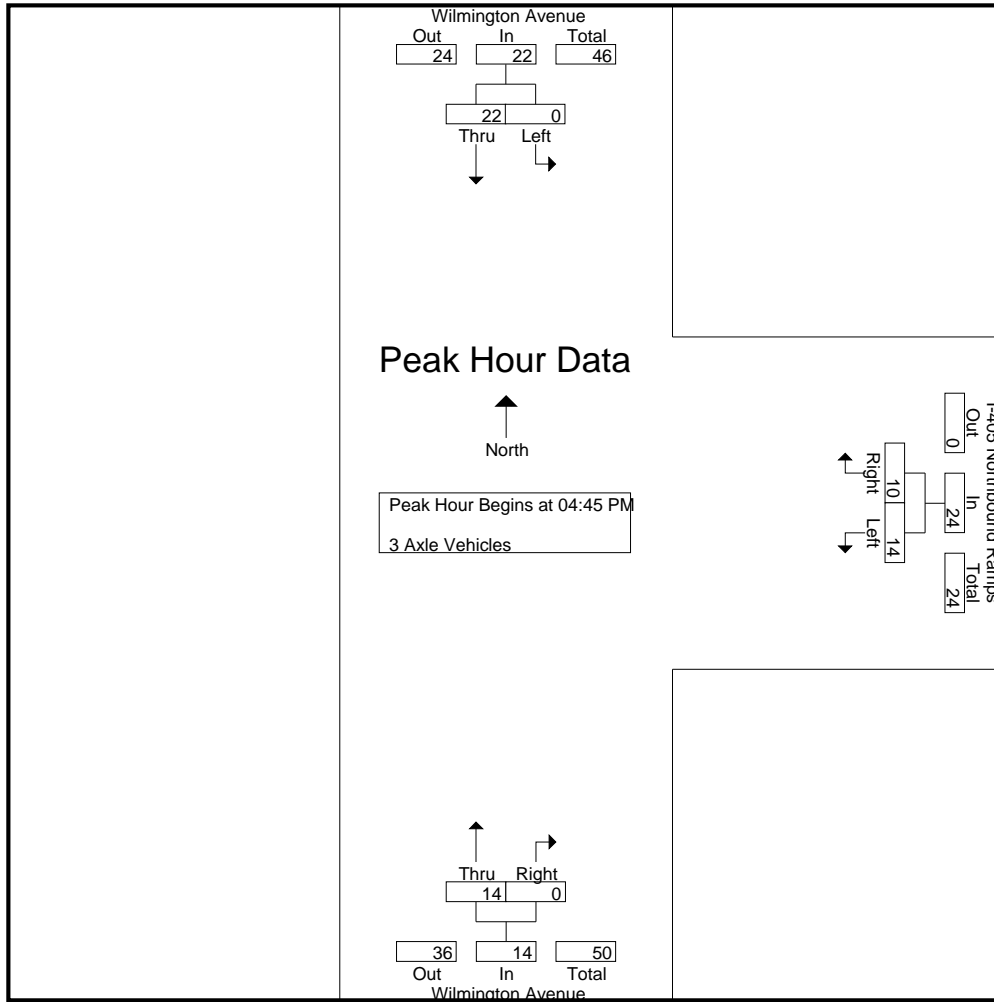
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|----------|------------|----------------------------------|----------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:45 PM | 0 | 8 | 8 | 5 | 3 | 8 | 6 | 0 | 6 | 22 |
| 05:00 PM | 0 | 7 | 7 | 3 | 1 | 4 | 4 | 0 | 4 | 15 |
| 05:15 PM | 0 | 5 | 5 | 5 | 5 | 10 | 1 | 0 | 1 | 16 |
| 05:30 PM | 0 | 2 | 2 | 1 | 1 | 2 | 3 | 0 | 3 | 7 |
| Total Volume | 0 | 22 | 22 | 14 | 10 | 24 | 14 | 0 | 14 | 60 |
| % App. Total | 0 | 100 | | 58.3 | 41.7 | | 100 | 0 | | |
| PHF | .000 | .688 | .688 | .700 | .500 | .600 | .583 | .000 | .583 | .682 |

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:45 PM | | | 04:45 PM | | |
|--------------|----------|----------|----------|----------|----------|-----------|----------|------|----------|
| +0 mins. | 0 | 8 | 8 | 5 | 3 | 8 | 6 | 0 | 6 |
| +15 mins. | 0 | 7 | 7 | 3 | 1 | 4 | 4 | 0 | 4 |
| +30 mins. | 0 | 5 | 5 | 5 | 5 | 10 | 1 | 0 | 1 |
| +45 mins. | 0 | 2 | 2 | 1 | 1 | 2 | 3 | 0 | 3 |
| Total Volume | 0 | 22 | 22 | 14 | 10 | 24 | 14 | 0 | 14 |
| % App. Total | 0 | 100 | | 58.3 | 41.7 | | 100 | 0 | |
| PHF | .000 | .688 | .688 | .700 | .500 | .600 | .583 | .000 | .583 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|-------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 17 | 17 | 11 | 10 | 21 | 6 | 1 | 7 | 45 |
| 04:15 PM | 0 | 10 | 10 | 15 | 7 | 22 | 10 | 1 | 11 | 43 |
| 04:30 PM | 0 | 8 | 8 | 10 | 7 | 17 | 7 | 1 | 8 | 33 |
| 04:45 PM | 0 | 8 | 8 | 11 | 5 | 16 | 1 | 0 | 1 | 25 |
| Total | 0 | 43 | 43 | 47 | 29 | 76 | 24 | 3 | 27 | 146 |
| 05:00 PM | 0 | 14 | 14 | 9 | 7 | 16 | 3 | 0 | 3 | 33 |
| 05:15 PM | 0 | 7 | 7 | 4 | 3 | 7 | 2 | 4 | 6 | 20 |
| 05:30 PM | 0 | 13 | 13 | 13 | 3 | 16 | 5 | 0 | 5 | 34 |
| 05:45 PM | 0 | 5 | 5 | 5 | 4 | 9 | 6 | 2 | 8 | 22 |
| Total | 0 | 39 | 39 | 31 | 17 | 48 | 16 | 6 | 22 | 109 |
| Grand Total | 0 | 82 | 82 | 78 | 46 | 124 | 40 | 9 | 49 | 255 |
| Apprch % | 0 | 100 | | 62.9 | 37.1 | | 81.6 | 18.4 | | |
| Total % | 0 | 32.2 | 32.2 | 30.6 | 18 | 48.6 | 15.7 | 3.5 | 19.2 | |

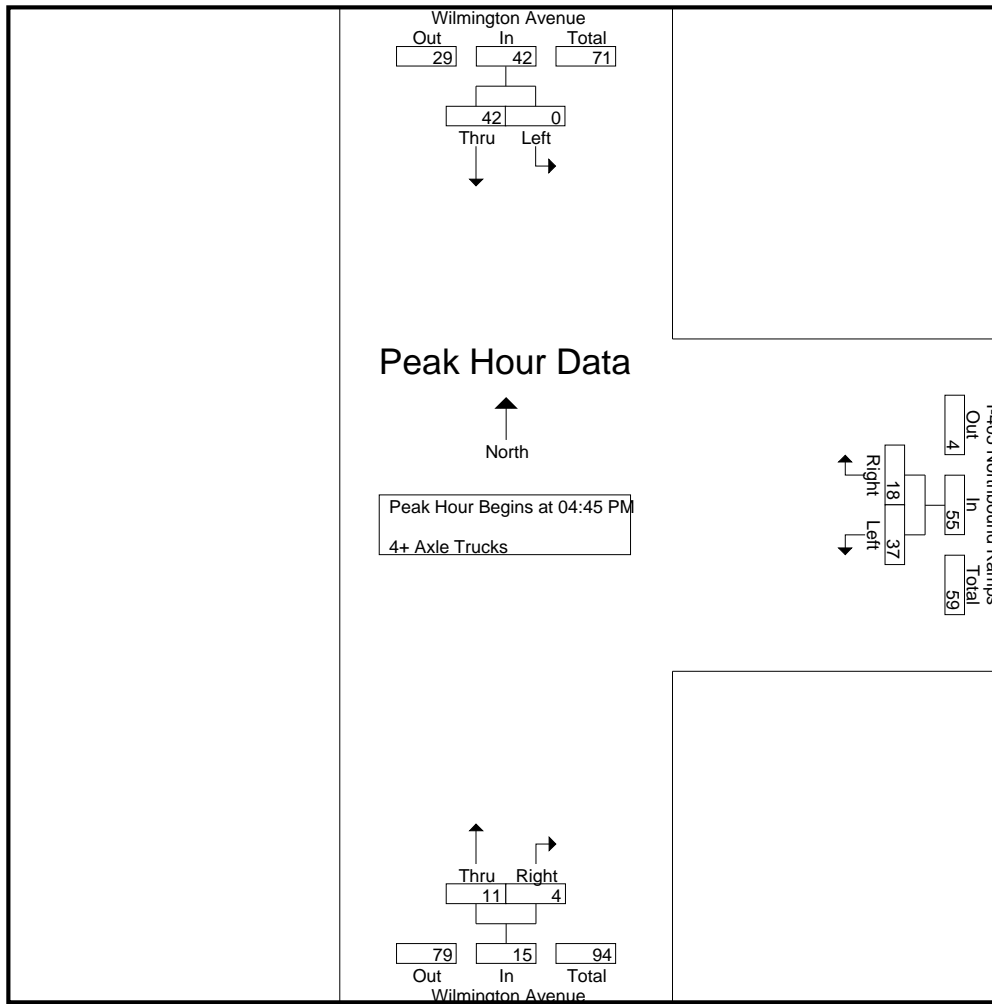
| Start Time | Wilmington Avenue Southbound | | | I-405 Northbound Ramps Westbound | | | Wilmington Avenue Northbound | | | Int. Total |
|--------------|------------------------------|------|------------|----------------------------------|-------|------------|------------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:45 PM | 0 | 8 | 8 | 11 | 5 | 16 | 1 | 0 | 1 | 25 |
| 05:00 PM | 0 | 14 | 14 | 9 | 7 | 16 | 3 | 0 | 3 | 33 |
| 05:15 PM | 0 | 7 | 7 | 4 | 3 | 7 | 2 | 4 | 6 | 20 |
| 05:30 PM | 0 | 13 | 13 | 13 | 3 | 16 | 5 | 0 | 5 | 34 |
| Total Volume | 0 | 42 | 42 | 37 | 18 | 55 | 11 | 4 | 15 | 112 |
| % App. Total | 0 | 100 | | 67.3 | 32.7 | | 73.3 | 26.7 | | |
| PHF | .000 | .750 | .750 | .712 | .643 | .859 | .550 | .250 | .625 | .824 |

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 01_CRS_Wilmington_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:45 PM | | | 04:45 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 8 | 8 | 11 | 5 | 16 | 1 | 0 | 1 |
| +15 mins. | 0 | 14 | 14 | 9 | 7 | 16 | 3 | 0 | 3 |
| +30 mins. | 0 | 7 | 7 | 4 | 3 | 7 | 2 | 4 | 6 |
| +45 mins. | 0 | 13 | 13 | 13 | 3 | 16 | 5 | 0 | 5 |
| Total Volume | 0 | 42 | 42 | 37 | 18 | 55 | 11 | 4 | 15 |
| % App. Total | 0 | 100 | | 67.3 | 32.7 | | 73.3 | 26.7 | |
| PHF | .000 | .750 | .750 | .712 | .643 | .859 | .550 | .250 | .625 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

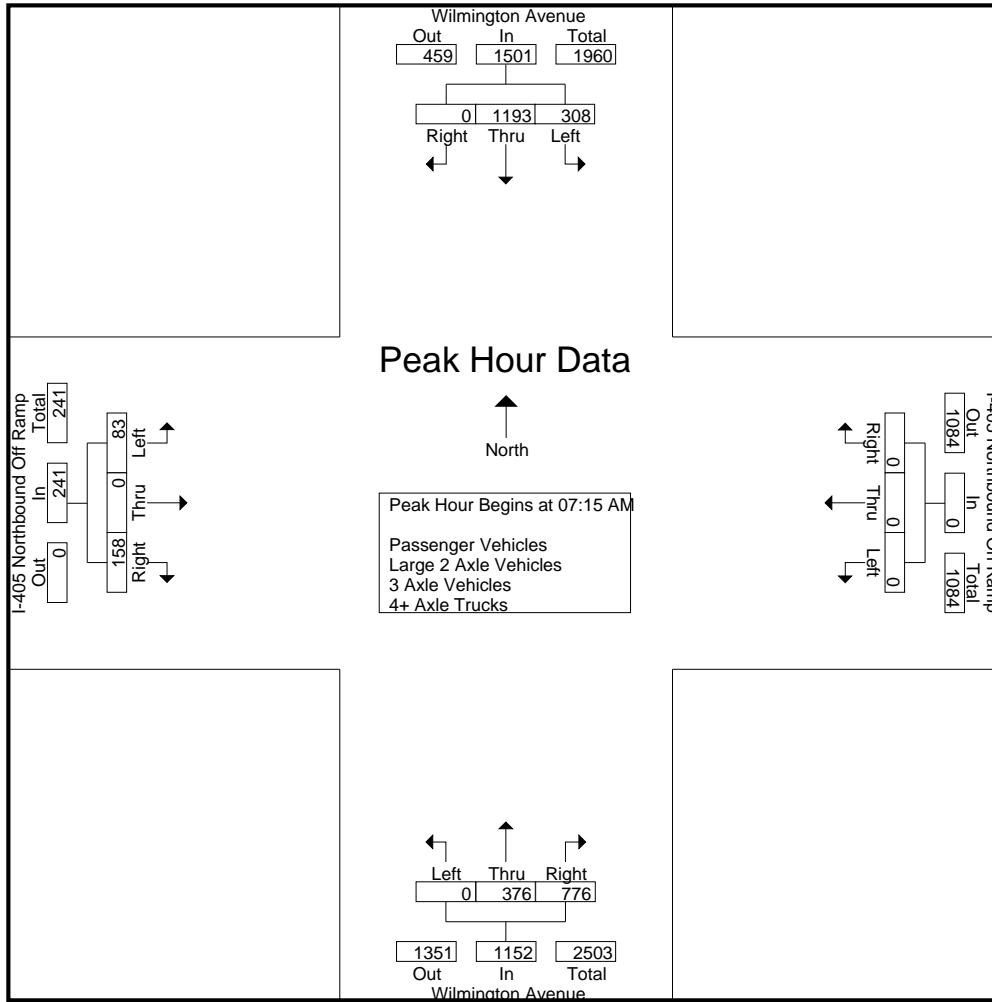
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------------------|------------------------------|-------------|----------|-------------|------------------------------------|----------|----------|------------|------------------------------|------------|-------------|-------------|-------------------------------------|----------|------------|------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 82 | 271 | 0 | 353 | 0 | 0 | 0 | 0 | 0 | 76 | 146 | 222 | 21 | 0 | 39 | 60 | 635 |
| 07:15 AM | 81 | 310 | 0 | 391 | 0 | 0 | 0 | 0 | 0 | 80 | 192 | 272 | 15 | 0 | 41 | 56 | 719 |
| 07:30 AM | 85 | 286 | 0 | 371 | 0 | 0 | 0 | 0 | 0 | 92 | 221 | 313 | 13 | 0 | 26 | 39 | 723 |
| 07:45 AM | 70 | 296 | 0 | 366 | 0 | 0 | 0 | 0 | 0 | 104 | 176 | 280 | 27 | 0 | 41 | 68 | 714 |
| Total | 318 | 1163 | 0 | 1481 | 0 | 0 | 0 | 0 | 0 | 352 | 735 | 1087 | 76 | 0 | 147 | 223 | 2791 |
| 08:00 AM | 72 | 301 | 0 | 373 | 0 | 0 | 0 | 0 | 0 | 100 | 187 | 287 | 28 | 0 | 50 | 78 | 738 |
| 08:15 AM | 72 | 243 | 0 | 315 | 0 | 0 | 0 | 0 | 0 | 98 | 225 | 323 | 13 | 0 | 38 | 51 | 689 |
| 08:30 AM | 64 | 278 | 0 | 342 | 0 | 0 | 0 | 0 | 0 | 57 | 191 | 248 | 20 | 0 | 36 | 56 | 646 |
| 08:45 AM | 60 | 244 | 0 | 304 | 0 | 0 | 0 | 0 | 0 | 74 | 150 | 224 | 16 | 0 | 49 | 65 | 593 |
| Total | 268 | 1066 | 0 | 1334 | 0 | 0 | 0 | 0 | 0 | 329 | 753 | 1082 | 77 | 0 | 173 | 250 | 2666 |
| Grand Total | 586 | 2229 | 0 | 2815 | 0 | 0 | 0 | 0 | 0 | 681 | 1488 | 2169 | 153 | 0 | 320 | 473 | 5457 |
| Apprch % | 20.8 | 79.2 | 0 | | 0 | 0 | 0 | | 0 | 31.4 | 68.6 | | 32.3 | 0 | 67.7 | | |
| Total % | 10.7 | 40.8 | 0 | 51.6 | 0 | 0 | 0 | | 0 | 12.5 | 27.3 | 39.7 | 2.8 | 0 | 5.9 | 8.7 | |
| Passenger Vehicles | 451 | 1921 | 0 | 2372 | 0 | 0 | 0 | 0 | 0 | 580 | 1328 | 1908 | 140 | 0 | 266 | 406 | 4686 |
| % Passenger Vehicles | 77 | 86.2 | 0 | 84.3 | 0 | 0 | 0 | 0 | 0 | 85.2 | 89.2 | 88 | 91.5 | 0 | 83.1 | 85.8 | 85.9 |
| Large 2 Axle Vehicles | 51 | 65 | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 31 | 32 | 63 | 5 | 0 | 25 | 30 | 209 |
| % Large 2 Axle Vehicles | 8.7 | 2.9 | 0 | 4.1 | 0 | 0 | 0 | 0 | 0 | 4.6 | 2.2 | 2.9 | 3.3 | 0 | 7.8 | 6.3 | 3.8 |
| 3 Axle Vehicles | 30 | 65 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 25 | 27 | 52 | 1 | 0 | 9 | 10 | 157 |
| % 3 Axle Vehicles | 5.1 | 2.9 | 0 | 3.4 | 0 | 0 | 0 | 0 | 0 | 3.7 | 1.8 | 2.4 | 0.7 | 0 | 2.8 | 2.1 | 2.9 |
| 4+ Axle Trucks | 54 | 178 | 0 | 232 | 0 | 0 | 0 | 0 | 0 | 45 | 101 | 146 | 7 | 0 | 20 | 27 | 405 |
| % 4+ Axle Trucks | 9.2 | 8 | 0 | 8.2 | 0 | 0 | 0 | 0 | 0 | 6.6 | 6.8 | 6.7 | 4.6 | 0 | 6.2 | 5.7 | 7.4 |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 81 | 310 | 0 | 391 | 0 | 0 | 0 | 0 | 0 | 80 | 192 | 272 | 15 | 0 | 41 | 56 | 719 |
| 07:30 AM | 85 | 286 | 0 | 371 | 0 | 0 | 0 | 0 | 0 | 92 | 221 | 313 | 13 | 0 | 26 | 39 | 723 |
| 07:45 AM | 70 | 296 | 0 | 366 | 0 | 0 | 0 | 0 | 0 | 104 | 176 | 280 | 27 | 0 | 41 | 68 | 714 |
| 08:00 AM | 72 | 301 | 0 | 373 | 0 | 0 | 0 | 0 | 0 | 100 | 187 | 287 | 28 | 0 | 50 | 78 | 738 |
| Total Volume | 308 | 1193 | 0 | 1501 | 0 | 0 | 0 | 0 | 0 | 376 | 776 | 1152 | 83 | 0 | 158 | 241 | 2894 |
| % App. Total | 20.5 | 79.5 | 0 | | 0 | 0 | 0 | | 0 | 32.6 | 67.4 | | 34.4 | 0 | 65.6 | | |
| PHF | .906 | .962 | .000 | .960 | .000 | .000 | .000 | .000 | .000 | .904 | .878 | .920 | .741 | .000 | .790 | .772 | .980 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:00 AM | | | | 07:30 AM | | | | 07:45 AM | | | |
|--------------|-----------|------------|------|------------|----------|------|------|------|----------|------------|------------|------------|-----------|------|-----------|-----------|
| +0 mins. | 81 | 310 | 0 | 391 | 0 | 0 | 0 | 0 | 0 | 92 | 221 | 313 | 27 | 0 | 41 | 68 |
| +15 mins. | 85 | 286 | 0 | 371 | 0 | 0 | 0 | 0 | 0 | 104 | 176 | 280 | 28 | 0 | 50 | 78 |
| +30 mins. | 70 | 296 | 0 | 366 | 0 | 0 | 0 | 0 | 0 | 100 | 187 | 287 | 13 | 0 | 38 | 51 |
| +45 mins. | 72 | 301 | 0 | 373 | 0 | 0 | 0 | 0 | 0 | 98 | 225 | 323 | 20 | 0 | 36 | 56 |
| Total Volume | 308 | 1193 | 0 | 1501 | 0 | 0 | 0 | 0 | 0 | 394 | 809 | 1203 | 88 | 0 | 165 | 253 |
| % App. Total | 20.5 | 79.5 | 0 | | 0 | 0 | 0 | 0 | 0 | 32.8 | 67.2 | | 34.8 | 0 | 65.2 | |
| PHF | .906 | .962 | .000 | .960 | .000 | .000 | .000 | .000 | .000 | .947 | .899 | .931 | .786 | .000 | .825 | .811 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

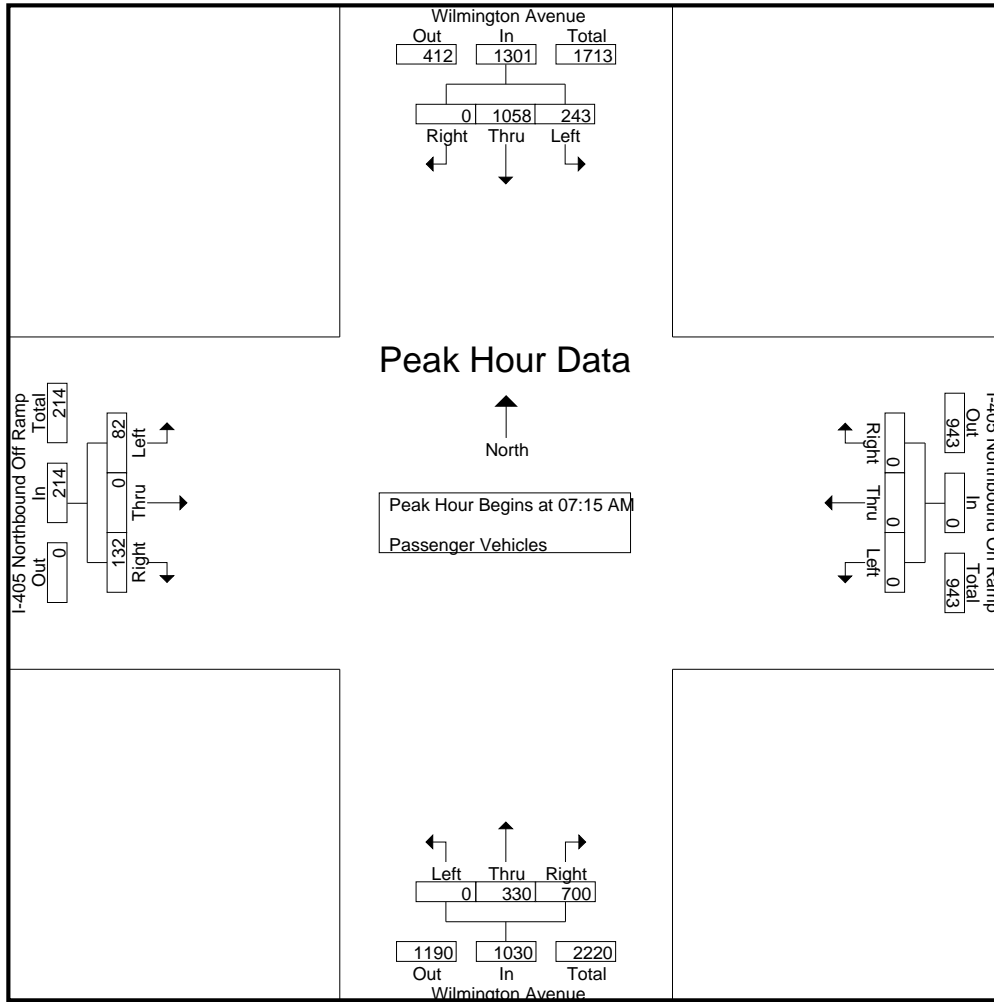
Groups Printed- Passenger Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 59 | 234 | 0 | 293 | 0 | 0 | 0 | 0 | 0 | 68 | 129 | 197 | 19 | 0 | 37 | 56 | 546 |
| 07:15 AM | 61 | 270 | 0 | 331 | 0 | 0 | 0 | 0 | 0 | 75 | 169 | 244 | 15 | 0 | 38 | 53 | 628 |
| 07:30 AM | 70 | 265 | 0 | 335 | 0 | 0 | 0 | 0 | 0 | 80 | 203 | 283 | 12 | 0 | 20 | 32 | 650 |
| 07:45 AM | 52 | 259 | 0 | 311 | 0 | 0 | 0 | 0 | 0 | 91 | 161 | 252 | 27 | 0 | 31 | 58 | 621 |
| Total | 242 | 1028 | 0 | 1270 | 0 | 0 | 0 | 0 | 0 | 314 | 662 | 976 | 73 | 0 | 126 | 199 | 2445 |
| 08:00 AM | 60 | 264 | 0 | 324 | 0 | 0 | 0 | 0 | 0 | 84 | 167 | 251 | 28 | 0 | 43 | 71 | 646 |
| 08:15 AM | 61 | 215 | 0 | 276 | 0 | 0 | 0 | 0 | 0 | 84 | 201 | 285 | 11 | 0 | 32 | 43 | 604 |
| 08:30 AM | 45 | 220 | 0 | 265 | 0 | 0 | 0 | 0 | 0 | 43 | 172 | 215 | 18 | 0 | 31 | 49 | 529 |
| 08:45 AM | 43 | 194 | 0 | 237 | 0 | 0 | 0 | 0 | 0 | 55 | 126 | 181 | 10 | 0 | 34 | 44 | 462 |
| Total | 209 | 893 | 0 | 1102 | 0 | 0 | 0 | 0 | 0 | 266 | 666 | 932 | 67 | 0 | 140 | 207 | 2241 |
| Grand Total | 451 | 1921 | 0 | 2372 | 0 | 0 | 0 | 0 | 0 | 580 | 1328 | 1908 | 140 | 0 | 266 | 406 | 4686 |
| Apprch % | 19 | 81 | 0 | | 0 | 0 | 0 | | 0 | 30.4 | 69.6 | | 34.5 | 0 | 65.5 | | |
| Total % | 9.6 | 41 | 0 | 50.6 | 0 | 0 | 0 | 0 | 0 | 12.4 | 28.3 | 40.7 | 3 | 0 | 5.7 | 8.7 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------------|-------|------------|------------------------------------|------|-------|------------|------------------------------|-----------|------------|------------|-------------------------------------|------|-----------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 61 | 270 | 0 | 331 | 0 | 0 | 0 | 0 | 0 | 75 | 169 | 244 | 15 | 0 | 38 | 53 | 628 |
| 07:30 AM | 70 | 265 | 0 | 335 | 0 | 0 | 0 | 0 | 0 | 80 | 203 | 283 | 12 | 0 | 20 | 32 | 650 |
| 07:45 AM | 52 | 259 | 0 | 311 | 0 | 0 | 0 | 0 | 0 | 91 | 161 | 252 | 27 | 0 | 31 | 58 | 621 |
| 08:00 AM | 60 | 264 | 0 | 324 | 0 | 0 | 0 | 0 | 0 | 84 | 167 | 251 | 28 | 0 | 43 | 71 | 646 |
| Total Volume | 243 | 1058 | 0 | 1301 | 0 | 0 | 0 | 0 | 0 | 330 | 700 | 1030 | 82 | 0 | 132 | 214 | 2545 |
| % App. Total | 18.7 | 81.3 | 0 | | 0 | 0 | 0 | | 0 | 32 | 68 | | 38.3 | 0 | 61.7 | | |
| PHF | .868 | .980 | .000 | .971 | .000 | .000 | .000 | .000 | .000 | .907 | .862 | .910 | .732 | .000 | .767 | .754 | .979 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|-----------|------------|------|------------|----------|------|------|------|----------|-----------|------------|------------|-----------|------|-----------|-----------|
| +0 mins. | 61 | 270 | 0 | 331 | 0 | 0 | 0 | 0 | 0 | 75 | 169 | 244 | 15 | 0 | 38 | 53 |
| +15 mins. | 70 | 265 | 0 | 335 | 0 | 0 | 0 | 0 | 0 | 80 | 203 | 283 | 12 | 0 | 20 | 32 |
| +30 mins. | 52 | 259 | 0 | 311 | 0 | 0 | 0 | 0 | 0 | 91 | 161 | 252 | 27 | 0 | 31 | 58 |
| +45 mins. | 60 | 264 | 0 | 324 | 0 | 0 | 0 | 0 | 0 | 84 | 167 | 251 | 28 | 0 | 43 | 71 |
| Total Volume | 243 | 1058 | 0 | 1301 | 0 | 0 | 0 | 0 | 0 | 330 | 700 | 1030 | 82 | 0 | 132 | 214 |
| % App. Total | 18.7 | 81.3 | 0 | | 0 | 0 | 0 | | 0 | 32 | 68 | | 38.3 | 0 | 61.7 | |
| PHF | .868 | .980 | .000 | .971 | .000 | .000 | .000 | .000 | .000 | .907 | .862 | .910 | .732 | .000 | .767 | .754 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

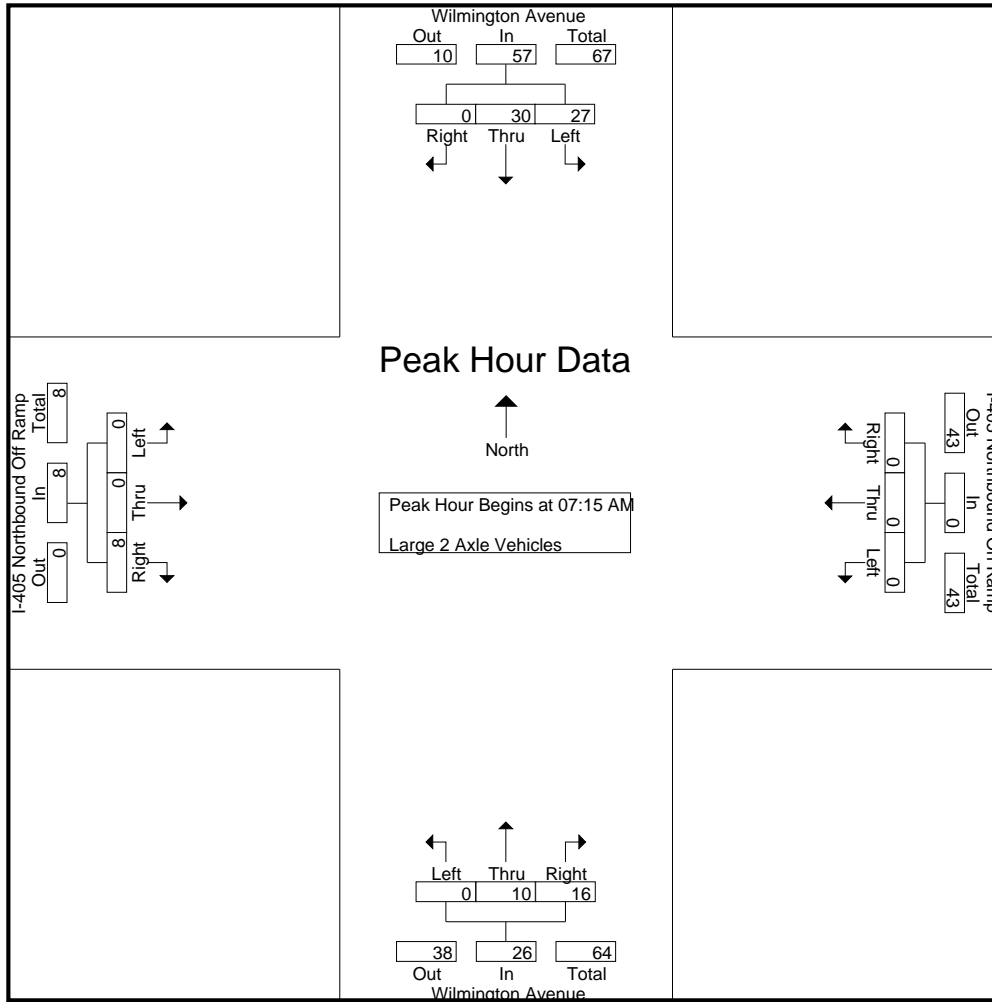
Groups Printed- Large 2 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 7 | 8 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 19 |
| 07:15 AM | 8 | 8 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 22 |
| 07:30 AM | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 7 | 0 | 0 | 3 | 3 | 18 |
| 07:45 AM | 9 | 10 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 4 | 4 | 27 |
| Total | 28 | 30 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 8 | 13 | 21 | 0 | 0 | 7 | 7 | 86 |
| 08:00 AM | 6 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 9 | 0 | 0 | 1 | 1 | 24 |
| 08:15 AM | 6 | 6 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 11 | 1 | 0 | 4 | 5 | 28 |
| 08:30 AM | 4 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | 2 | 0 | 4 | 6 | 28 |
| 08:45 AM | 7 | 9 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 9 | 7 | 16 | 2 | 0 | 9 | 11 | 43 |
| Total | 23 | 35 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 23 | 19 | 42 | 5 | 0 | 18 | 23 | 123 |
| Grand Total | 51 | 65 | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 31 | 32 | 63 | 5 | 0 | 25 | 30 | 209 |
| Apprch % | 44 | 56 | 0 | | 0 | 0 | 0 | | 0 | 49.2 | 50.8 | | 16.7 | 0 | 83.3 | | |
| Total % | 24.4 | 31.1 | 0 | 55.5 | 0 | 0 | 0 | 0 | 0 | 14.8 | 15.3 | 30.1 | 2.4 | 0 | 12 | 14.4 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 8 | 8 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 22 |
| 07:30 AM | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 7 | 0 | 0 | 3 | 3 | 18 |
| 07:45 AM | 9 | 10 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 4 | 4 | 27 |
| 08:00 AM | 6 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 9 | 0 | 0 | 1 | 1 | 24 |
| Total Volume | 27 | 30 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 10 | 16 | 26 | 0 | 0 | 8 | 8 | 91 |
| % App. Total | 47.4 | 52.6 | 0 | | 0 | 0 | 0 | | 0 | 38.5 | 61.5 | | 0 | 0 | 100 | | |
| PHF | .750 | .750 | .000 | .750 | .000 | .000 | .000 | .000 | .000 | .625 | .667 | .722 | .000 | .000 | .500 | .500 | .843 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | | | | |
|--------------|----------|-----------|------|-----------|----------|------|------|------|----------|----------|------|----------|------|------|----------|----------|
| +0 mins. | 8 | 8 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 |
| +15 mins. | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 7 | 0 | 0 | 3 | 3 |
| +30 mins. | 9 | 10 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 4 | 4 |
| +45 mins. | 6 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 9 | 0 | 0 | 1 | 1 |
| Total Volume | 27 | 30 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 10 | 16 | 26 | 0 | 0 | 8 | 8 |
| % App. Total | 47.4 | 52.6 | 0 | | 0 | 0 | 0 | | 0 | 38.5 | 61.5 | | 0 | 0 | 100 | |
| PHF | .750 | .750 | .000 | .750 | .000 | .000 | .000 | .000 | .000 | .625 | .667 | .722 | .000 | .000 | .500 | .500 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

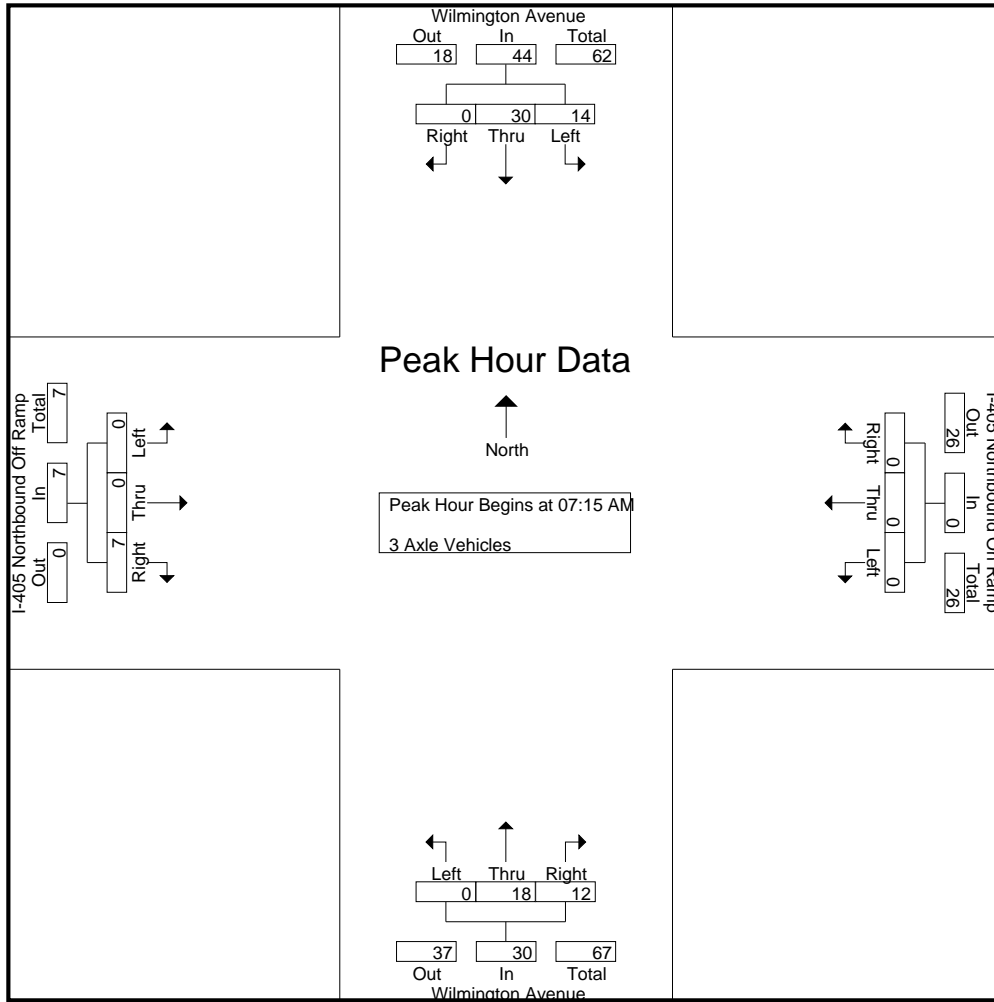
Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 13 | 8 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 26 |
| 07:15 AM | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 16 |
| 07:30 AM | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 0 | 2 | 2 | 15 |
| 07:45 AM | 4 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 12 | 0 | 0 | 3 | 3 | 29 |
| Total | 26 | 30 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 14 | 10 | 24 | 0 | 0 | 6 | 6 | 86 |
| 08:00 AM | 1 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 11 | 0 | 0 | 1 | 1 | 21 |
| 08:15 AM | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 9 | 1 | 0 | 0 | 1 | 16 |
| 08:30 AM | 3 | 12 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 1 | 1 | 20 |
| 08:45 AM | 0 | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 0 | 0 | 1 | 1 | 14 |
| Total | 4 | 35 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 11 | 17 | 28 | 1 | 0 | 3 | 4 | 71 |
| Grand Total | 30 | 65 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 25 | 27 | 52 | 1 | 0 | 9 | 10 | 157 |
| Apprch % | 31.6 | 68.4 | 0 | | 0 | 0 | 0 | | 0 | 48.1 | 51.9 | | 10 | 0 | 90 | | |
| Total % | 19.1 | 41.4 | 0 | 60.5 | 0 | 0 | 0 | 0 | 0 | 15.9 | 17.2 | 33.1 | 0.6 | 0 | 5.7 | 6.4 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 16 |
| 07:30 AM | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 0 | 2 | 2 | 15 |
| 07:45 AM | 4 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 12 | 0 | 0 | 3 | 3 | 29 |
| 08:00 AM | 1 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 11 | 0 | 0 | 1 | 1 | 21 |
| Total Volume | 14 | 30 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 18 | 12 | 30 | 0 | 0 | 7 | 7 | 81 |
| % App. Total | 31.8 | 68.2 | 0 | | 0 | 0 | 0 | | 0 | 60 | 40 | | 0 | 0 | 100 | | |
| PHF | .700 | .750 | .000 | .786 | .000 | .000 | .000 | .000 | .000 | .643 | .600 | .625 | .000 | .000 | .583 | .583 | .698 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 1 |
| +15 mins. | 4 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 0 | 2 | 2 |
| +30 mins. | 4 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 7 | 5 | 12 | 0 | 0 | 3 | 3 |
| +45 mins. | 1 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 11 | 0 | 0 | 1 | 1 |
| Total Volume | 14 | 30 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 18 | 12 | 30 | 0 | 0 | 7 | 7 |
| % App. Total | 31.8 | 68.2 | 0 | | 0 | 0 | 0 | | 0 | 60 | 40 | | 0 | 0 | 100 | |
| PHF | .700 | .750 | .000 | .786 | .000 | .000 | .000 | .000 | .000 | .643 | .600 | .625 | .000 | .000 | .583 | .583 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

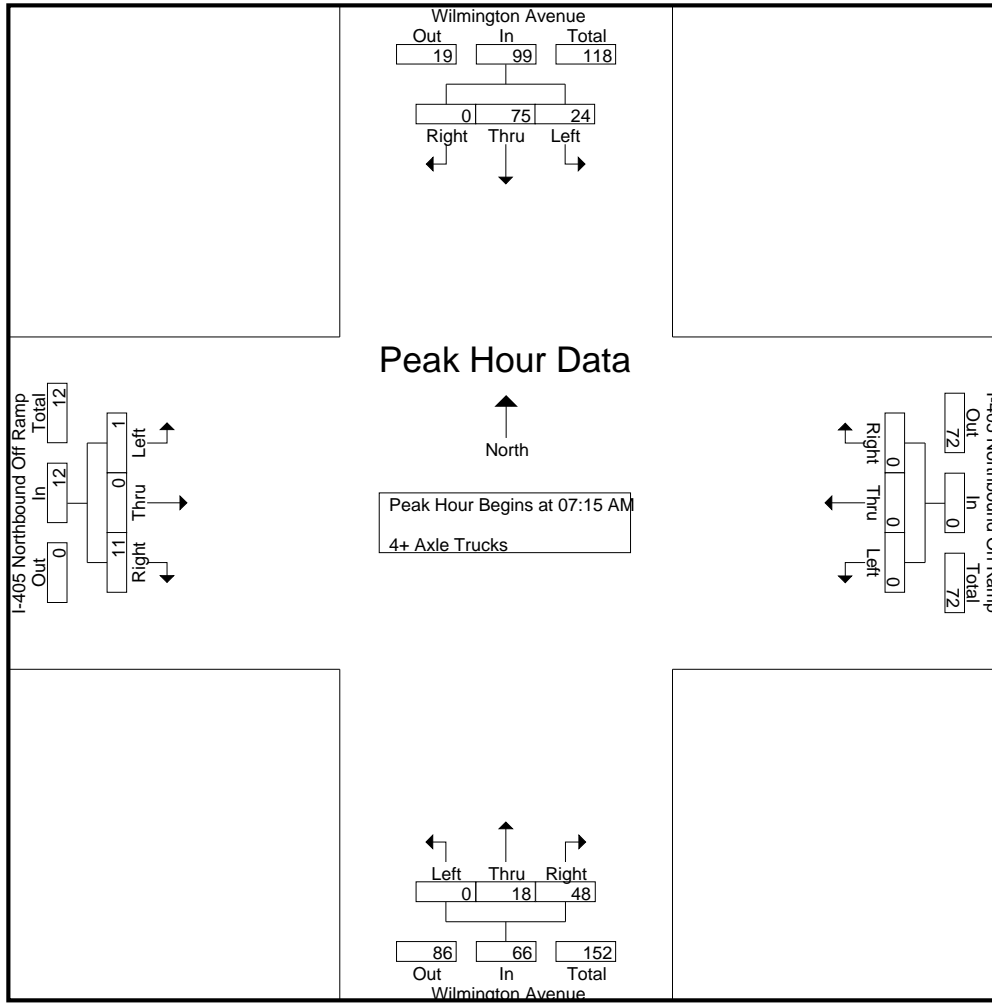
Groups Printed- 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 3 | 21 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 4 | 12 | 16 | 2 | 0 | 2 | 4 | 44 |
| 07:15 AM | 7 | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 20 | 0 | 0 | 2 | 2 | 53 |
| 07:30 AM | 7 | 13 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 7 | 11 | 18 | 1 | 0 | 1 | 2 | 40 |
| 07:45 AM | 5 | 17 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 12 | 0 | 0 | 3 | 3 | 37 |
| Total | 22 | 75 | 0 | 97 | 0 | 0 | 0 | 0 | 0 | 16 | 50 | 66 | 3 | 0 | 8 | 11 | 174 |
| 08:00 AM | 5 | 21 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 6 | 10 | 16 | 0 | 0 | 5 | 5 | 47 |
| 08:15 AM | 5 | 16 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 7 | 11 | 18 | 0 | 0 | 2 | 2 | 41 |
| 08:30 AM | 12 | 34 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 7 | 16 | 23 | 0 | 0 | 0 | 0 | 69 |
| 08:45 AM | 10 | 32 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 9 | 14 | 23 | 4 | 0 | 5 | 9 | 74 |
| Total | 32 | 103 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 29 | 51 | 80 | 4 | 0 | 12 | 16 | 231 |
| Grand Total | 54 | 178 | 0 | 232 | 0 | 0 | 0 | 0 | 0 | 45 | 101 | 146 | 7 | 0 | 20 | 27 | 405 |
| Apprch % | 23.3 | 76.7 | 0 | | 0 | 0 | 0 | | 0 | 30.8 | 69.2 | | 25.9 | 0 | 74.1 | | |
| Total % | 13.3 | 44 | 0 | 57.3 | 0 | 0 | 0 | 0 | 0 | 11.1 | 24.9 | 36 | 1.7 | 0 | 4.9 | 6.7 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 7 | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 20 | 0 | 0 | 2 | 2 | 53 |
| 07:30 AM | 7 | 13 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 7 | 11 | 18 | 1 | 0 | 1 | 2 | 40 |
| 07:45 AM | 5 | 17 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 12 | 0 | 0 | 3 | 3 | 37 |
| 08:00 AM | 5 | 21 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 6 | 10 | 16 | 0 | 0 | 5 | 5 | 47 |
| Total Volume | 24 | 75 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 18 | 48 | 66 | 1 | 0 | 11 | 12 | 177 |
| % App. Total | 24.2 | 75.8 | 0 | | 0 | 0 | 0 | | 0 | 27.3 | 72.7 | | 8.3 | 0 | 91.7 | | |
| PHF | .857 | .781 | .000 | .798 | .000 | .000 | .000 | .000 | .000 | .643 | .632 | .825 | .250 | .000 | .550 | .600 | .835 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 7 | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 20 | 0 | 0 | 2 | 2 |
| +15 mins. | 7 | 13 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 7 | 11 | 18 | 1 | 0 | 1 | 2 |
| +30 mins. | 5 | 17 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 12 | 0 | 0 | 3 | 3 |
| +45 mins. | 5 | 21 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 6 | 10 | 16 | 0 | 0 | 5 | 5 |
| Total Volume | 24 | 75 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 18 | 48 | 66 | 1 | 0 | 11 | 12 |
| % App. Total | 24.2 | 75.8 | 0 | | 0 | 0 | 0 | | 0 | 27.3 | 72.7 | | 8.3 | 0 | 91.7 | |
| PHF | .857 | .781 | .000 | .798 | .000 | .000 | .000 | .000 | .000 | .643 | .632 | .825 | .250 | .000 | .550 | .600 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

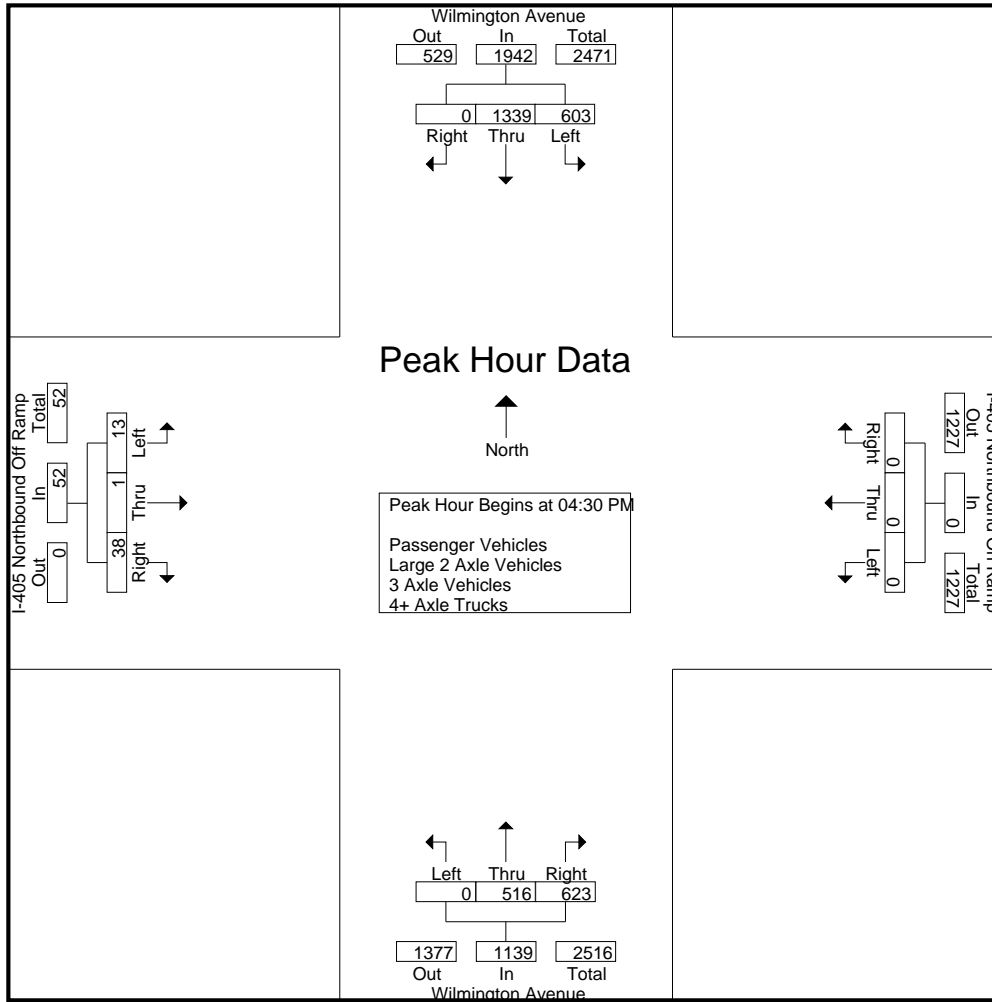
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 144 | 316 | 0 | 460 | 0 | 0 | 0 | 0 | 0 | 112 | 180 | 292 | 4 | 0 | 8 | 12 | 764 |
| 04:15 PM | 106 | 295 | 0 | 401 | 0 | 0 | 0 | 0 | 0 | 94 | 193 | 287 | 4 | 0 | 14 | 18 | 706 |
| 04:30 PM | 121 | 304 | 0 | 425 | 0 | 0 | 0 | 0 | 0 | 145 | 182 | 327 | 7 | 0 | 13 | 20 | 772 |
| 04:45 PM | 143 | 328 | 0 | 471 | 0 | 0 | 0 | 0 | 0 | 127 | 188 | 315 | 3 | 1 | 10 | 14 | 800 |
| Total | 514 | 1243 | 0 | 1757 | 0 | 0 | 0 | 0 | 0 | 478 | 743 | 1221 | 18 | 1 | 45 | 64 | 3042 |
| 05:00 PM | 161 | 356 | 0 | 517 | 0 | 0 | 0 | 0 | 0 | 105 | 136 | 241 | 2 | 0 | 7 | 9 | 767 |
| 05:15 PM | 178 | 351 | 0 | 529 | 0 | 0 | 0 | 0 | 0 | 139 | 117 | 256 | 1 | 0 | 8 | 9 | 794 |
| 05:30 PM | 156 | 320 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 119 | 137 | 256 | 3 | 0 | 4 | 7 | 739 |
| 05:45 PM | 89 | 289 | 0 | 378 | 0 | 0 | 0 | 0 | 0 | 77 | 156 | 233 | 1 | 0 | 7 | 8 | 619 |
| Total | 584 | 1316 | 0 | 1900 | 0 | 0 | 0 | 0 | 0 | 440 | 546 | 986 | 7 | 0 | 26 | 33 | 2919 |
| Grand Total | 1098 | 2559 | 0 | 3657 | 0 | 0 | 0 | 0 | 0 | 918 | 1289 | 2207 | 25 | 1 | 71 | 97 | 5961 |
| Apprch % | 30 | 70 | 0 | | 0 | 0 | 0 | | 0 | 41.6 | 58.4 | | 25.8 | 1 | 73.2 | | |
| Total % | 18.4 | 42.9 | 0 | 61.3 | 0 | 0 | 0 | 0 | 0 | 15.4 | 21.6 | 37 | 0.4 | 0 | 1.2 | 1.6 | |
| Passenger Vehicles | 1028 | 2339 | 0 | 3367 | 0 | 0 | 0 | 0 | 0 | 817 | 1199 | 2016 | 20 | 1 | 60 | 81 | 5464 |
| % Passenger Vehicles | 93.6 | 91.4 | 0 | 92.1 | 0 | 0 | 0 | 0 | 0 | 89 | 93 | 91.3 | 80 | 100 | 84.5 | 83.5 | 91.7 |
| Large 2 Axle Vehicles | 9 | 59 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 28 | 18 | 46 | 1 | 0 | 3 | 4 | 118 |
| % Large 2 Axle Vehicles | 0.8 | 2.3 | 0 | 1.9 | 0 | 0 | 0 | 0 | 0 | 3.1 | 1.4 | 2.1 | 4 | 0 | 4.2 | 4.1 | 2 |
| 3 Axle Vehicles | 13 | 59 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 28 | 11 | 39 | 0 | 0 | 1 | 1 | 112 |
| % 3 Axle Vehicles | 1.2 | 2.3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3.1 | 0.9 | 1.8 | 0 | 0 | 1.4 | 1 | 1.9 |
| 4+ Axle Trucks | 48 | 102 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 45 | 61 | 106 | 4 | 0 | 7 | 11 | 267 |
| % 4+ Axle Trucks | 4.4 | 4 | 0 | 4.1 | 0 | 0 | 0 | 0 | 0 | 4.9 | 4.7 | 4.8 | 16 | 0 | 9.9 | 11.3 | 4.5 |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 121 | 304 | 0 | 425 | 0 | 0 | 0 | 0 | 0 | 145 | 182 | 327 | 7 | 0 | 13 | 20 | 772 |
| 04:45 PM | 143 | 328 | 0 | 471 | 0 | 0 | 0 | 0 | 0 | 127 | 188 | 315 | 3 | 1 | 10 | 14 | 800 |
| 05:00 PM | 161 | 356 | 0 | 517 | 0 | 0 | 0 | 0 | 0 | 105 | 136 | 241 | 2 | 0 | 7 | 9 | 767 |
| 05:15 PM | 178 | 351 | 0 | 529 | 0 | 0 | 0 | 0 | 0 | 139 | 117 | 256 | 1 | 0 | 8 | 9 | 794 |
| Total Volume | 603 | 1339 | 0 | 1942 | 0 | 0 | 0 | 0 | 0 | 516 | 623 | 1139 | 13 | 1 | 38 | 52 | 3133 |
| % App. Total | 31.1 | 68.9 | 0 | | 0 | 0 | 0 | | 0 | 45.3 | 54.7 | | 25 | 1.9 | 73.1 | | |
| PHF | .847 | .940 | .000 | .918 | .000 | .000 | .000 | .000 | .000 | .890 | .828 | .871 | .464 | .250 | .731 | .650 | .979 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|------------|------------|------|------------|----------|------|------|------|----------|------------|------------|------------|----------|----------|-----------|-----------|
| +0 mins. | 143 | 328 | 0 | 471 | 0 | 0 | 0 | 0 | 0 | 112 | 180 | 292 | 4 | 0 | 8 | 12 |
| +15 mins. | 161 | 356 | 0 | 517 | 0 | 0 | 0 | 0 | 0 | 94 | 193 | 287 | 4 | 0 | 14 | 18 |
| +30 mins. | 178 | 351 | 0 | 529 | 0 | 0 | 0 | 0 | 0 | 145 | 182 | 327 | 7 | 0 | 13 | 20 |
| +45 mins. | 156 | 320 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 127 | 188 | 315 | 3 | 1 | 10 | 14 |
| Total Volume | 638 | 1355 | 0 | 1993 | 0 | 0 | 0 | 0 | 0 | 478 | 743 | 1221 | 18 | 1 | 45 | 64 |
| % App. Total | 32 | 68 | 0 | | 0 | 0 | 0 | | 0 | 39.1 | 60.9 | | 28.1 | 1.6 | 70.3 | |
| PHF | .896 | .952 | .000 | .942 | .000 | .000 | .000 | .000 | .000 | .824 | .962 | .933 | .643 | .250 | .804 | .800 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

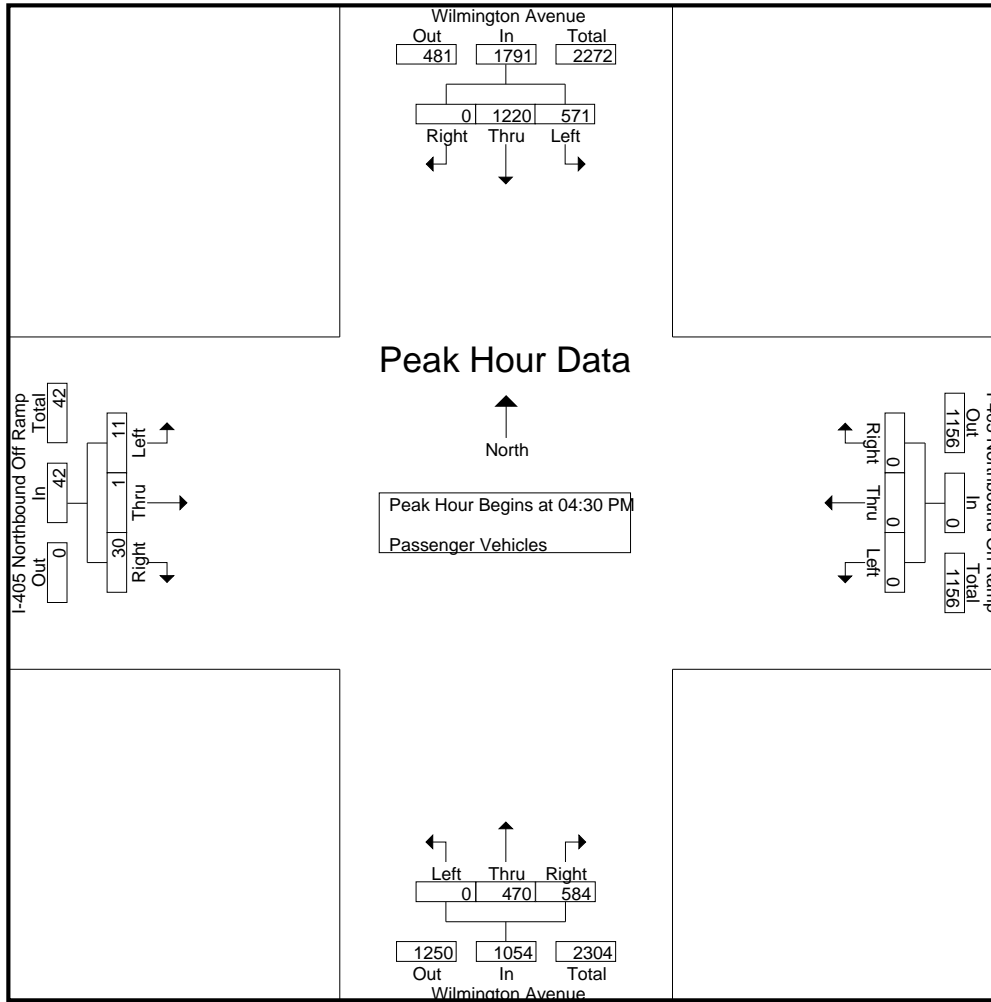
Groups Printed- Passenger Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 131 | 269 | 0 | 400 | 0 | 0 | 0 | 0 | 0 | 97 | 156 | 253 | 3 | 0 | 8 | 11 | 664 |
| 04:15 PM | 96 | 269 | 0 | 365 | 0 | 0 | 0 | 0 | 0 | 75 | 182 | 257 | 2 | 0 | 12 | 14 | 636 |
| 04:30 PM | 115 | 270 | 0 | 385 | 0 | 0 | 0 | 0 | 0 | 131 | 169 | 300 | 6 | 0 | 11 | 17 | 702 |
| 04:45 PM | 135 | 299 | 0 | 434 | 0 | 0 | 0 | 0 | 0 | 116 | 174 | 290 | 2 | 1 | 7 | 10 | 734 |
| Total | 477 | 1107 | 0 | 1584 | 0 | 0 | 0 | 0 | 0 | 419 | 681 | 1100 | 13 | 1 | 38 | 52 | 2736 |
| 05:00 PM | 150 | 326 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 97 | 130 | 227 | 2 | 0 | 6 | 8 | 711 |
| 05:15 PM | 171 | 325 | 0 | 496 | 0 | 0 | 0 | 0 | 0 | 126 | 111 | 237 | 1 | 0 | 6 | 7 | 740 |
| 05:30 PM | 145 | 299 | 0 | 444 | 0 | 0 | 0 | 0 | 0 | 109 | 129 | 238 | 3 | 0 | 3 | 6 | 688 |
| 05:45 PM | 85 | 282 | 0 | 367 | 0 | 0 | 0 | 0 | 0 | 66 | 148 | 214 | 1 | 0 | 7 | 8 | 589 |
| Total | 551 | 1232 | 0 | 1783 | 0 | 0 | 0 | 0 | 0 | 398 | 518 | 916 | 7 | 0 | 22 | 29 | 2728 |
| Grand Total | 1028 | 2339 | 0 | 3367 | 0 | 0 | 0 | 0 | 0 | 817 | 1199 | 2016 | 20 | 1 | 60 | 81 | 5464 |
| Apprch % | 30.5 | 69.5 | 0 | | 0 | 0 | 0 | | 0 | 40.5 | 59.5 | | 24.7 | 1.2 | 74.1 | | |
| Total % | 18.8 | 42.8 | 0 | 61.6 | 0 | 0 | 0 | 0 | 0 | 15 | 21.9 | 36.9 | 0.4 | 0 | 1.1 | 1.5 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 115 | 270 | 0 | 385 | 0 | 0 | 0 | 0 | 0 | 131 | 169 | 300 | 6 | 0 | 11 | 17 | 702 |
| 04:45 PM | 135 | 299 | 0 | 434 | 0 | 0 | 0 | 0 | 0 | 116 | 174 | 290 | 2 | 1 | 7 | 10 | 734 |
| 05:00 PM | 150 | 326 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 97 | 130 | 227 | 2 | 0 | 6 | 8 | 711 |
| 05:15 PM | 171 | 325 | 0 | 496 | 0 | 0 | 0 | 0 | 0 | 126 | 111 | 237 | 1 | 0 | 6 | 7 | 740 |
| Total Volume | 571 | 1220 | 0 | 1791 | 0 | 0 | 0 | 0 | 0 | 470 | 584 | 1054 | 11 | 1 | 30 | 42 | 2887 |
| % App. Total | 31.9 | 68.1 | 0 | | 0 | 0 | 0 | | 0 | 44.6 | 55.4 | | 26.2 | 2.4 | 71.4 | | |
| PHF | .835 | .936 | .000 | .903 | .000 | .000 | .000 | .000 | .000 | .897 | .839 | .878 | .458 | .250 | .682 | .618 | .975 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | |
|--------------|------------|------------|------|------------|----------|------|------|------|----------|------------|------------|------------|----------|----------|-----------|-----------|
| +0 mins. | 115 | 270 | 0 | 385 | 0 | 0 | 0 | 0 | 0 | 131 | 169 | 300 | 6 | 0 | 11 | 17 |
| +15 mins. | 135 | 299 | 0 | 434 | 0 | 0 | 0 | 0 | 0 | 116 | 174 | 290 | 2 | 1 | 7 | 10 |
| +30 mins. | 150 | 326 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 97 | 130 | 227 | 2 | 0 | 6 | 8 |
| +45 mins. | 171 | 325 | 0 | 496 | 0 | 0 | 0 | 0 | 0 | 126 | 111 | 237 | 1 | 0 | 6 | 7 |
| Total Volume | 571 | 1220 | 0 | 1791 | 0 | 0 | 0 | 0 | 0 | 470 | 584 | 1054 | 11 | 1 | 30 | 42 |
| % App. Total | 31.9 | 68.1 | 0 | | 0 | 0 | 0 | 0 | 0 | 44.6 | 55.4 | | 26.2 | 2.4 | 71.4 | |
| PHF | .835 | .936 | .000 | .903 | .000 | .000 | .000 | .000 | .000 | .897 | .839 | .878 | .458 | .250 | .682 | .618 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

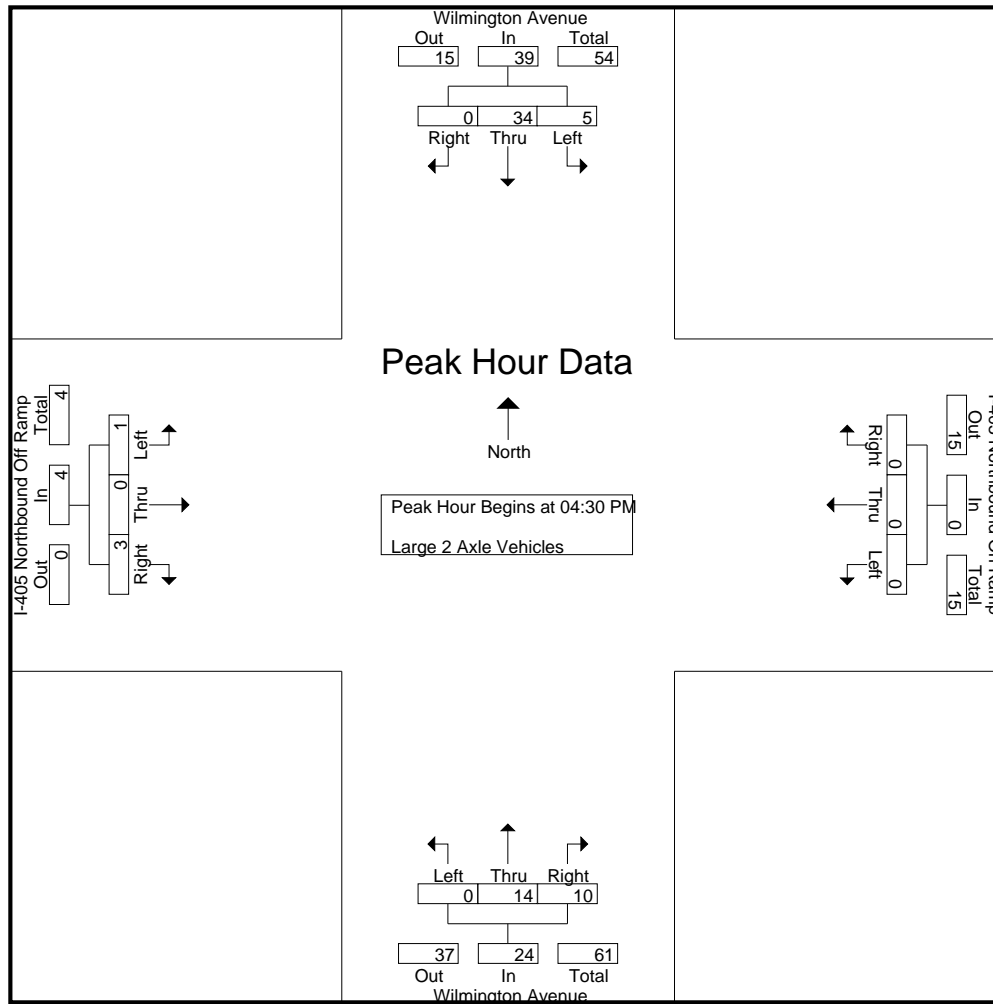
Groups Printed- Large 2 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 15 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 6 | 4 | 10 | 0 | 0 | 0 | 0 | 25 |
| 04:15 PM | 3 | 6 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 15 |
| 04:30 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 1 | 0 | 1 | 2 | 19 |
| 04:45 PM | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 11 | 0 | 0 | 1 | 1 | 21 |
| Total | 6 | 38 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 17 | 16 | 33 | 1 | 0 | 2 | 3 | 80 |
| 05:00 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 13 |
| 05:15 PM | 1 | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 1 | 1 | 14 |
| 05:30 PM | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 7 |
| 05:45 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 |
| Total | 3 | 21 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 11 | 2 | 13 | 0 | 0 | 1 | 1 | 38 |
| Grand Total | 9 | 59 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 28 | 18 | 46 | 1 | 0 | 3 | 4 | 118 |
| Apprch % | 13.2 | 86.8 | 0 | | 0 | 0 | 0 | | 0 | 60.9 | 39.1 | | 25 | 0 | 75 | | |
| Total % | 7.6 | 50 | 0 | 57.6 | 0 | 0 | 0 | 0 | 0 | 23.7 | 15.3 | 39 | 0.8 | 0 | 2.5 | 3.4 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 1 | 0 | 1 | 2 | 19 |
| 04:45 PM | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 11 | 0 | 0 | 1 | 1 | 21 |
| 05:00 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 13 |
| 05:15 PM | 1 | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 1 | 1 | 14 |
| Total Volume | 5 | 34 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 14 | 10 | 24 | 1 | 0 | 3 | 4 | 67 |
| % App. Total | 12.8 | 87.2 | 0 | | 0 | 0 | 0 | | 0 | 58.3 | 41.7 | | 25 | 0 | 75 | | |
| PHF | .625 | .850 | .000 | .886 | .000 | .000 | .000 | .000 | .000 | .700 | .417 | .545 | .250 | .000 | .750 | .500 | .798 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 1 | 0 | 1 | 2 |
| +15 mins. | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 11 | 0 | 0 | 1 | 1 |
| +30 mins. | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| +45 mins. | 1 | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 1 | 1 |
| Total Volume | 5 | 34 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 14 | 10 | 24 | 1 | 0 | 3 | 4 |
| % App. Total | 12.8 | 87.2 | 0 | | 0 | 0 | 0 | | 0 | 58.3 | 41.7 | | 25 | 0 | 75 | |
| PHF | .625 | .850 | .000 | .886 | .000 | .000 | .000 | .000 | .000 | .700 | .417 | .545 | .250 | .000 | .750 | .500 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

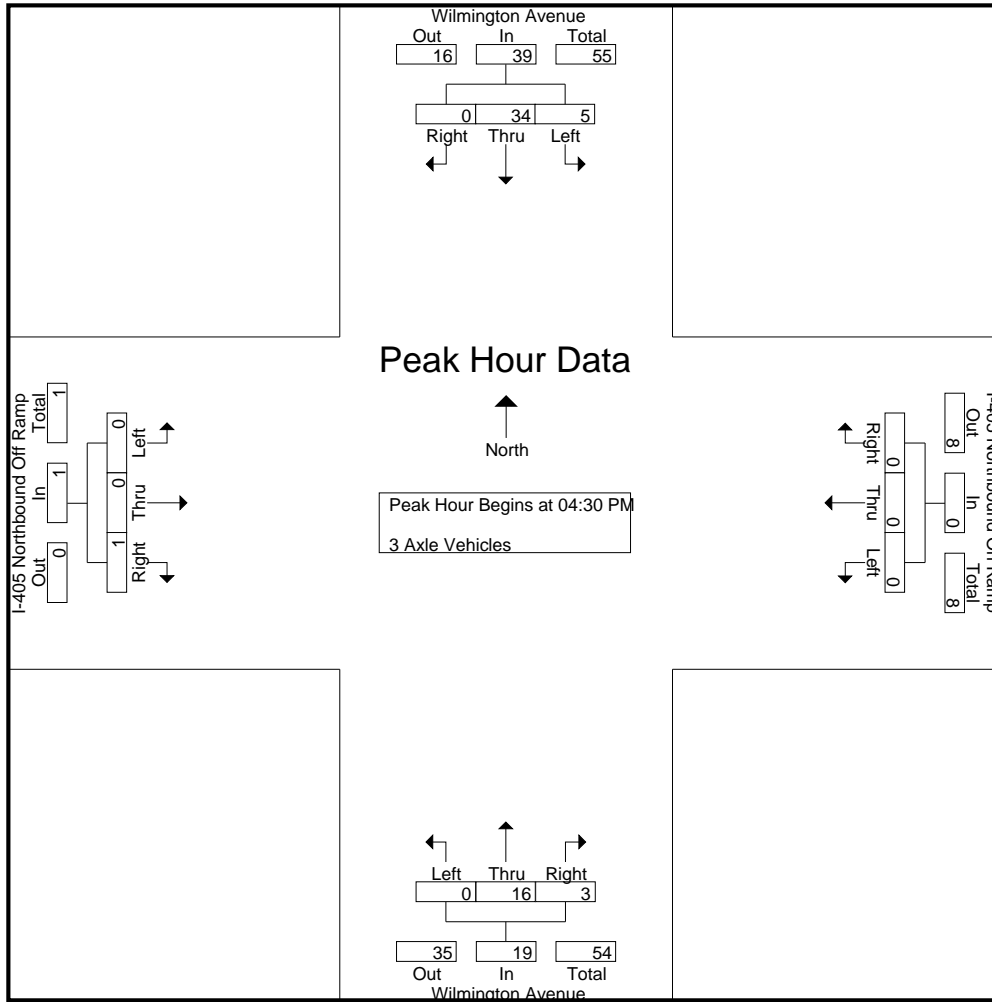
Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 2 | 15 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 0 | 0 | 0 | 0 | 24 |
| 04:15 PM | 2 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 12 |
| 04:30 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 17 |
| 04:45 PM | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 1 | 1 | 14 |
| Total | 5 | 38 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 18 | 5 | 23 | 0 | 0 | 1 | 1 | 67 |
| 05:00 PM | 2 | 10 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 18 |
| 05:15 PM | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| 05:30 PM | 2 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 9 |
| 05:45 PM | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 8 |
| Total | 8 | 21 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 16 | 0 | 0 | 0 | 0 | 45 |
| Grand Total | 13 | 59 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 28 | 11 | 39 | 0 | 0 | 1 | 1 | 112 |
| Apprch % | 18.1 | 81.9 | 0 | | 0 | 0 | 0 | | 0 | 71.8 | 28.2 | | 0 | 0 | 100 | | |
| Total % | 11.6 | 52.7 | 0 | 64.3 | 0 | 0 | 0 | 0 | 0 | 25 | 9.8 | 34.8 | 0 | 0 | 0.9 | 0.9 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 17 |
| 04:45 PM | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 1 | 1 | 14 |
| 05:00 PM | 2 | 10 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 18 |
| 05:15 PM | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| Total Volume | 5 | 34 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 16 | 3 | 19 | 0 | 0 | 1 | 1 | 59 |
| % App. Total | 12.8 | 87.2 | 0 | | 0 | 0 | 0 | | 0 | 84.2 | 15.8 | | 0 | 0 | 100 | | |
| PHF | .625 | .850 | .000 | .813 | .000 | .000 | .000 | .000 | .000 | .667 | .375 | .792 | .000 | .000 | .250 | .250 | .819 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 |
| +15 mins. | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 1 |
| +30 mins. | 2 | 10 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 |
| +45 mins. | 2 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Total Volume | 5 | 34 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 16 | 3 | 19 | 0 | 0 | 0 | 1 |
| % App. Total | 12.8 | 87.2 | 0 | | 0 | 0 | 0 | | 0 | 84.2 | 15.8 | | 0 | 0 | 100 | |
| PHF | .625 | .850 | .000 | .813 | .000 | .000 | .000 | .000 | .000 | .667 | .375 | .792 | .000 | .000 | .250 | .250 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

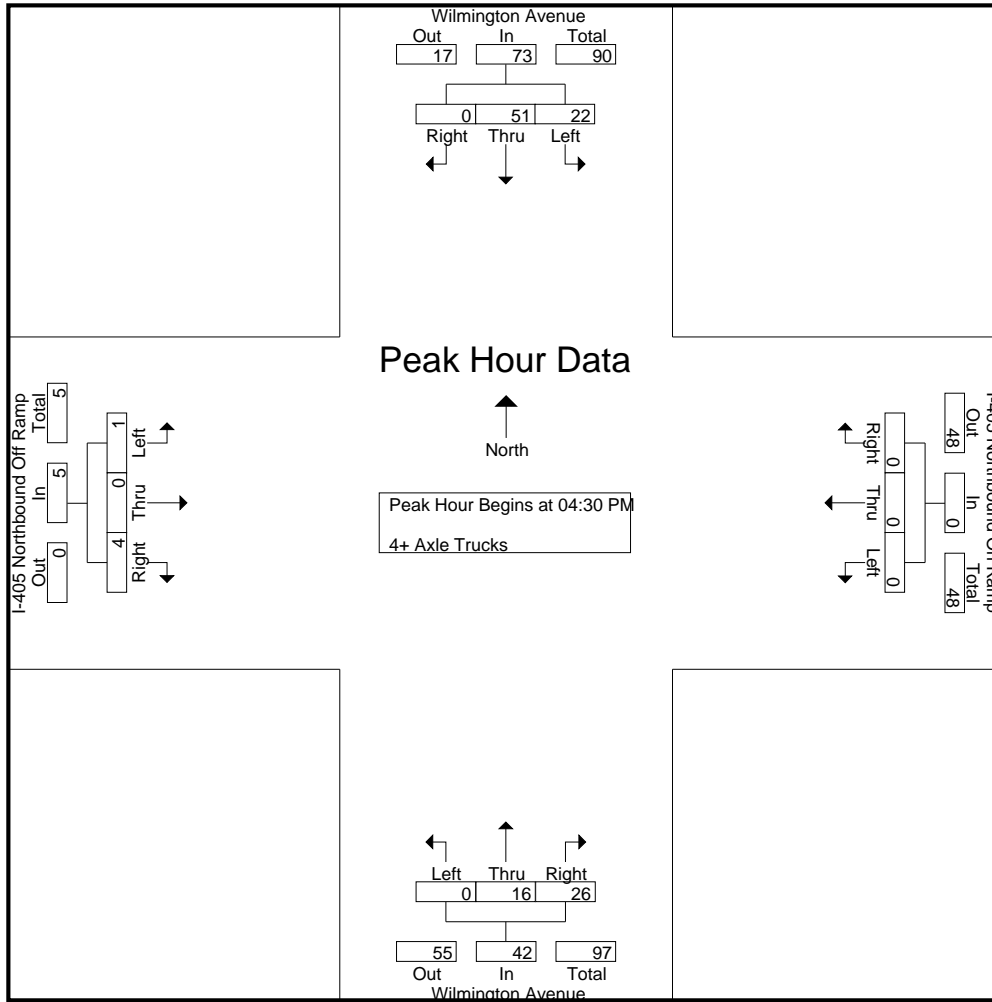
Groups Printed- 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 11 | 17 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 6 | 16 | 22 | 1 | 0 | 0 | 1 | 51 |
| 04:15 PM | 5 | 14 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 12 | 8 | 20 | 2 | 0 | 2 | 4 | 43 |
| 04:30 PM | 4 | 14 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 6 | 9 | 15 | 0 | 0 | 1 | 1 | 34 |
| 04:45 PM | 6 | 15 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 1 | 0 | 1 | 2 | 31 |
| Total | 26 | 60 | 0 | 86 | 0 | 0 | 0 | 0 | 0 | 24 | 41 | 65 | 4 | 0 | 4 | 8 | 159 |
| 05:00 PM | 8 | 10 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 1 | 1 | 25 |
| 05:15 PM | 4 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 13 | 0 | 0 | 1 | 1 | 30 |
| 05:30 PM | 8 | 15 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 11 | 0 | 0 | 1 | 1 | 35 |
| 05:45 PM | 2 | 5 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 11 | 0 | 0 | 0 | 0 | 18 |
| Total | 22 | 42 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 21 | 20 | 41 | 0 | 0 | 3 | 3 | 108 |
| Grand Total | 48 | 102 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 45 | 61 | 106 | 4 | 0 | 7 | 11 | 267 |
| Apprch % | 32 | 68 | 0 | | 0 | 0 | 0 | | 0 | 42.5 | 57.5 | | 36.4 | 0 | 63.6 | | |
| Total % | 18 | 38.2 | 0 | 56.2 | 0 | 0 | 0 | 0 | 0 | 16.9 | 22.8 | 39.7 | 1.5 | 0 | 2.6 | 4.1 | |

| Start Time | Wilmington Avenue Southbound | | | | I-405 Northbound On Ramp Westbound | | | | Wilmington Avenue Northbound | | | | I-405 Northbound Off Ramp Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|------------------------------------|------|-------|------------|------------------------------|------|-------|------------|-------------------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 4 | 14 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 6 | 9 | 15 | 0 | 0 | 1 | 1 | 34 |
| 04:45 PM | 6 | 15 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 1 | 0 | 1 | 2 | 31 |
| 05:00 PM | 8 | 10 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 1 | 1 | 25 |
| 05:15 PM | 4 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 13 | 0 | 0 | 1 | 1 | 30 |
| Total Volume | 22 | 51 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 16 | 26 | 42 | 1 | 0 | 4 | 5 | 120 |
| % App. Total | 30.1 | 69.9 | 0 | | 0 | 0 | 0 | | 0 | 38.1 | 61.9 | | 20 | 0 | 80 | | |
| PHF | .688 | .850 | .000 | .869 | .000 | .000 | .000 | .000 | .000 | .571 | .722 | .700 | .250 | .000 | 1.00 | .625 | .882 |

City of Carson
 N/S: Wilmington Avenue
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 02_CRS_Wilmington_405S PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | | 04:30 PM | | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|-------|------|---|
| +0 mins. | 4 | 14 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 6 | 9 | 15 | 0 | 0 | 0 | 1 | 1 |
| +15 mins. | 6 | 15 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 1 | 0 | 0 | 1 | 2 |
| +30 mins. | 8 | 10 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 1 | 1 |
| +45 mins. | 4 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 13 | 0 | 0 | 0 | 1 | 1 |
| Total Volume | 22 | 51 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 16 | 26 | 42 | 1 | 0 | 0 | 4 | 5 |
| % App. Total | 30.1 | 69.9 | 0 | | 0 | 0 | 0 | 0 | 0 | 38.1 | 61.9 | | 20 | 0 | 0 | 80 | |
| PHF | .688 | .850 | .000 | .869 | .000 | .000 | .000 | .000 | .000 | .571 | .722 | .700 | .250 | .000 | 1.000 | .625 | |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

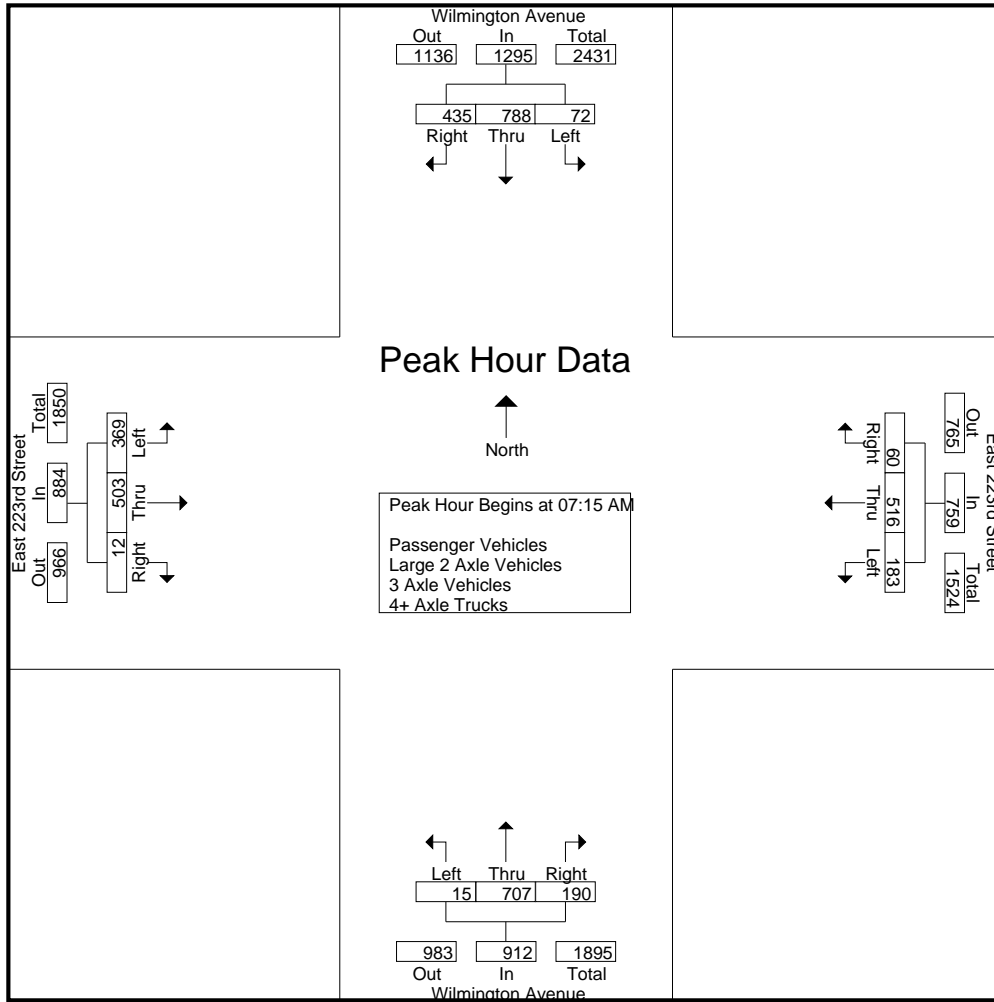
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|------------------------------|-------------|------------|-------------|-----------------------------|------------|------------|-------------|------------------------------|-------------|------------|-------------|-----------------------------|------------|-----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 14 | 195 | 102 | 311 | 37 | 102 | 16 | 155 | 1 | 129 | 34 | 164 | 70 | 80 | 4 | 154 | 784 |
| 07:15 AM | 19 | 172 | 142 | 333 | 47 | 128 | 13 | 188 | 0 | 143 | 33 | 176 | 99 | 117 | 0 | 216 | 913 |
| 07:30 AM | 20 | 210 | 106 | 336 | 38 | 142 | 15 | 195 | 5 | 205 | 66 | 276 | 85 | 141 | 3 | 229 | 1036 |
| 07:45 AM | 15 | 196 | 75 | 286 | 62 | 133 | 18 | 213 | 6 | 192 | 43 | 241 | 94 | 123 | 4 | 221 | 961 |
| Total | 68 | 773 | 425 | 1266 | 184 | 505 | 62 | 751 | 12 | 669 | 176 | 857 | 348 | 461 | 11 | 820 | 3694 |
| 08:00 AM | 18 | 210 | 112 | 340 | 36 | 113 | 14 | 163 | 4 | 167 | 48 | 219 | 91 | 122 | 5 | 218 | 940 |
| 08:15 AM | 19 | 178 | 64 | 261 | 44 | 102 | 11 | 157 | 2 | 206 | 40 | 248 | 83 | 108 | 0 | 191 | 857 |
| 08:30 AM | 20 | 196 | 54 | 270 | 32 | 127 | 13 | 172 | 3 | 145 | 25 | 173 | 81 | 126 | 2 | 209 | 824 |
| 08:45 AM | 17 | 188 | 102 | 307 | 30 | 95 | 14 | 139 | 6 | 139 | 24 | 169 | 71 | 94 | 1 | 166 | 781 |
| Total | 74 | 772 | 332 | 1178 | 142 | 437 | 52 | 631 | 15 | 657 | 137 | 809 | 326 | 450 | 8 | 784 | 3402 |
| Grand Total | 142 | 1545 | 757 | 2444 | 326 | 942 | 114 | 1382 | 27 | 1326 | 313 | 1666 | 674 | 911 | 19 | 1604 | 7096 |
| Apprch % | 5.8 | 63.2 | 31 | | 23.6 | 68.2 | 8.2 | | 1.6 | 79.6 | 18.8 | | 42 | 56.8 | 1.2 | | |
| Total % | 2 | 21.8 | 10.7 | 34.4 | 4.6 | 13.3 | 1.6 | 19.5 | 0.4 | 18.7 | 4.4 | 23.5 | 9.5 | 12.8 | 0.3 | 22.6 | |
| Passenger Vehicles | 107 | 1236 | 705 | 2048 | 309 | 906 | 96 | 1311 | 22 | 1143 | 278 | 1443 | 611 | 872 | 18 | 1501 | 6303 |
| % Passenger Vehicles | 75.4 | 80 | 93.1 | 83.8 | 94.8 | 96.2 | 84.2 | 94.9 | 81.5 | 86.2 | 88.8 | 86.6 | 90.7 | 95.7 | 94.7 | 93.6 | 88.8 |
| Large 2 Axle Vehicles | 9 | 71 | 19 | 99 | 5 | 16 | 8 | 29 | 1 | 54 | 5 | 60 | 14 | 14 | 0 | 28 | 216 |
| % Large 2 Axle Vehicles | 6.3 | 4.6 | 2.5 | 4.1 | 1.5 | 1.7 | 7 | 2.1 | 3.7 | 4.1 | 1.6 | 3.6 | 2.1 | 1.5 | 0 | 1.7 | 3 |
| 3 Axle Vehicles | 13 | 71 | 9 | 93 | 2 | 10 | 2 | 14 | 0 | 27 | 22 | 49 | 18 | 7 | 1 | 26 | 182 |
| % 3 Axle Vehicles | 9.2 | 4.6 | 1.2 | 3.8 | 0.6 | 1.1 | 1.8 | 1 | 0 | 2 | 7 | 2.9 | 2.7 | 0.8 | 5.3 | 1.6 | 2.6 |
| 4+ Axle Trucks | 13 | 167 | 24 | 204 | 10 | 10 | 8 | 28 | 4 | 102 | 8 | 114 | 31 | 18 | 0 | 49 | 395 |
| % 4+ Axle Trucks | 9.2 | 10.8 | 3.2 | 8.3 | 3.1 | 1.1 | 7 | 2 | 14.8 | 7.7 | 2.6 | 6.8 | 4.6 | 2 | 0 | 3.1 | 5.6 |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------------|------------|------------|-----------------------------|------------|-----------|------------|------------------------------|------------|-----------|------------|-----------------------------|------------|----------|------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 19 | 172 | 142 | 333 | 47 | 128 | 13 | 188 | 0 | 143 | 33 | 176 | 99 | 117 | 0 | 216 | 913 |
| 07:30 AM | 20 | 210 | 106 | 336 | 38 | 142 | 15 | 195 | 5 | 205 | 66 | 276 | 85 | 141 | 3 | 229 | 1036 |
| 07:45 AM | 15 | 196 | 75 | 286 | 62 | 133 | 18 | 213 | 6 | 192 | 43 | 241 | 94 | 123 | 4 | 221 | 961 |
| 08:00 AM | 18 | 210 | 112 | 340 | 36 | 113 | 14 | 163 | 4 | 167 | 48 | 219 | 91 | 122 | 5 | 218 | 940 |
| Total Volume | 72 | 788 | 435 | 1295 | 183 | 516 | 60 | 759 | 15 | 707 | 190 | 912 | 369 | 503 | 12 | 884 | 3850 |
| % App. Total | 5.6 | 60.8 | 33.6 | | 24.1 | 68 | 7.9 | | 1.6 | 77.5 | 20.8 | | 41.7 | 56.9 | 1.4 | | |
| PHF | .900 | .938 | .766 | .952 | .738 | .908 | .833 | .891 | .625 | .862 | .720 | .826 | .932 | .892 | .600 | .965 | .929 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:30 AM | | | | 07:15 AM | | | |
|--------------|-----------|------------|------------|------------|-----------|------------|-----------|------------|----------|------------|-----------|------------|-----------|------------|----------|------------|
| +0 mins. | 19 | 172 | 142 | 333 | 47 | 128 | 13 | 188 | 5 | 205 | 66 | 276 | 99 | 117 | 0 | 216 |
| +15 mins. | 20 | 210 | 106 | 336 | 38 | 142 | 15 | 195 | 6 | 192 | 43 | 241 | 85 | 141 | 3 | 229 |
| +30 mins. | 15 | 196 | 75 | 286 | 62 | 133 | 18 | 213 | 4 | 167 | 48 | 219 | 94 | 123 | 4 | 221 |
| +45 mins. | 18 | 210 | 112 | 340 | 36 | 113 | 14 | 163 | 2 | 206 | 40 | 248 | 91 | 122 | 5 | 218 |
| Total Volume | 72 | 788 | 435 | 1295 | 183 | 516 | 60 | 759 | 17 | 770 | 197 | 984 | 369 | 503 | 12 | 884 |
| % App. Total | 5.6 | 60.8 | 33.6 | | 24.1 | 68 | 7.9 | | 1.7 | 78.3 | 20 | | 41.7 | 56.9 | 1.4 | |
| PHF | .900 | .938 | .766 | .952 | .738 | .908 | .833 | .891 | .708 | .934 | .746 | .891 | .932 | .892 | .600 | .965 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

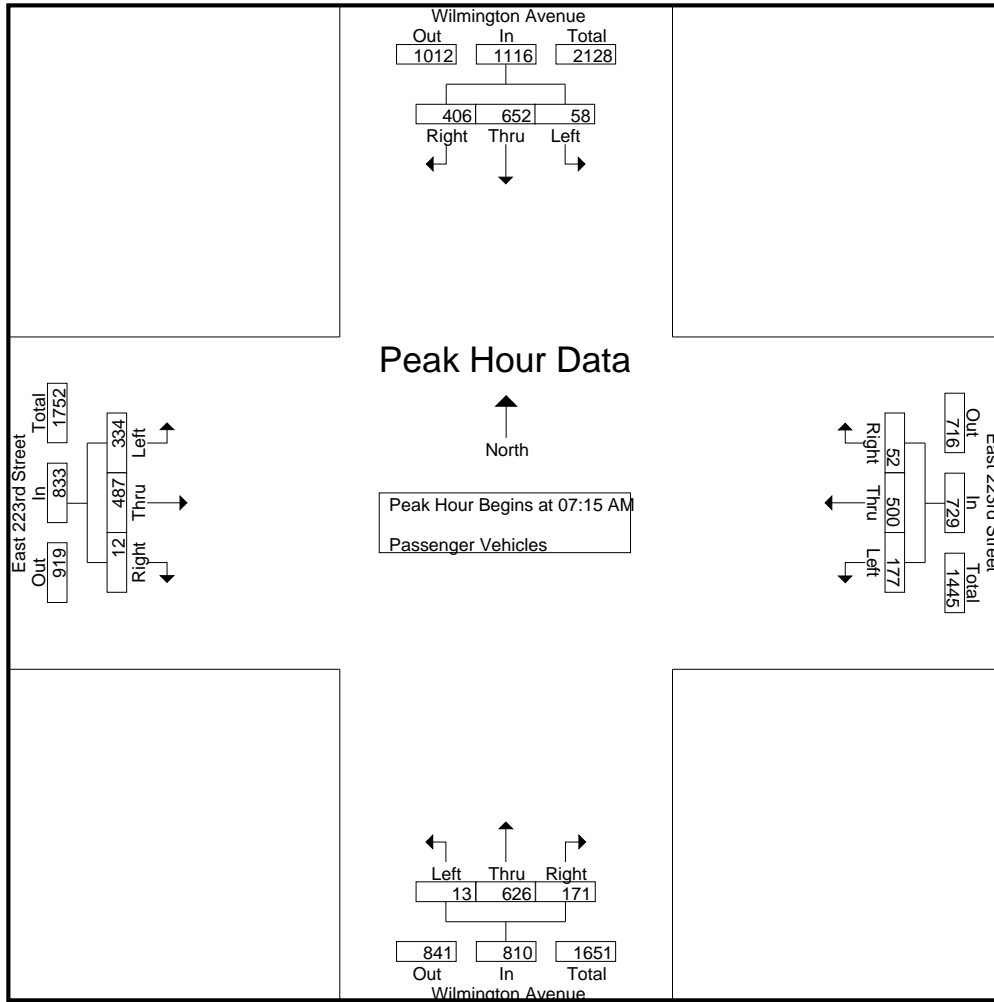
Groups Printed- Passenger Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 9 | 163 | 94 | 266 | 35 | 98 | 13 | 146 | 1 | 110 | 28 | 139 | 65 | 78 | 3 | 146 | 697 |
| 07:15 AM | 14 | 139 | 135 | 288 | 42 | 122 | 12 | 176 | 0 | 119 | 28 | 147 | 96 | 115 | 0 | 211 | 822 |
| 07:30 AM | 17 | 178 | 98 | 293 | 38 | 141 | 15 | 194 | 4 | 186 | 62 | 252 | 74 | 135 | 3 | 212 | 951 |
| 07:45 AM | 11 | 164 | 69 | 244 | 61 | 129 | 16 | 206 | 6 | 173 | 40 | 219 | 85 | 120 | 4 | 209 | 878 |
| Total | 51 | 644 | 396 | 1091 | 176 | 490 | 56 | 722 | 11 | 588 | 158 | 757 | 320 | 448 | 10 | 778 | 3348 |
| 08:00 AM | 16 | 171 | 104 | 291 | 36 | 108 | 9 | 153 | 3 | 148 | 41 | 192 | 79 | 117 | 5 | 201 | 837 |
| 08:15 AM | 15 | 147 | 61 | 223 | 43 | 94 | 9 | 146 | 2 | 180 | 37 | 219 | 76 | 102 | 0 | 178 | 766 |
| 08:30 AM | 15 | 140 | 48 | 203 | 28 | 120 | 11 | 159 | 2 | 123 | 21 | 146 | 72 | 116 | 2 | 190 | 698 |
| 08:45 AM | 10 | 134 | 96 | 240 | 26 | 94 | 11 | 131 | 4 | 104 | 21 | 129 | 64 | 89 | 1 | 154 | 654 |
| Total | 56 | 592 | 309 | 957 | 133 | 416 | 40 | 589 | 11 | 555 | 120 | 686 | 291 | 424 | 8 | 723 | 2955 |
| Grand Total | 107 | 1236 | 705 | 2048 | 309 | 906 | 96 | 1311 | 22 | 1143 | 278 | 1443 | 611 | 872 | 18 | 1501 | 6303 |
| Apprch % | 5.2 | 60.4 | 34.4 | | 23.6 | 69.1 | 7.3 | | 1.5 | 79.2 | 19.3 | | 40.7 | 58.1 | 1.2 | | |
| Total % | 1.7 | 19.6 | 11.2 | 32.5 | 4.9 | 14.4 | 1.5 | 20.8 | 0.3 | 18.1 | 4.4 | 22.9 | 9.7 | 13.8 | 0.3 | 23.8 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------------|------------|------------|-----------------------------|------------|-----------|------------|------------------------------|------------|-----------|------------|-----------------------------|------------|----------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 14 | 139 | 135 | 288 | 42 | 122 | 12 | 176 | 0 | 119 | 28 | 147 | 96 | 115 | 0 | 211 | 822 |
| 07:30 AM | 17 | 178 | 98 | 293 | 38 | 141 | 15 | 194 | 4 | 186 | 62 | 252 | 74 | 135 | 3 | 212 | 951 |
| 07:45 AM | 11 | 164 | 69 | 244 | 61 | 129 | 16 | 206 | 6 | 173 | 40 | 219 | 85 | 120 | 4 | 209 | 878 |
| 08:00 AM | 16 | 171 | 104 | 291 | 36 | 108 | 9 | 153 | 3 | 148 | 41 | 192 | 79 | 117 | 5 | 201 | 837 |
| Total Volume | 58 | 652 | 406 | 1116 | 177 | 500 | 52 | 729 | 13 | 626 | 171 | 810 | 334 | 487 | 12 | 833 | 3488 |
| % App. Total | 5.2 | 58.4 | 36.4 | | 24.3 | 68.6 | 7.1 | | 1.6 | 77.3 | 21.1 | | 40.1 | 58.5 | 1.4 | | |
| PHF | .853 | .916 | .752 | .952 | .725 | .887 | .813 | .885 | .542 | .841 | .690 | .804 | .870 | .902 | .600 | .982 | .917 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
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 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 14 | 139 | 135 | 288 | 42 | 122 | 12 | 176 | 0 | 119 | 28 | 147 | 96 | 115 | 0 | 211 |
| +15 mins. | 17 | 178 | 98 | 293 | 38 | 141 | 15 | 194 | 4 | 186 | 62 | 252 | 74 | 135 | 3 | 212 |
| +30 mins. | 11 | 164 | 69 | 244 | 61 | 129 | 16 | 206 | 6 | 173 | 40 | 219 | 85 | 120 | 4 | 209 |
| +45 mins. | 16 | 171 | 104 | 291 | 36 | 108 | 9 | 153 | 3 | 148 | 41 | 192 | 79 | 117 | 5 | 201 |
| Total Volume | 58 | 652 | 406 | 1116 | 177 | 500 | 52 | 729 | 13 | 626 | 171 | 810 | 334 | 487 | 12 | 833 |
| % App. Total | 5.2 | 58.4 | 36.4 | | 24.3 | 68.6 | 7.1 | | 1.6 | 77.3 | 21.1 | | 40.1 | 58.5 | 1.4 | |
| PHF | .853 | .916 | .752 | .952 | .725 | .887 | .813 | .885 | .542 | .841 | .690 | .804 | .870 | .902 | .600 | .982 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

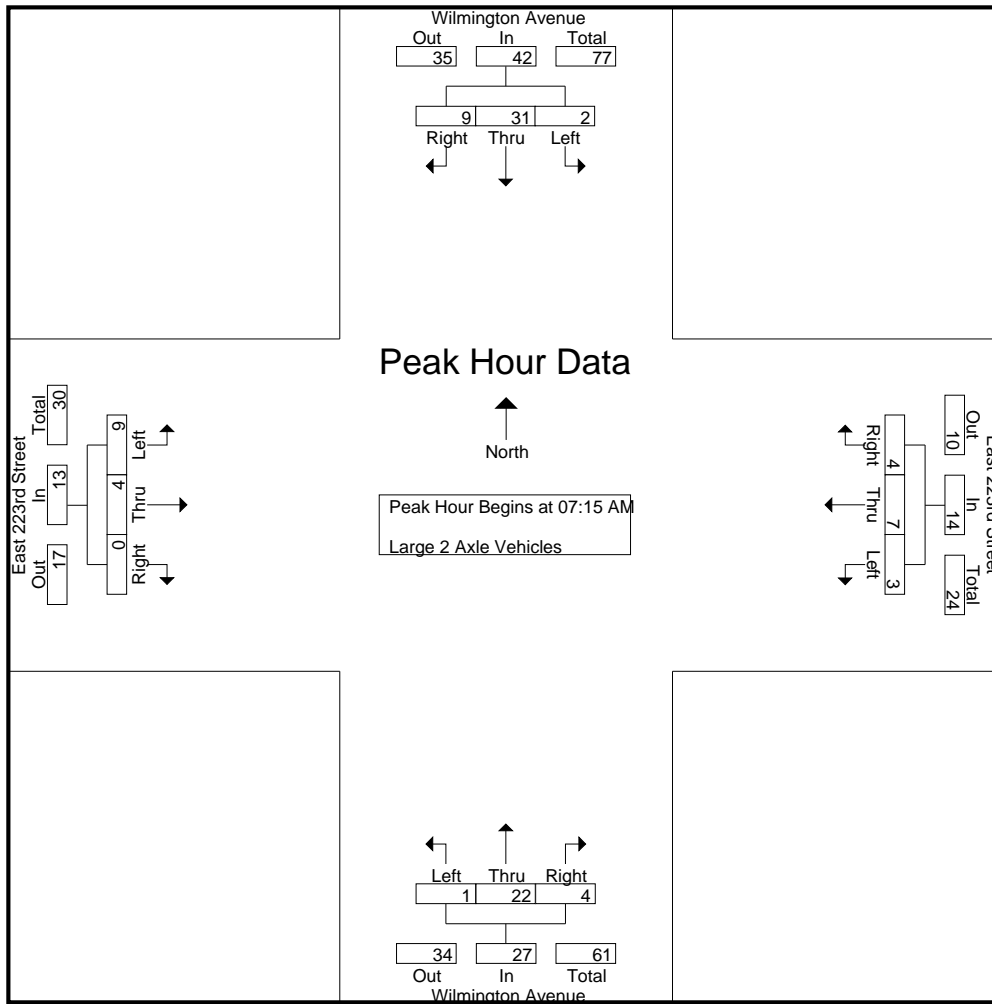
Groups Printed- Large 2 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 5 | 5 | 10 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 17 |
| 07:15 AM | 1 | 6 | 1 | 8 | 2 | 2 | 0 | 4 | 0 | 6 | 0 | 6 | 2 | 2 | 0 | 4 | 22 |
| 07:30 AM | 0 | 8 | 4 | 12 | 0 | 1 | 0 | 1 | 0 | 5 | 2 | 7 | 3 | 2 | 0 | 5 | 25 |
| 07:45 AM | 0 | 9 | 1 | 10 | 1 | 2 | 1 | 4 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 23 |
| Total | 1 | 28 | 11 | 40 | 3 | 7 | 2 | 12 | 0 | 22 | 3 | 25 | 5 | 5 | 0 | 10 | 87 |
| 08:00 AM | 1 | 8 | 3 | 12 | 0 | 2 | 3 | 5 | 1 | 3 | 1 | 5 | 4 | 0 | 0 | 4 | 26 |
| 08:15 AM | 1 | 9 | 1 | 11 | 0 | 4 | 1 | 5 | 0 | 7 | 0 | 7 | 1 | 3 | 0 | 4 | 27 |
| 08:30 AM | 2 | 16 | 1 | 19 | 2 | 2 | 1 | 5 | 0 | 8 | 0 | 8 | 0 | 3 | 0 | 3 | 35 |
| 08:45 AM | 4 | 10 | 3 | 17 | 0 | 1 | 1 | 2 | 0 | 14 | 1 | 15 | 4 | 3 | 0 | 7 | 41 |
| Total | 8 | 43 | 8 | 59 | 2 | 9 | 6 | 17 | 1 | 32 | 2 | 35 | 9 | 9 | 0 | 18 | 129 |
| Grand Total | 9 | 71 | 19 | 99 | 5 | 16 | 8 | 29 | 1 | 54 | 5 | 60 | 14 | 14 | 0 | 28 | 216 |
| Apprch % | 9.1 | 71.7 | 19.2 | | 17.2 | 55.2 | 27.6 | | 1.7 | 90 | 8.3 | | 50 | 50 | 0 | | |
| Total % | 4.2 | 32.9 | 8.8 | 45.8 | 2.3 | 7.4 | 3.7 | 13.4 | 0.5 | 25 | 2.3 | 27.8 | 6.5 | 6.5 | 0 | 13 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 1 | 6 | 1 | 8 | 2 | 2 | 0 | 4 | 0 | 6 | 0 | 6 | 2 | 2 | 0 | 4 | 22 |
| 07:30 AM | 0 | 8 | 4 | 12 | 0 | 1 | 0 | 1 | 0 | 5 | 2 | 7 | 3 | 2 | 0 | 5 | 25 |
| 07:45 AM | 0 | 9 | 1 | 10 | 1 | 2 | 1 | 4 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 23 |
| 08:00 AM | 1 | 8 | 3 | 12 | 0 | 2 | 3 | 5 | 1 | 3 | 1 | 5 | 4 | 0 | 0 | 4 | 26 |
| Total Volume | 2 | 31 | 9 | 42 | 3 | 7 | 4 | 14 | 1 | 22 | 4 | 27 | 9 | 4 | 0 | 13 | 96 |
| % App. Total | 4.8 | 73.8 | 21.4 | | 21.4 | 50 | 28.6 | | 3.7 | 81.5 | 14.8 | | 69.2 | 30.8 | 0 | | |
| PHF | .500 | .861 | .563 | .875 | .375 | .875 | .333 | .700 | .250 | .688 | .500 | .750 | .563 | .500 | .000 | .650 | .923 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 6 | 1 | 8 | 2 | 2 | 0 | 4 | 0 | 6 | 0 | 6 | 2 | 2 | 0 | 4 |
| +15 mins. | 0 | 8 | 4 | 12 | 0 | 1 | 0 | 1 | 0 | 5 | 2 | 7 | 3 | 2 | 0 | 5 |
| +30 mins. | 0 | 9 | 1 | 10 | 1 | 2 | 1 | 4 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 |
| +45 mins. | 1 | 8 | 3 | 12 | 0 | 2 | 3 | 5 | 1 | 3 | 1 | 5 | 4 | 0 | 0 | 4 |
| Total Volume | 2 | 31 | 9 | 42 | 3 | 7 | 4 | 14 | 1 | 22 | 4 | 27 | 9 | 4 | 0 | 13 |
| % App. Total | 4.8 | 73.8 | 21.4 | | 21.4 | 50 | 28.6 | | 3.7 | 81.5 | 14.8 | | 69.2 | 30.8 | 0 | |
| PHF | .500 | .861 | .563 | .875 | .375 | .875 | .333 | .700 | .250 | .688 | .500 | .750 | .563 | .500 | .000 | .650 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

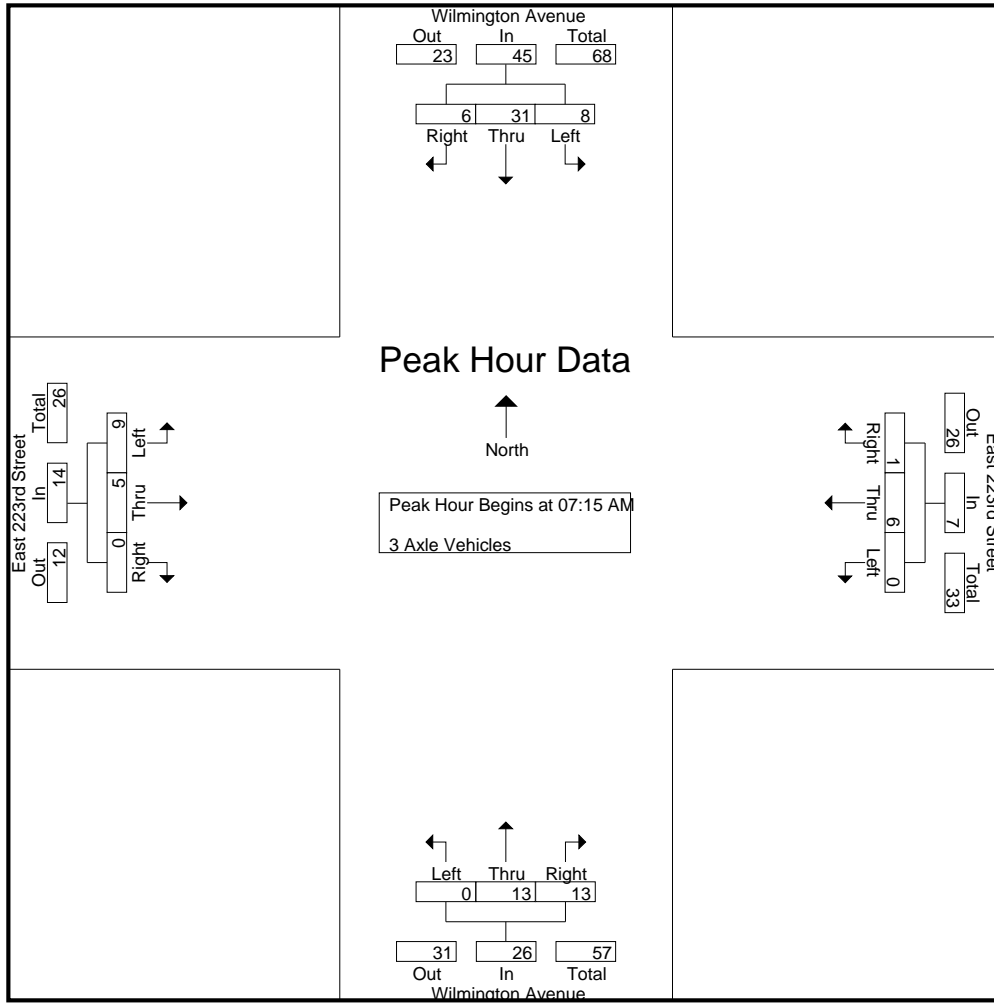
Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 2 | 5 | 2 | 9 | 0 | 2 | 1 | 3 | 0 | 3 | 5 | 8 | 1 | 0 | 1 | 2 | 22 |
| 07:15 AM | 3 | 6 | 3 | 12 | 0 | 3 | 0 | 3 | 0 | 2 | 5 | 7 | 0 | 0 | 0 | 0 | 22 |
| 07:30 AM | 3 | 8 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 2 | 0 | 4 | 19 |
| 07:45 AM | 2 | 9 | 0 | 11 | 0 | 1 | 1 | 2 | 0 | 4 | 2 | 6 | 4 | 1 | 0 | 5 | 24 |
| Total | 10 | 28 | 6 | 44 | 0 | 6 | 2 | 8 | 0 | 11 | 13 | 24 | 7 | 3 | 1 | 11 | 87 |
| 08:00 AM | 0 | 8 | 2 | 10 | 0 | 2 | 0 | 2 | 0 | 5 | 5 | 10 | 3 | 2 | 0 | 5 | 27 |
| 08:15 AM | 1 | 9 | 1 | 11 | 1 | 2 | 0 | 3 | 0 | 3 | 1 | 4 | 4 | 1 | 0 | 5 | 23 |
| 08:30 AM | 1 | 16 | 0 | 17 | 1 | 0 | 0 | 1 | 0 | 4 | 2 | 6 | 2 | 0 | 0 | 2 | 26 |
| 08:45 AM | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 2 | 1 | 0 | 3 | 19 |
| Total | 3 | 43 | 3 | 49 | 2 | 4 | 0 | 6 | 0 | 16 | 9 | 25 | 11 | 4 | 0 | 15 | 95 |
| Grand Total | 13 | 71 | 9 | 93 | 2 | 10 | 2 | 14 | 0 | 27 | 22 | 49 | 18 | 7 | 1 | 26 | 182 |
| Apprch % | 14 | 76.3 | 9.7 | | 14.3 | 71.4 | 14.3 | | 0 | 55.1 | 44.9 | | 69.2 | 26.9 | 3.8 | | |
| Total % | 7.1 | 39 | 4.9 | 51.1 | 1.1 | 5.5 | 1.1 | 7.7 | 0 | 14.8 | 12.1 | 26.9 | 9.9 | 3.8 | 0.5 | 14.3 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 3 | 6 | 3 | 12 | 0 | 3 | 0 | 3 | 0 | 2 | 5 | 7 | 0 | 0 | 0 | 0 | 22 |
| 07:30 AM | 3 | 8 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 2 | 0 | 4 | 19 |
| 07:45 AM | 2 | 9 | 0 | 11 | 0 | 1 | 1 | 2 | 0 | 4 | 2 | 6 | 4 | 1 | 0 | 5 | 24 |
| 08:00 AM | 0 | 8 | 2 | 10 | 0 | 2 | 0 | 2 | 0 | 5 | 5 | 10 | 3 | 2 | 0 | 5 | 27 |
| Total Volume | 8 | 31 | 6 | 45 | 0 | 6 | 1 | 7 | 0 | 13 | 13 | 26 | 9 | 5 | 0 | 14 | 92 |
| % App. Total | 17.8 | 68.9 | 13.3 | | 0 | 85.7 | 14.3 | | 0 | 50 | 50 | | 64.3 | 35.7 | 0 | | |
| PHF | .667 | .861 | .500 | .938 | .000 | .500 | .250 | .583 | .000 | .650 | .650 | .650 | .563 | .625 | .000 | .700 | .852 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 3 | 6 | 3 | 12 | 0 | 3 | 0 | 3 | 0 | 2 | 5 | 7 | 0 | 0 | 0 | 0 |
| +15 mins. | 3 | 8 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 2 | 0 | 4 |
| +30 mins. | 2 | 9 | 0 | 11 | 0 | 1 | 1 | 2 | 0 | 4 | 2 | 6 | 4 | 1 | 0 | 5 |
| +45 mins. | 0 | 8 | 2 | 10 | 0 | 2 | 0 | 2 | 0 | 5 | 5 | 10 | 3 | 2 | 0 | 5 |
| Total Volume | 8 | 31 | 6 | 45 | 0 | 6 | 1 | 7 | 0 | 13 | 13 | 26 | 9 | 5 | 0 | 14 |
| % App. Total | 17.8 | 68.9 | 13.3 | | 0 | 85.7 | 14.3 | | 0 | 50 | 50 | | 64.3 | 35.7 | 0 | |
| PHF | .667 | .861 | .500 | .938 | .000 | .500 | .250 | .583 | .000 | .650 | .650 | .650 | .563 | .625 | .000 | .700 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

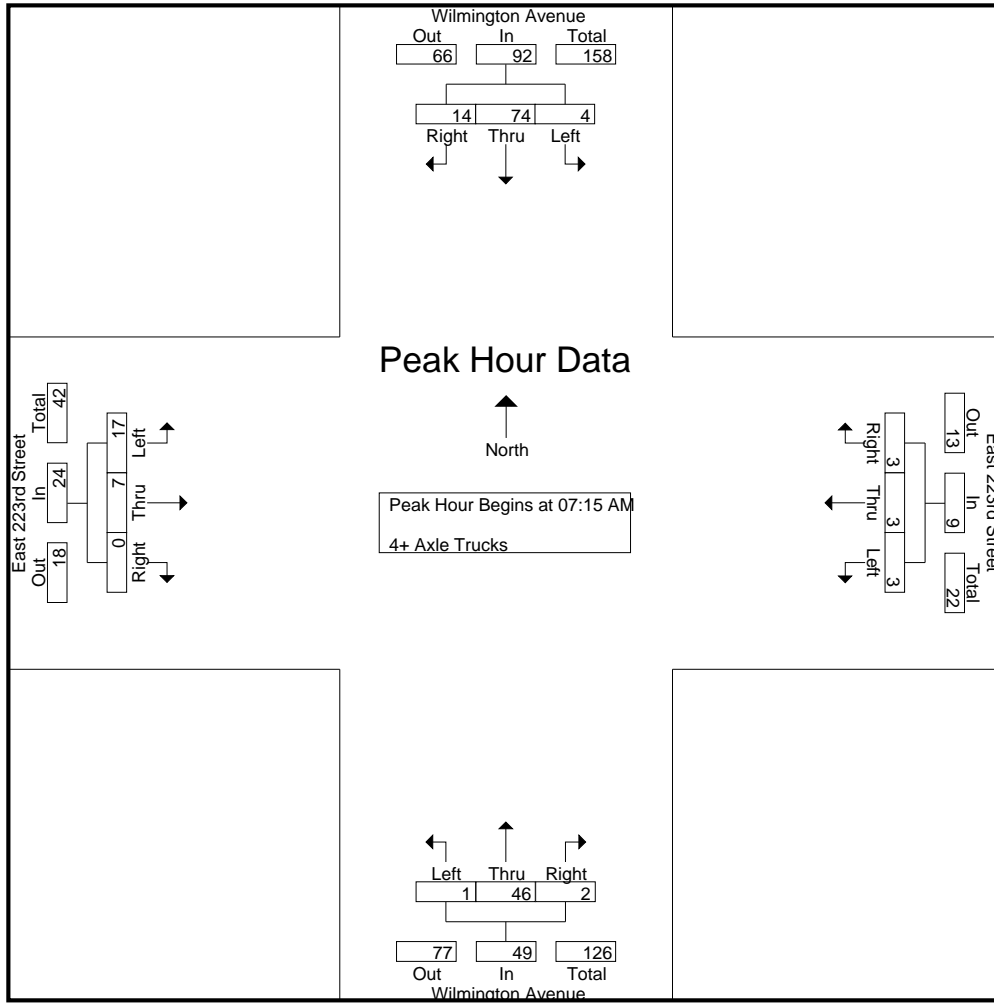
Groups Printed- 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 3 | 22 | 1 | 26 | 2 | 0 | 1 | 3 | 0 | 13 | 1 | 14 | 4 | 1 | 0 | 5 | 48 |
| 07:15 AM | 1 | 21 | 3 | 25 | 3 | 1 | 1 | 5 | 0 | 16 | 0 | 16 | 1 | 0 | 0 | 1 | 47 |
| 07:30 AM | 0 | 16 | 3 | 19 | 0 | 0 | 0 | 0 | 1 | 12 | 1 | 14 | 6 | 2 | 0 | 8 | 41 |
| 07:45 AM | 2 | 14 | 5 | 21 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 7 | 5 | 2 | 0 | 7 | 36 |
| Total | 6 | 73 | 12 | 91 | 5 | 2 | 2 | 9 | 1 | 48 | 2 | 51 | 16 | 5 | 0 | 21 | 172 |
| 08:00 AM | 1 | 23 | 3 | 27 | 0 | 1 | 2 | 3 | 0 | 11 | 1 | 12 | 5 | 3 | 0 | 8 | 50 |
| 08:15 AM | 2 | 13 | 1 | 16 | 0 | 2 | 1 | 3 | 0 | 16 | 2 | 18 | 2 | 2 | 0 | 4 | 41 |
| 08:30 AM | 2 | 24 | 5 | 31 | 1 | 5 | 1 | 7 | 1 | 10 | 2 | 13 | 7 | 7 | 0 | 14 | 65 |
| 08:45 AM | 2 | 34 | 3 | 39 | 4 | 0 | 2 | 6 | 2 | 17 | 1 | 20 | 1 | 1 | 0 | 2 | 67 |
| Total | 7 | 94 | 12 | 113 | 5 | 8 | 6 | 19 | 3 | 54 | 6 | 63 | 15 | 13 | 0 | 28 | 223 |
| Grand Total | 13 | 167 | 24 | 204 | 10 | 10 | 8 | 28 | 4 | 102 | 8 | 114 | 31 | 18 | 0 | 49 | 395 |
| Apprch % | 6.4 | 81.9 | 11.8 | | 35.7 | 35.7 | 28.6 | | 3.5 | 89.5 | 7 | | 63.3 | 36.7 | 0 | | |
| Total % | 3.3 | 42.3 | 6.1 | 51.6 | 2.5 | 2.5 | 2 | 7.1 | 1 | 25.8 | 2 | 28.9 | 7.8 | 4.6 | 0 | 12.4 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 1 | 21 | 3 | 25 | 3 | 1 | 1 | 5 | 0 | 16 | 0 | 16 | 1 | 0 | 0 | 1 | 47 |
| 07:30 AM | 0 | 16 | 3 | 19 | 0 | 0 | 0 | 0 | 1 | 12 | 1 | 14 | 6 | 2 | 0 | 8 | 41 |
| 07:45 AM | 2 | 14 | 5 | 21 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 7 | 5 | 2 | 0 | 7 | 36 |
| 08:00 AM | 1 | 23 | 3 | 27 | 0 | 1 | 2 | 3 | 0 | 11 | 1 | 12 | 5 | 3 | 0 | 8 | 50 |
| Total Volume | 4 | 74 | 14 | 92 | 3 | 3 | 3 | 9 | 1 | 46 | 2 | 49 | 17 | 7 | 0 | 24 | 174 |
| % App. Total | 4.3 | 80.4 | 15.2 | | 33.3 | 33.3 | 33.3 | | 2 | 93.9 | 4.1 | | 70.8 | 29.2 | 0 | | |
| PHF | .500 | .804 | .700 | .852 | .250 | .750 | .375 | .450 | .250 | .719 | .500 | .766 | .708 | .583 | .000 | .750 | .870 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|-----------|----------|-----------|----------|----------|----------|----------|----------|-----------|----------|-----------|----------|----------|----------|----------|
| +0 mins. | 1 | 21 | 3 | 25 | 3 | 1 | 1 | 5 | 0 | 16 | 0 | 16 | 1 | 0 | 0 | 1 |
| +15 mins. | 0 | 16 | 3 | 19 | 0 | 0 | 0 | 0 | 1 | 12 | 1 | 14 | 6 | 2 | 0 | 8 |
| +30 mins. | 2 | 14 | 5 | 21 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 7 | 5 | 2 | 0 | 7 |
| +45 mins. | 1 | 23 | 3 | 27 | 0 | 1 | 2 | 3 | 0 | 11 | 1 | 12 | 5 | 3 | 0 | 8 |
| Total Volume | 4 | 74 | 14 | 92 | 3 | 3 | 3 | 9 | 1 | 46 | 2 | 49 | 17 | 7 | 0 | 24 |
| % App. Total | 4.3 | 80.4 | 15.2 | | 33.3 | 33.3 | 33.3 | | 2 | 93.9 | 4.1 | | 70.8 | 29.2 | 0 | |
| PHF | .500 | .804 | .700 | .852 | .250 | .750 | .375 | .450 | .250 | .719 | .500 | .766 | .708 | .583 | .000 | .750 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

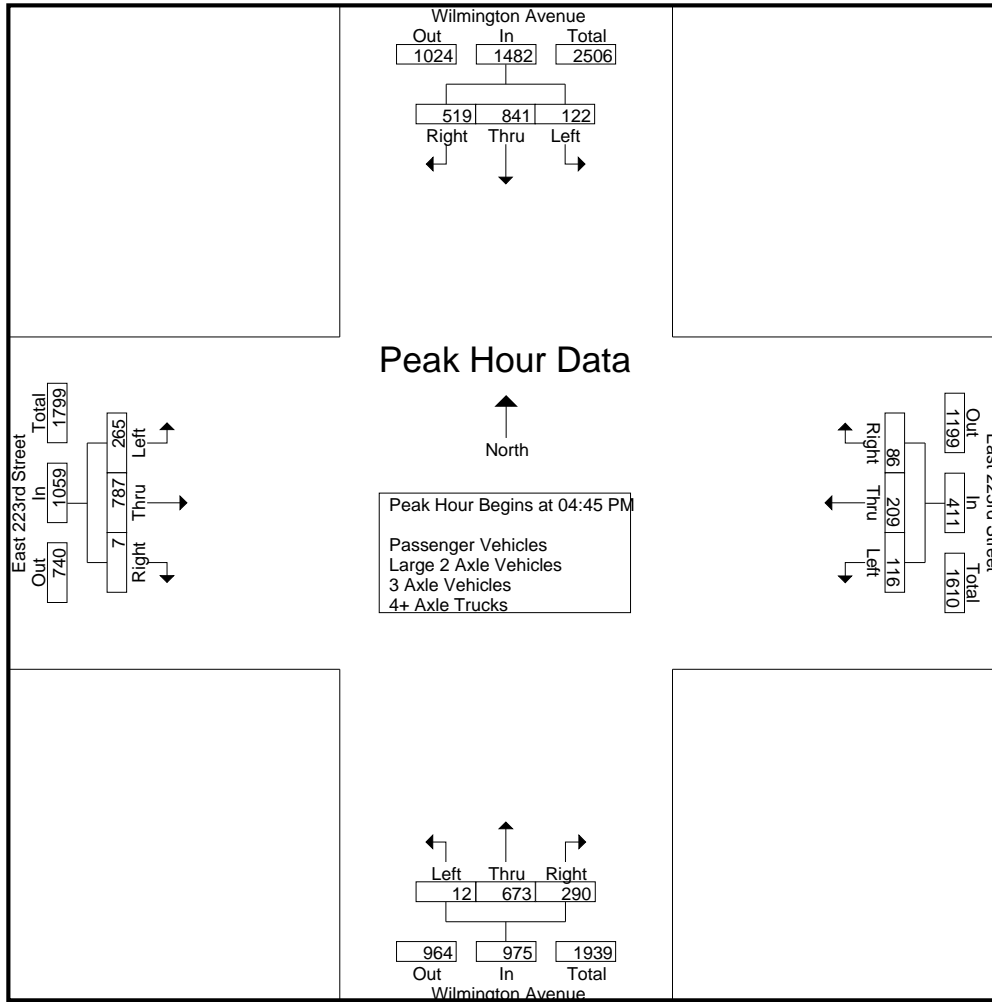
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|------------------------------|-------------|------------|-------------|-----------------------------|------------|------------|------------|------------------------------|-------------|------------|-------------|-----------------------------|-------------|-----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 26 | 173 | 99 | 298 | 21 | 62 | 22 | 105 | 2 | 163 | 72 | 237 | 75 | 211 | 5 | 291 | 931 |
| 04:15 PM | 24 | 192 | 77 | 293 | 23 | 52 | 22 | 97 | 2 | 184 | 68 | 254 | 63 | 195 | 2 | 260 | 904 |
| 04:30 PM | 27 | 172 | 84 | 283 | 54 | 88 | 44 | 186 | 3 | 172 | 53 | 228 | 72 | 208 | 4 | 284 | 981 |
| 04:45 PM | 34 | 233 | 127 | 394 | 31 | 50 | 36 | 117 | 4 | 195 | 72 | 271 | 73 | 188 | 2 | 263 | 1045 |
| Total | 111 | 770 | 387 | 1268 | 129 | 252 | 124 | 505 | 11 | 714 | 265 | 990 | 283 | 802 | 13 | 1098 | 3861 |
| 05:00 PM | 31 | 222 | 120 | 373 | 36 | 34 | 13 | 83 | 1 | 167 | 69 | 237 | 65 | 207 | 0 | 272 | 965 |
| 05:15 PM | 31 | 197 | 136 | 364 | 21 | 67 | 18 | 106 | 6 | 138 | 48 | 192 | 65 | 197 | 2 | 264 | 926 |
| 05:30 PM | 26 | 189 | 136 | 351 | 28 | 58 | 19 | 105 | 1 | 173 | 101 | 275 | 62 | 195 | 3 | 260 | 991 |
| 05:45 PM | 14 | 165 | 118 | 297 | 19 | 57 | 13 | 89 | 3 | 177 | 84 | 264 | 65 | 225 | 4 | 294 | 944 |
| Total | 102 | 773 | 510 | 1385 | 104 | 216 | 63 | 383 | 11 | 655 | 302 | 968 | 257 | 824 | 9 | 1090 | 3826 |
| Grand Total | 213 | 1543 | 897 | 2653 | 233 | 468 | 187 | 888 | 22 | 1369 | 567 | 1958 | 540 | 1626 | 22 | 2188 | 7687 |
| Apprch % | 8 | 58.2 | 33.8 | | 26.2 | 52.7 | 21.1 | | 1.1 | 69.9 | 29 | | 24.7 | 74.3 | 1 | | |
| Total % | 2.8 | 20.1 | 11.7 | 34.5 | 3 | 6.1 | 2.4 | 11.6 | 0.3 | 17.8 | 7.4 | 25.5 | 7 | 21.2 | 0.3 | 28.5 | |
| Passenger Vehicles | 193 | 1356 | 857 | 2406 | 210 | 461 | 169 | 840 | 21 | 1236 | 533 | 1790 | 508 | 1569 | 19 | 2096 | 7132 |
| % Passenger Vehicles | 90.6 | 87.9 | 95.5 | 90.7 | 90.1 | 98.5 | 90.4 | 94.6 | 95.5 | 90.3 | 94 | 91.4 | 94.1 | 96.5 | 86.4 | 95.8 | 92.8 |
| Large 2 Axle Vehicles | 3 | 51 | 12 | 66 | 5 | 2 | 7 | 14 | 0 | 29 | 10 | 39 | 5 | 25 | 1 | 31 | 150 |
| % Large 2 Axle Vehicles | 1.4 | 3.3 | 1.3 | 2.5 | 2.1 | 0.4 | 3.7 | 1.6 | 0 | 2.1 | 1.8 | 2 | 0.9 | 1.5 | 4.5 | 1.4 | 2 |
| 3 Axle Vehicles | 8 | 51 | 6 | 65 | 6 | 3 | 5 | 14 | 0 | 26 | 6 | 32 | 9 | 19 | 0 | 28 | 139 |
| % 3 Axle Vehicles | 3.8 | 3.3 | 0.7 | 2.5 | 2.6 | 0.6 | 2.7 | 1.6 | 0 | 1.9 | 1.1 | 1.6 | 1.7 | 1.2 | 0 | 1.3 | 1.8 |
| 4+ Axle Trucks | 9 | 85 | 22 | 116 | 12 | 2 | 6 | 20 | 1 | 78 | 18 | 97 | 18 | 13 | 2 | 33 | 266 |
| % 4+ Axle Trucks | 4.2 | 5.5 | 2.5 | 4.4 | 5.2 | 0.4 | 3.2 | 2.3 | 4.5 | 5.7 | 3.2 | 5 | 3.3 | 0.8 | 9.1 | 1.5 | 3.5 |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------------|------------|------------|-----------------------------|-----------|-----------|------------|------------------------------|------------|------------|------------|-----------------------------|------------|----------|------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | |
| 04:45 PM | 34 | 233 | 127 | 394 | 31 | 50 | 36 | 117 | 4 | 195 | 72 | 271 | 73 | 188 | 2 | 263 | 1045 |
| 05:00 PM | 31 | 222 | 120 | 373 | 36 | 34 | 13 | 83 | 1 | 167 | 69 | 237 | 65 | 207 | 0 | 272 | 965 |
| 05:15 PM | 31 | 197 | 136 | 364 | 21 | 67 | 18 | 106 | 6 | 138 | 48 | 192 | 65 | 197 | 2 | 264 | 926 |
| 05:30 PM | 26 | 189 | 136 | 351 | 28 | 58 | 19 | 105 | 1 | 173 | 101 | 275 | 62 | 195 | 3 | 260 | 991 |
| Total Volume | 122 | 841 | 519 | 1482 | 116 | 209 | 86 | 411 | 12 | 673 | 290 | 975 | 265 | 787 | 7 | 1059 | 3927 |
| % App. Total | 8.2 | 56.7 | 35 | | 28.2 | 50.9 | 20.9 | | 1.2 | 69 | 29.7 | | 25 | 74.3 | 0.7 | | |
| PHF | .897 | .902 | .954 | .940 | .806 | .780 | .597 | .878 | .500 | .863 | .718 | .886 | .908 | .950 | .583 | .973 | .939 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|-----------|------------|------------|------------|-----------|-----------|-----------|------------|----------|------------|-----------|------------|-----------|------------|----------|------------|
| +0 mins. | 34 | 233 | 127 | 394 | 21 | 62 | 22 | 105 | 2 | 163 | 72 | 237 | 75 | 211 | 5 | 291 |
| +15 mins. | 31 | 222 | 120 | 373 | 23 | 52 | 22 | 97 | 2 | 184 | 68 | 254 | 63 | 195 | 2 | 260 |
| +30 mins. | 31 | 197 | 136 | 364 | 54 | 88 | 44 | 186 | 3 | 172 | 53 | 228 | 72 | 208 | 4 | 284 |
| +45 mins. | 26 | 189 | 136 | 351 | 31 | 50 | 36 | 117 | 4 | 195 | 72 | 271 | 73 | 188 | 2 | 263 |
| Total Volume | 122 | 841 | 519 | 1482 | 129 | 252 | 124 | 505 | 11 | 714 | 265 | 990 | 283 | 802 | 13 | 1098 |
| % App. Total | 8.2 | 56.7 | 35 | | 25.5 | 49.9 | 24.6 | | 1.1 | 72.1 | 26.8 | | 25.8 | 73 | 1.2 | |
| PHF | .897 | .902 | .954 | .940 | .597 | .716 | .705 | .679 | .688 | .915 | .920 | .913 | .943 | .950 | .650 | .943 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

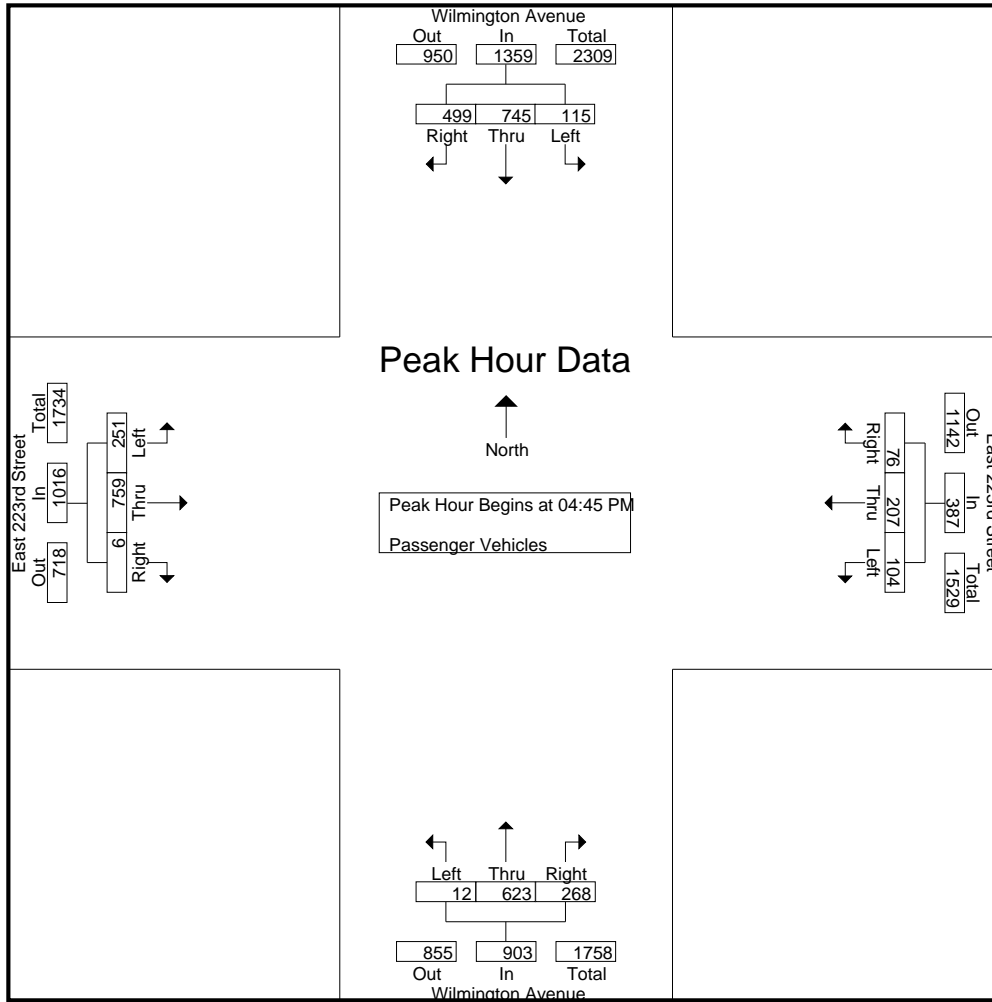
Groups Printed- Passenger Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 18 | 143 | 90 | 251 | 19 | 59 | 21 | 99 | 2 | 136 | 66 | 204 | 71 | 205 | 3 | 279 | 833 |
| 04:15 PM | 23 | 165 | 75 | 263 | 21 | 51 | 20 | 92 | 2 | 157 | 65 | 224 | 59 | 184 | 2 | 245 | 824 |
| 04:30 PM | 23 | 144 | 79 | 246 | 51 | 88 | 42 | 181 | 3 | 156 | 52 | 211 | 65 | 200 | 4 | 269 | 907 |
| 04:45 PM | 32 | 197 | 125 | 354 | 26 | 49 | 31 | 106 | 4 | 179 | 68 | 251 | 68 | 179 | 2 | 249 | 960 |
| Total | 96 | 649 | 369 | 1114 | 117 | 247 | 114 | 478 | 11 | 628 | 251 | 890 | 263 | 768 | 11 | 1042 | 3524 |
| 05:00 PM | 29 | 196 | 116 | 341 | 33 | 34 | 12 | 79 | 1 | 157 | 63 | 221 | 61 | 200 | 0 | 261 | 902 |
| 05:15 PM | 28 | 181 | 129 | 338 | 19 | 66 | 16 | 101 | 6 | 127 | 42 | 175 | 63 | 191 | 2 | 256 | 870 |
| 05:30 PM | 26 | 171 | 129 | 326 | 26 | 58 | 17 | 101 | 1 | 160 | 95 | 256 | 59 | 189 | 2 | 250 | 933 |
| 05:45 PM | 14 | 159 | 114 | 287 | 15 | 56 | 10 | 81 | 2 | 164 | 82 | 248 | 62 | 221 | 4 | 287 | 903 |
| Total | 97 | 707 | 488 | 1292 | 93 | 214 | 55 | 362 | 10 | 608 | 282 | 900 | 245 | 801 | 8 | 1054 | 3608 |
| Grand Total | 193 | 1356 | 857 | 2406 | 210 | 461 | 169 | 840 | 21 | 1236 | 533 | 1790 | 508 | 1569 | 19 | 2096 | 7132 |
| Apprch % | 8 | 56.4 | 35.6 | | 25 | 54.9 | 20.1 | | 1.2 | 69.1 | 29.8 | | 24.2 | 74.9 | 0.9 | | |
| Total % | 2.7 | 19 | 12 | 33.7 | 2.9 | 6.5 | 2.4 | 11.8 | 0.3 | 17.3 | 7.5 | 25.1 | 7.1 | 22 | 0.3 | 29.4 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------------|------------|------------|-----------------------------|-----------|-----------|------------|------------------------------|------------|-----------|------------|-----------------------------|------------|----------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | |
| 04:45 PM | 32 | 197 | 125 | 354 | 26 | 49 | 31 | 106 | 4 | 179 | 68 | 251 | 68 | 179 | 2 | 249 | 960 |
| 05:00 PM | 29 | 196 | 116 | 341 | 33 | 34 | 12 | 79 | 1 | 157 | 63 | 221 | 61 | 200 | 0 | 261 | 902 |
| 05:15 PM | 28 | 181 | 129 | 338 | 19 | 66 | 16 | 101 | 6 | 127 | 42 | 175 | 63 | 191 | 2 | 256 | 870 |
| 05:30 PM | 26 | 171 | 129 | 326 | 26 | 58 | 17 | 101 | 1 | 160 | 95 | 256 | 59 | 189 | 2 | 250 | 933 |
| Total Volume | 115 | 745 | 499 | 1359 | 104 | 207 | 76 | 387 | 12 | 623 | 268 | 903 | 251 | 759 | 6 | 1016 | 3665 |
| % App. Total | 8.5 | 54.8 | 36.7 | | 26.9 | 53.5 | 19.6 | | 1.3 | 69 | 29.7 | | 24.7 | 74.7 | 0.6 | | |
| PHF | .898 | .945 | .967 | .960 | .788 | .784 | .613 | .913 | .500 | .870 | .705 | .882 | .923 | .949 | .750 | .973 | .954 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | |
|--------------|-----------|------------|------------|------------|-----------|-----------|-----------|------------|----------|------------|-----------|------------|-----------|------------|----------|------------|
| +0 mins. | 32 | 197 | 125 | 354 | 26 | 49 | 31 | 106 | 4 | 179 | 68 | 251 | 68 | 179 | 2 | 249 |
| +15 mins. | 29 | 196 | 116 | 341 | 33 | 34 | 12 | 79 | 1 | 157 | 63 | 221 | 61 | 200 | 0 | 261 |
| +30 mins. | 28 | 181 | 129 | 338 | 19 | 66 | 16 | 101 | 6 | 127 | 42 | 175 | 63 | 191 | 2 | 256 |
| +45 mins. | 26 | 171 | 129 | 326 | 26 | 58 | 17 | 101 | 1 | 160 | 95 | 256 | 59 | 189 | 2 | 250 |
| Total Volume | 115 | 745 | 499 | 1359 | 104 | 207 | 76 | 387 | 12 | 623 | 268 | 903 | 251 | 759 | 6 | 1016 |
| % App. Total | 8.5 | 54.8 | 36.7 | | 26.9 | 53.5 | 19.6 | | 1.3 | 69 | 29.7 | | 24.7 | 74.7 | 0.6 | |
| PHF | .898 | .945 | .967 | .960 | .788 | .784 | .613 | .913 | .500 | .870 | .705 | .882 | .923 | .949 | .750 | .973 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

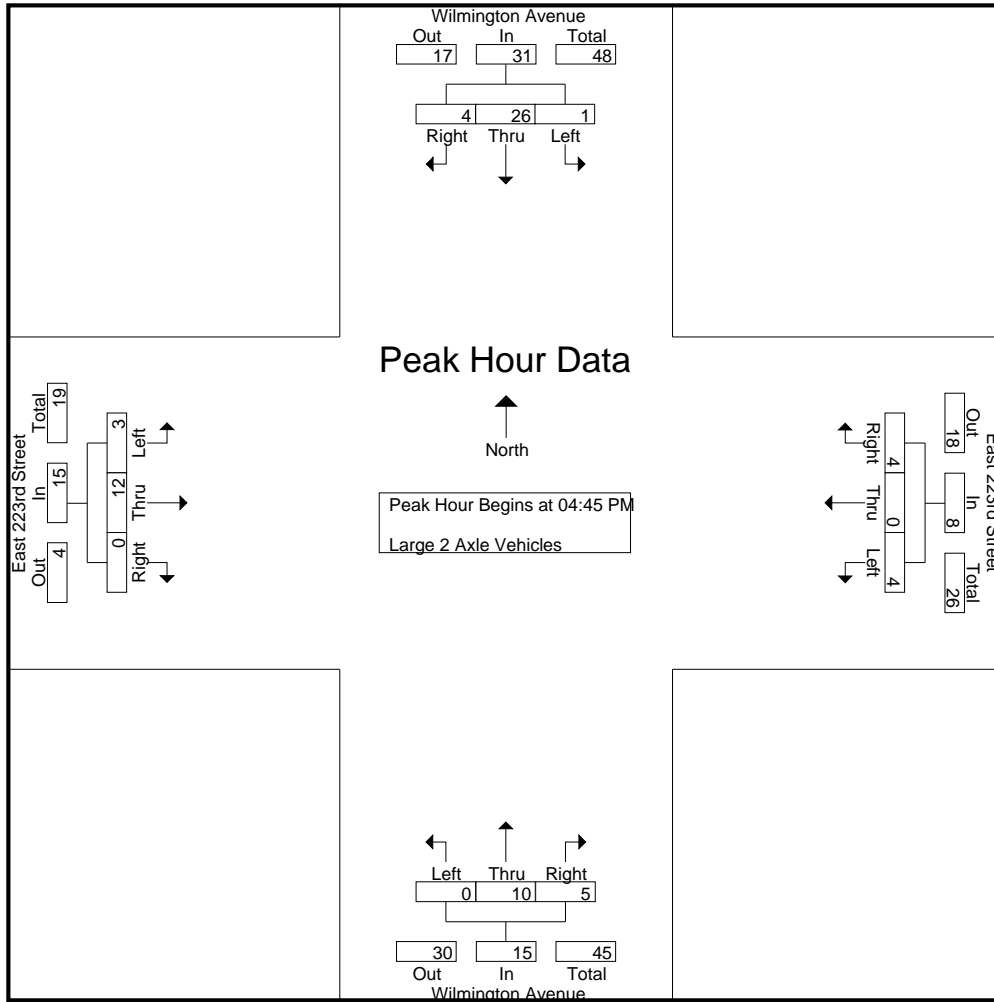
Groups Printed- Large 2 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 11 | 4 | 15 | 0 | 2 | 0 | 2 | 0 | 8 | 3 | 11 | 1 | 3 | 1 | 5 | 33 |
| 04:15 PM | 0 | 6 | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 5 | 1 | 6 | 1 | 4 | 0 | 5 | 18 |
| 04:30 PM | 2 | 7 | 4 | 13 | 1 | 0 | 1 | 2 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 5 | 25 |
| 04:45 PM | 0 | 11 | 0 | 11 | 3 | 0 | 3 | 6 | 0 | 6 | 1 | 7 | 2 | 2 | 0 | 4 | 28 |
| Total | 2 | 35 | 8 | 45 | 4 | 2 | 5 | 11 | 0 | 24 | 5 | 29 | 4 | 14 | 1 | 19 | 104 |
| 05:00 PM | 0 | 9 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 0 | 4 | 15 |
| 05:15 PM | 1 | 4 | 2 | 7 | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 3 | 0 | 3 | 16 |
| 05:30 PM | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 4 | 10 |
| 05:45 PM | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 5 |
| Total | 1 | 16 | 4 | 21 | 1 | 0 | 2 | 3 | 0 | 5 | 5 | 10 | 1 | 11 | 0 | 12 | 46 |
| Grand Total | 3 | 51 | 12 | 66 | 5 | 2 | 7 | 14 | 0 | 29 | 10 | 39 | 5 | 25 | 1 | 31 | 150 |
| Apprch % | 4.5 | 77.3 | 18.2 | | 35.7 | 14.3 | 50 | | 0 | 74.4 | 25.6 | | 16.1 | 80.6 | 3.2 | | |
| Total % | 2 | 34 | 8 | 44 | 3.3 | 1.3 | 4.7 | 9.3 | 0 | 19.3 | 6.7 | 26 | 3.3 | 16.7 | 0.7 | 20.7 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | |
| 04:45 PM | 0 | 11 | 0 | 11 | 3 | 0 | 3 | 6 | 0 | 6 | 1 | 7 | 2 | 2 | 0 | 4 | 28 |
| 05:00 PM | 0 | 9 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 0 | 4 | 15 |
| 05:15 PM | 1 | 4 | 2 | 7 | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 3 | 0 | 3 | 16 |
| 05:30 PM | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 4 | 10 |
| Total Volume | 1 | 26 | 4 | 31 | 4 | 0 | 4 | 8 | 0 | 10 | 5 | 15 | 3 | 12 | 0 | 15 | 69 |
| % App. Total | 3.2 | 83.9 | 12.9 | | 50 | 0 | 50 | | 0 | 66.7 | 33.3 | | 20 | 80 | 0 | | |
| PHF | .250 | .591 | .500 | .705 | .333 | .000 | .333 | .333 | .000 | .417 | .417 | .536 | .375 | .750 | .000 | .938 | .616 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 11 | 0 | 11 | 3 | 0 | 3 | 6 | 0 | 6 | 1 | 7 | 2 | 2 | 0 | 4 |
| +15 mins. | 0 | 9 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 0 | 4 |
| +30 mins. | 1 | 4 | 2 | 7 | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 3 | 0 | 3 |
| +45 mins. | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 4 |
| Total Volume | 1 | 26 | 4 | 31 | 4 | 0 | 4 | 8 | 0 | 10 | 5 | 15 | 3 | 12 | 0 | 15 |
| % App. Total | 3.2 | 83.9 | 12.9 | | 50 | 0 | 50 | | 0 | 66.7 | 33.3 | | 20 | 80 | 0 | |
| PHF | .250 | .591 | .500 | .705 | .333 | .000 | .333 | .333 | .000 | .417 | .417 | .536 | .375 | .750 | .000 | .938 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

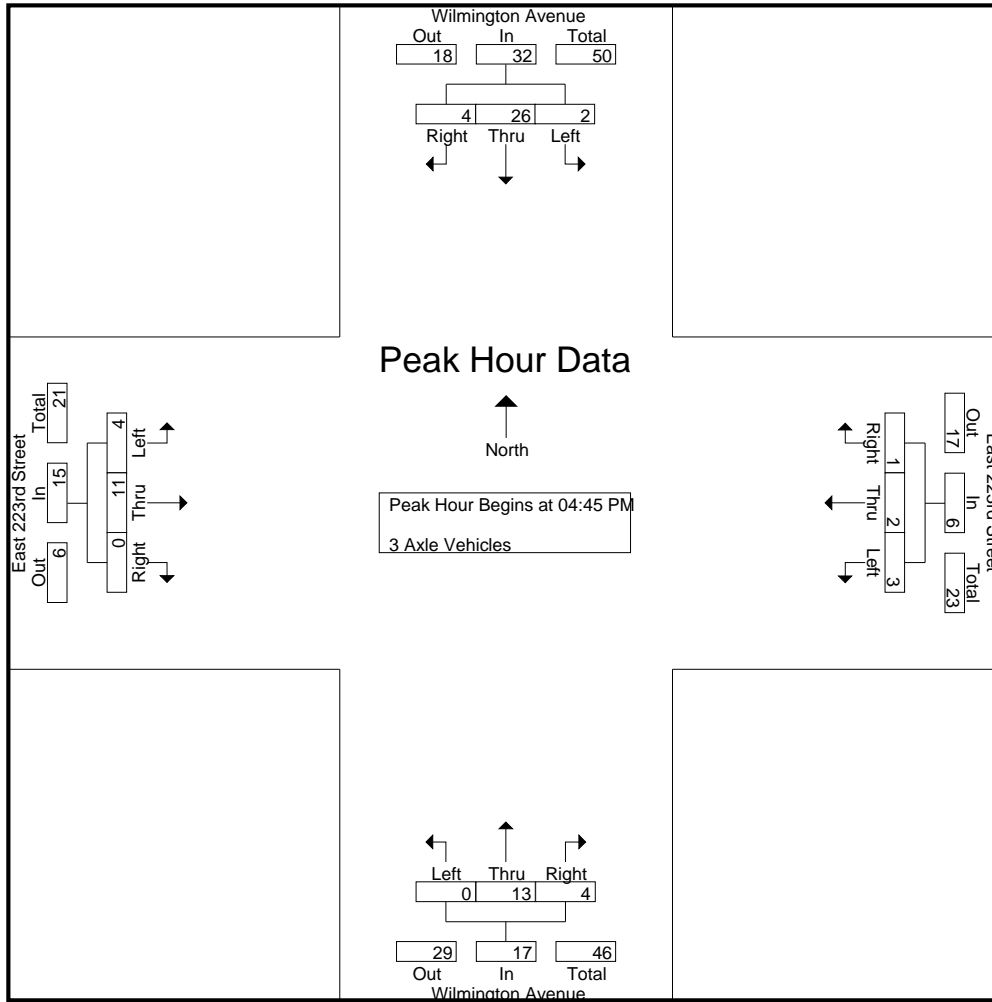
Groups Printed- 3 Axle Vehicles

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 4 | 11 | 0 | 15 | 1 | 0 | 1 | 2 | 0 | 3 | 0 | 3 | 1 | 1 | 0 | 2 | 22 |
| 04:15 PM | 1 | 6 | 0 | 7 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 14 |
| 04:30 PM | 1 | 7 | 1 | 9 | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 4 | 3 | 2 | 0 | 5 | 19 |
| 04:45 PM | 1 | 11 | 1 | 13 | 0 | 1 | 1 | 2 | 0 | 5 | 1 | 6 | 1 | 5 | 0 | 6 | 27 |
| Total | 7 | 35 | 2 | 44 | 1 | 1 | 4 | 6 | 0 | 14 | 2 | 16 | 5 | 11 | 0 | 16 | 82 |
| 05:00 PM | 1 | 9 | 0 | 10 | 1 | 0 | 0 | 1 | 0 | 4 | 2 | 6 | 2 | 2 | 0 | 4 | 21 |
| 05:15 PM | 0 | 4 | 2 | 6 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 11 |
| 05:30 PM | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 3 | 1 | 4 | 1 | 2 | 0 | 3 | 11 |
| 05:45 PM | 0 | 1 | 1 | 2 | 2 | 1 | 1 | 4 | 0 | 4 | 1 | 5 | 1 | 2 | 0 | 3 | 14 |
| Total | 1 | 16 | 4 | 21 | 5 | 2 | 1 | 8 | 0 | 12 | 4 | 16 | 4 | 8 | 0 | 12 | 57 |
| Grand Total | 8 | 51 | 6 | 65 | 6 | 3 | 5 | 14 | 0 | 26 | 6 | 32 | 9 | 19 | 0 | 28 | 139 |
| Apprch % | 12.3 | 78.5 | 9.2 | | 42.9 | 21.4 | 35.7 | | 0 | 81.2 | 18.8 | | 32.1 | 67.9 | 0 | | |
| Total % | 5.8 | 36.7 | 4.3 | 46.8 | 4.3 | 2.2 | 3.6 | 10.1 | 0 | 18.7 | 4.3 | 23 | 6.5 | 13.7 | 0 | 20.1 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | |
| 04:45 PM | 1 | 11 | 1 | 13 | 0 | 1 | 1 | 2 | 0 | 5 | 1 | 6 | 1 | 5 | 0 | 6 | 27 |
| 05:00 PM | 1 | 9 | 0 | 10 | 1 | 0 | 0 | 1 | 0 | 4 | 2 | 6 | 2 | 2 | 0 | 4 | 21 |
| 05:15 PM | 0 | 4 | 2 | 6 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 11 |
| 05:30 PM | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 3 | 1 | 4 | 1 | 2 | 0 | 3 | 11 |
| Total Volume | 2 | 26 | 4 | 32 | 3 | 2 | 1 | 6 | 0 | 13 | 4 | 17 | 4 | 11 | 0 | 15 | 70 |
| % App. Total | 6.2 | 81.2 | 12.5 | | 50 | 33.3 | 16.7 | | 0 | 76.5 | 23.5 | | 26.7 | 73.3 | 0 | | |
| PHF | .500 | .591 | .500 | .615 | .750 | .500 | .250 | .750 | .000 | .650 | .500 | .708 | .500 | .550 | .000 | .625 | .648 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 11 | 1 | 13 | 0 | 1 | 1 | 2 | 0 | 5 | 1 | 6 | 1 | 5 | 0 | 6 |
| +15 mins. | 1 | 9 | 0 | 10 | 1 | 0 | 0 | 1 | 0 | 4 | 2 | 6 | 2 | 2 | 0 | 4 |
| +30 mins. | 0 | 4 | 2 | 6 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 |
| +45 mins. | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 3 | 1 | 4 | 1 | 2 | 0 | 3 |
| Total Volume | 2 | 26 | 4 | 32 | 3 | 2 | 1 | 6 | 0 | 13 | 4 | 17 | 4 | 11 | 0 | 15 |
| % App. Total | 6.2 | 81.2 | 12.5 | | 50 | 33.3 | 16.7 | | 0 | 76.5 | 23.5 | | 26.7 | 73.3 | 0 | |
| PHF | .500 | .591 | .500 | .615 | .750 | .500 | .250 | .750 | .000 | .650 | .500 | .708 | .500 | .550 | .000 | .625 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

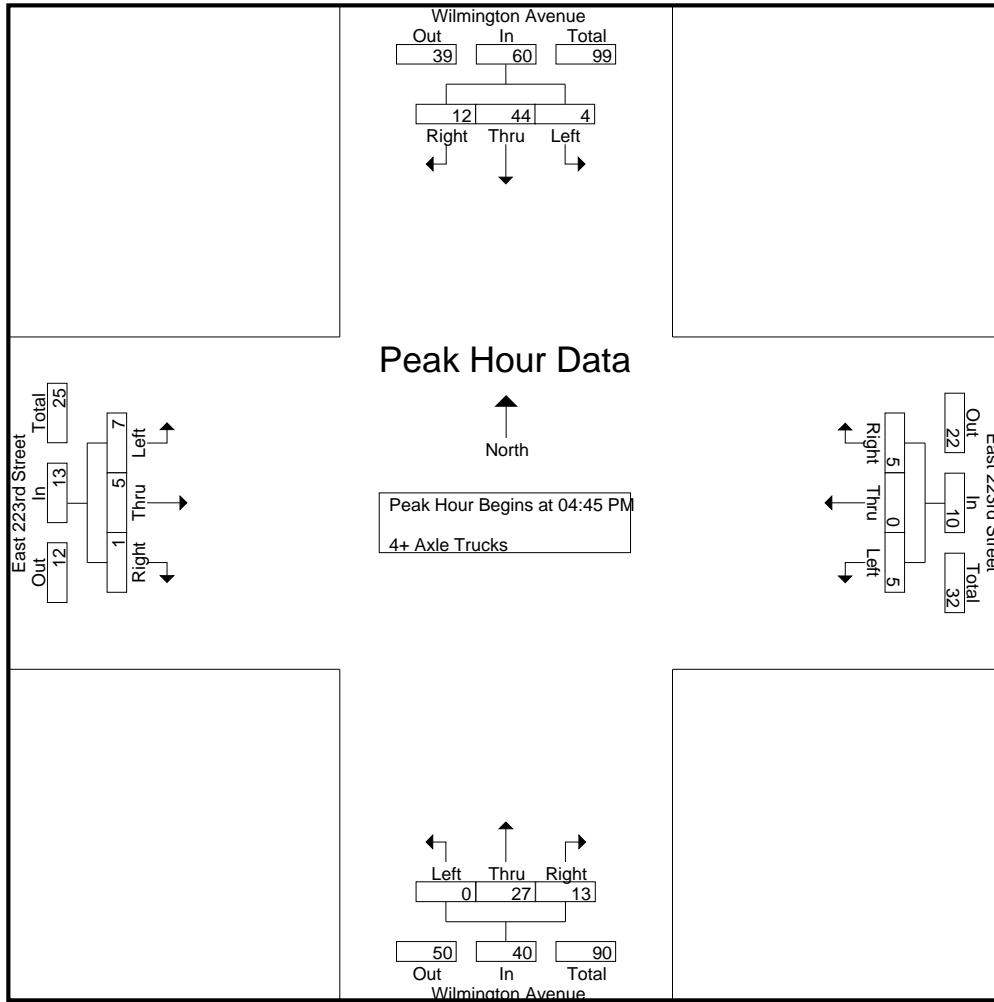
Groups Printed- 4+ Axle Trucks

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 4 | 8 | 5 | 17 | 1 | 1 | 0 | 2 | 0 | 16 | 3 | 19 | 2 | 2 | 1 | 5 | 43 |
| 04:15 PM | 0 | 15 | 2 | 17 | 2 | 1 | 0 | 3 | 0 | 19 | 2 | 21 | 3 | 4 | 0 | 7 | 48 |
| 04:30 PM | 1 | 14 | 0 | 15 | 2 | 0 | 0 | 2 | 0 | 8 | 0 | 8 | 4 | 1 | 0 | 5 | 30 |
| 04:45 PM | 1 | 14 | 1 | 16 | 2 | 0 | 1 | 3 | 0 | 5 | 2 | 7 | 2 | 2 | 0 | 4 | 30 |
| Total | 6 | 51 | 8 | 65 | 7 | 2 | 1 | 10 | 0 | 48 | 7 | 55 | 11 | 9 | 1 | 21 | 151 |
| 05:00 PM | 1 | 8 | 3 | 12 | 2 | 0 | 1 | 3 | 0 | 6 | 3 | 9 | 1 | 2 | 0 | 3 | 27 |
| 05:15 PM | 2 | 8 | 3 | 13 | 1 | 0 | 1 | 2 | 0 | 8 | 3 | 11 | 2 | 1 | 0 | 3 | 29 |
| 05:30 PM | 0 | 14 | 5 | 19 | 0 | 0 | 2 | 2 | 0 | 8 | 5 | 13 | 2 | 0 | 1 | 3 | 37 |
| 05:45 PM | 0 | 4 | 3 | 7 | 2 | 0 | 1 | 3 | 1 | 8 | 0 | 9 | 2 | 1 | 0 | 3 | 22 |
| Total | 3 | 34 | 14 | 51 | 5 | 0 | 5 | 10 | 1 | 30 | 11 | 42 | 7 | 4 | 1 | 12 | 115 |
| Grand Total | 9 | 85 | 22 | 116 | 12 | 2 | 6 | 20 | 1 | 78 | 18 | 97 | 18 | 13 | 2 | 33 | 266 |
| Apprch % | 7.8 | 73.3 | 19 | | 60 | 10 | 30 | | 1 | 80.4 | 18.6 | | 54.5 | 39.4 | 6.1 | | |
| Total % | 3.4 | 32 | 8.3 | 43.6 | 4.5 | 0.8 | 2.3 | 7.5 | 0.4 | 29.3 | 6.8 | 36.5 | 6.8 | 4.9 | 0.8 | 12.4 | |

| Start Time | Wilmington Avenue Southbound | | | | East 223rd Street Westbound | | | | Wilmington Avenue Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | |
| 04:45 PM | 1 | 14 | 1 | 16 | 2 | 0 | 1 | 3 | 0 | 5 | 2 | 7 | 2 | 2 | 0 | 4 | 30 |
| 05:00 PM | 1 | 8 | 3 | 12 | 2 | 0 | 1 | 3 | 0 | 6 | 3 | 9 | 1 | 2 | 0 | 3 | 27 |
| 05:15 PM | 2 | 8 | 3 | 13 | 1 | 0 | 1 | 2 | 0 | 8 | 3 | 11 | 2 | 1 | 0 | 3 | 29 |
| 05:30 PM | 0 | 14 | 5 | 19 | 0 | 0 | 2 | 2 | 0 | 8 | 5 | 13 | 2 | 0 | 1 | 3 | 37 |
| Total Volume | 4 | 44 | 12 | 60 | 5 | 0 | 5 | 10 | 0 | 27 | 13 | 40 | 7 | 5 | 1 | 13 | 123 |
| % App. Total | 6.7 | 73.3 | 20 | | 50 | 0 | 50 | | 0 | 67.5 | 32.5 | | 53.8 | 38.5 | 7.7 | | |
| PHF | .500 | .786 | .600 | .789 | .625 | .000 | .625 | .833 | .000 | .844 | .650 | .769 | .875 | .625 | .250 | .813 | .831 |

City of Carson
 N/S: Wilmington Avenue
 E/W: East 223rd Street
 Weather: Clear

File Name : 03_CRS_Wilmington_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | | 04:45 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 14 | 1 | 16 | 2 | 0 | 1 | 3 | 0 | 5 | 2 | 7 | 2 | 0 | 4 | |
| +15 mins. | 1 | 8 | 3 | 12 | 2 | 0 | 1 | 3 | 0 | 6 | 3 | 9 | 1 | 2 | 0 | 3 |
| +30 mins. | 2 | 8 | 3 | 13 | 1 | 0 | 1 | 2 | 0 | 8 | 3 | 11 | 2 | 1 | 0 | 3 |
| +45 mins. | 0 | 14 | 5 | 19 | 0 | 0 | 2 | 2 | 0 | 8 | 5 | 13 | 2 | 0 | 1 | 3 |
| Total Volume | 4 | 44 | 12 | 60 | 5 | 0 | 5 | 10 | 0 | 27 | 13 | 40 | 7 | 5 | 1 | 13 |
| % App. Total | 6.7 | 73.3 | 20 | | 50 | 0 | 50 | | 0 | 67.5 | 32.5 | | 53.8 | 38.5 | 7.7 | |
| PHF | .500 | .786 | .600 | .789 | .625 | .000 | .625 | .833 | .000 | .844 | .650 | .769 | .875 | .625 | .250 | .813 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

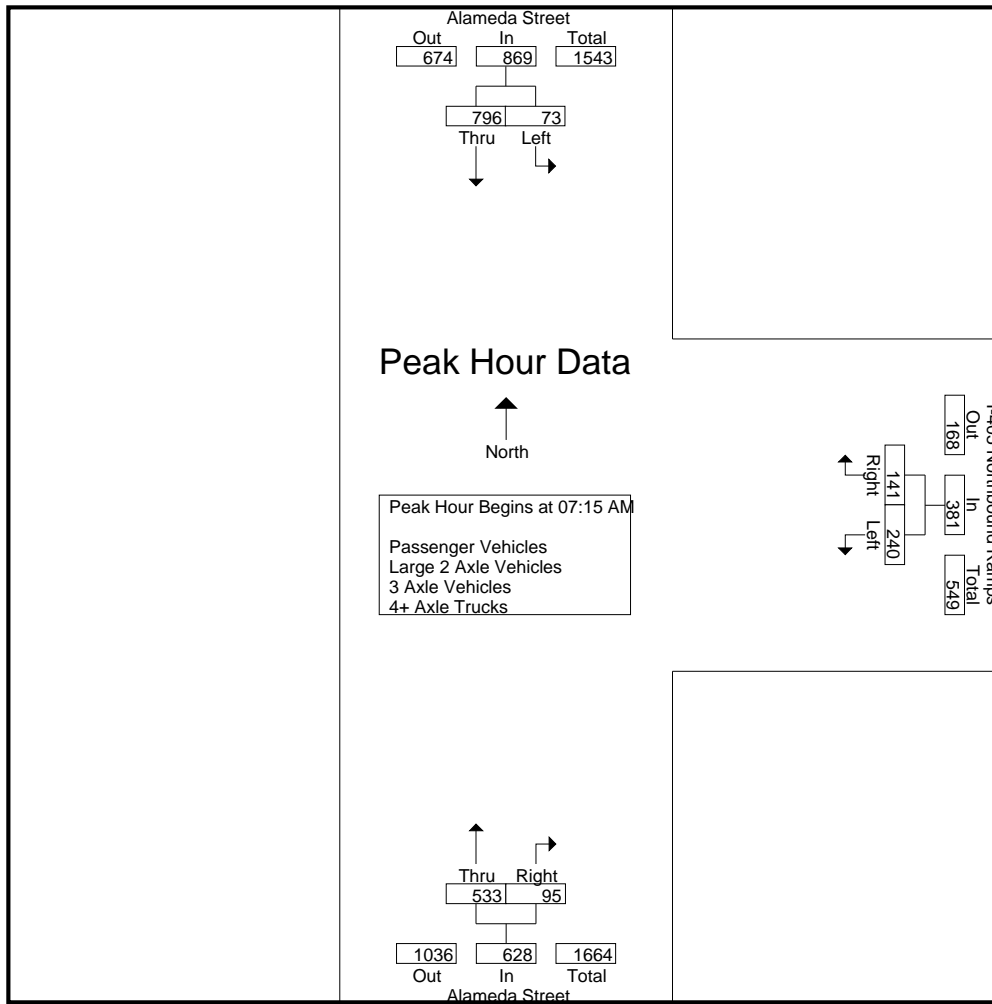
File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 12 | 146 | 158 | 61 | 30 | 91 | 94 | 11 | 105 | 354 |
| 07:15 AM | 17 | 211 | 228 | 65 | 24 | 89 | 105 | 8 | 113 | 430 |
| 07:30 AM | 15 | 202 | 217 | 51 | 23 | 74 | 111 | 17 | 128 | 419 |
| 07:45 AM | 29 | 230 | 259 | 59 | 41 | 100 | 182 | 34 | 216 | 575 |
| Total | 73 | 789 | 862 | 236 | 118 | 354 | 492 | 70 | 562 | 1778 |
| 08:00 AM | 12 | 153 | 165 | 65 | 53 | 118 | 135 | 36 | 171 | 454 |
| 08:15 AM | 10 | 147 | 157 | 62 | 36 | 98 | 138 | 30 | 168 | 423 |
| 08:30 AM | 17 | 127 | 144 | 71 | 24 | 95 | 132 | 15 | 147 | 386 |
| 08:45 AM | 11 | 132 | 143 | 84 | 36 | 120 | 97 | 9 | 106 | 369 |
| Total | 50 | 559 | 609 | 282 | 149 | 431 | 502 | 90 | 592 | 1632 |
| Grand Total | 123 | 1348 | 1471 | 518 | 267 | 785 | 994 | 160 | 1154 | 3410 |
| Apprch % | 8.4 | 91.6 | | 66 | 34 | | 86.1 | 13.9 | | |
| Total % | 3.6 | 39.5 | 43.1 | 15.2 | 7.8 | 23 | 29.1 | 4.7 | 33.8 | |
| Passenger Vehicles | 114 | 970 | 1084 | 341 | 233 | 574 | 716 | 137 | 853 | 2511 |
| % Passenger Vehicles | 92.7 | 72 | 73.7 | 65.8 | 87.3 | 73.1 | 72 | 85.6 | 73.9 | 73.6 |
| Large 2 Axle Vehicles | 3 | 32 | 35 | 27 | 5 | 32 | 28 | 3 | 31 | 98 |
| % Large 2 Axle Vehicles | 2.4 | 2.4 | 2.4 | 5.2 | 1.9 | 4.1 | 2.8 | 1.9 | 2.7 | 2.9 |
| 3 Axle Vehicles | 3 | 32 | 35 | 42 | 8 | 50 | 76 | 4 | 80 | 165 |
| % 3 Axle Vehicles | 2.4 | 2.4 | 2.4 | 8.1 | 3 | 6.4 | 7.6 | 2.5 | 6.9 | 4.8 |
| 4+ Axle Trucks | 3 | 314 | 317 | 108 | 21 | 129 | 174 | 16 | 190 | 636 |
| % 4+ Axle Trucks | 2.4 | 23.3 | 21.5 | 20.8 | 7.9 | 16.4 | 17.5 | 10 | 16.5 | 18.7 |

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------------|------------|----------------------------------|-----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 17 | 211 | 228 | 65 | 24 | 89 | 105 | 8 | 113 | 430 |
| 07:30 AM | 15 | 202 | 217 | 51 | 23 | 74 | 111 | 17 | 128 | 419 |
| 07:45 AM | 29 | 230 | 259 | 59 | 41 | 100 | 182 | 34 | 216 | 575 |
| 08:00 AM | 12 | 153 | 165 | 65 | 53 | 118 | 135 | 36 | 171 | 454 |
| Total Volume | 73 | 796 | 869 | 240 | 141 | 381 | 533 | 95 | 628 | 1878 |
| % App. Total | 8.4 | 91.6 | | 63 | 37 | | 84.9 | 15.1 | | |
| PHF | .629 | .865 | .839 | .923 | .665 | .807 | .732 | .660 | .727 | .817 |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 08:00 AM | | | 07:45 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 17 | 211 | 228 | 65 | 53 | 118 | 182 | 34 | 216 |
| +15 mins. | 15 | 202 | 217 | 62 | 36 | 98 | 135 | 36 | 171 |
| +30 mins. | 29 | 230 | 259 | 71 | 24 | 95 | 138 | 30 | 168 |
| +45 mins. | 12 | 153 | 165 | 84 | 36 | 120 | 132 | 15 | 147 |
| Total Volume | 73 | 796 | 869 | 282 | 149 | 431 | 587 | 115 | 702 |
| % App. Total | 8.4 | 91.6 | | 65.4 | 34.6 | | 83.6 | 16.4 | |
| PHF | .629 | .865 | .839 | .839 | .703 | .898 | .806 | .799 | .813 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

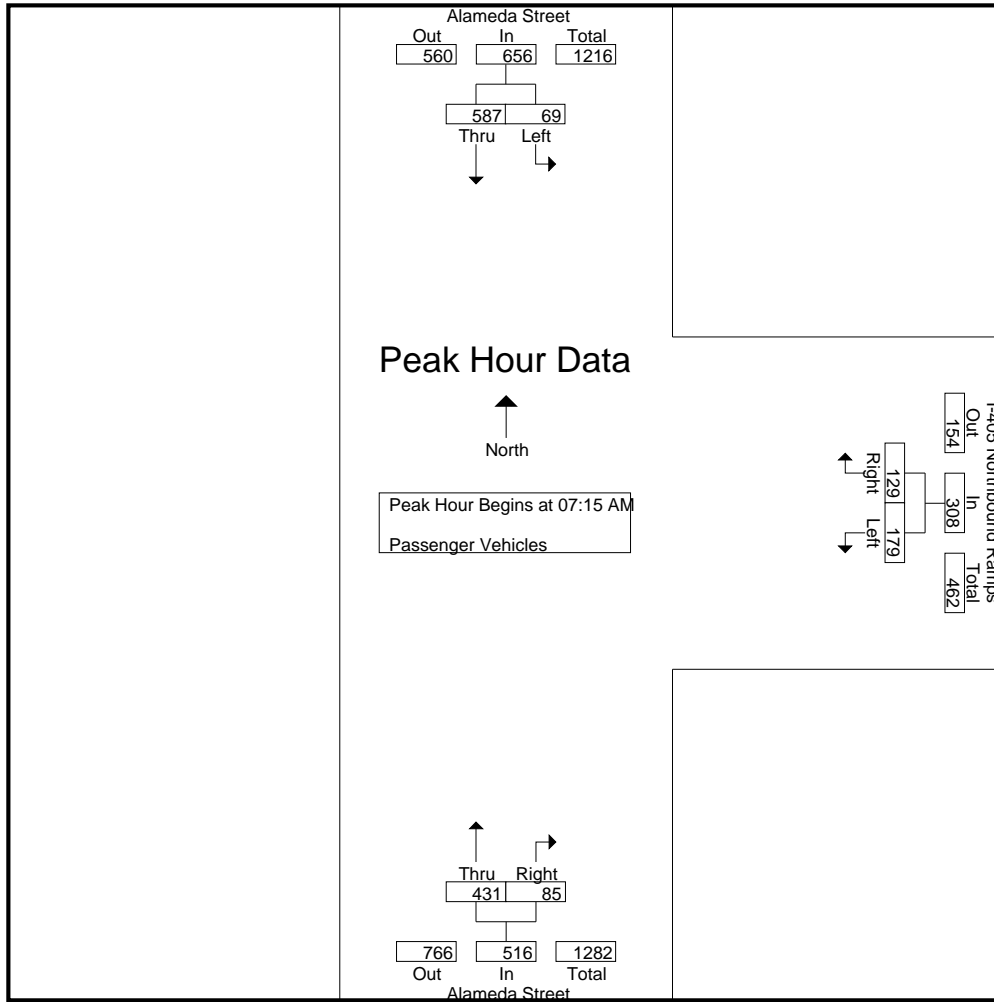
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 11 | 108 | 119 | 42 | 30 | 72 | 65 | 10 | 75 | 266 |
| 07:15 AM | 17 | 150 | 167 | 46 | 19 | 65 | 82 | 6 | 88 | 320 |
| 07:30 AM | 15 | 147 | 162 | 43 | 21 | 64 | 87 | 16 | 103 | 329 |
| 07:45 AM | 26 | 177 | 203 | 44 | 41 | 85 | 154 | 33 | 187 | 475 |
| Total | 69 | 582 | 651 | 175 | 111 | 286 | 388 | 65 | 453 | 1390 |
| 08:00 AM | 11 | 113 | 124 | 46 | 48 | 94 | 108 | 30 | 138 | 356 |
| 08:15 AM | 10 | 104 | 114 | 36 | 29 | 65 | 96 | 27 | 123 | 302 |
| 08:30 AM | 15 | 84 | 99 | 39 | 19 | 58 | 74 | 9 | 83 | 240 |
| 08:45 AM | 9 | 87 | 96 | 45 | 26 | 71 | 50 | 6 | 56 | 223 |
| Total | 45 | 388 | 433 | 166 | 122 | 288 | 328 | 72 | 400 | 1121 |
| Grand Total | 114 | 970 | 1084 | 341 | 233 | 574 | 716 | 137 | 853 | 2511 |
| Apprch % | 10.5 | 89.5 | | 59.4 | 40.6 | | 83.9 | 16.1 | | |
| Total % | 4.5 | 38.6 | 43.2 | 13.6 | 9.3 | 22.9 | 28.5 | 5.5 | 34 | |

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------------|------------|----------------------------------|-----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 17 | 150 | 167 | 46 | 19 | 65 | 82 | 6 | 88 | 320 |
| 07:30 AM | 15 | 147 | 162 | 43 | 21 | 64 | 87 | 16 | 103 | 329 |
| 07:45 AM | 26 | 177 | 203 | 44 | 41 | 85 | 154 | 33 | 187 | 475 |
| 08:00 AM | 11 | 113 | 124 | 46 | 48 | 94 | 108 | 30 | 138 | 356 |
| Total Volume | 69 | 587 | 656 | 179 | 129 | 308 | 431 | 85 | 516 | 1480 |
| % App. Total | 10.5 | 89.5 | | 58.1 | 41.9 | | 83.5 | 16.5 | | |
| PHF | .663 | .829 | .808 | .973 | .672 | .819 | .700 | .644 | .690 | .779 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|------------|
| +0 mins. | 17 | 150 | 167 | 46 | 19 | 65 | 82 | 6 | 88 |
| +15 mins. | 15 | 147 | 162 | 43 | 21 | 64 | 87 | 16 | 103 |
| +30 mins. | 26 | 177 | 203 | 44 | 41 | 85 | 154 | 33 | 187 |
| +45 mins. | 11 | 113 | 124 | 46 | 48 | 94 | 108 | 30 | 138 |
| Total Volume | 69 | 587 | 656 | 179 | 129 | 308 | 431 | 85 | 516 |
| % App. Total | 10.5 | 89.5 | | 58.1 | 41.9 | | 83.5 | 16.5 | |
| PHF | .663 | .829 | .808 | .973 | .672 | .819 | .700 | .644 | .690 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 3 | 3 | 1 | 0 | 1 | 3 | 0 | 3 | 7 |
| 07:15 AM | 0 | 2 | 2 | 3 | 0 | 3 | 2 | 0 | 2 | 7 |
| 07:30 AM | 0 | 4 | 4 | 0 | 1 | 1 | 3 | 0 | 3 | 8 |
| 07:45 AM | 2 | 6 | 8 | 3 | 0 | 3 | 3 | 0 | 3 | 14 |
| Total | 2 | 15 | 17 | 7 | 1 | 8 | 11 | 0 | 11 | 36 |
| 08:00 AM | 0 | 5 | 5 | 4 | 1 | 5 | 2 | 2 | 4 | 14 |
| 08:15 AM | 0 | 4 | 4 | 3 | 1 | 4 | 6 | 0 | 6 | 14 |
| 08:30 AM | 1 | 3 | 4 | 6 | 0 | 6 | 6 | 1 | 7 | 17 |
| 08:45 AM | 0 | 5 | 5 | 7 | 2 | 9 | 3 | 0 | 3 | 17 |
| Total | 1 | 17 | 18 | 20 | 4 | 24 | 17 | 3 | 20 | 62 |
| Grand Total | 3 | 32 | 35 | 27 | 5 | 32 | 28 | 3 | 31 | 98 |
| Apprch % | 8.6 | 91.4 | | 84.4 | 15.6 | | 90.3 | 9.7 | | |
| Total % | 3.1 | 32.7 | 35.7 | 27.6 | 5.1 | 32.7 | 28.6 | 3.1 | 31.6 | |

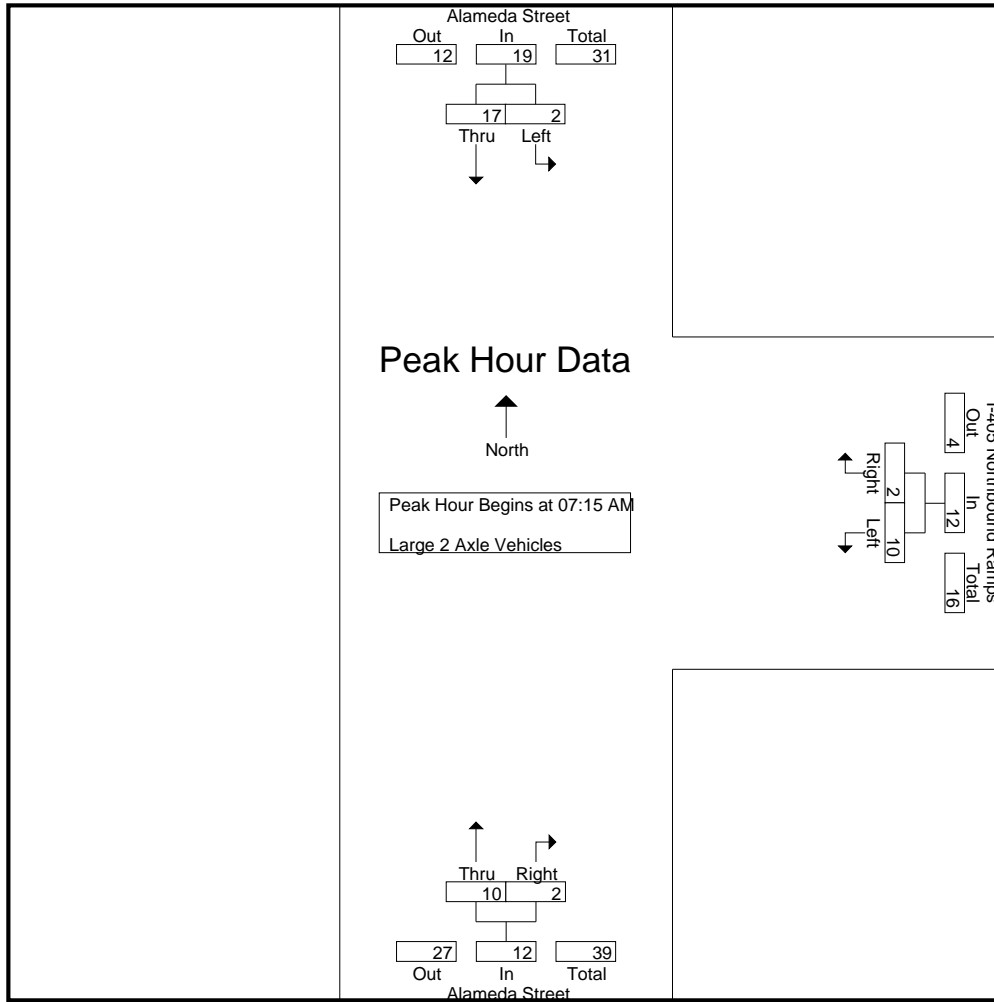
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 2 | 2 | 3 | 0 | 3 | 2 | 0 | 2 | 7 |
| 07:30 AM | 0 | 4 | 4 | 0 | 1 | 1 | 3 | 0 | 3 | 8 |
| 07:45 AM | 2 | 6 | 8 | 3 | 0 | 3 | 3 | 0 | 3 | 14 |
| 08:00 AM | 0 | 5 | 5 | 4 | 1 | 5 | 2 | 2 | 4 | 14 |
| Total Volume | 2 | 17 | 19 | 10 | 2 | 12 | 10 | 2 | 12 | 43 |
| % App. Total | 10.5 | 89.5 | | 83.3 | 16.7 | | 83.3 | 16.7 | | |
| PHF | .250 | .708 | .594 | .625 | .500 | .600 | .833 | .250 | .750 | .768 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 2 | 2 | 3 | 0 | 3 | 2 | 0 | 2 |
| +15 mins. | 0 | 4 | 4 | 0 | 1 | 1 | 3 | 0 | 3 |
| +30 mins. | 2 | 6 | 8 | 3 | 0 | 3 | 3 | 0 | 3 |
| +45 mins. | 0 | 5 | 5 | 4 | 1 | 5 | 2 | 2 | 4 |
| Total Volume | 2 | 17 | 19 | 10 | 2 | 12 | 10 | 2 | 12 |
| % App. Total | 10.5 | 89.5 | | 83.3 | 16.7 | | 83.3 | 16.7 | |
| PHF | .250 | .708 | .594 | .625 | .500 | .600 | .833 | .250 | .750 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 1 | 3 | 4 | 6 | 0 | 6 | 10 | 0 | 10 | 20 |
| 07:15 AM | 0 | 2 | 2 | 5 | 1 | 6 | 13 | 0 | 13 | 21 |
| 07:30 AM | 0 | 4 | 4 | 4 | 1 | 5 | 6 | 0 | 6 | 15 |
| 07:45 AM | 1 | 6 | 7 | 4 | 0 | 4 | 6 | 1 | 7 | 18 |
| Total | 2 | 15 | 17 | 19 | 2 | 21 | 35 | 1 | 36 | 74 |
| 08:00 AM | 0 | 5 | 5 | 5 | 0 | 5 | 13 | 1 | 14 | 24 |
| 08:15 AM | 0 | 4 | 4 | 7 | 1 | 8 | 6 | 1 | 7 | 19 |
| 08:30 AM | 0 | 3 | 3 | 3 | 3 | 6 | 7 | 1 | 8 | 17 |
| 08:45 AM | 1 | 5 | 6 | 8 | 2 | 10 | 15 | 0 | 15 | 31 |
| Total | 1 | 17 | 18 | 23 | 6 | 29 | 41 | 3 | 44 | 91 |
| Grand Total | 3 | 32 | 35 | 42 | 8 | 50 | 76 | 4 | 80 | 165 |
| Apprch % | 8.6 | 91.4 | | 84 | 16 | | 95 | 5 | | |
| Total % | 1.8 | 19.4 | 21.2 | 25.5 | 4.8 | 30.3 | 46.1 | 2.4 | 48.5 | |

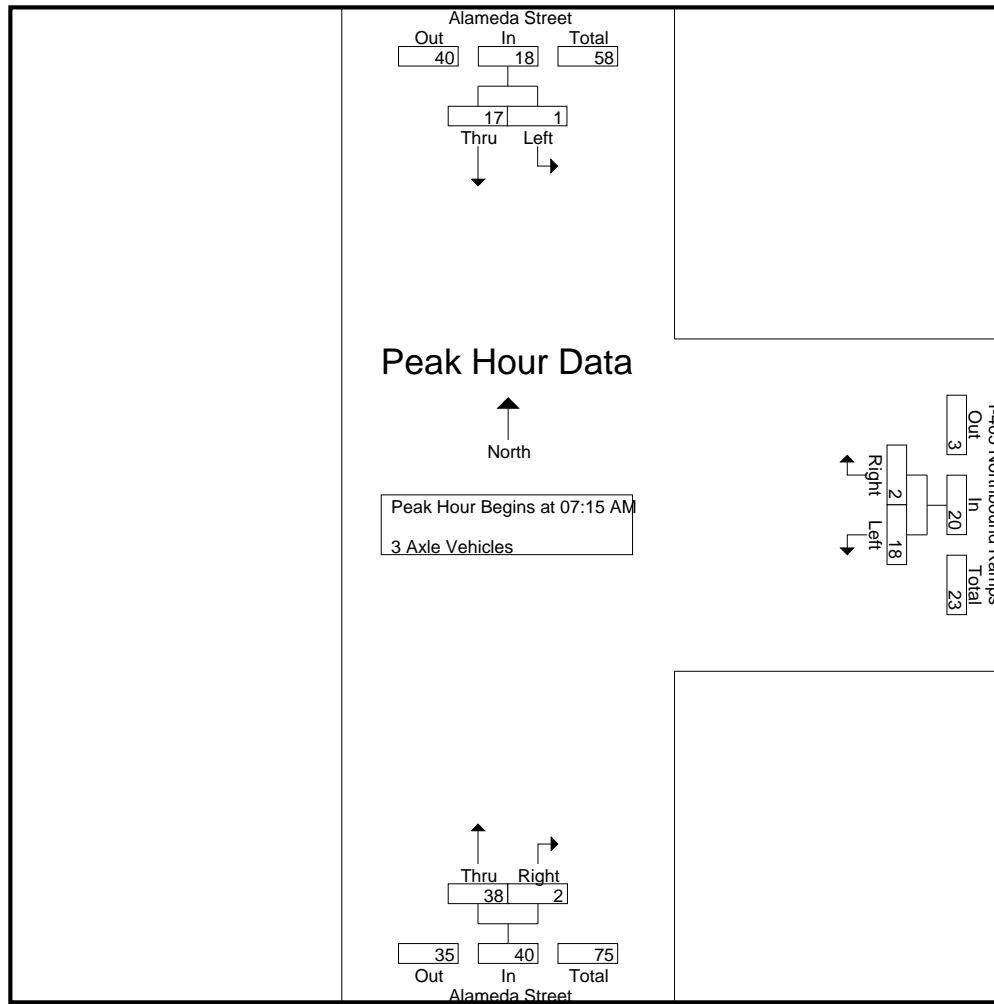
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 2 | 2 | 5 | 1 | 6 | 13 | 0 | 13 | 21 |
| 07:30 AM | 0 | 4 | 4 | 4 | 1 | 5 | 6 | 0 | 6 | 15 |
| 07:45 AM | 1 | 6 | 7 | 4 | 0 | 4 | 6 | 1 | 7 | 18 |
| 08:00 AM | 0 | 5 | 5 | 5 | 0 | 5 | 13 | 1 | 14 | 24 |
| Total Volume | 1 | 17 | 18 | 18 | 2 | 20 | 38 | 2 | 40 | 78 |
| % App. Total | 5.6 | 94.4 | | 90 | 10 | | 95 | 5 | | |
| PHF | .250 | .708 | .643 | .900 | .500 | .833 | .731 | .500 | .714 | .813 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 2 | 2 | 5 | 1 | 6 | 13 | 0 | 13 |
| +15 mins. | 0 | 4 | 4 | 4 | 1 | 5 | 6 | 0 | 6 |
| +30 mins. | 1 | 6 | 7 | 4 | 0 | 4 | 6 | 1 | 7 |
| +45 mins. | 0 | 5 | 5 | 5 | 0 | 5 | 13 | 1 | 14 |
| Total Volume | 1 | 17 | 18 | 18 | 2 | 20 | 38 | 2 | 40 |
| % App. Total | 5.6 | 94.4 | | 90 | 10 | | 95 | 5 | |
| PHF | .250 | .708 | .643 | .900 | .500 | .833 | .731 | .500 | .714 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 32 | 32 | 12 | 0 | 12 | 16 | 1 | 17 | 61 |
| 07:15 AM | 0 | 57 | 57 | 11 | 4 | 15 | 8 | 2 | 10 | 82 |
| 07:30 AM | 0 | 47 | 47 | 4 | 0 | 4 | 15 | 1 | 16 | 67 |
| 07:45 AM | 0 | 41 | 41 | 8 | 0 | 8 | 19 | 0 | 19 | 68 |
| Total | 0 | 177 | 177 | 35 | 4 | 39 | 58 | 4 | 62 | 278 |
| 08:00 AM | 1 | 30 | 31 | 10 | 4 | 14 | 12 | 3 | 15 | 60 |
| 08:15 AM | 0 | 35 | 35 | 16 | 5 | 21 | 30 | 2 | 32 | 88 |
| 08:30 AM | 1 | 37 | 38 | 23 | 2 | 25 | 45 | 4 | 49 | 112 |
| 08:45 AM | 1 | 35 | 36 | 24 | 6 | 30 | 29 | 3 | 32 | 98 |
| Total | 3 | 137 | 140 | 73 | 17 | 90 | 116 | 12 | 128 | 358 |
| Grand Total | 3 | 314 | 317 | 108 | 21 | 129 | 174 | 16 | 190 | 636 |
| Apprch % | 0.9 | 99.1 | | 83.7 | 16.3 | | 91.6 | 8.4 | | |
| Total % | 0.5 | 49.4 | 49.8 | 17 | 3.3 | 20.3 | 27.4 | 2.5 | 29.9 | |

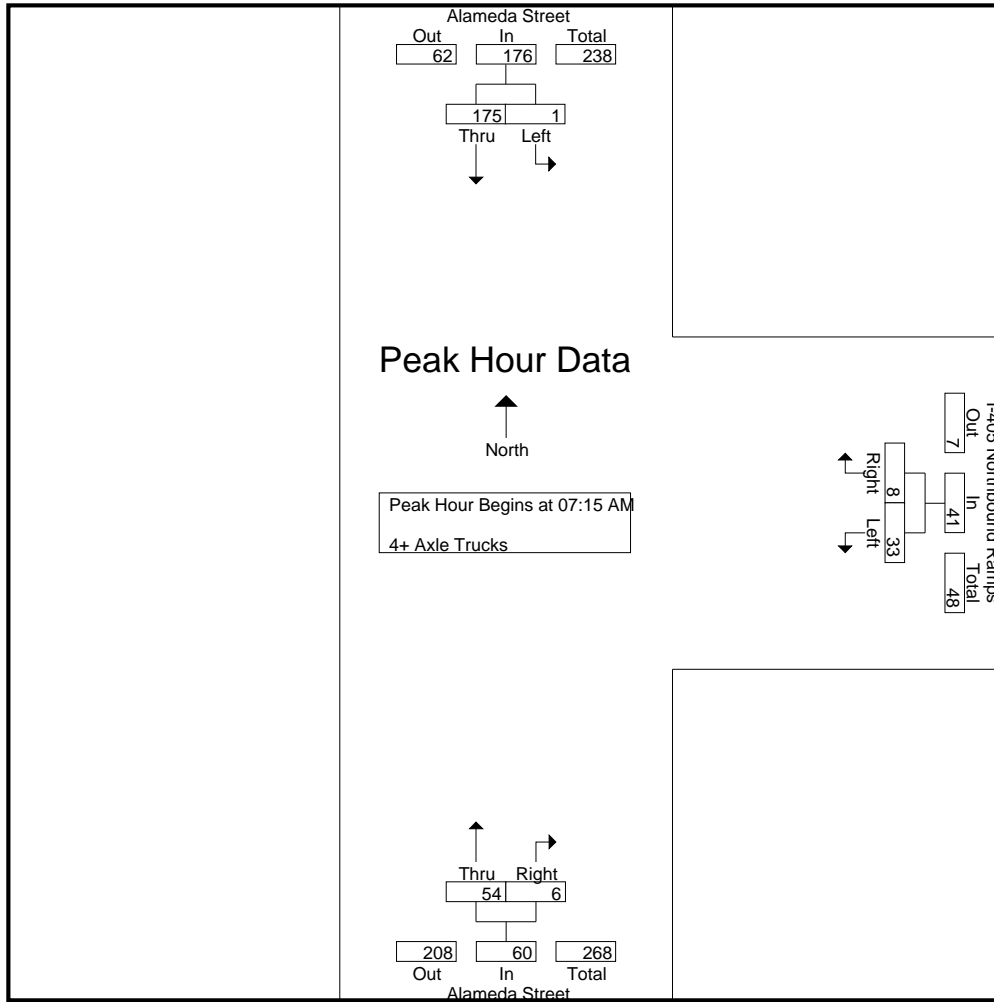
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|-----------|------------|----------------------------------|----------|------------|---------------------------|----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:15 AM | 0 | 57 | 57 | 11 | 4 | 15 | 8 | 2 | 10 | 82 |
| 07:30 AM | 0 | 47 | 47 | 4 | 0 | 4 | 15 | 1 | 16 | 67 |
| 07:45 AM | 0 | 41 | 41 | 8 | 0 | 8 | 19 | 0 | 19 | 68 |
| 08:00 AM | 1 | 30 | 31 | 10 | 4 | 14 | 12 | 3 | 15 | 60 |
| Total Volume | 1 | 175 | 176 | 33 | 8 | 41 | 54 | 6 | 60 | 277 |
| % App. Total | 0.6 | 99.4 | | 80.5 | 19.5 | | 90 | 10 | | |
| PHF | .250 | .768 | .772 | .750 | .500 | .683 | .711 | .500 | .789 | .845 |

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:15 AM | | | 07:15 AM | | |
|--------------|----------|-----------|-----------|-----------|----------|-----------|-----------|----------|-----------|
| +0 mins. | 0 | 57 | 57 | 11 | 4 | 15 | 8 | 2 | 10 |
| +15 mins. | 0 | 47 | 47 | 4 | 0 | 4 | 15 | 1 | 16 |
| +30 mins. | 0 | 41 | 41 | 8 | 0 | 8 | 19 | 0 | 19 |
| +45 mins. | 1 | 30 | 31 | 10 | 4 | 14 | 12 | 3 | 15 |
| Total Volume | 1 | 175 | 176 | 33 | 8 | 41 | 54 | 6 | 60 |
| % App. Total | 0.6 | 99.4 | | 80.5 | 19.5 | | 90 | 10 | |
| PHF | .250 | .768 | .772 | .750 | .500 | .683 | .711 | .500 | .789 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

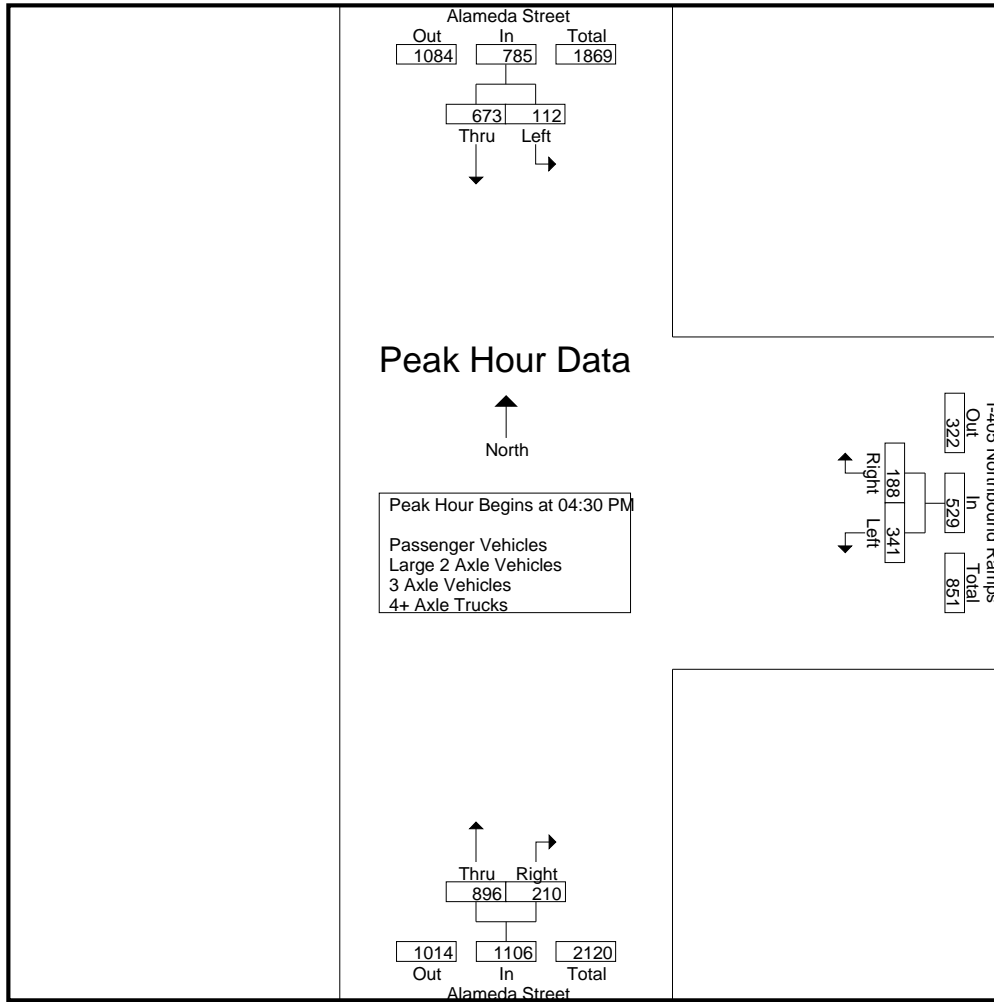
File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------------------|---------------------------|-------------|-------------|----------------------------------|------------|-------------|---------------------------|------------|-------------|-------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 31 | 137 | 168 | 83 | 42 | 125 | 193 | 45 | 238 | 531 |
| 04:15 PM | 26 | 163 | 189 | 96 | 63 | 159 | 175 | 27 | 202 | 550 |
| 04:30 PM | 30 | 163 | 193 | 91 | 55 | 146 | 228 | 57 | 285 | 624 |
| 04:45 PM | 24 | 175 | 199 | 91 | 39 | 130 | 225 | 76 | 301 | 630 |
| Total | 111 | 638 | 749 | 361 | 199 | 560 | 821 | 205 | 1026 | 2335 |
| 05:00 PM | 26 | 170 | 196 | 88 | 52 | 140 | 221 | 45 | 266 | 602 |
| 05:15 PM | 32 | 165 | 197 | 71 | 42 | 113 | 222 | 32 | 254 | 564 |
| 05:30 PM | 26 | 149 | 175 | 68 | 45 | 113 | 194 | 41 | 235 | 523 |
| 05:45 PM | 22 | 173 | 195 | 62 | 53 | 115 | 206 | 35 | 241 | 551 |
| Total | 106 | 657 | 763 | 289 | 192 | 481 | 843 | 153 | 996 | 2240 |
| Grand Total | 217 | 1295 | 1512 | 650 | 391 | 1041 | 1664 | 358 | 2022 | 4575 |
| Apprch % | 14.4 | 85.6 | | 62.4 | 37.6 | | 82.3 | 17.7 | | |
| Total % | 4.7 | 28.3 | 33 | 14.2 | 8.5 | 22.8 | 36.4 | 7.8 | 44.2 | |
| Passenger Vehicles | 206 | 931 | 1137 | 501 | 327 | 828 | 1254 | 273 | 1527 | 3492 |
| % Passenger Vehicles | 94.9 | 71.9 | 75.2 | 77.1 | 83.6 | 79.5 | 75.4 | 76.3 | 75.5 | 76.3 |
| Large 2 Axle Vehicles | 2 | 21 | 23 | 20 | 6 | 26 | 25 | 5 | 30 | 79 |
| % Large 2 Axle Vehicles | 0.9 | 1.6 | 1.5 | 3.1 | 1.5 | 2.5 | 1.5 | 1.4 | 1.5 | 1.7 |
| 3 Axle Vehicles | 7 | 21 | 28 | 21 | 33 | 54 | 154 | 38 | 192 | 274 |
| % 3 Axle Vehicles | 3.2 | 1.6 | 1.9 | 3.2 | 8.4 | 5.2 | 9.3 | 10.6 | 9.5 | 6 |
| 4+ Axle Trucks | 2 | 322 | 324 | 108 | 25 | 133 | 231 | 42 | 273 | 730 |
| % 4+ Axle Trucks | 0.9 | 24.9 | 21.4 | 16.6 | 6.4 | 12.8 | 13.9 | 11.7 | 13.5 | 16 |

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|---------------------|---------------------------|------------|------------|----------------------------------|------------|------------|---------------------------|------------|-------------|-------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 30 | 163 | 193 | 91 | 55 | 146 | 228 | 57 | 285 | 624 |
| 04:45 PM | 24 | 175 | 199 | 91 | 39 | 130 | 225 | 76 | 301 | 630 |
| 05:00 PM | 26 | 170 | 196 | 88 | 52 | 140 | 221 | 45 | 266 | 602 |
| 05:15 PM | 32 | 165 | 197 | 71 | 42 | 113 | 222 | 32 | 254 | 564 |
| Total Volume | 112 | 673 | 785 | 341 | 188 | 529 | 896 | 210 | 1106 | 2420 |
| % App. Total | 14.3 | 85.7 | | 64.5 | 35.5 | | 81 | 19 | | |
| PHF | .875 | .961 | .986 | .937 | .855 | .906 | .982 | .691 | .919 | .960 |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:15 PM | | | 04:30 PM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 30 | 163 | 193 | 96 | 63 | 159 | 228 | 57 | 285 |
| +15 mins. | 24 | 175 | 199 | 91 | 55 | 146 | 225 | 76 | 301 |
| +30 mins. | 26 | 170 | 196 | 91 | 39 | 130 | 221 | 45 | 266 |
| +45 mins. | 32 | 165 | 197 | 88 | 52 | 140 | 222 | 32 | 254 |
| Total Volume | 112 | 673 | 785 | 366 | 209 | 575 | 896 | 210 | 1106 |
| % App. Total | 14.3 | 85.7 | | 63.7 | 36.3 | | 81 | 19 | |
| PHF | .875 | .961 | .986 | .953 | .829 | .904 | .982 | .691 | .919 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 28 | 99 | 127 | 56 | 33 | 89 | 115 | 33 | 148 | 364 |
| 04:15 PM | 24 | 120 | 144 | 80 | 43 | 123 | 114 | 20 | 134 | 401 |
| 04:30 PM | 30 | 120 | 150 | 69 | 42 | 111 | 166 | 48 | 214 | 475 |
| 04:45 PM | 23 | 131 | 154 | 73 | 34 | 107 | 178 | 49 | 227 | 488 |
| Total | 105 | 470 | 575 | 278 | 152 | 430 | 573 | 150 | 723 | 1728 |
| 05:00 PM | 26 | 123 | 149 | 69 | 47 | 116 | 182 | 33 | 215 | 480 |
| 05:15 PM | 30 | 123 | 153 | 59 | 37 | 96 | 185 | 28 | 213 | 462 |
| 05:30 PM | 24 | 110 | 134 | 53 | 42 | 95 | 156 | 35 | 191 | 420 |
| 05:45 PM | 21 | 105 | 126 | 42 | 49 | 91 | 158 | 27 | 185 | 402 |
| Total | 101 | 461 | 562 | 223 | 175 | 398 | 681 | 123 | 804 | 1764 |
| Grand Total | 206 | 931 | 1137 | 501 | 327 | 828 | 1254 | 273 | 1527 | 3492 |
| Apprch % | 18.1 | 81.9 | | 60.5 | 39.5 | | 82.1 | 17.9 | | |
| Total % | 5.9 | 26.7 | 32.6 | 14.3 | 9.4 | 23.7 | 35.9 | 7.8 | 43.7 | |

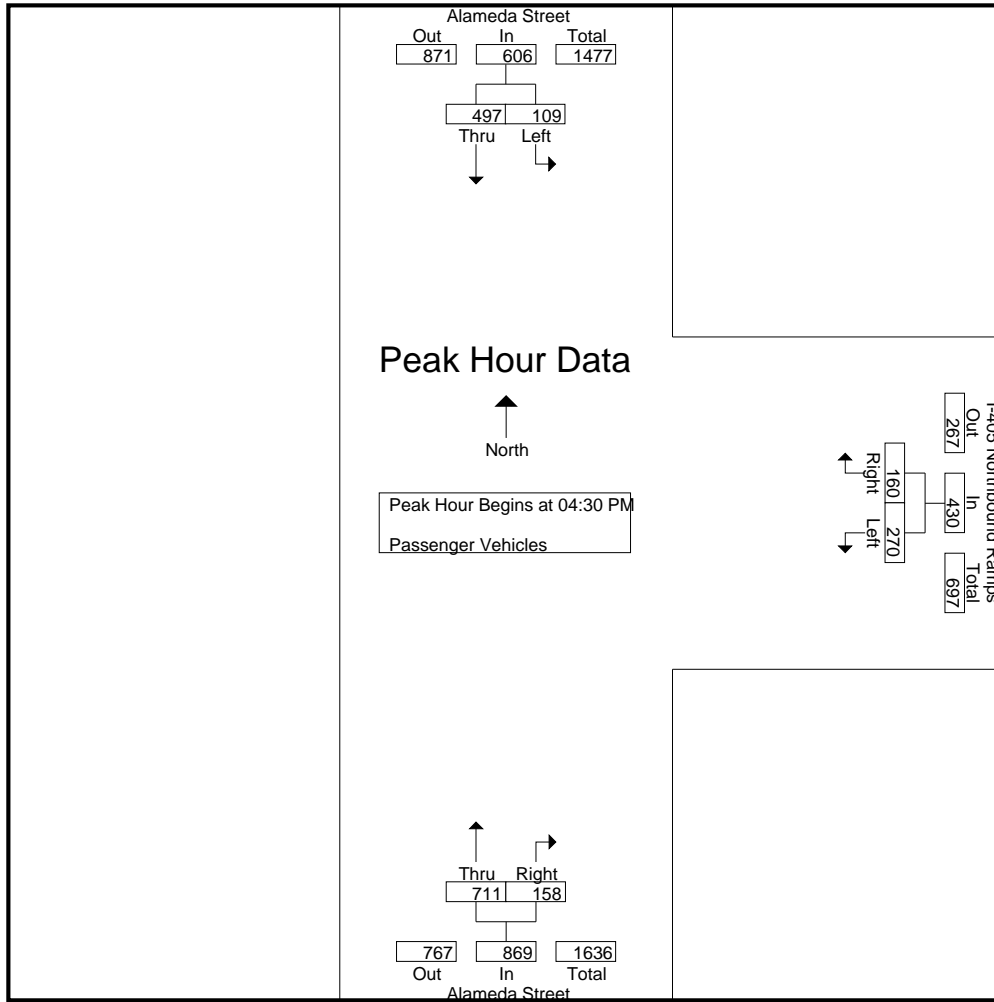
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------------|------------|----------------------------------|-----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 30 | 120 | 150 | 69 | 42 | 111 | 166 | 48 | 214 | 475 |
| 04:45 PM | 23 | 131 | 154 | 73 | 34 | 107 | 178 | 49 | 227 | 488 |
| 05:00 PM | 26 | 123 | 149 | 69 | 47 | 116 | 182 | 33 | 215 | 480 |
| 05:15 PM | 30 | 123 | 153 | 59 | 37 | 96 | 185 | 28 | 213 | 462 |
| Total Volume | 109 | 497 | 606 | 270 | 160 | 430 | 711 | 158 | 869 | 1905 |
| % App. Total | 18 | 82 | | 62.8 | 37.2 | | 81.8 | 18.2 | | |
| PHF | .908 | .948 | .984 | .925 | .851 | .927 | .961 | .806 | .957 | .976 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 30 | 120 | 150 | 69 | 42 | 111 | 166 | 48 | 214 |
| +15 mins. | 23 | 131 | 154 | 73 | 34 | 107 | 178 | 49 | 227 |
| +30 mins. | 26 | 123 | 149 | 69 | 47 | 116 | 182 | 33 | 215 |
| +45 mins. | 30 | 123 | 153 | 59 | 37 | 96 | 185 | 28 | 213 |
| Total Volume | 109 | 497 | 606 | 270 | 160 | 430 | 711 | 158 | 869 |
| % App. Total | 18 | 82 | | 62.8 | 37.2 | | 81.8 | 18.2 | |
| PHF | .908 | .948 | .984 | .925 | .851 | .927 | .961 | .806 | .957 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

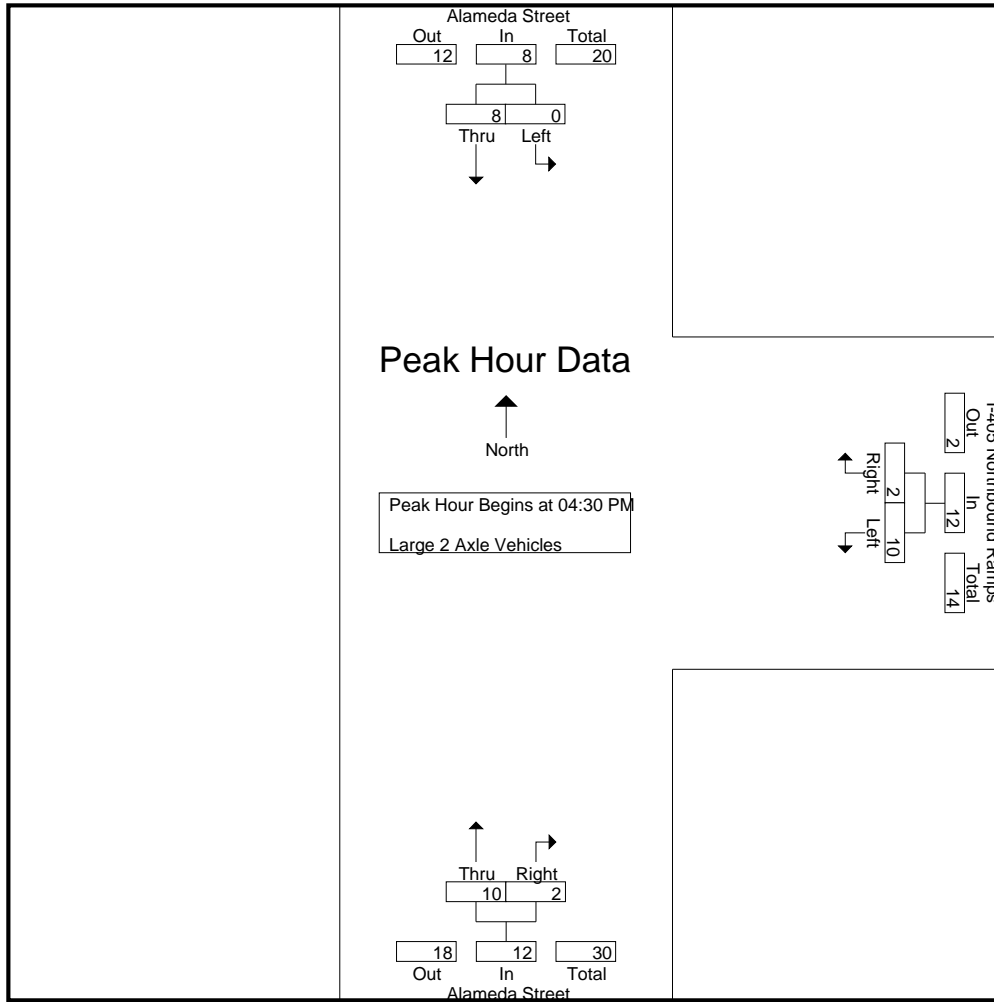
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 1 | 6 | 7 | 2 | 2 | 4 | 3 | 3 | 6 | 17 |
| 04:15 PM | 0 | 2 | 2 | 3 | 0 | 3 | 4 | 0 | 4 | 9 |
| 04:30 PM | 0 | 5 | 5 | 7 | 1 | 8 | 4 | 1 | 5 | 18 |
| 04:45 PM | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 0 | 2 | 5 |
| Total | 1 | 14 | 15 | 13 | 4 | 17 | 13 | 4 | 17 | 49 |
| 05:00 PM | 0 | 2 | 2 | 1 | 0 | 1 | 4 | 1 | 5 | 8 |
| 05:15 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 05:30 PM | 0 | 1 | 1 | 1 | 1 | 2 | 3 | 0 | 3 | 6 |
| 05:45 PM | 1 | 4 | 5 | 4 | 1 | 5 | 5 | 0 | 5 | 15 |
| Total | 1 | 7 | 8 | 7 | 2 | 9 | 12 | 1 | 13 | 30 |
| Grand Total | 2 | 21 | 23 | 20 | 6 | 26 | 25 | 5 | 30 | 79 |
| Apprch % | 8.7 | 91.3 | | 76.9 | 23.1 | | 83.3 | 16.7 | | |
| Total % | 2.5 | 26.6 | 29.1 | 25.3 | 7.6 | 32.9 | 31.6 | 6.3 | 38 | |

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 0 | 5 | 5 | 7 | 1 | 8 | 4 | 1 | 5 | 18 |
| 04:45 PM | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 0 | 2 | 5 |
| 05:00 PM | 0 | 2 | 2 | 1 | 0 | 1 | 4 | 1 | 5 | 8 |
| 05:15 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Total Volume | 0 | 8 | 8 | 10 | 2 | 12 | 10 | 2 | 12 | 32 |
| % App. Total | 0 | 100 | | 83.3 | 16.7 | | 83.3 | 16.7 | | |
| PHF | .000 | .400 | .400 | .357 | .500 | .375 | .625 | .500 | .600 | .444 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 5 | 5 | 7 | 1 | 8 | 4 | 1 | 5 |
| +15 mins. | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 0 | 2 |
| +30 mins. | 0 | 2 | 2 | 1 | 0 | 1 | 4 | 1 | 5 |
| +45 mins. | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Total Volume | 0 | 8 | 8 | 10 | 2 | 12 | 10 | 2 | 12 |
| % App. Total | 0 | 100 | | 83.3 | 16.7 | | 83.3 | 16.7 | |
| PHF | .000 | .400 | .400 | .357 | .500 | .375 | .625 | .500 | .600 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 2 | 6 | 8 | 5 | 4 | 9 | 22 | 3 | 25 | 42 |
| 04:15 PM | 2 | 2 | 4 | 3 | 15 | 18 | 26 | 3 | 29 | 51 |
| 04:30 PM | 0 | 5 | 5 | 3 | 5 | 8 | 17 | 2 | 19 | 32 |
| 04:45 PM | 0 | 1 | 1 | 2 | 2 | 4 | 19 | 23 | 42 | 47 |
| Total | 4 | 14 | 18 | 13 | 26 | 39 | 84 | 31 | 115 | 172 |
| 05:00 PM | 0 | 2 | 2 | 1 | 3 | 4 | 17 | 4 | 21 | 27 |
| 05:15 PM | 2 | 0 | 2 | 2 | 1 | 3 | 18 | 0 | 18 | 23 |
| 05:30 PM | 1 | 1 | 2 | 2 | 2 | 4 | 16 | 1 | 17 | 23 |
| 05:45 PM | 0 | 4 | 4 | 3 | 1 | 4 | 19 | 2 | 21 | 29 |
| Total | 3 | 7 | 10 | 8 | 7 | 15 | 70 | 7 | 77 | 102 |
| Grand Total | 7 | 21 | 28 | 21 | 33 | 54 | 154 | 38 | 192 | 274 |
| Apprch % | 25 | 75 | | 38.9 | 61.1 | | 80.2 | 19.8 | | |
| Total % | 2.6 | 7.7 | 10.2 | 7.7 | 12 | 19.7 | 56.2 | 13.9 | 70.1 | |

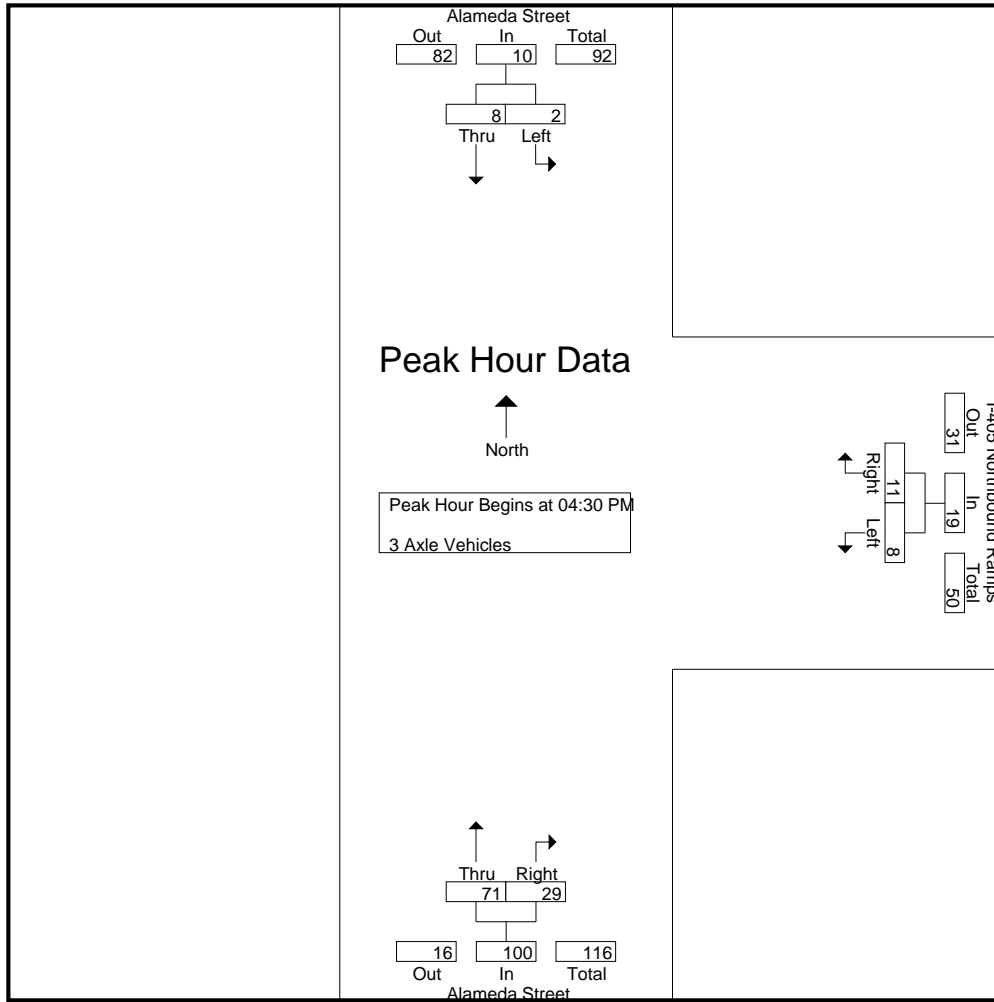
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 0 | 5 | 5 | 3 | 5 | 8 | 17 | 2 | 19 | 32 |
| 04:45 PM | 0 | 1 | 1 | 2 | 2 | 4 | 19 | 23 | 42 | 47 |
| 05:00 PM | 0 | 2 | 2 | 1 | 3 | 4 | 17 | 4 | 21 | 27 |
| 05:15 PM | 2 | 0 | 2 | 2 | 1 | 3 | 18 | 0 | 18 | 23 |
| Total Volume | 2 | 8 | 10 | 8 | 11 | 19 | 71 | 29 | 100 | 129 |
| % App. Total | 20 | 80 | | 42.1 | 57.9 | | 71 | 29 | | |
| PHF | .250 | .400 | .500 | .667 | .550 | .594 | .934 | .315 | .595 | .686 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 5 | 5 | 3 | 5 | 8 | 17 | 2 | 19 |
| +15 mins. | 0 | 1 | 1 | 2 | 2 | 4 | 19 | 23 | 42 |
| +30 mins. | 0 | 2 | 2 | 1 | 3 | 4 | 17 | 4 | 21 |
| +45 mins. | 2 | 0 | 2 | 2 | 1 | 3 | 18 | 0 | 18 |
| Total Volume | 2 | 8 | 10 | 8 | 11 | 19 | 71 | 29 | 100 |
| % App. Total | 20 | 80 | | 42.1 | 57.9 | | 71 | 29 | |
| PHF | .250 | .400 | .500 | .667 | .550 | .594 | .934 | .315 | .595 |

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 26 | 26 | 20 | 3 | 23 | 53 | 6 | 59 | 108 |
| 04:15 PM | 0 | 39 | 39 | 10 | 5 | 15 | 31 | 4 | 35 | 89 |
| 04:30 PM | 0 | 33 | 33 | 12 | 7 | 19 | 41 | 6 | 47 | 99 |
| 04:45 PM | 1 | 42 | 43 | 15 | 2 | 17 | 26 | 4 | 30 | 90 |
| Total | 1 | 140 | 141 | 57 | 17 | 74 | 151 | 20 | 171 | 386 |
| 05:00 PM | 0 | 43 | 43 | 17 | 2 | 19 | 18 | 7 | 25 | 87 |
| 05:15 PM | 0 | 42 | 42 | 9 | 4 | 13 | 19 | 4 | 23 | 78 |
| 05:30 PM | 1 | 37 | 38 | 12 | 0 | 12 | 19 | 5 | 24 | 74 |
| 05:45 PM | 0 | 60 | 60 | 13 | 2 | 15 | 24 | 6 | 30 | 105 |
| Total | 1 | 182 | 183 | 51 | 8 | 59 | 80 | 22 | 102 | 344 |
| Grand Total | 2 | 322 | 324 | 108 | 25 | 133 | 231 | 42 | 273 | 730 |
| Apprch % | 0.6 | 99.4 | | 81.2 | 18.8 | | 84.6 | 15.4 | | |
| Total % | 0.3 | 44.1 | 44.4 | 14.8 | 3.4 | 18.2 | 31.6 | 5.8 | 37.4 | |

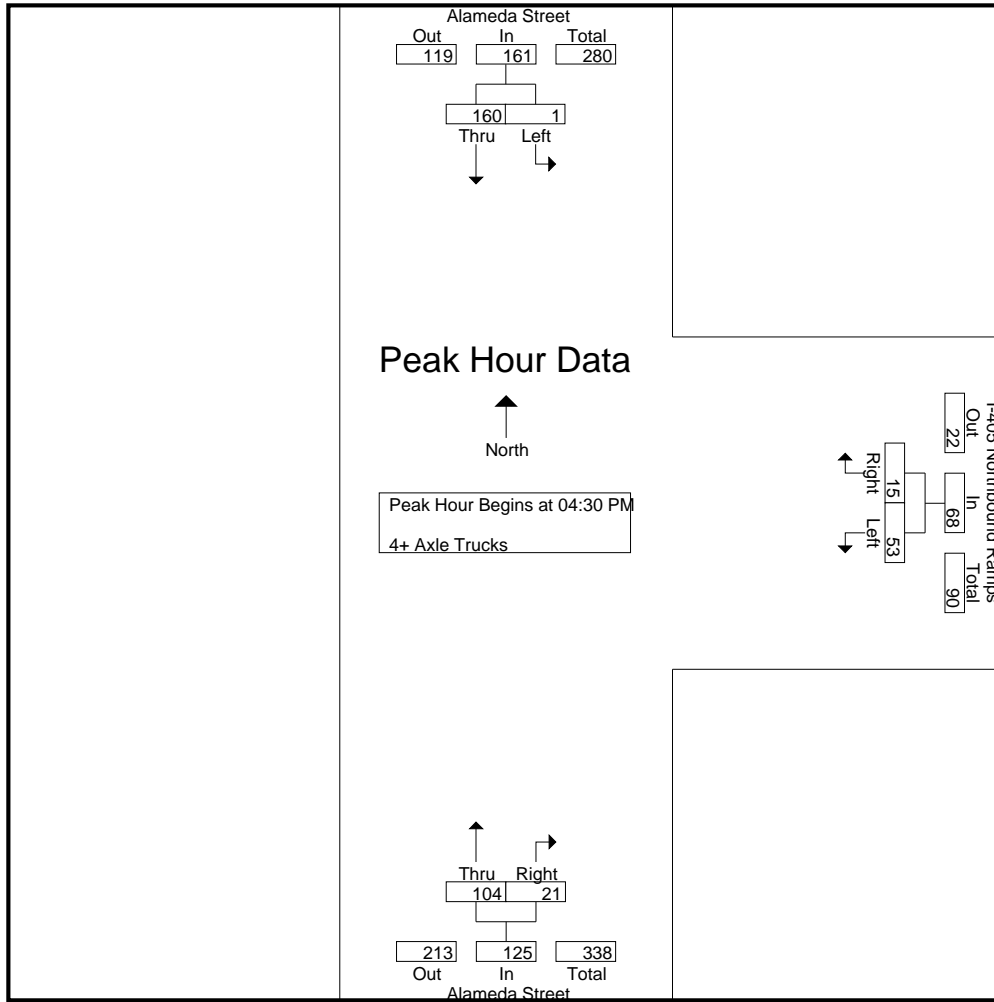
| Start Time | Alameda Street Southbound | | | I-405 Northbound Ramps Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|----------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 0 | 33 | 33 | 12 | 7 | 19 | 41 | 6 | 47 | 99 |
| 04:45 PM | 1 | 42 | 43 | 15 | 2 | 17 | 26 | 4 | 30 | 90 |
| 05:00 PM | 0 | 43 | 43 | 17 | 2 | 19 | 18 | 7 | 25 | 87 |
| 05:15 PM | 0 | 42 | 42 | 9 | 4 | 13 | 19 | 4 | 23 | 78 |
| Total Volume | 1 | 160 | 161 | 53 | 15 | 68 | 104 | 21 | 125 | 354 |
| % App. Total | 0.6 | 99.4 | | 77.9 | 22.1 | | 83.2 | 16.8 | | |
| PHF | .250 | .930 | .936 | .779 | .536 | .895 | .634 | .750 | .665 | .894 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: I-405 Northbound Ramps
 Weather: Clear

File Name : 04_CRS_Alameda_405N PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 33 | 33 | 12 | 7 | 19 | 41 | 6 | 47 |
| +15 mins. | 1 | 42 | 43 | 15 | 2 | 17 | 26 | 4 | 30 |
| +30 mins. | 0 | 43 | 43 | 17 | 2 | 19 | 18 | 7 | 25 |
| +45 mins. | 0 | 42 | 42 | 9 | 4 | 13 | 19 | 4 | 23 |
| Total Volume | 1 | 160 | 161 | 53 | 15 | 68 | 104 | 21 | 125 |
| % App. Total | 0.6 | 99.4 | | 77.9 | 22.1 | | 83.2 | 16.8 | |
| PHF | .250 | .930 | .936 | .779 | .536 | .895 | .634 | .750 | .665 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

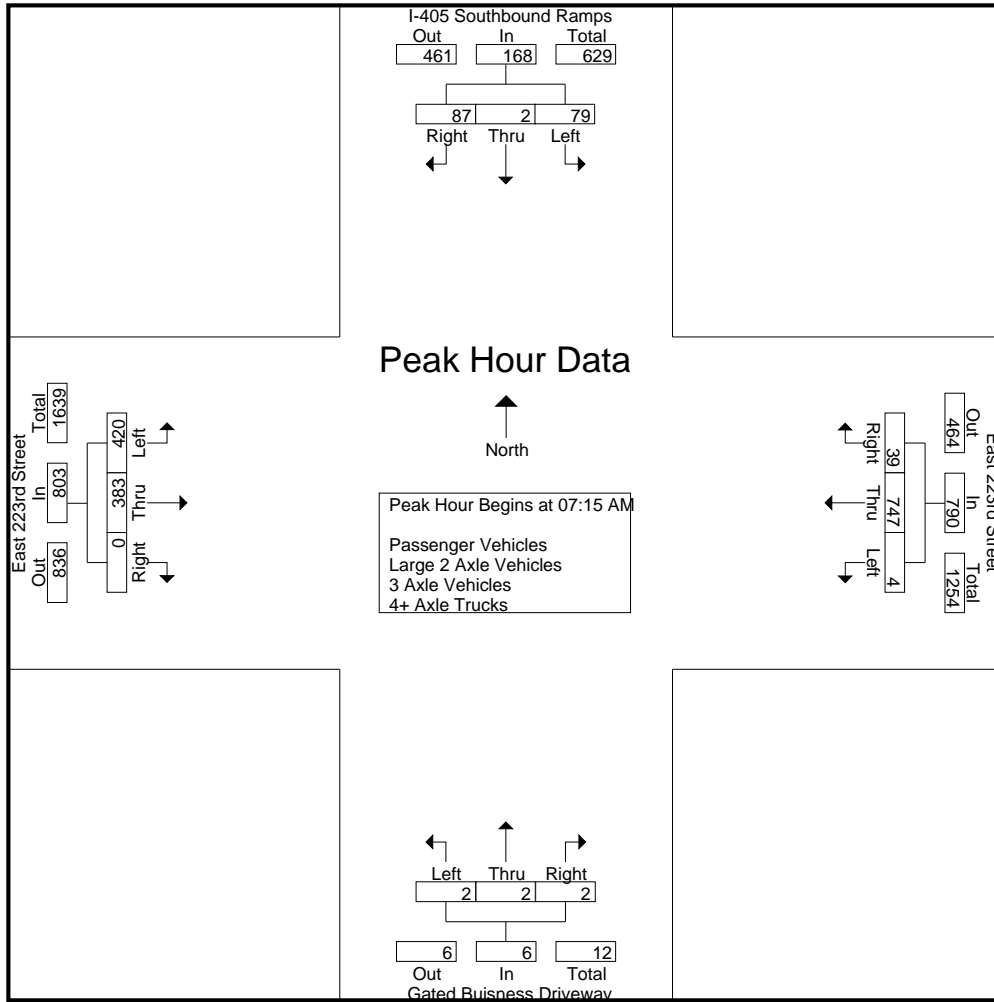
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|-----------------------------------|----------|------------|------------|-----------------------------|-------------|-----------|-------------|------------------------------------|----------|-----------|------------|-----------------------------|------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 13 | 0 | 18 | 31 | 2 | 165 | 8 | 175 | 1 | 3 | 3 | 7 | 68 | 57 | 1 | 126 | 339 |
| 07:15 AM | 20 | 0 | 20 | 40 | 1 | 191 | 11 | 203 | 0 | 0 | 0 | 0 | 98 | 102 | 0 | 200 | 443 |
| 07:30 AM | 15 | 0 | 17 | 32 | 0 | 218 | 13 | 231 | 2 | 1 | 0 | 3 | 127 | 113 | 0 | 240 | 506 |
| 07:45 AM | 22 | 1 | 26 | 49 | 1 | 179 | 7 | 187 | 0 | 1 | 1 | 2 | 95 | 75 | 0 | 170 | 408 |
| Total | 70 | 1 | 81 | 152 | 4 | 753 | 39 | 796 | 3 | 5 | 4 | 12 | 388 | 347 | 1 | 736 | 1696 |
| 08:00 AM | 22 | 1 | 24 | 47 | 2 | 159 | 8 | 169 | 0 | 0 | 1 | 1 | 100 | 93 | 0 | 193 | 410 |
| 08:15 AM | 24 | 0 | 30 | 54 | 0 | 151 | 4 | 155 | 1 | 0 | 2 | 3 | 114 | 106 | 0 | 220 | 432 |
| 08:30 AM | 19 | 0 | 14 | 33 | 1 | 164 | 5 | 170 | 0 | 0 | 2 | 2 | 117 | 90 | 0 | 207 | 412 |
| 08:45 AM | 17 | 0 | 14 | 31 | 0 | 146 | 12 | 158 | 0 | 1 | 1 | 2 | 74 | 77 | 1 | 152 | 343 |
| Total | 82 | 1 | 82 | 165 | 3 | 620 | 29 | 652 | 1 | 1 | 6 | 8 | 405 | 366 | 1 | 772 | 1597 |
| Grand Total | 152 | 2 | 163 | 317 | 7 | 1373 | 68 | 1448 | 4 | 6 | 10 | 20 | 793 | 713 | 2 | 1508 | 3293 |
| Apprch % | 47.9 | 0.6 | 51.4 | | 0.5 | 94.8 | 4.7 | | 20 | 30 | 50 | | 52.6 | 47.3 | 0.1 | | |
| Total % | 4.6 | 0.1 | 4.9 | 9.6 | 0.2 | 41.7 | 2.1 | 44 | 0.1 | 0.2 | 0.3 | 0.6 | 24.1 | 21.7 | 0.1 | 45.8 | |
| Passenger Vehicles | 146 | 2 | 121 | 269 | 7 | 1323 | 59 | 1389 | 4 | 6 | 10 | 20 | 548 | 691 | 2 | 1241 | 2919 |
| % Passenger Vehicles | 96.1 | 100 | 74.2 | 84.9 | 100 | 96.4 | 86.8 | 95.9 | 100 | 100 | 100 | 100 | 69.1 | 96.9 | 100 | 82.3 | 88.6 |
| Large 2 Axle Vehicles | 6 | 0 | 5 | 11 | 0 | 18 | 2 | 20 | 0 | 0 | 0 | 0 | 19 | 16 | 0 | 35 | 66 |
| % Large 2 Axle Vehicles | 3.9 | 0 | 3.1 | 3.5 | 0 | 1.3 | 2.9 | 1.4 | 0 | 0 | 0 | 0 | 2.4 | 2.2 | 0 | 2.3 | 2 |
| 3 Axle Vehicles | 0 | 0 | 15 | 15 | 0 | 11 | 1 | 12 | 0 | 0 | 0 | 0 | 19 | 3 | 0 | 22 | 49 |
| % 3 Axle Vehicles | 0 | 0 | 9.2 | 4.7 | 0 | 0.8 | 1.5 | 0.8 | 0 | 0 | 0 | 0 | 2.4 | 0.4 | 0 | 1.5 | 1.5 |
| 4+ Axle Trucks | 0 | 0 | 22 | 22 | 0 | 21 | 6 | 27 | 0 | 0 | 0 | 0 | 207 | 3 | 0 | 210 | 259 |
| % 4+ Axle Trucks | 0 | 0 | 13.5 | 6.9 | 0 | 1.5 | 8.8 | 1.9 | 0 | 0 | 0 | 0 | 26.1 | 0.4 | 0 | 13.9 | 7.9 |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|----------|-----------|------------|-----------------------------|------------|-----------|------------|------------------------------------|----------|----------|------------|-----------------------------|------------|----------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 20 | 0 | 20 | 40 | 1 | 191 | 11 | 203 | 0 | 0 | 0 | 0 | 98 | 102 | 0 | 200 | 443 |
| 07:30 AM | 15 | 0 | 17 | 32 | 0 | 218 | 13 | 231 | 2 | 1 | 0 | 3 | 127 | 113 | 0 | 240 | 506 |
| 07:45 AM | 22 | 1 | 26 | 49 | 1 | 179 | 7 | 187 | 0 | 1 | 1 | 2 | 95 | 75 | 0 | 170 | 408 |
| 08:00 AM | 22 | 1 | 24 | 47 | 2 | 159 | 8 | 169 | 0 | 0 | 1 | 1 | 100 | 93 | 0 | 193 | 410 |
| Total Volume | 79 | 2 | 87 | 168 | 4 | 747 | 39 | 790 | 2 | 2 | 2 | 6 | 420 | 383 | 0 | 803 | 1767 |
| % App. Total | 47 | 1.2 | 51.8 | | 0.5 | 94.6 | 4.9 | | 33.3 | 33.3 | 33.3 | | 52.3 | 47.7 | 0 | | |
| PHF | .898 | .500 | .837 | .857 | .500 | .857 | .750 | .855 | .250 | .500 | .500 | .500 | .827 | .847 | .000 | .836 | .873 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:45 AM | | | | 07:00 AM | | | | 07:00 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 22 | 1 | 26 | 49 | 2 | 165 | 8 | 175 | 1 | 3 | 3 | 7 | 127 | 113 | 0 | 240 |
| +15 mins. | 22 | 1 | 24 | 47 | 1 | 191 | 11 | 203 | 0 | 0 | 0 | 0 | 95 | 75 | 0 | 170 |
| +30 mins. | 24 | 0 | 30 | 54 | 0 | 218 | 13 | 231 | 2 | 1 | 0 | 3 | 100 | 93 | 0 | 193 |
| +45 mins. | 19 | 0 | 14 | 33 | 1 | 179 | 7 | 187 | 0 | 1 | 1 | 2 | 114 | 106 | 0 | 220 |
| Total Volume | 87 | 2 | 94 | 183 | 4 | 753 | 39 | 796 | 3 | 5 | 4 | 12 | 436 | 387 | 0 | 823 |
| % App. Total | 47.5 | 1.1 | 51.4 | | 0.5 | 94.6 | 4.9 | | 25 | 41.7 | 33.3 | | 53 | 47 | 0 | |
| PHF | .906 | .500 | .783 | .847 | .500 | .864 | .750 | .861 | .375 | .417 | .333 | .429 | .858 | .856 | .000 | .857 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

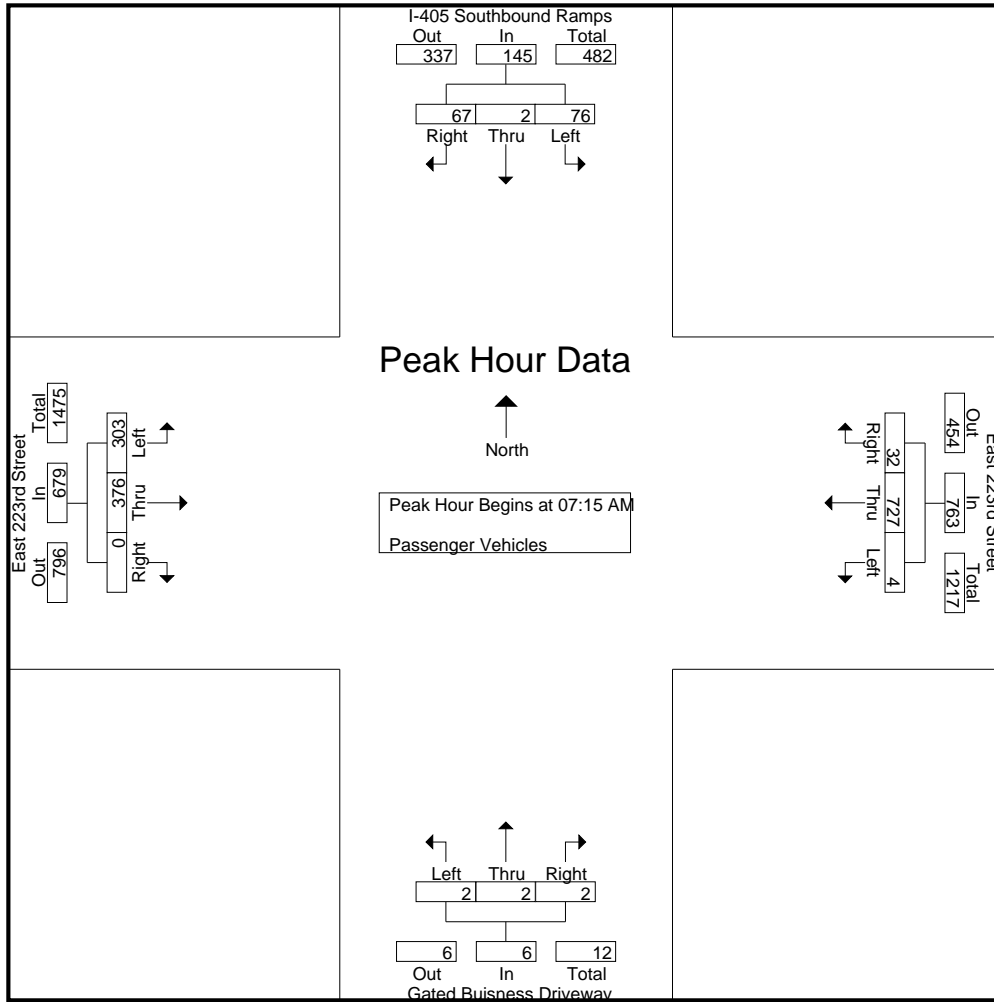
Groups Printed- Passenger Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 12 | 0 | 12 | 24 | 2 | 155 | 7 | 164 | 1 | 3 | 3 | 7 | 42 | 56 | 1 | 99 | 294 |
| 07:15 AM | 20 | 0 | 15 | 35 | 1 | 185 | 9 | 195 | 0 | 0 | 0 | 0 | 71 | 100 | 0 | 171 | 401 |
| 07:30 AM | 14 | 0 | 10 | 24 | 0 | 216 | 12 | 228 | 2 | 1 | 0 | 3 | 90 | 111 | 0 | 201 | 456 |
| 07:45 AM | 22 | 1 | 21 | 44 | 1 | 172 | 6 | 179 | 0 | 1 | 1 | 2 | 75 | 74 | 0 | 149 | 374 |
| Total | 68 | 1 | 58 | 127 | 4 | 728 | 34 | 766 | 3 | 5 | 4 | 12 | 278 | 341 | 1 | 620 | 1525 |
| 08:00 AM | 20 | 1 | 21 | 42 | 2 | 154 | 5 | 161 | 0 | 0 | 1 | 1 | 67 | 91 | 0 | 158 | 362 |
| 08:15 AM | 22 | 0 | 23 | 45 | 0 | 144 | 4 | 148 | 1 | 0 | 2 | 3 | 82 | 102 | 0 | 184 | 380 |
| 08:30 AM | 19 | 0 | 10 | 29 | 1 | 158 | 4 | 163 | 0 | 0 | 2 | 2 | 78 | 86 | 0 | 164 | 358 |
| 08:45 AM | 17 | 0 | 9 | 26 | 0 | 139 | 12 | 151 | 0 | 1 | 1 | 2 | 43 | 71 | 1 | 115 | 294 |
| Total | 78 | 1 | 63 | 142 | 3 | 595 | 25 | 623 | 1 | 1 | 6 | 8 | 270 | 350 | 1 | 621 | 1394 |
| Grand Total | 146 | 2 | 121 | 269 | 7 | 1323 | 59 | 1389 | 4 | 6 | 10 | 20 | 548 | 691 | 2 | 1241 | 2919 |
| Apprch % | 54.3 | 0.7 | 45 | | 0.5 | 95.2 | 4.2 | | 20 | 30 | 50 | | 44.2 | 55.7 | 0.2 | | |
| Total % | 5 | 0.1 | 4.1 | 9.2 | 0.2 | 45.3 | 2 | 47.6 | 0.1 | 0.2 | 0.3 | 0.7 | 18.8 | 23.7 | 0.1 | 42.5 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|----------|-----------|------------|-----------------------------|------------|-----------|------------|------------------------------------|----------|----------|------------|-----------------------------|------------|----------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 20 | 0 | 15 | 35 | 1 | 185 | 9 | 195 | 0 | 0 | 0 | 0 | 71 | 100 | 0 | 171 | 401 |
| 07:30 AM | 14 | 0 | 10 | 24 | 0 | 216 | 12 | 228 | 2 | 1 | 0 | 3 | 90 | 111 | 0 | 201 | 456 |
| 07:45 AM | 22 | 1 | 21 | 44 | 1 | 172 | 6 | 179 | 0 | 1 | 1 | 2 | 75 | 74 | 0 | 149 | 374 |
| 08:00 AM | 20 | 1 | 21 | 42 | 2 | 154 | 5 | 161 | 0 | 0 | 1 | 1 | 67 | 91 | 0 | 158 | 362 |
| Total Volume | 76 | 2 | 67 | 145 | 4 | 727 | 32 | 763 | 2 | 2 | 2 | 6 | 303 | 376 | 0 | 679 | 1593 |
| % App. Total | 52.4 | 1.4 | 46.2 | | 0.5 | 95.3 | 4.2 | | 33.3 | 33.3 | 33.3 | | 44.6 | 55.4 | 0 | | |
| PHF | .864 | .500 | .798 | .824 | .500 | .841 | .667 | .837 | .250 | .500 | .500 | .500 | .842 | .847 | .000 | .845 | .873 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|-----------|----------|-----------|-----------|----------|------------|-----------|------------|----------|----------|----------|----------|-----------|------------|------|------------|
| +0 mins. | 20 | 0 | 15 | 35 | 1 | 185 | 9 | 195 | 0 | 0 | 0 | 0 | 71 | 100 | 0 | 171 |
| +15 mins. | 14 | 0 | 10 | 24 | 0 | 216 | 12 | 228 | 2 | 1 | 0 | 3 | 90 | 111 | 0 | 201 |
| +30 mins. | 22 | 1 | 21 | 44 | 1 | 172 | 6 | 179 | 0 | 1 | 1 | 2 | 75 | 74 | 0 | 149 |
| +45 mins. | 20 | 1 | 21 | 42 | 2 | 154 | 5 | 161 | 0 | 0 | 1 | 1 | 67 | 91 | 0 | 158 |
| Total Volume | 76 | 2 | 67 | 145 | 4 | 727 | 32 | 763 | 2 | 2 | 2 | 6 | 303 | 376 | 0 | 679 |
| % App. Total | 52.4 | 1.4 | 46.2 | | 0.5 | 95.3 | 4.2 | | 33.3 | 33.3 | 33.3 | | 44.6 | 55.4 | 0 | |
| PHF | .864 | .500 | .798 | .824 | .500 | .841 | .667 | .837 | .250 | .500 | .500 | .500 | .842 | .847 | .000 | .845 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

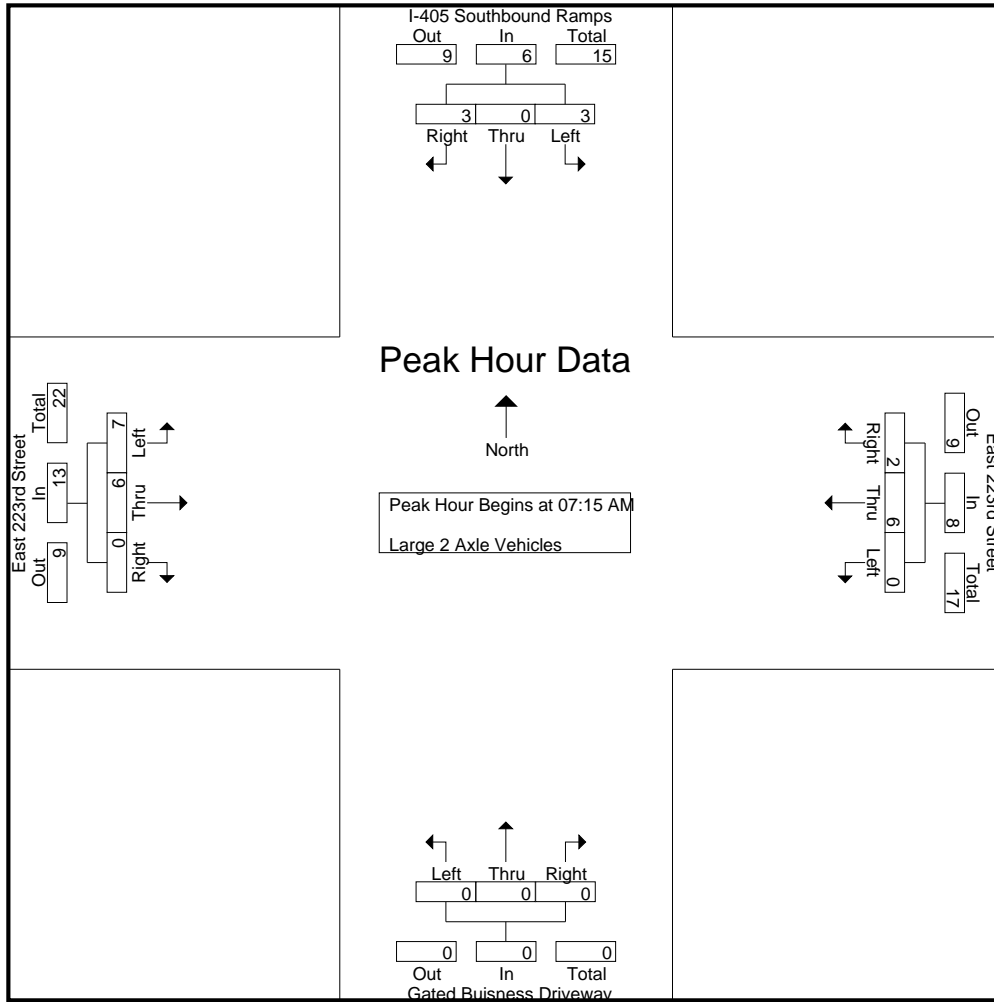
Groups Printed- Large 2 Axle Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 1 | 0 | 0 | 1 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 7 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 4 |
| 07:30 AM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 6 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 6 |
| Total | 2 | 0 | 1 | 3 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 8 | 5 | 0 | 13 | 23 |
| 08:00 AM | 2 | 0 | 2 | 4 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 11 |
| 08:15 AM | 2 | 0 | 0 | 2 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 6 | 12 |
| 08:30 AM | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 6 | 10 |
| 08:45 AM | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 8 | 10 |
| Total | 4 | 0 | 4 | 8 | 0 | 11 | 2 | 13 | 0 | 0 | 0 | 0 | 11 | 11 | 0 | 22 | 43 |
| Grand Total | 6 | 0 | 5 | 11 | 0 | 18 | 2 | 20 | 0 | 0 | 0 | 0 | 19 | 16 | 0 | 35 | 66 |
| Apprch % | 54.5 | 0 | 45.5 | | 0 | 90 | 10 | | 0 | 0 | 0 | | 54.3 | 45.7 | 0 | | |
| Total % | 9.1 | 0 | 7.6 | 16.7 | 0 | 27.3 | 3 | 30.3 | 0 | 0 | 0 | 0 | 28.8 | 24.2 | 0 | 53 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 4 |
| 07:30 AM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 6 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 6 |
| 08:00 AM | 2 | 0 | 2 | 4 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 11 |
| Total Volume | 3 | 0 | 3 | 6 | 0 | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 13 | 27 |
| % App. Total | 50 | 0 | 50 | | 0 | 75 | 25 | | 0 | 0 | 0 | | 53.8 | 46.2 | 0 | | |
| PHF | .375 | .000 | .375 | .375 | .000 | .500 | .250 | .400 | .000 | .000 | .000 | .000 | .438 | .750 | .000 | .650 | .614 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 |
| +15 mins. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 |
| +30 mins. | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 |
| +45 mins. | 2 | 0 | 2 | 4 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total Volume | 3 | 0 | 3 | 6 | 0 | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 13 |
| % App. Total | 50 | 0 | 50 | | 0 | 75 | 25 | | 0 | 0 | 0 | | 53.8 | 46.2 | 0 | |
| PHF | .375 | .000 | .375 | .375 | .000 | .500 | .250 | .400 | .000 | .000 | .000 | .000 | .438 | .750 | .000 | .650 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

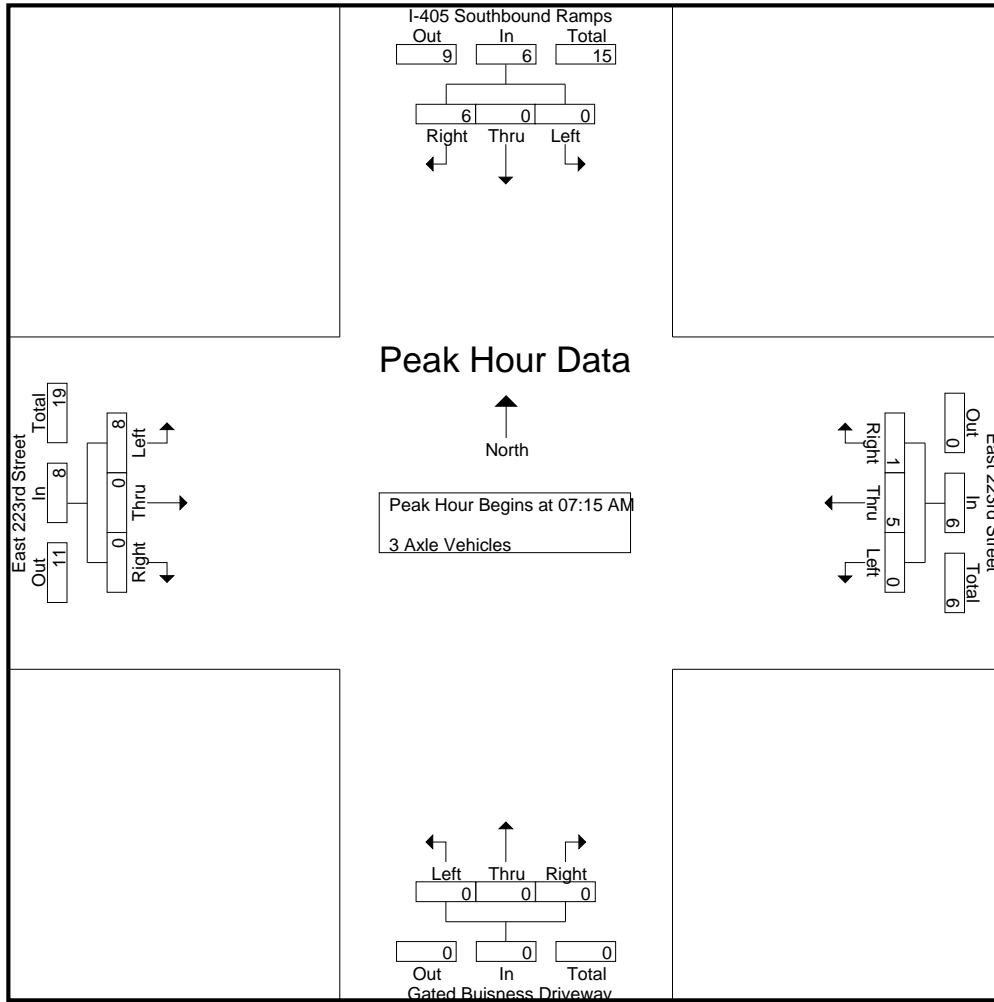
Groups Printed- 3 Axle Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 3 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 6 |
| 07:15 AM | 0 | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 8 |
| 07:30 AM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 8 |
| Total | 0 | 0 | 9 | 9 | 0 | 6 | 1 | 7 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 24 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| 08:15 AM | 0 | 0 | 3 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 8 |
| 08:30 AM | 0 | 0 | 2 | 2 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 10 |
| 08:45 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 5 |
| Total | 0 | 0 | 6 | 6 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 11 | 3 | 0 | 14 | 25 |
| Grand Total | 0 | 0 | 15 | 15 | 0 | 11 | 1 | 12 | 0 | 0 | 0 | 0 | 19 | 3 | 0 | 22 | 49 |
| Apprch % | 0 | 0 | 100 | | 0 | 91.7 | 8.3 | | 0 | 0 | 0 | | 86.4 | 13.6 | 0 | | |
| Total % | 0 | 0 | 30.6 | 30.6 | 0 | 22.4 | 2 | 24.5 | 0 | 0 | 0 | 0 | 38.8 | 6.1 | 0 | 44.9 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 8 |
| 07:30 AM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 8 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| Total Volume | 0 | 0 | 6 | 6 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 20 |
| % App. Total | 0 | 0 | 100 | | 0 | 83.3 | 16.7 | | 0 | 0 | 0 | | 100 | 0 | 0 | | |
| PHF | .000 | .000 | .500 | .500 | .000 | .417 | .250 | .500 | .000 | .000 | .000 | .000 | .500 | .000 | .000 | .500 | .625 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| +15 mins. | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Total Volume | 0 | 0 | 6 | 6 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 |
| % App. Total | 0 | 0 | 100 | | 0 | 83.3 | 16.7 | | 0 | 0 | 0 | | 100 | 0 | 0 | |
| PHF | .000 | .000 | .500 | .500 | .000 | .417 | .250 | .500 | .000 | .000 | .000 | .000 | .500 | .000 | .000 | .500 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

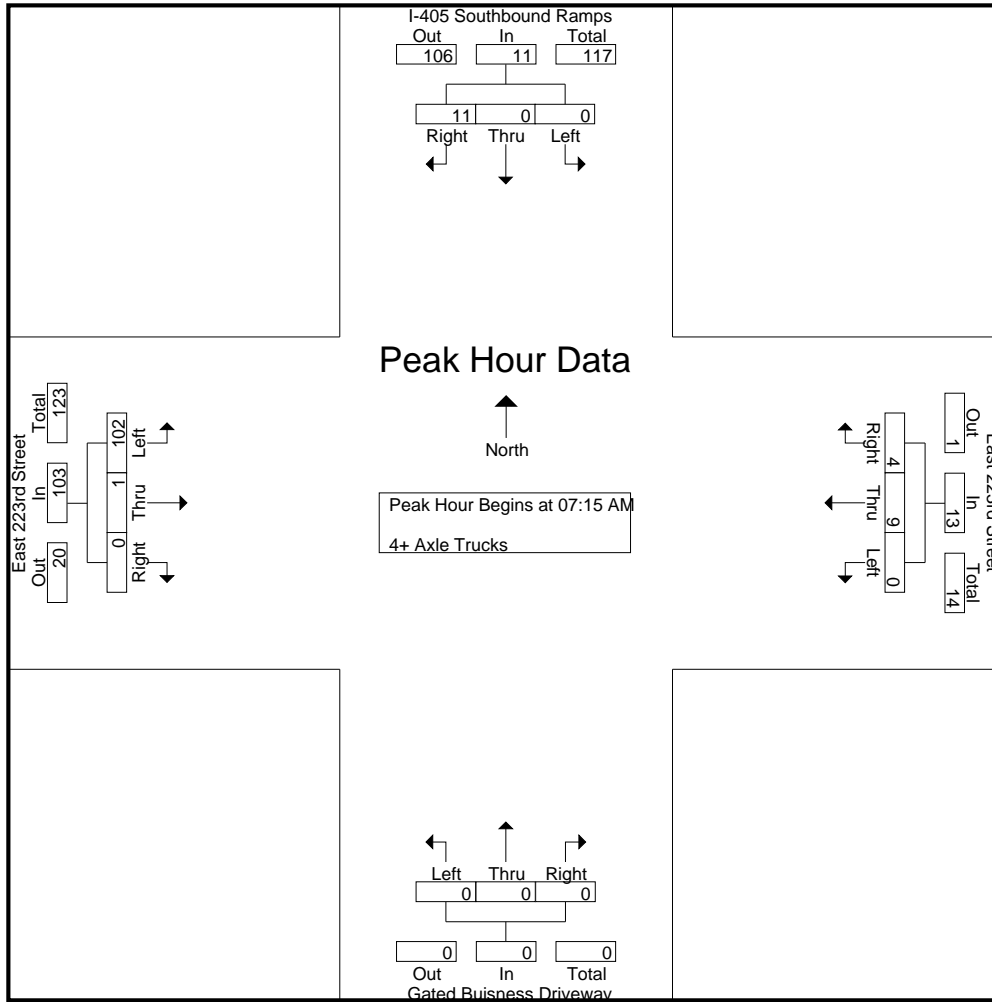
Groups Printed- 4+ Axle Trucks

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 3 | 3 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 24 | 32 |
| 07:15 AM | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 23 | 30 |
| 07:30 AM | 0 | 0 | 5 | 5 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 34 | 42 |
| 07:45 AM | 0 | 0 | 3 | 3 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 14 | 20 |
| Total | 0 | 0 | 13 | 13 | 0 | 12 | 4 | 16 | 0 | 0 | 0 | 0 | 94 | 1 | 0 | 95 | 124 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 32 | 35 |
| 08:15 AM | 0 | 0 | 4 | 4 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 26 | 32 |
| 08:30 AM | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 31 | 1 | 0 | 32 | 34 |
| 08:45 AM | 0 | 0 | 3 | 3 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 25 | 34 |
| Total | 0 | 0 | 9 | 9 | 0 | 9 | 2 | 11 | 0 | 0 | 0 | 0 | 113 | 2 | 0 | 115 | 135 |
| Grand Total | 0 | 0 | 22 | 22 | 0 | 21 | 6 | 27 | 0 | 0 | 0 | 0 | 207 | 3 | 0 | 210 | 259 |
| Apprch % | 0 | 0 | 100 | | 0 | 77.8 | 22.2 | | 0 | 0 | 0 | | 98.6 | 1.4 | 0 | | |
| Total % | 0 | 0 | 8.5 | 8.5 | 0 | 8.1 | 2.3 | 10.4 | 0 | 0 | 0 | 0 | 79.9 | 1.2 | 0 | 81.1 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 23 | 30 |
| 07:30 AM | 0 | 0 | 5 | 5 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 34 | 42 |
| 07:45 AM | 0 | 0 | 3 | 3 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 14 | 20 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 32 | 35 |
| Total Volume | 0 | 0 | 11 | 11 | 0 | 9 | 4 | 13 | 0 | 0 | 0 | 0 | 102 | 1 | 0 | 103 | 127 |
| % App. Total | 0 | 0 | 100 | | 0 | 69.2 | 30.8 | | 0 | 0 | 0 | | 99 | 1 | 0 | | |
| PHF | .000 | .000 | .550 | .550 | .000 | .563 | 1.00 | .650 | .000 | .000 | .000 | .000 | .773 | .250 | .000 | .757 | .756 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | | 07:15 AM | | | |
|--------------|----------|------|----------|----------|----------|----------|----------|----------|----------|------|------|------|-----------|----------|------|-----------|
| +0 mins. | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 23 |
| +15 mins. | 0 | 0 | 5 | 5 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 34 |
| +30 mins. | 0 | 0 | 3 | 3 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 14 |
| +45 mins. | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 32 |
| Total Volume | 0 | 0 | 11 | 11 | 0 | 9 | 4 | 13 | 0 | 0 | 0 | 0 | 102 | 1 | 0 | 103 |
| % App. Total | 0 | 0 | 100 | | 0 | 69.2 | 30.8 | | 0 | 0 | 0 | | 99 | 1 | 0 | |
| PHF | .000 | .000 | .550 | .550 | .000 | .563 | 1.000 | .650 | .000 | .000 | .000 | .000 | .773 | .250 | .000 | .757 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

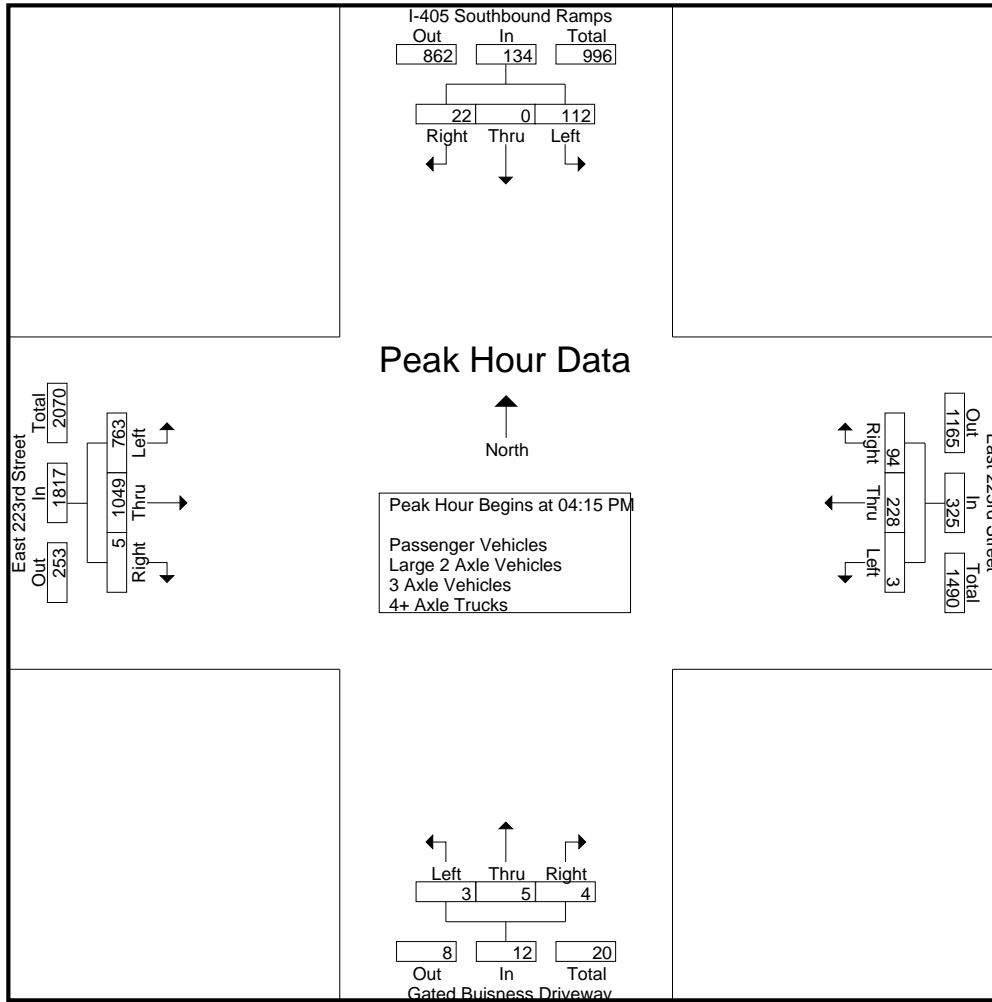
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|-----------------------------------|----------|-----------|------------|-----------------------------|------------|------------|------------|------------------------------------|-----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 24 | 0 | 7 | 31 | 0 | 72 | 21 | 93 | 1 | 3 | 0 | 4 | 177 | 236 | 0 | 413 | 541 |
| 04:15 PM | 27 | 0 | 5 | 32 | 1 | 50 | 16 | 67 | 0 | 1 | 1 | 2 | 179 | 269 | 2 | 450 | 551 |
| 04:30 PM | 32 | 0 | 10 | 42 | 1 | 54 | 26 | 81 | 0 | 0 | 2 | 2 | 202 | 261 | 0 | 463 | 588 |
| 04:45 PM | 24 | 0 | 4 | 28 | 0 | 65 | 20 | 85 | 0 | 1 | 0 | 1 | 200 | 282 | 1 | 483 | 597 |
| Total | 107 | 0 | 26 | 133 | 2 | 241 | 83 | 326 | 1 | 5 | 3 | 9 | 758 | 1048 | 3 | 1809 | 2277 |
| 05:00 PM | 29 | 0 | 3 | 32 | 1 | 59 | 32 | 92 | 3 | 3 | 1 | 7 | 182 | 237 | 2 | 421 | 552 |
| 05:15 PM | 39 | 0 | 1 | 40 | 0 | 65 | 28 | 93 | 1 | 5 | 0 | 6 | 172 | 229 | 0 | 401 | 540 |
| 05:30 PM | 19 | 0 | 5 | 24 | 3 | 63 | 11 | 77 | 1 | 1 | 0 | 2 | 204 | 217 | 1 | 422 | 525 |
| 05:45 PM | 36 | 0 | 3 | 39 | 0 | 59 | 21 | 80 | 0 | 2 | 0 | 2 | 177 | 238 | 1 | 416 | 537 |
| Total | 123 | 0 | 12 | 135 | 4 | 246 | 92 | 342 | 5 | 11 | 1 | 17 | 735 | 921 | 4 | 1660 | 2154 |
| Grand Total | 230 | 0 | 38 | 268 | 6 | 487 | 175 | 668 | 6 | 16 | 4 | 26 | 1493 | 1969 | 7 | 3469 | 4431 |
| Apprch % | 85.8 | 0 | 14.2 | | 0.9 | 72.9 | 26.2 | | 23.1 | 61.5 | 15.4 | | 43 | 56.8 | 0.2 | | |
| Total % | 5.2 | 0 | 0.9 | 6 | 0.1 | 11 | 3.9 | 15.1 | 0.1 | 0.4 | 0.1 | 0.6 | 33.7 | 44.4 | 0.2 | 78.3 | |
| Passenger Vehicles | 227 | 0 | 19 | 246 | 6 | 452 | 155 | 613 | 6 | 16 | 4 | 26 | 1269 | 1931 | 7 | 3207 | 4092 |
| % Passenger Vehicles | 98.7 | 0 | 50 | 91.8 | 100 | 92.8 | 88.6 | 91.8 | 100 | 100 | 100 | 100 | 85 | 98.1 | 100 | 92.4 | 92.3 |
| Large 2 Axle Vehicles | 3 | 0 | 1 | 4 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 20 | 29 | 0 | 49 | 59 |
| % Large 2 Axle Vehicles | 1.3 | 0 | 2.6 | 1.5 | 0 | 0.6 | 1.7 | 0.9 | 0 | 0 | 0 | 0 | 1.3 | 1.5 | 0 | 1.4 | 1.3 |
| 3 Axle Vehicles | 0 | 0 | 3 | 3 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 35 | 2 | 0 | 37 | 49 |
| % 3 Axle Vehicles | 0 | 0 | 7.9 | 1.1 | 0 | 1.6 | 0.6 | 1.3 | 0 | 0 | 0 | 0 | 2.3 | 0.1 | 0 | 1.1 | 1.1 |
| 4+ Axle Trucks | 0 | 0 | 15 | 15 | 0 | 24 | 16 | 40 | 0 | 0 | 0 | 0 | 169 | 7 | 0 | 176 | 231 |
| % 4+ Axle Trucks | 0 | 0 | 39.5 | 5.6 | 0 | 4.9 | 9.1 | 6 | 0 | 0 | 0 | 0 | 11.3 | 0.4 | 0 | 5.1 | 5.2 |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | |
| 04:15 PM | 27 | 0 | 5 | 32 | 1 | 50 | 16 | 67 | 0 | 1 | 1 | 2 | 179 | 269 | 2 | 450 | 551 |
| 04:30 PM | 32 | 0 | 10 | 42 | 1 | 54 | 26 | 81 | 0 | 0 | 2 | 2 | 202 | 261 | 0 | 463 | 588 |
| 04:45 PM | 24 | 0 | 4 | 28 | 0 | 65 | 20 | 85 | 0 | 1 | 0 | 1 | 200 | 282 | 1 | 483 | 597 |
| 05:00 PM | 29 | 0 | 3 | 32 | 1 | 59 | 32 | 92 | 3 | 3 | 1 | 7 | 182 | 237 | 2 | 421 | 552 |
| Total Volume | 112 | 0 | 22 | 134 | 3 | 228 | 94 | 325 | 3 | 5 | 4 | 12 | 763 | 1049 | 5 | 1817 | 2288 |
| % App. Total | 83.6 | 0 | 16.4 | | 0.9 | 70.2 | 28.9 | | 25 | 41.7 | 33.3 | | 42 | 57.7 | 0.3 | | |
| PHF | .875 | .000 | .550 | .798 | .750 | .877 | .734 | .883 | .250 | .417 | .500 | .429 | .944 | .930 | .625 | .940 | .958 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | | 04:30 PM | | | | 05:00 PM | | | | 04:15 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 32 | 0 | 10 | 42 | 1 | 54 | 26 | 81 | 3 | 3 | 1 | 7 | 179 | 269 | 2 | 450 |
| +15 mins. | 24 | 0 | 4 | 28 | 0 | 65 | 20 | 85 | 1 | 5 | 0 | 6 | 202 | 261 | 0 | 463 |
| +30 mins. | 29 | 0 | 3 | 32 | 1 | 59 | 32 | 92 | 1 | 1 | 0 | 2 | 200 | 282 | 1 | 483 |
| +45 mins. | 39 | 0 | 1 | 40 | 0 | 65 | 28 | 93 | 0 | 2 | 0 | 2 | 182 | 237 | 2 | 421 |
| Total Volume | 124 | 0 | 18 | 142 | 2 | 243 | 106 | 351 | 5 | 11 | 1 | 17 | 763 | 1049 | 5 | 1817 |
| % App. Total | 87.3 | 0 | 12.7 | | 0.6 | 69.2 | 30.2 | | 29.4 | 64.7 | 5.9 | | 42 | 57.7 | 0.3 | |
| PHF | .795 | .000 | .450 | .845 | .500 | .935 | .828 | .944 | .417 | .550 | .250 | .607 | .944 | .930 | .625 | .940 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

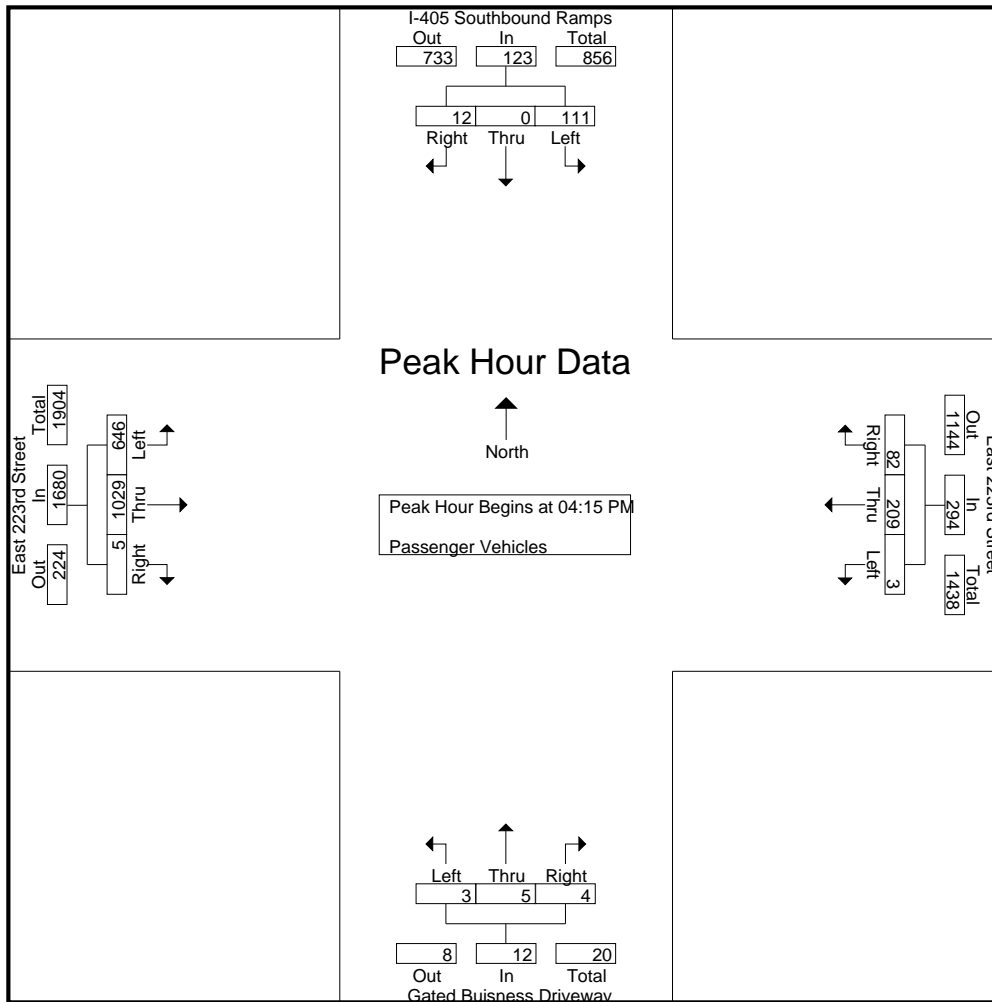
Groups Printed- Passenger Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 23 | 0 | 3 | 26 | 0 | 65 | 17 | 82 | 1 | 3 | 0 | 4 | 138 | 224 | 0 | 362 | 474 |
| 04:15 PM | 26 | 0 | 3 | 29 | 1 | 45 | 14 | 60 | 0 | 1 | 1 | 2 | 155 | 264 | 2 | 421 | 512 |
| 04:30 PM | 32 | 0 | 6 | 38 | 1 | 50 | 21 | 72 | 0 | 0 | 2 | 2 | 168 | 255 | 0 | 423 | 535 |
| 04:45 PM | 24 | 0 | 2 | 26 | 0 | 59 | 18 | 77 | 0 | 1 | 0 | 1 | 172 | 280 | 1 | 453 | 557 |
| Total | 105 | 0 | 14 | 119 | 2 | 219 | 70 | 291 | 1 | 5 | 3 | 9 | 633 | 1023 | 3 | 1659 | 2078 |
| 05:00 PM | 29 | 0 | 1 | 30 | 1 | 55 | 29 | 85 | 3 | 3 | 1 | 7 | 151 | 230 | 2 | 383 | 505 |
| 05:15 PM | 39 | 0 | 1 | 40 | 0 | 63 | 27 | 90 | 1 | 5 | 0 | 6 | 150 | 226 | 0 | 376 | 512 |
| 05:30 PM | 18 | 0 | 2 | 20 | 3 | 61 | 10 | 74 | 1 | 1 | 0 | 2 | 188 | 215 | 1 | 404 | 500 |
| 05:45 PM | 36 | 0 | 1 | 37 | 0 | 54 | 19 | 73 | 0 | 2 | 0 | 2 | 147 | 237 | 1 | 385 | 497 |
| Total | 122 | 0 | 5 | 127 | 4 | 233 | 85 | 322 | 5 | 11 | 1 | 17 | 636 | 908 | 4 | 1548 | 2014 |
| Grand Total | 227 | 0 | 19 | 246 | 6 | 452 | 155 | 613 | 6 | 16 | 4 | 26 | 1269 | 1931 | 7 | 3207 | 4092 |
| Apprch % | 92.3 | 0 | 7.7 | | 1 | 73.7 | 25.3 | | 23.1 | 61.5 | 15.4 | | 39.6 | 60.2 | 0.2 | | |
| Total % | 5.5 | 0 | 0.5 | 6 | 0.1 | 11 | 3.8 | 15 | 0.1 | 0.4 | 0.1 | 0.6 | 31 | 47.2 | 0.2 | 78.4 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | |
| 04:15 PM | 26 | 0 | 3 | 29 | 1 | 45 | 14 | 60 | 0 | 1 | 1 | 2 | 155 | 264 | 2 | 421 | 512 |
| 04:30 PM | 32 | 0 | 6 | 38 | 1 | 50 | 21 | 72 | 0 | 0 | 2 | 2 | 168 | 255 | 0 | 423 | 535 |
| 04:45 PM | 24 | 0 | 2 | 26 | 0 | 59 | 18 | 77 | 0 | 1 | 0 | 1 | 172 | 280 | 1 | 453 | 557 |
| 05:00 PM | 29 | 0 | 1 | 30 | 1 | 55 | 29 | 85 | 3 | 3 | 1 | 7 | 151 | 230 | 2 | 383 | 505 |
| Total Volume | 111 | 0 | 12 | 123 | 3 | 209 | 82 | 294 | 3 | 5 | 4 | 12 | 646 | 1029 | 5 | 1680 | 2109 |
| % App. Total | 90.2 | 0 | 9.8 | | 1 | 71.1 | 27.9 | | 25 | 41.7 | 33.3 | | 38.5 | 61.2 | 0.3 | | |
| PHF | .867 | .000 | .500 | .809 | .750 | .886 | .707 | .865 | .250 | .417 | .500 | .429 | .939 | .919 | .625 | .927 | .947 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | | | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|------|------|------|------|
| +0 mins. | 26 | 0 | 3 | 29 | 1 | 45 | 14 | 60 | 0 | 1 | 1 | 2 | 155 | 264 | 2 | 421 |
| +15 mins. | 32 | 0 | 6 | 38 | 1 | 50 | 21 | 72 | 0 | 0 | 2 | 2 | 168 | 255 | 0 | 423 |
| +30 mins. | 24 | 0 | 2 | 26 | 0 | 59 | 18 | 77 | 0 | 1 | 0 | 1 | 172 | 280 | 1 | 453 |
| +45 mins. | 29 | 0 | 1 | 30 | 1 | 55 | 29 | 85 | 3 | 3 | 1 | 7 | 151 | 230 | 2 | 383 |
| Total Volume | 111 | 0 | 12 | 123 | 3 | 209 | 82 | 294 | 3 | 5 | 4 | 12 | 646 | 1029 | 5 | 1680 |
| % App. Total | 90.2 | 0 | 9.8 | | 1 | 71.1 | 27.9 | | 25 | 41.7 | 33.3 | | 38.5 | 61.2 | 0.3 | |
| PHF | .867 | .000 | .500 | .809 | .750 | .886 | .707 | .865 | .250 | .417 | .500 | .429 | .939 | .919 | .625 | .927 |

City of Carson
 N/S: I-405 SB Ramps/Gated Buisness DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

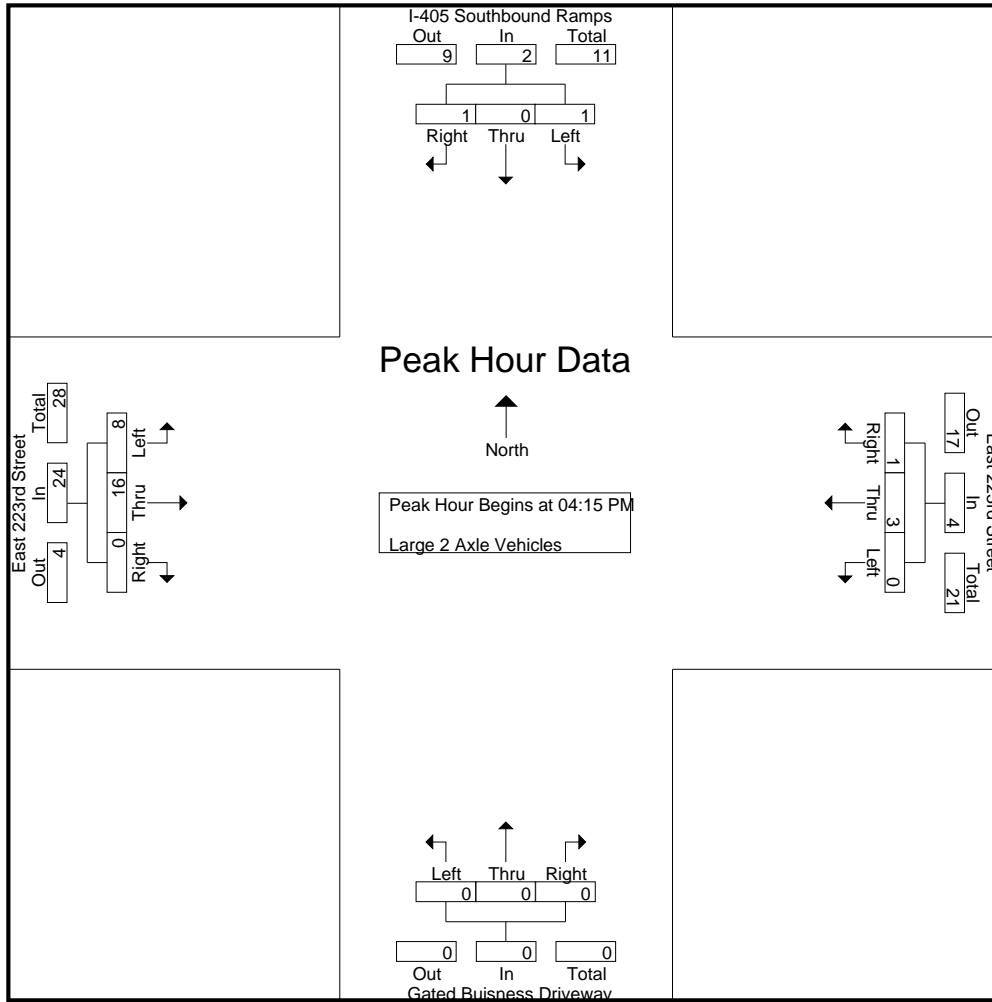
Groups Printed- Large 2 Axle Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 10 | 0 | 15 | 16 |
| 04:15 PM | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 6 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 6 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 5 | 7 |
| Total | 2 | 0 | 0 | 2 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 10 | 22 | 0 | 32 | 38 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 7 | 8 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 4 |
| 05:30 PM | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 5 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 4 |
| Total | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 10 | 7 | 0 | 17 | 21 |
| Grand Total | 3 | 0 | 1 | 4 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 20 | 29 | 0 | 49 | 59 |
| Apprch % | 75 | 0 | 25 | | 0 | 50 | 50 | | 0 | 0 | 0 | | 40.8 | 59.2 | 0 | | |
| Total % | 5.1 | 0 | 1.7 | 6.8 | 0 | 5.1 | 5.1 | 10.2 | 0 | 0 | 0 | 0 | 33.9 | 49.2 | 0 | 83.1 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Buisness Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | |
| 04:15 PM | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 6 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 6 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 5 | 7 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 7 | 8 |
| Total Volume | 1 | 0 | 1 | 2 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 8 | 16 | 0 | 24 | 30 |
| % App. Total | 50 | 0 | 50 | | 0 | 75 | 25 | | 0 | 0 | 0 | | 33.3 | 66.7 | 0 | | |
| PHF | .250 | .000 | .250 | .500 | .000 | .375 | .250 | .500 | .000 | .000 | .000 | .000 | .667 | .667 | .000 | .857 | .833 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 6 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 5 |
| +45 mins. | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 7 |
| Total Volume | 1 | 0 | 1 | 2 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 8 | 16 | 0 | 24 |
| % App. Total | 50 | 0 | 50 | | 0 | 75 | 25 | | 0 | 0 | 0 | | 33.3 | 66.7 | 0 | |
| PHF | .250 | .000 | .250 | .500 | .000 | .375 | .250 | .500 | .000 | .000 | .000 | .000 | .667 | .667 | .000 | .857 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

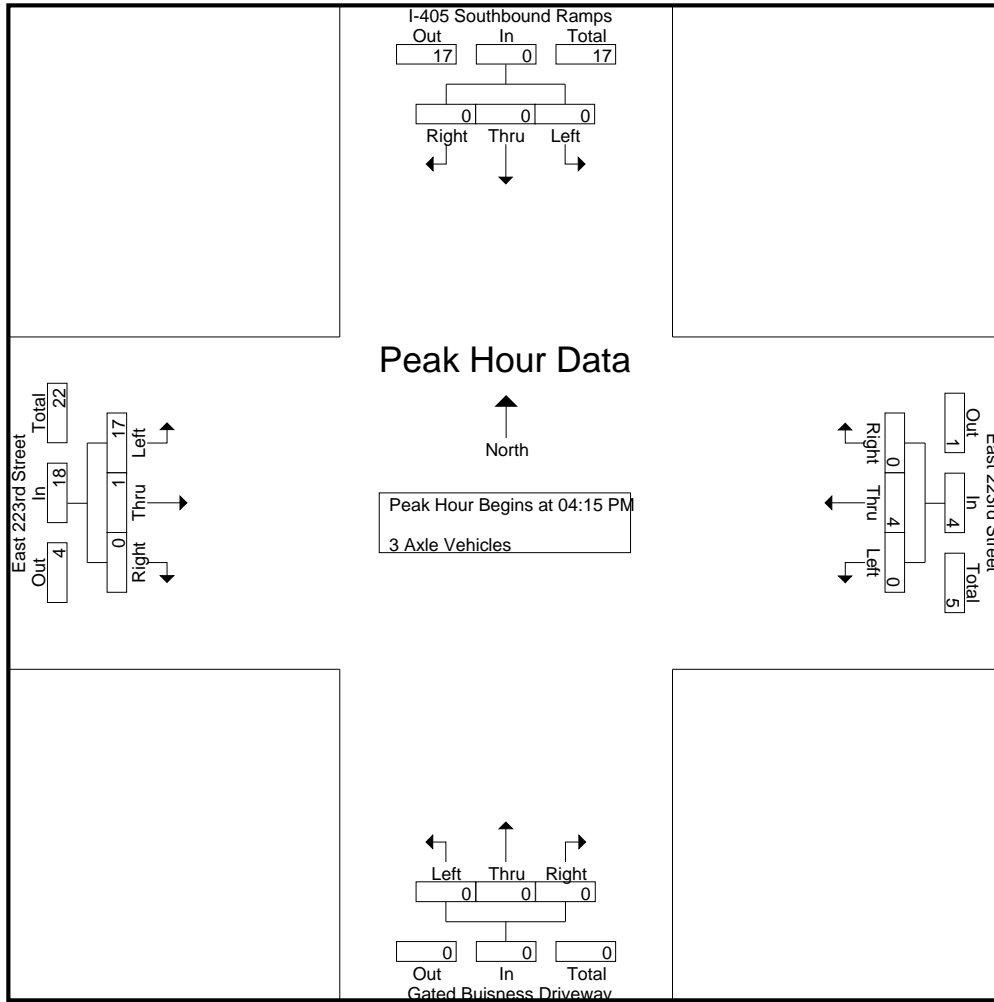
Groups Printed- 3 Axle Vehicles

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 13 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 5 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 6 |
| Total | 0 | 0 | 1 | 1 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 21 | 28 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 7 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 |
| 05:30 PM | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 5 |
| 05:45 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 6 |
| Total | 0 | 0 | 2 | 2 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 14 | 2 | 0 | 16 | 21 |
| Grand Total | 0 | 0 | 3 | 3 | 0 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | 35 | 2 | 0 | 37 | 49 |
| Apprch % | 0 | 0 | 100 | | 0 | 88.9 | 11.1 | | 0 | 0 | 0 | | 94.6 | 5.4 | 0 | | |
| Total % | 0 | 0 | 6.1 | 6.1 | 0 | 16.3 | 2 | 18.4 | 0 | 0 | 0 | 0 | 71.4 | 4.1 | 0 | 75.5 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 5 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 6 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 | 7 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 18 | 22 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 94.4 | 5.6 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .000 | .000 | .000 | .000 | .850 | .250 | .000 | .900 | .786 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 5 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 18 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 94.4 | 5.6 | 0 | 0 |
| PHF | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .000 | .000 | .000 | .000 | .850 | .250 | .000 | .900 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

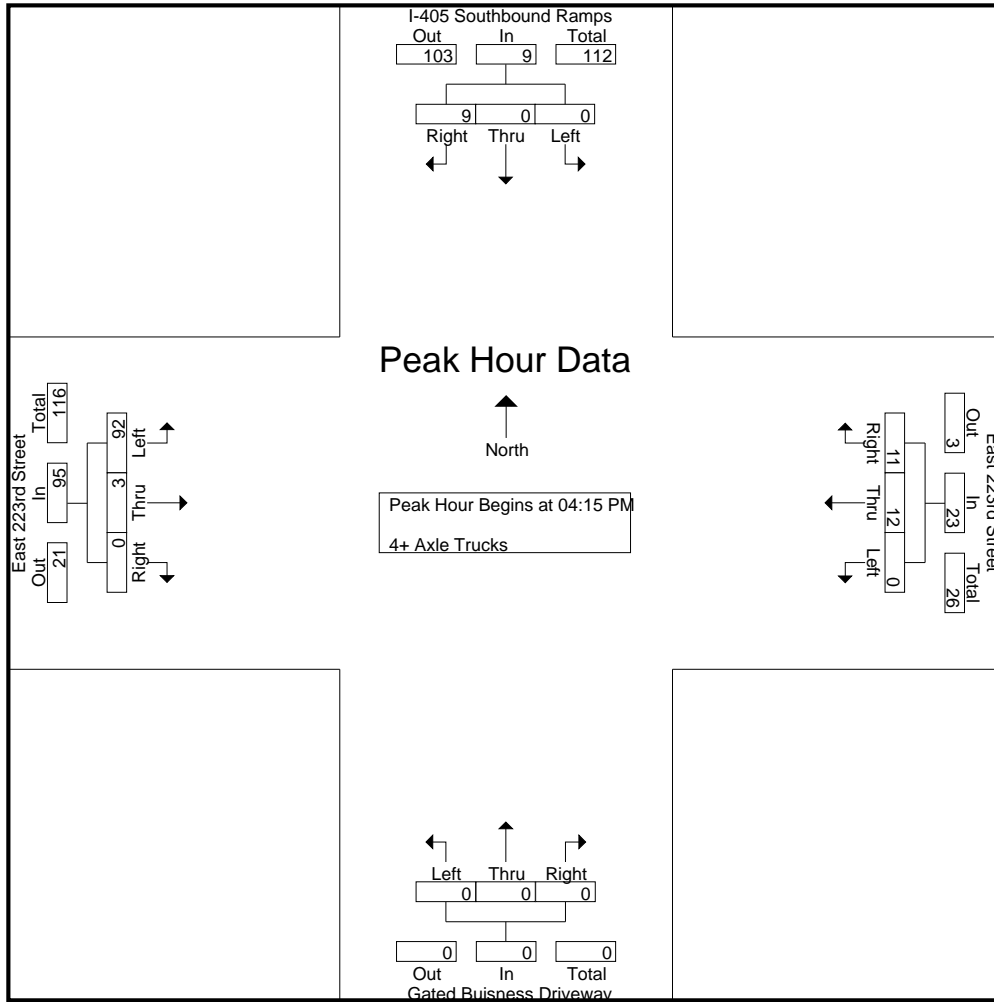
Groups Printed- 4+ Axle Trucks

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 0 | 3 | 3 | 0 | 4 | 3 | 7 | 0 | 0 | 0 | 0 | 26 | 2 | 0 | 28 | 38 |
| 04:15 PM | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 19 | 26 |
| 04:30 PM | 0 | 0 | 4 | 4 | 0 | 3 | 5 | 8 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 30 | 42 |
| 04:45 PM | 0 | 0 | 2 | 2 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 20 | 27 |
| Total | 0 | 0 | 11 | 11 | 0 | 14 | 11 | 25 | 0 | 0 | 0 | 0 | 94 | 3 | 0 | 97 | 133 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 24 | 2 | 0 | 26 | 32 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 17 | 2 | 0 | 19 | 21 |
| 05:30 PM | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 15 |
| 05:45 PM | 0 | 0 | 1 | 1 | 0 | 5 | 2 | 7 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 30 |
| Total | 0 | 0 | 4 | 4 | 0 | 10 | 5 | 15 | 0 | 0 | 0 | 0 | 75 | 4 | 0 | 79 | 98 |
| Grand Total | 0 | 0 | 15 | 15 | 0 | 24 | 16 | 40 | 0 | 0 | 0 | 0 | 169 | 7 | 0 | 176 | 231 |
| Apprch % | 0 | 0 | 100 | | 0 | 60 | 40 | | 0 | 0 | 0 | | 96 | 4 | 0 | | |
| Total % | 0 | 0 | 6.5 | 6.5 | 0 | 10.4 | 6.9 | 17.3 | 0 | 0 | 0 | 0 | 73.2 | 3 | 0 | 76.2 | |

| Start Time | I-405 Southbound Ramps Southbound | | | | East 223rd Street Westbound | | | | Gated Business Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|-----------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------------------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 19 | 26 |
| 04:30 PM | 0 | 0 | 4 | 4 | 0 | 3 | 5 | 8 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 30 | 42 |
| 04:45 PM | 0 | 0 | 2 | 2 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 20 | 27 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 24 | 2 | 0 | 26 | 32 |
| Total Volume | 0 | 0 | 9 | 9 | 0 | 12 | 11 | 23 | 0 | 0 | 0 | 0 | 92 | 3 | 0 | 95 | 127 |
| % App. Total | 0 | 0 | 100 | | 0 | 52.2 | 47.8 | | 0 | 0 | 0 | | 96.8 | 3.2 | 0 | | |
| PHF | .000 | .000 | .563 | .563 | .000 | .750 | .550 | .719 | .000 | .000 | .000 | .000 | .767 | .375 | .000 | .792 | .756 |

City of Carson
 N/S: I-405 SB Ramps/Gated Business DW
 E/W: East 223rd Street
 Weather: Clear

File Name : 05_CRS_405S_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | | 04:15 PM | | | |
|--------------|----------|------|----------|----------|----------|----------|----------|----------|----------|------|------|------|-----------|----------|------|-----------|
| +0 mins. | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 19 |
| +15 mins. | 0 | 0 | 4 | 4 | 0 | 3 | 5 | 8 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 30 |
| +30 mins. | 0 | 0 | 2 | 2 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 20 |
| +45 mins. | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 24 | 2 | 0 | 26 |
| Total Volume | 0 | 0 | 9 | 9 | 0 | 12 | 11 | 23 | 0 | 0 | 0 | 0 | 92 | 3 | 0 | 95 |
| % App. Total | 0 | 0 | 100 | | 0 | 52.2 | 47.8 | | 0 | 0 | 0 | | 96.8 | 3.2 | 0 | |
| PHF | .000 | .000 | .563 | .563 | .000 | .750 | .550 | .719 | .000 | .000 | .000 | .000 | .767 | .375 | .000 | .792 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

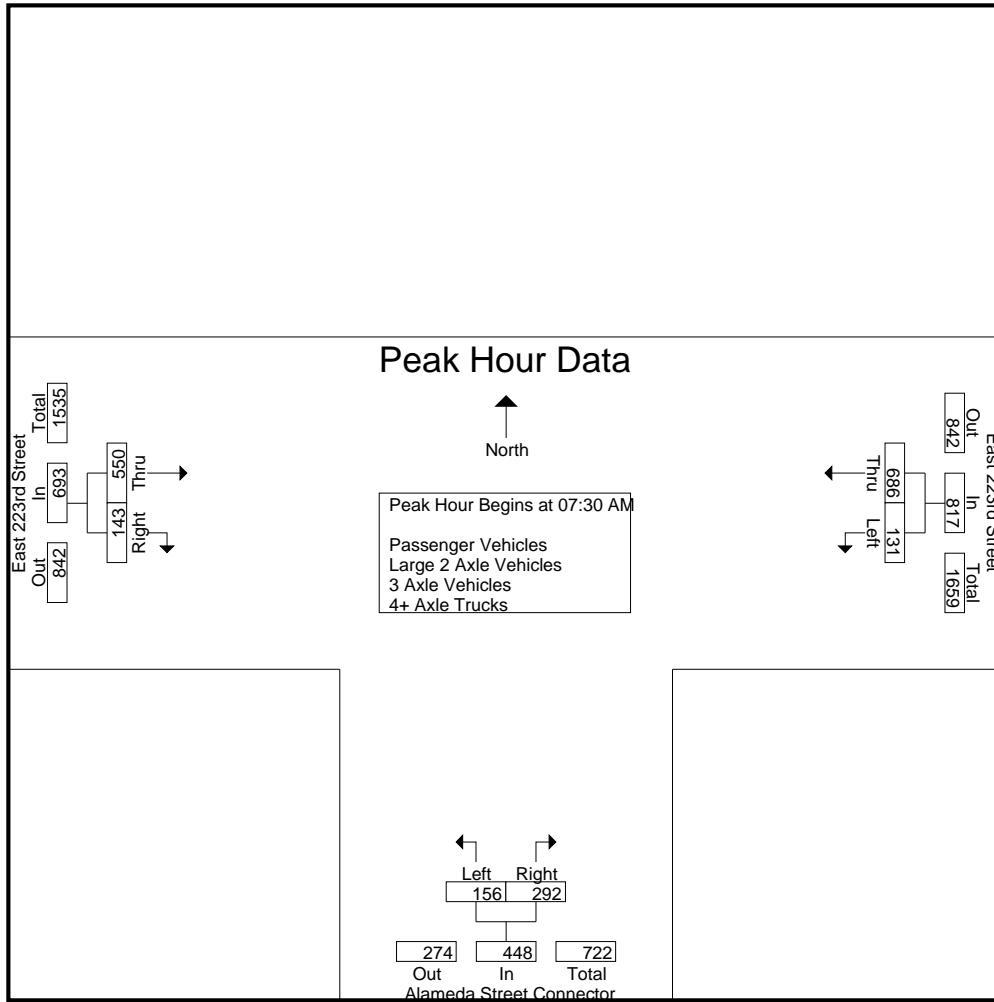
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 32 | 152 | 184 | 27 | 50 | 77 | 80 | 38 | 118 | 379 |
| 07:15 AM | 26 | 184 | 210 | 25 | 71 | 96 | 130 | 28 | 158 | 464 |
| 07:30 AM | 40 | 195 | 235 | 31 | 73 | 104 | 175 | 39 | 214 | 553 |
| 07:45 AM | 28 | 184 | 212 | 51 | 60 | 111 | 112 | 46 | 158 | 481 |
| Total | 126 | 715 | 841 | 134 | 254 | 388 | 497 | 151 | 648 | 1877 |
| 08:00 AM | 29 | 153 | 182 | 31 | 82 | 113 | 120 | 30 | 150 | 445 |
| 08:15 AM | 34 | 154 | 188 | 43 | 77 | 120 | 143 | 28 | 171 | 479 |
| 08:30 AM | 33 | 153 | 186 | 28 | 85 | 113 | 131 | 23 | 154 | 453 |
| 08:45 AM | 25 | 137 | 162 | 30 | 64 | 94 | 97 | 26 | 123 | 379 |
| Total | 121 | 597 | 718 | 132 | 308 | 440 | 491 | 107 | 598 | 1756 |
| Grand Total | 247 | 1312 | 1559 | 266 | 562 | 828 | 988 | 258 | 1246 | 3633 |
| Apprch % | 15.8 | 84.2 | | 32.1 | 67.9 | | 79.3 | 20.7 | | |
| Total % | 6.8 | 36.1 | 42.9 | 7.3 | 15.5 | 22.8 | 27.2 | 7.1 | 34.3 | |
| Passenger Vehicles | 197 | 1264 | 1461 | 223 | 349 | 572 | 936 | 178 | 1114 | 3147 |
| % Passenger Vehicles | 79.8 | 96.3 | 93.7 | 83.8 | 62.1 | 69.1 | 94.7 | 69 | 89.4 | 86.6 |
| Large 2 Axle Vehicles | 4 | 26 | 30 | 16 | 12 | 28 | 20 | 13 | 33 | 91 |
| % Large 2 Axle Vehicles | 1.6 | 2 | 1.9 | 6 | 2.1 | 3.4 | 2 | 5 | 2.6 | 2.5 |
| 3 Axle Vehicles | 19 | 10 | 29 | 11 | 18 | 29 | 7 | 24 | 31 | 89 |
| % 3 Axle Vehicles | 7.7 | 0.8 | 1.9 | 4.1 | 3.2 | 3.5 | 0.7 | 9.3 | 2.5 | 2.4 |
| 4+ Axle Trucks | 27 | 12 | 39 | 16 | 183 | 199 | 25 | 43 | 68 | 306 |
| % 4+ Axle Trucks | 10.9 | 0.9 | 2.5 | 6 | 32.6 | 24 | 2.5 | 16.7 | 5.5 | 8.4 |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 40 | 195 | 235 | 31 | 73 | 104 | 175 | 39 | 214 | 553 |
| 07:45 AM | 28 | 184 | 212 | 51 | 60 | 111 | 112 | 46 | 158 | 481 |
| 08:00 AM | 29 | 153 | 182 | 31 | 82 | 113 | 120 | 30 | 150 | 445 |
| 08:15 AM | 34 | 154 | 188 | 43 | 77 | 120 | 143 | 28 | 171 | 479 |
| Total Volume | 131 | 686 | 817 | 156 | 292 | 448 | 550 | 143 | 693 | 1958 |
| % App. Total | 16 | 84 | | 34.8 | 65.2 | | 79.4 | 20.6 | | |
| PHF | .819 | .879 | .869 | .765 | .890 | .933 | .786 | .777 | .810 | .885 |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:00 AM | | | 07:45 AM | | | 07:30 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 32 | 152 | 184 | 51 | 60 | 111 | 175 | 39 | 214 |
| +15 mins. | 26 | 184 | 210 | 31 | 82 | 113 | 112 | 46 | 158 |
| +30 mins. | 40 | 195 | 235 | 43 | 77 | 120 | 120 | 30 | 150 |
| +45 mins. | 28 | 184 | 212 | 28 | 85 | 113 | 143 | 28 | 171 |
| Total Volume | 126 | 715 | 841 | 153 | 304 | 457 | 550 | 143 | 693 |
| % App. Total | 15 | 85 | | 33.5 | 66.5 | | 79.4 | 20.6 | |
| PHF | .788 | .917 | .895 | .750 | .894 | .952 | .786 | .777 | .810 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

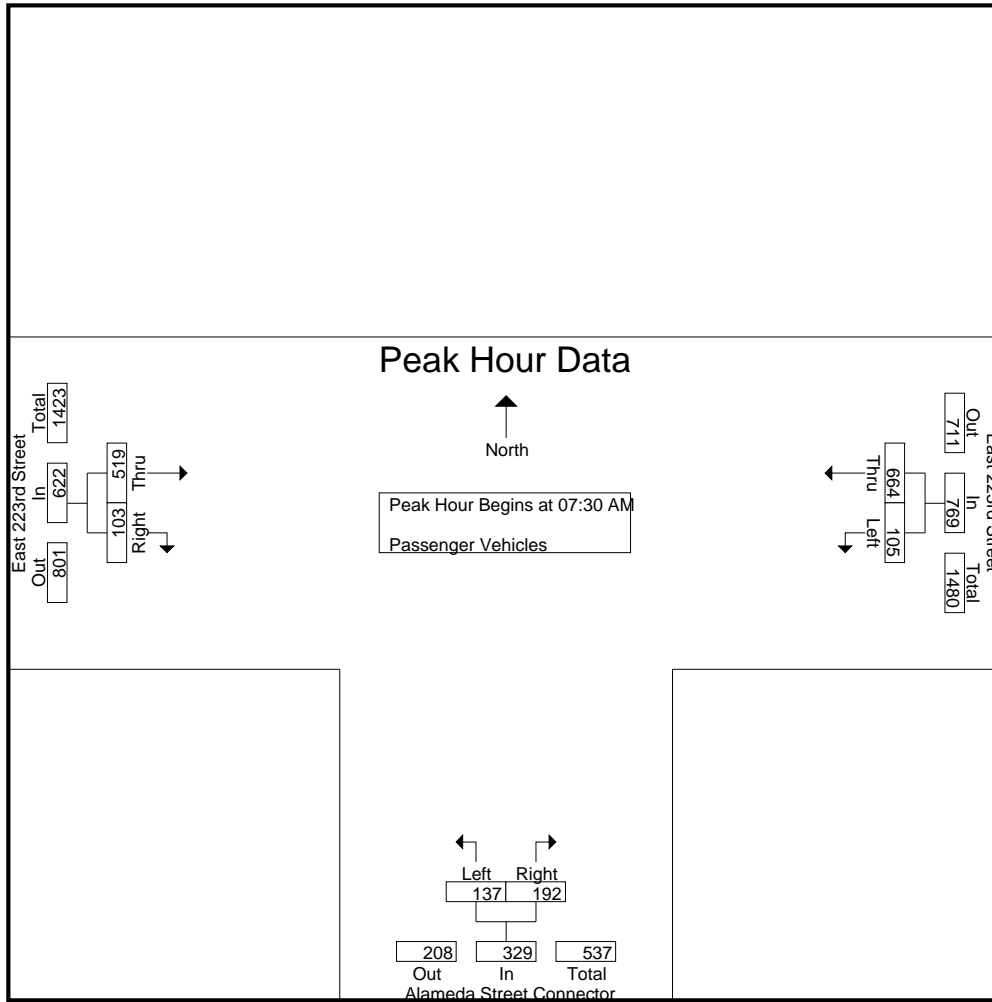
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 25 | 144 | 169 | 20 | 27 | 47 | 77 | 24 | 101 | 317 |
| 07:15 AM | 20 | 175 | 195 | 23 | 49 | 72 | 126 | 19 | 145 | 412 |
| 07:30 AM | 31 | 193 | 224 | 29 | 42 | 71 | 164 | 29 | 193 | 488 |
| 07:45 AM | 22 | 178 | 200 | 47 | 45 | 92 | 109 | 39 | 148 | 440 |
| Total | 98 | 690 | 788 | 119 | 163 | 282 | 476 | 111 | 587 | 1657 |
| 08:00 AM | 25 | 148 | 173 | 27 | 53 | 80 | 113 | 19 | 132 | 385 |
| 08:15 AM | 27 | 145 | 172 | 34 | 52 | 86 | 133 | 16 | 149 | 407 |
| 08:30 AM | 28 | 149 | 177 | 17 | 52 | 69 | 121 | 17 | 138 | 384 |
| 08:45 AM | 19 | 132 | 151 | 26 | 29 | 55 | 93 | 15 | 108 | 314 |
| Total | 99 | 574 | 673 | 104 | 186 | 290 | 460 | 67 | 527 | 1490 |
| Grand Total | 197 | 1264 | 1461 | 223 | 349 | 572 | 936 | 178 | 1114 | 3147 |
| Apprch % | 13.5 | 86.5 | | 39 | 61 | | 84 | 16 | | |
| Total % | 6.3 | 40.2 | 46.4 | 7.1 | 11.1 | 18.2 | 29.7 | 5.7 | 35.4 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------------|------------|-------------------------------------|-----------|------------|-----------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 31 | 193 | 224 | 29 | 42 | 71 | 164 | 29 | 193 | 488 |
| 07:45 AM | 22 | 178 | 200 | 47 | 45 | 92 | 109 | 39 | 148 | 440 |
| 08:00 AM | 25 | 148 | 173 | 27 | 53 | 80 | 113 | 19 | 132 | 385 |
| 08:15 AM | 27 | 145 | 172 | 34 | 52 | 86 | 133 | 16 | 149 | 407 |
| Total Volume | 105 | 664 | 769 | 137 | 192 | 329 | 519 | 103 | 622 | 1720 |
| % App. Total | 13.7 | 86.3 | | 41.6 | 58.4 | | 83.4 | 16.6 | | |
| PHF | .847 | .860 | .858 | .729 | .906 | .894 | .791 | .660 | .806 | .881 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|------------|
| +0 mins. | 31 | 193 | 224 | 29 | 42 | 71 | 164 | 29 | 193 |
| +15 mins. | 22 | 178 | 200 | 47 | 45 | 92 | 109 | 39 | 148 |
| +30 mins. | 25 | 148 | 173 | 27 | 53 | 80 | 113 | 19 | 132 |
| +45 mins. | 27 | 145 | 172 | 34 | 52 | 86 | 133 | 16 | 149 |
| Total Volume | 105 | 664 | 769 | 137 | 192 | 329 | 519 | 103 | 622 |
| % App. Total | 13.7 | 86.3 | | 41.6 | 58.4 | | 83.4 | 16.6 | |
| PHF | .847 | .860 | .858 | .729 | .906 | .894 | .791 | .660 | .806 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

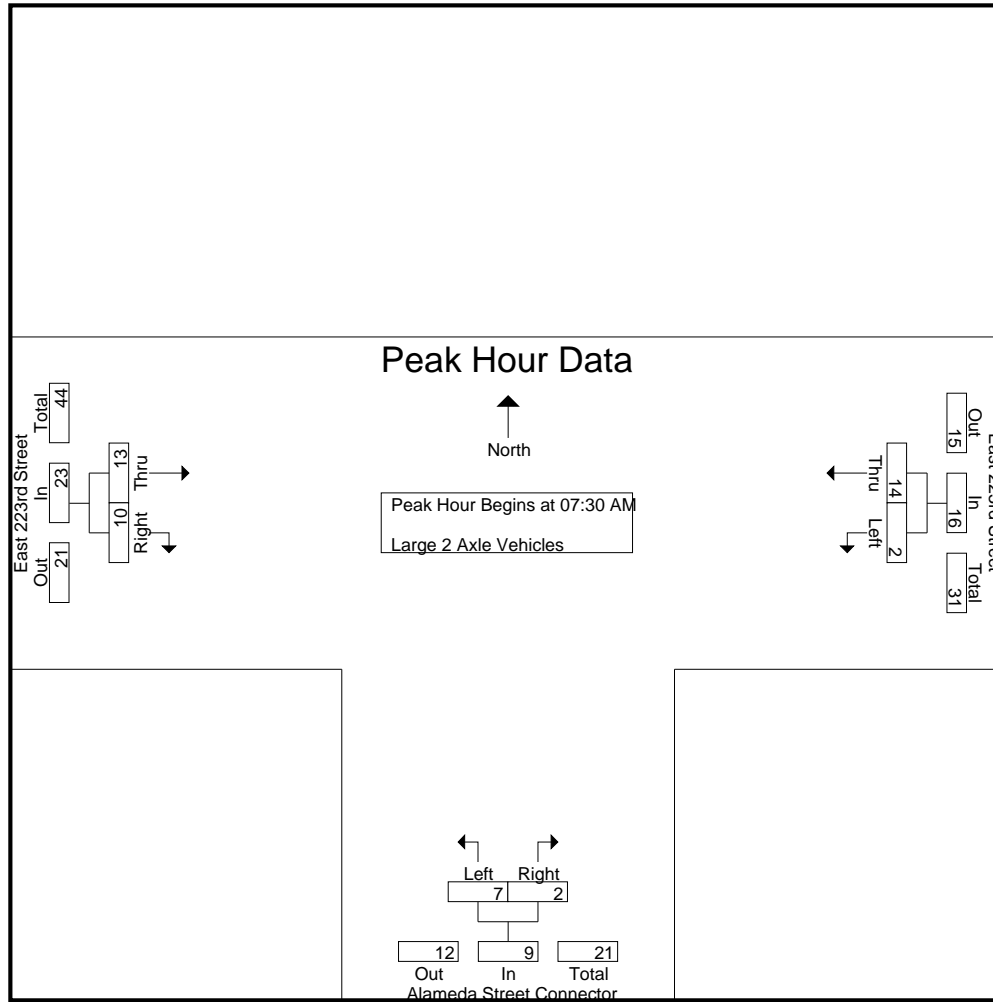
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 5 | 5 | 2 | 1 | 3 | 1 | 1 | 2 | 10 |
| 07:15 AM | 0 | 3 | 3 | 2 | 1 | 3 | 1 | 1 | 2 | 8 |
| 07:30 AM | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 3 | 7 | 9 |
| 07:45 AM | 0 | 4 | 4 | 4 | 0 | 4 | 2 | 2 | 4 | 12 |
| Total | 0 | 13 | 13 | 8 | 3 | 11 | 8 | 7 | 15 | 39 |
| 08:00 AM | 2 | 2 | 4 | 0 | 0 | 0 | 2 | 2 | 4 | 8 |
| 08:15 AM | 0 | 7 | 7 | 3 | 1 | 4 | 5 | 3 | 8 | 19 |
| 08:30 AM | 1 | 2 | 3 | 3 | 4 | 7 | 2 | 0 | 2 | 12 |
| 08:45 AM | 1 | 2 | 3 | 2 | 4 | 6 | 3 | 1 | 4 | 13 |
| Total | 4 | 13 | 17 | 8 | 9 | 17 | 12 | 6 | 18 | 52 |
| Grand Total | 4 | 26 | 30 | 16 | 12 | 28 | 20 | 13 | 33 | 91 |
| Apprch % | 13.3 | 86.7 | | 57.1 | 42.9 | | 60.6 | 39.4 | | |
| Total % | 4.4 | 28.6 | 33 | 17.6 | 13.2 | 30.8 | 22 | 14.3 | 36.3 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 3 | 7 | 9 |
| 07:45 AM | 0 | 4 | 4 | 4 | 0 | 4 | 2 | 2 | 4 | 12 |
| 08:00 AM | 2 | 2 | 4 | 0 | 0 | 0 | 2 | 2 | 4 | 8 |
| 08:15 AM | 0 | 7 | 7 | 3 | 1 | 4 | 5 | 3 | 8 | 19 |
| Total Volume | 2 | 14 | 16 | 7 | 2 | 9 | 13 | 10 | 23 | 48 |
| % App. Total | 12.5 | 87.5 | | 77.8 | 22.2 | | 56.5 | 43.5 | | |
| PHF | .250 | .500 | .571 | .438 | .500 | .563 | .650 | .833 | .719 | .632 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 3 | 7 |
| +15 mins. | 0 | 4 | 4 | 4 | 0 | 4 | 2 | 2 | 4 |
| +30 mins. | 2 | 2 | 4 | 0 | 0 | 0 | 2 | 2 | 4 |
| +45 mins. | 0 | 7 | 7 | 3 | 1 | 4 | 5 | 3 | 8 |
| Total Volume | 2 | 14 | 16 | 7 | 2 | 9 | 13 | 10 | 23 |
| % App. Total | 12.5 | 87.5 | | 77.8 | 22.2 | | 56.5 | 43.5 | |
| PHF | .250 | .500 | .571 | .438 | .500 | .563 | .650 | .833 | .719 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

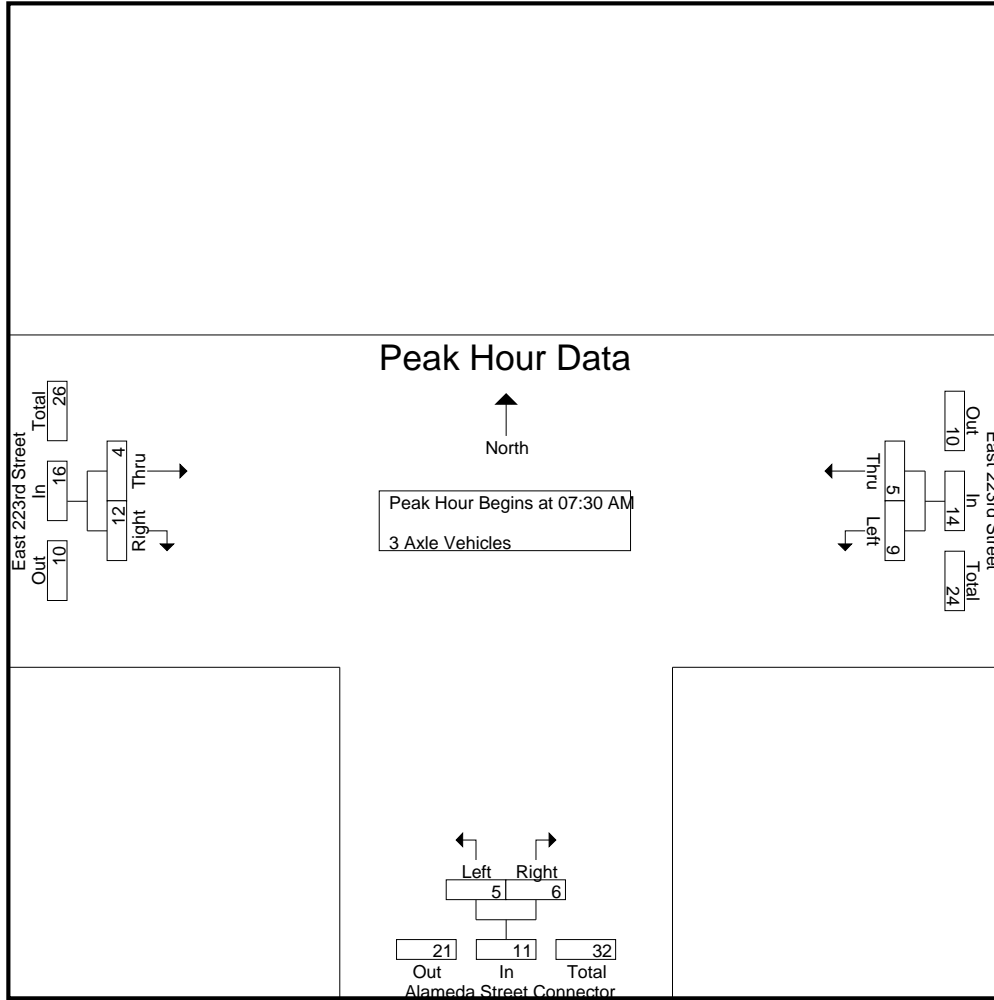
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 4 | 1 | 5 | 4 | 1 | 5 | 0 | 4 | 4 | 14 |
| 07:15 AM | 2 | 2 | 4 | 0 | 4 | 4 | 0 | 5 | 5 | 13 |
| 07:30 AM | 4 | 0 | 4 | 2 | 0 | 2 | 1 | 2 | 3 | 9 |
| 07:45 AM | 3 | 2 | 5 | 0 | 3 | 3 | 0 | 0 | 0 | 8 |
| Total | 13 | 5 | 18 | 6 | 8 | 14 | 1 | 11 | 12 | 44 |
| 08:00 AM | 0 | 2 | 2 | 3 | 1 | 4 | 1 | 8 | 9 | 15 |
| 08:15 AM | 2 | 1 | 3 | 0 | 2 | 2 | 2 | 2 | 4 | 9 |
| 08:30 AM | 4 | 2 | 6 | 2 | 3 | 5 | 2 | 0 | 2 | 13 |
| 08:45 AM | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 3 | 4 | 8 |
| Total | 6 | 5 | 11 | 5 | 10 | 15 | 6 | 13 | 19 | 45 |
| Grand Total | 19 | 10 | 29 | 11 | 18 | 29 | 7 | 24 | 31 | 89 |
| Apprch % | 65.5 | 34.5 | | 37.9 | 62.1 | | 22.6 | 77.4 | | |
| Total % | 21.3 | 11.2 | 32.6 | 12.4 | 20.2 | 32.6 | 7.9 | 27 | 34.8 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 4 | 0 | 4 | 2 | 0 | 2 | 1 | 2 | 3 | 9 |
| 07:45 AM | 3 | 2 | 5 | 0 | 3 | 3 | 0 | 0 | 0 | 8 |
| 08:00 AM | 0 | 2 | 2 | 3 | 1 | 4 | 1 | 8 | 9 | 15 |
| 08:15 AM | 2 | 1 | 3 | 0 | 2 | 2 | 2 | 2 | 4 | 9 |
| Total Volume | 9 | 5 | 14 | 5 | 6 | 11 | 4 | 12 | 16 | 41 |
| % App. Total | 64.3 | 35.7 | | 45.5 | 54.5 | | 25 | 75 | | |
| PHF | .563 | .625 | .700 | .417 | .500 | .688 | .500 | .375 | .444 | .683 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 4 | 0 | 4 | 2 | 0 | 2 | 1 | 2 | 3 |
| +15 mins. | 3 | 2 | 5 | 0 | 3 | 3 | 0 | 0 | 0 |
| +30 mins. | 0 | 2 | 2 | 3 | 1 | 4 | 1 | 8 | 9 |
| +45 mins. | 2 | 1 | 3 | 0 | 2 | 2 | 2 | 2 | 4 |
| Total Volume | 9 | 5 | 14 | 5 | 6 | 11 | 4 | 12 | 16 |
| % App. Total | 64.3 | 35.7 | | 45.5 | 54.5 | | 25 | 75 | |
| PHF | .563 | .625 | .700 | .417 | .500 | .688 | .500 | .375 | .444 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 3 | 2 | 5 | 1 | 21 | 22 | 2 | 9 | 11 | 38 |
| 07:15 AM | 4 | 4 | 8 | 0 | 17 | 17 | 3 | 3 | 6 | 31 |
| 07:30 AM | 5 | 1 | 6 | 0 | 30 | 30 | 6 | 5 | 11 | 47 |
| 07:45 AM | 3 | 0 | 3 | 0 | 12 | 12 | 1 | 5 | 6 | 21 |
| Total | 15 | 7 | 22 | 1 | 80 | 81 | 12 | 22 | 34 | 137 |
| 08:00 AM | 2 | 1 | 3 | 1 | 28 | 29 | 4 | 1 | 5 | 37 |
| 08:15 AM | 5 | 1 | 6 | 6 | 22 | 28 | 3 | 7 | 10 | 44 |
| 08:30 AM | 0 | 0 | 0 | 6 | 26 | 32 | 6 | 6 | 12 | 44 |
| 08:45 AM | 5 | 3 | 8 | 2 | 27 | 29 | 0 | 7 | 7 | 44 |
| Total | 12 | 5 | 17 | 15 | 103 | 118 | 13 | 21 | 34 | 169 |
| Grand Total | 27 | 12 | 39 | 16 | 183 | 199 | 25 | 43 | 68 | 306 |
| Apprch % | 69.2 | 30.8 | | 8 | 92 | | 36.8 | 63.2 | | |
| Total % | 8.8 | 3.9 | 12.7 | 5.2 | 59.8 | 65 | 8.2 | 14.1 | 22.2 | |

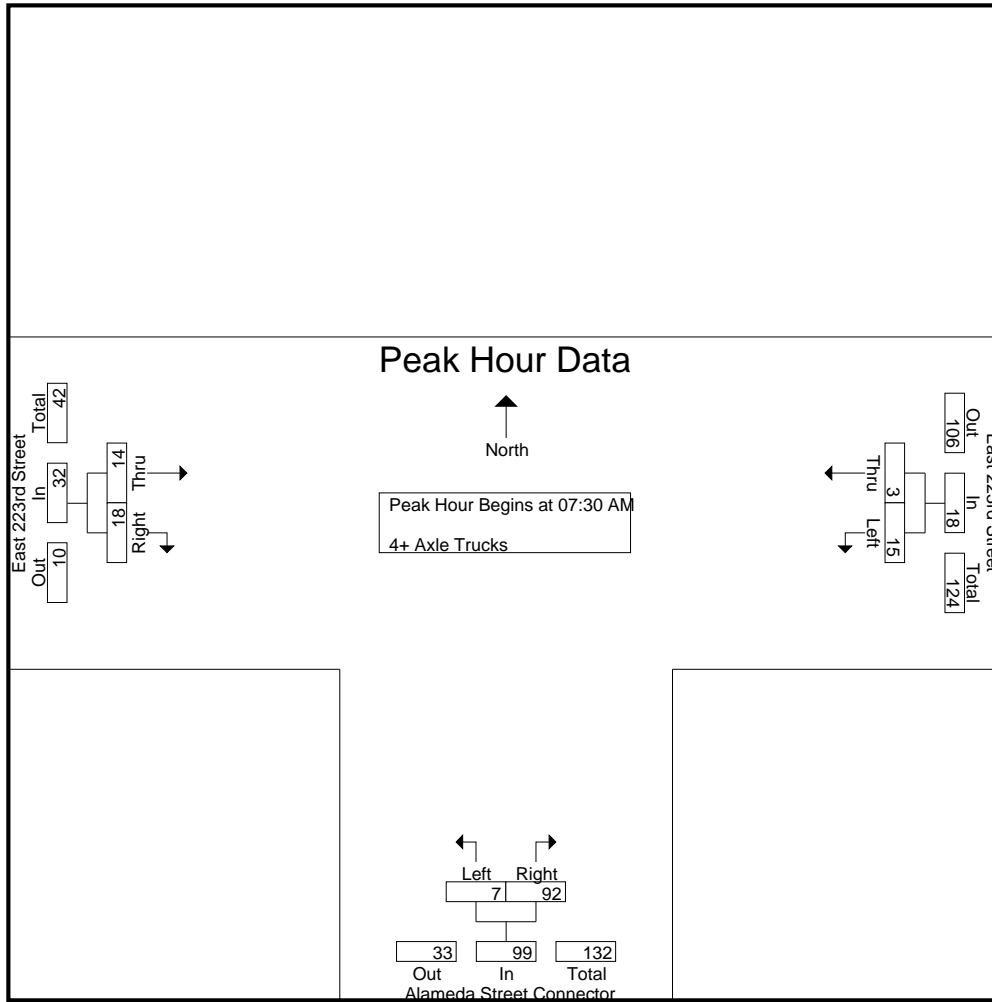
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 5 | 1 | 6 | 0 | 30 | 30 | 6 | 5 | 11 | 47 |
| 07:45 AM | 3 | 0 | 3 | 0 | 12 | 12 | 1 | 5 | 6 | 21 |
| 08:00 AM | 2 | 1 | 3 | 1 | 28 | 29 | 4 | 1 | 5 | 37 |
| 08:15 AM | 5 | 1 | 6 | 6 | 22 | 28 | 3 | 7 | 10 | 44 |
| Total Volume | 15 | 3 | 18 | 7 | 92 | 99 | 14 | 18 | 32 | 149 |
| % App. Total | 83.3 | 16.7 | | 7.1 | 92.9 | | 43.8 | 56.2 | | |
| PHF | .750 | .750 | .750 | .292 | .767 | .825 | .583 | .643 | .727 | .793 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 5 | 1 | 6 | 0 | 30 | 30 | 6 | 5 | 11 |
| +15 mins. | 3 | 0 | 3 | 0 | 12 | 12 | 1 | 5 | 6 |
| +30 mins. | 2 | 1 | 3 | 1 | 28 | 29 | 4 | 1 | 5 |
| +45 mins. | 5 | 1 | 6 | 6 | 22 | 28 | 3 | 7 | 10 |
| Total Volume | 15 | 3 | 18 | 7 | 92 | 99 | 14 | 18 | 32 |
| % App. Total | 83.3 | 16.7 | | 7.1 | 92.9 | | 43.8 | 56.2 | |
| PHF | .750 | .750 | .750 | .292 | .767 | .825 | .583 | .643 | .727 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

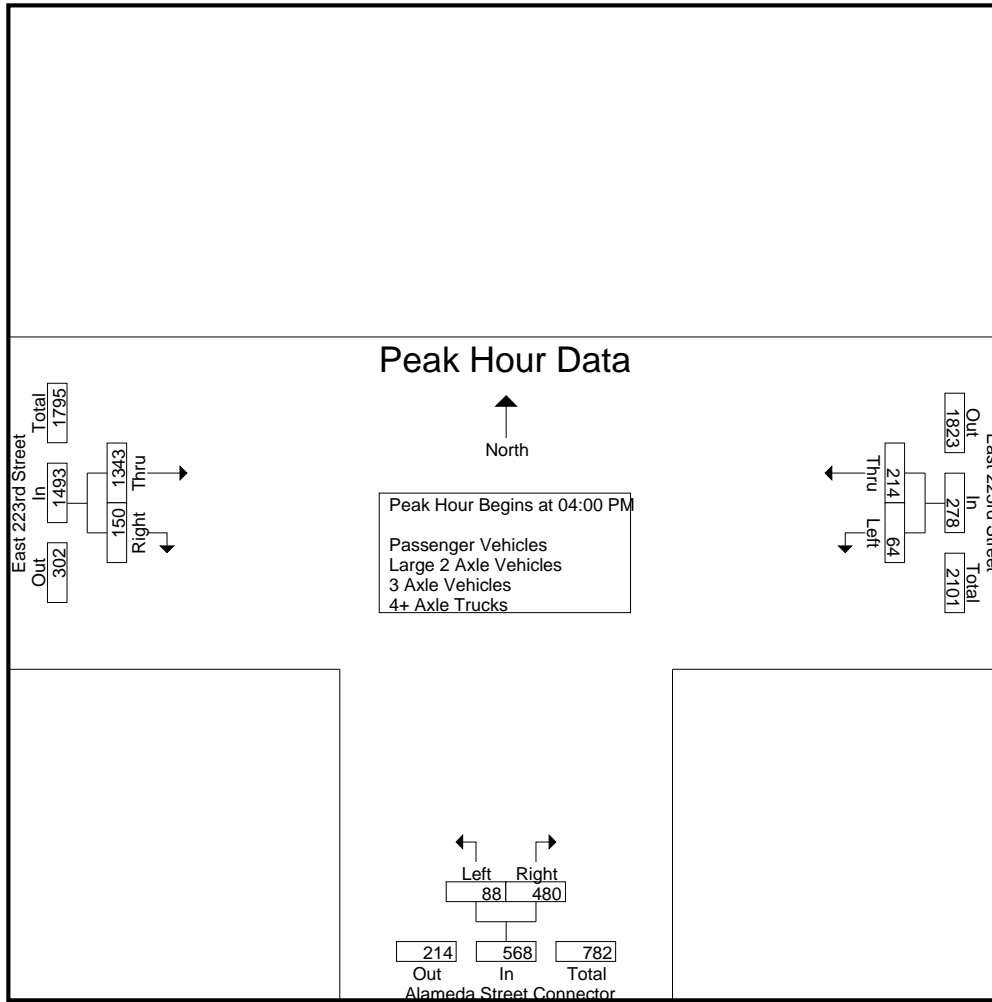
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------------------|-----------------------------|------------|------------|-------------------------------------|------------|-------------|-----------------------------|------------|-------------|-------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 16 | 69 | 85 | 31 | 121 | 152 | 289 | 38 | 327 | 564 |
| 04:15 PM | 15 | 41 | 56 | 20 | 114 | 134 | 345 | 28 | 373 | 563 |
| 04:30 PM | 16 | 52 | 68 | 15 | 127 | 142 | 339 | 42 | 381 | 591 |
| 04:45 PM | 17 | 52 | 69 | 22 | 118 | 140 | 370 | 42 | 412 | 621 |
| Total | 64 | 214 | 278 | 88 | 480 | 568 | 1343 | 150 | 1493 | 2339 |
| 05:00 PM | 14 | 49 | 63 | 22 | 103 | 125 | 330 | 30 | 360 | 548 |
| 05:15 PM | 11 | 58 | 69 | 18 | 108 | 126 | 296 | 33 | 329 | 524 |
| 05:30 PM | 12 | 61 | 73 | 16 | 110 | 126 | 314 | 36 | 350 | 549 |
| 05:45 PM | 15 | 44 | 59 | 18 | 117 | 135 | 308 | 31 | 339 | 533 |
| Total | 52 | 212 | 264 | 74 | 438 | 512 | 1248 | 130 | 1378 | 2154 |
| Grand Total | 116 | 426 | 542 | 162 | 918 | 1080 | 2591 | 280 | 2871 | 4493 |
| Apprch % | 21.4 | 78.6 | | 15 | 85 | | 90.2 | 9.8 | | |
| Total % | 2.6 | 9.5 | 12.1 | 3.6 | 20.4 | 24 | 57.7 | 6.2 | 63.9 | |
| Passenger Vehicles | 77 | 404 | 481 | 141 | 735 | 876 | 2515 | 212 | 2727 | 4084 |
| % Passenger Vehicles | 66.4 | 94.8 | 88.7 | 87 | 80.1 | 81.1 | 97.1 | 75.7 | 95 | 90.9 |
| Large 2 Axle Vehicles | 2 | 5 | 7 | 7 | 11 | 18 | 37 | 6 | 43 | 68 |
| % Large 2 Axle Vehicles | 1.7 | 1.2 | 1.3 | 4.3 | 1.2 | 1.7 | 1.4 | 2.1 | 1.5 | 1.5 |
| 3 Axle Vehicles | 8 | 5 | 13 | 7 | 26 | 33 | 12 | 29 | 41 | 87 |
| % 3 Axle Vehicles | 6.9 | 1.2 | 2.4 | 4.3 | 2.8 | 3.1 | 0.5 | 10.4 | 1.4 | 1.9 |
| 4+ Axle Trucks | 29 | 12 | 41 | 7 | 146 | 153 | 27 | 33 | 60 | 254 |
| % 4+ Axle Trucks | 25 | 2.8 | 7.6 | 4.3 | 15.9 | 14.2 | 1 | 11.8 | 2.1 | 5.7 |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|---------------------|-----------------------------|------------|------------|-------------------------------------|------------|------------|-----------------------------|------------|-------------|-------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 16 | 69 | 85 | 31 | 121 | 152 | 289 | 38 | 327 | 564 |
| 04:15 PM | 15 | 41 | 56 | 20 | 114 | 134 | 345 | 28 | 373 | 563 |
| 04:30 PM | 16 | 52 | 68 | 15 | 127 | 142 | 339 | 42 | 381 | 591 |
| 04:45 PM | 17 | 52 | 69 | 22 | 118 | 140 | 370 | 42 | 412 | 621 |
| Total Volume | 64 | 214 | 278 | 88 | 480 | 568 | 1343 | 150 | 1493 | 2339 |
| % App. Total | 23 | 77 | | 15.5 | 84.5 | | 90 | 10 | | |
| PHF | .941 | .775 | .818 | .710 | .945 | .934 | .907 | .893 | .906 | .942 |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | 04:15 PM | | | 04:30 PM | | | 04:45 PM | | |
|--------------|-----------|-----------|-----------|-----------|------------|------------|------------|-----------|------------|----------|-----------|------|
| +0 mins. | 16 | 69 | 85 | 31 | 121 | 152 | 345 | 28 | 373 | 345 | 28 | 373 |
| +15 mins. | 15 | 41 | 56 | 20 | 114 | 134 | 339 | 42 | 381 | 339 | 42 | 381 |
| +30 mins. | 16 | 52 | 68 | 15 | 127 | 142 | 370 | 42 | 412 | 330 | 30 | 360 |
| +45 mins. | 17 | 52 | 69 | 22 | 118 | 140 | 330 | 30 | 360 | 330 | 30 | 360 |
| Total Volume | 64 | 214 | 278 | 88 | 480 | 568 | 1384 | 142 | 1526 | 1384 | 142 | 1526 |
| % App. Total | 23 | 77 | | 15.5 | 84.5 | | 90.7 | 9.3 | | 90.7 | 9.3 | |
| PHF | .941 | .775 | .818 | .710 | .945 | .934 | .935 | .845 | .926 | .935 | .845 | .926 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

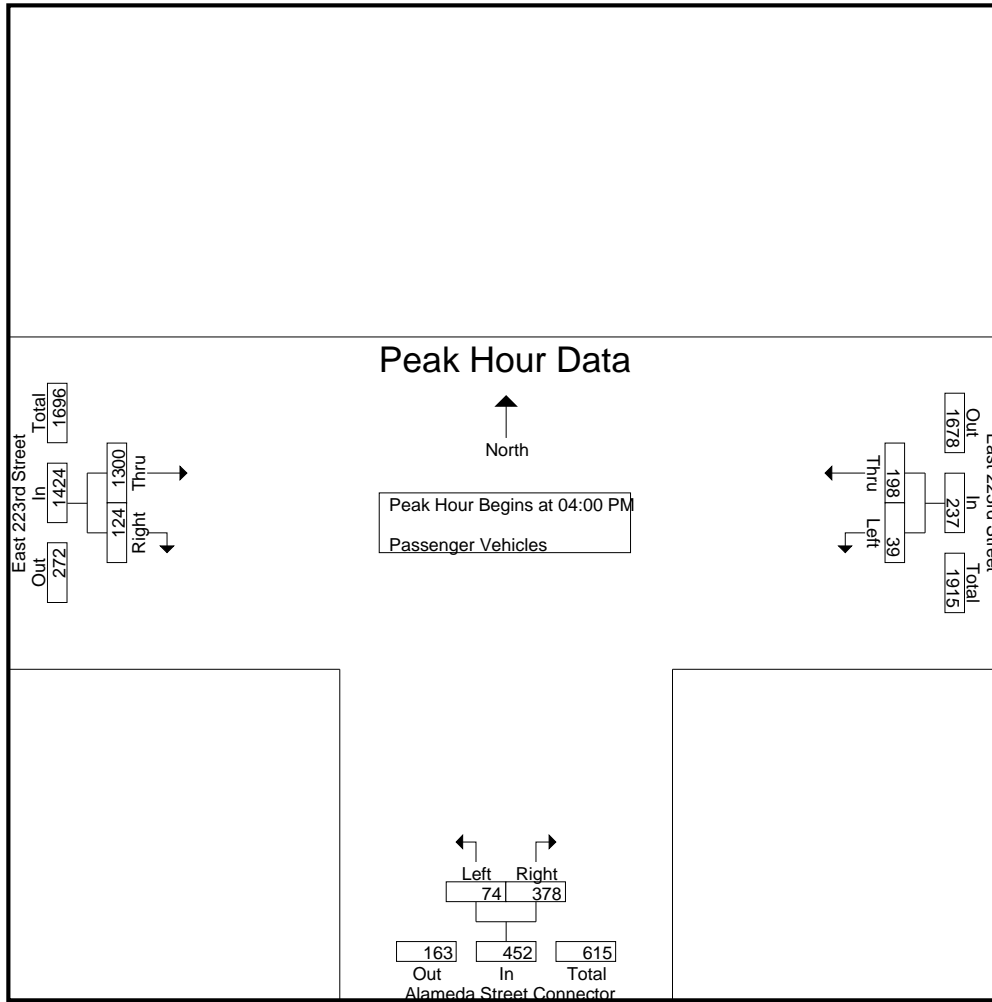
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 7 | 63 | 70 | 25 | 89 | 114 | 276 | 28 | 304 | 488 |
| 04:15 PM | 8 | 39 | 47 | 18 | 92 | 110 | 334 | 21 | 355 | 512 |
| 04:30 PM | 10 | 51 | 61 | 12 | 100 | 112 | 328 | 40 | 368 | 541 |
| 04:45 PM | 14 | 45 | 59 | 19 | 97 | 116 | 362 | 35 | 397 | 572 |
| Total | 39 | 198 | 237 | 74 | 378 | 452 | 1300 | 124 | 1424 | 2113 |
| 05:00 PM | 12 | 46 | 58 | 20 | 78 | 98 | 314 | 26 | 340 | 496 |
| 05:15 PM | 8 | 57 | 65 | 16 | 90 | 106 | 290 | 26 | 316 | 487 |
| 05:30 PM | 8 | 61 | 69 | 13 | 99 | 112 | 306 | 18 | 324 | 505 |
| 05:45 PM | 10 | 42 | 52 | 18 | 90 | 108 | 305 | 18 | 323 | 483 |
| Total | 38 | 206 | 244 | 67 | 357 | 424 | 1215 | 88 | 1303 | 1971 |
| Grand Total | 77 | 404 | 481 | 141 | 735 | 876 | 2515 | 212 | 2727 | 4084 |
| Apprch % | 16 | 84 | | 16.1 | 83.9 | | 92.2 | 7.8 | | |
| Total % | 1.9 | 9.9 | 11.8 | 3.5 | 18 | 21.4 | 61.6 | 5.2 | 66.8 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|-----------|------------|-------------------------------------|------------|------------|-----------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 7 | 63 | 70 | 25 | 89 | 114 | 276 | 28 | 304 | 488 |
| 04:15 PM | 8 | 39 | 47 | 18 | 92 | 110 | 334 | 21 | 355 | 512 |
| 04:30 PM | 10 | 51 | 61 | 12 | 100 | 112 | 328 | 40 | 368 | 541 |
| 04:45 PM | 14 | 45 | 59 | 19 | 97 | 116 | 362 | 35 | 397 | 572 |
| Total Volume | 39 | 198 | 237 | 74 | 378 | 452 | 1300 | 124 | 1424 | 2113 |
| % App. Total | 16.5 | 83.5 | | 16.4 | 83.6 | | 91.3 | 8.7 | | |
| PHF | .696 | .786 | .846 | .740 | .945 | .974 | .898 | .775 | .897 | .924 |

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | 04:00 PM | | | 04:00 PM | | |
|--------------|-----------|-----------|-----------|-----------|------------|------------|------------|-----------|------------|
| +0 mins. | 7 | 63 | 70 | 25 | 89 | 114 | 276 | 28 | 304 |
| +15 mins. | 8 | 39 | 47 | 18 | 92 | 110 | 334 | 21 | 355 |
| +30 mins. | 10 | 51 | 61 | 12 | 100 | 112 | 328 | 40 | 368 |
| +45 mins. | 14 | 45 | 59 | 19 | 97 | 116 | 362 | 35 | 397 |
| Total Volume | 39 | 198 | 237 | 74 | 378 | 452 | 1300 | 124 | 1424 |
| % App. Total | 16.5 | 83.5 | | 16.4 | 83.6 | | 91.3 | 8.7 | |
| PHF | .696 | .786 | .846 | .740 | .945 | .974 | .898 | .775 | .897 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

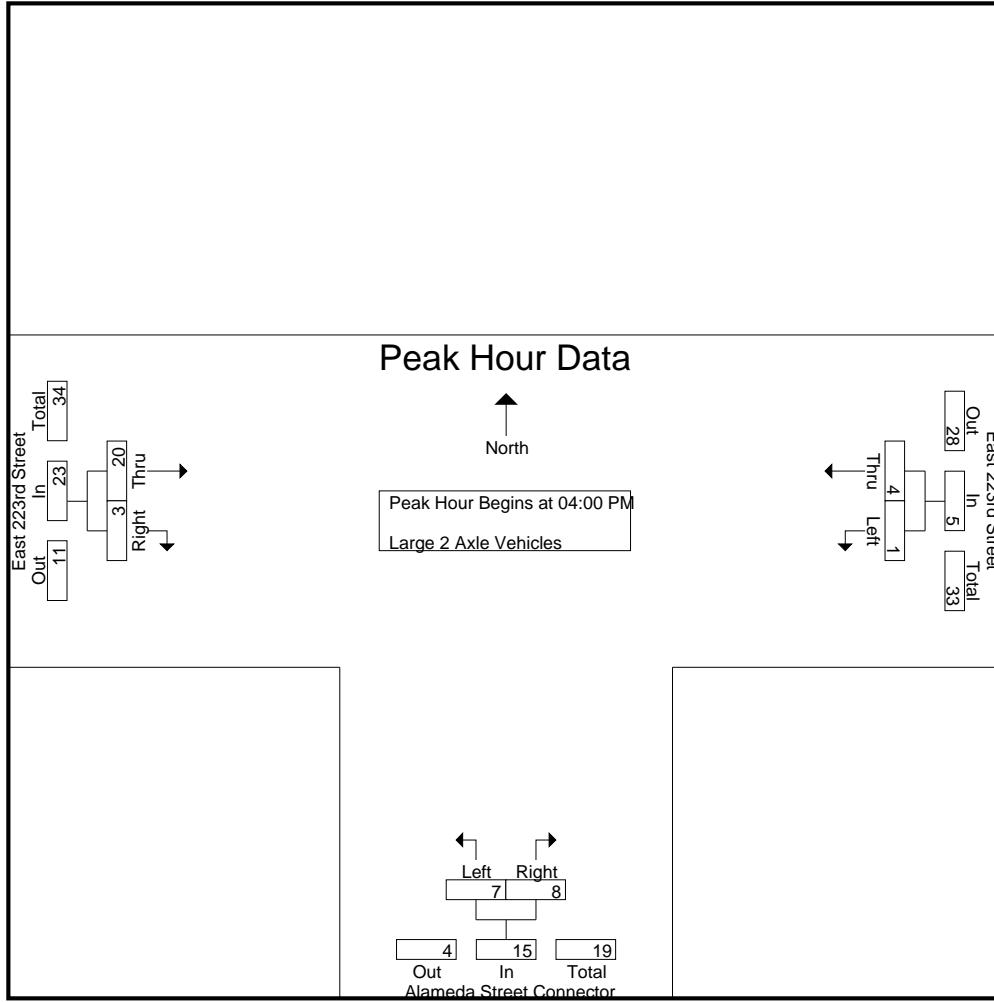
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 1 | 1 | 2 | 2 | 4 | 9 | 0 | 9 | 14 |
| 04:15 PM | 0 | 1 | 1 | 1 | 1 | 2 | 4 | 2 | 6 | 9 |
| 04:30 PM | 1 | 0 | 1 | 3 | 3 | 6 | 5 | 0 | 5 | 12 |
| 04:45 PM | 0 | 2 | 2 | 1 | 2 | 3 | 2 | 1 | 3 | 8 |
| Total | 1 | 4 | 5 | 7 | 8 | 15 | 20 | 3 | 23 | 43 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 10 | 10 |
| 05:15 PM | 1 | 1 | 2 | 0 | 0 | 0 | 3 | 0 | 3 | 5 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 4 | 5 |
| 05:45 PM | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 3 | 5 |
| Total | 1 | 1 | 2 | 0 | 3 | 3 | 17 | 3 | 20 | 25 |
| Grand Total | 2 | 5 | 7 | 7 | 11 | 18 | 37 | 6 | 43 | 68 |
| Apprch % | 28.6 | 71.4 | | 38.9 | 61.1 | | 86 | 14 | | |
| Total % | 2.9 | 7.4 | 10.3 | 10.3 | 16.2 | 26.5 | 54.4 | 8.8 | 63.2 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 1 | 1 | 2 | 2 | 4 | 9 | 0 | 9 | 14 |
| 04:15 PM | 0 | 1 | 1 | 1 | 1 | 2 | 4 | 2 | 6 | 9 |
| 04:30 PM | 1 | 0 | 1 | 3 | 3 | 6 | 5 | 0 | 5 | 12 |
| 04:45 PM | 0 | 2 | 2 | 1 | 2 | 3 | 2 | 1 | 3 | 8 |
| Total Volume | 1 | 4 | 5 | 7 | 8 | 15 | 20 | 3 | 23 | 43 |
| % App. Total | 20 | 80 | | 46.7 | 53.3 | | 87 | 13 | | |
| PHF | .250 | .500 | .625 | .583 | .667 | .625 | .556 | .375 | .639 | .768 |

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | 04:00 PM | | | 04:00 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 1 | 1 | 2 | 2 | 4 | 9 | 0 | 9 |
| +15 mins. | 0 | 1 | 1 | 1 | 1 | 2 | 4 | 2 | 6 |
| +30 mins. | 1 | 0 | 1 | 3 | 3 | 6 | 5 | 0 | 5 |
| +45 mins. | 0 | 2 | 2 | 1 | 2 | 3 | 2 | 1 | 3 |
| Total Volume | 1 | 4 | 5 | 7 | 8 | 15 | 20 | 3 | 23 |
| % App. Total | 20 | 80 | | 46.7 | 53.3 | | 87 | 13 | |
| PHF | .250 | .500 | .625 | .583 | .667 | .625 | .556 | .375 | .639 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

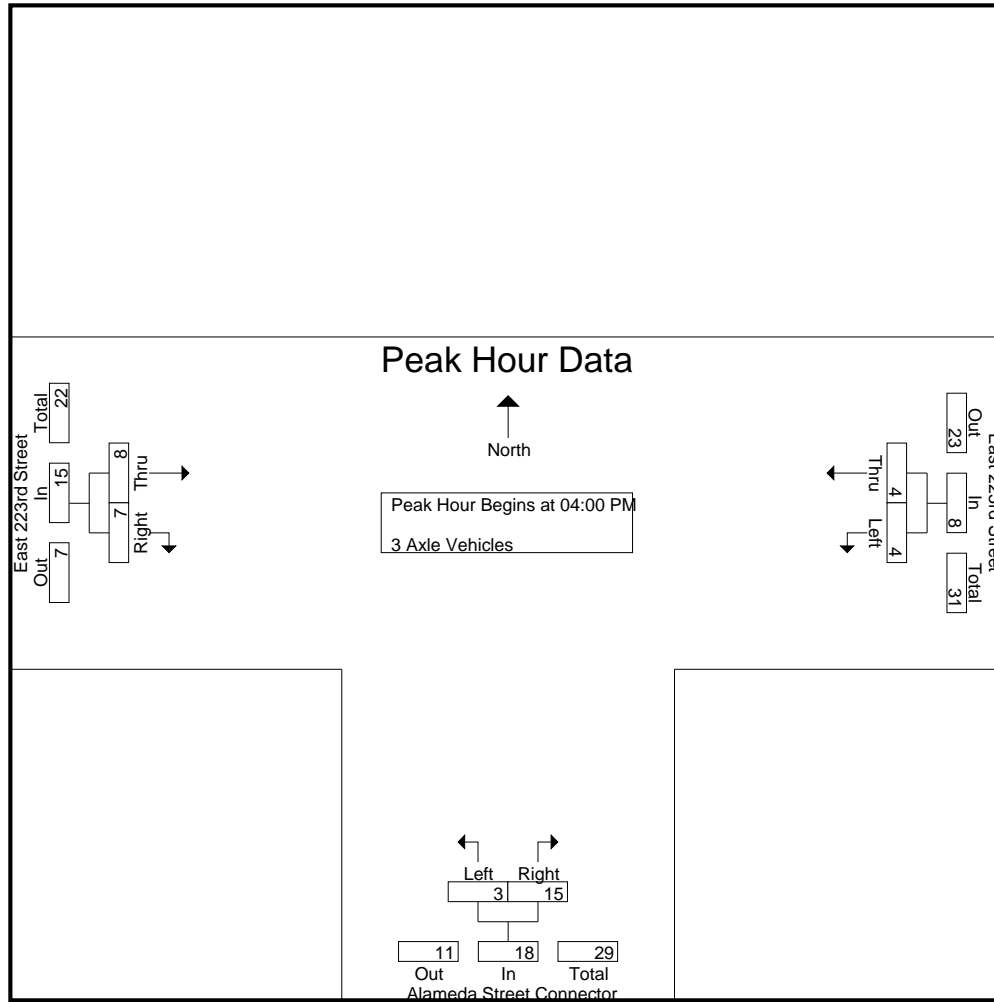
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 3 | 2 | 5 | 2 | 7 | 9 | 2 | 3 | 5 | 19 |
| 04:15 PM | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 2 | 4 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 |
| 04:45 PM | 1 | 2 | 3 | 1 | 1 | 2 | 4 | 2 | 6 | 11 |
| Total | 4 | 4 | 8 | 3 | 15 | 18 | 8 | 7 | 15 | 41 |
| 05:00 PM | 1 | 1 | 2 | 0 | 4 | 4 | 1 | 2 | 3 | 9 |
| 05:15 PM | 0 | 0 | 0 | 2 | 2 | 4 | 1 | 4 | 5 | 9 |
| 05:30 PM | 2 | 0 | 2 | 2 | 1 | 3 | 2 | 11 | 13 | 18 |
| 05:45 PM | 1 | 0 | 1 | 0 | 4 | 4 | 0 | 5 | 5 | 10 |
| Total | 4 | 1 | 5 | 4 | 11 | 15 | 4 | 22 | 26 | 46 |
| Grand Total | 8 | 5 | 13 | 7 | 26 | 33 | 12 | 29 | 41 | 87 |
| Apprch % | 61.5 | 38.5 | | 21.2 | 78.8 | | 29.3 | 70.7 | | |
| Total % | 9.2 | 5.7 | 14.9 | 8 | 29.9 | 37.9 | 13.8 | 33.3 | 47.1 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 3 | 2 | 5 | 2 | 7 | 9 | 2 | 3 | 5 | 19 |
| 04:15 PM | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 2 | 4 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 |
| 04:45 PM | 1 | 2 | 3 | 1 | 1 | 2 | 4 | 2 | 6 | 11 |
| Total Volume | 4 | 4 | 8 | 3 | 15 | 18 | 8 | 7 | 15 | 41 |
| % App. Total | 50 | 50 | | 16.7 | 83.3 | | 53.3 | 46.7 | | |
| PHF | .333 | .500 | .400 | .375 | .536 | .500 | .500 | .583 | .625 | .539 |

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | 04:00 PM | | | 04:00 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 3 | 2 | 5 | 2 | 7 | 9 | 2 | 3 | 5 |
| +15 mins. | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 2 | 4 |
| +30 mins. | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| +45 mins. | 1 | 2 | 3 | 1 | 1 | 2 | 4 | 2 | 6 |
| Total Volume | 4 | 4 | 8 | 3 | 15 | 18 | 8 | 7 | 15 |
| % App. Total | 50 | 50 | | 16.7 | 83.3 | | 53.3 | 46.7 | |
| PHF | .333 | .500 | .400 | .375 | .536 | .500 | .500 | .583 | .625 |

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

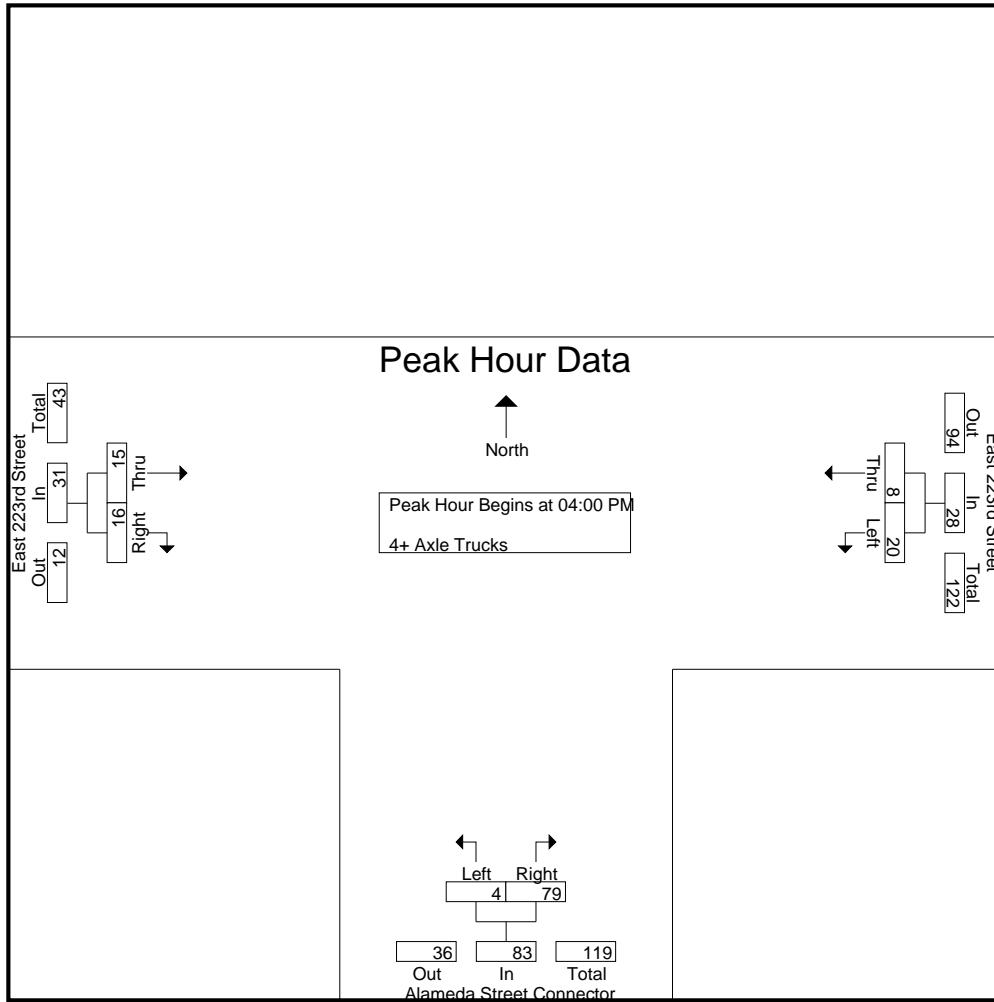
| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|-------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 6 | 3 | 9 | 2 | 23 | 25 | 2 | 7 | 9 | 43 |
| 04:15 PM | 7 | 1 | 8 | 1 | 16 | 17 | 5 | 3 | 8 | 33 |
| 04:30 PM | 5 | 1 | 6 | 0 | 22 | 22 | 6 | 2 | 8 | 36 |
| 04:45 PM | 2 | 3 | 5 | 1 | 18 | 19 | 2 | 4 | 6 | 30 |
| Total | 20 | 8 | 28 | 4 | 79 | 83 | 15 | 16 | 31 | 142 |
| 05:00 PM | 1 | 2 | 3 | 2 | 21 | 23 | 6 | 1 | 7 | 33 |
| 05:15 PM | 2 | 0 | 2 | 0 | 16 | 16 | 2 | 3 | 5 | 23 |
| 05:30 PM | 2 | 0 | 2 | 1 | 9 | 10 | 3 | 6 | 9 | 21 |
| 05:45 PM | 4 | 2 | 6 | 0 | 21 | 21 | 1 | 7 | 8 | 35 |
| Total | 9 | 4 | 13 | 3 | 67 | 70 | 12 | 17 | 29 | 112 |
| Grand Total | 29 | 12 | 41 | 7 | 146 | 153 | 27 | 33 | 60 | 254 |
| Apprch % | 70.7 | 29.3 | | 4.6 | 95.4 | | 45 | 55 | | |
| Total % | 11.4 | 4.7 | 16.1 | 2.8 | 57.5 | 60.2 | 10.6 | 13 | 23.6 | |

| Start Time | East 223rd Street Westbound | | | Alameda Street Connector Northbound | | | East 223rd Street Eastbound | | | Int. Total |
|--------------|-----------------------------|------|------------|-------------------------------------|-------|------------|-----------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 6 | 3 | 9 | 2 | 23 | 25 | 2 | 7 | 9 | 43 |
| 04:15 PM | 7 | 1 | 8 | 1 | 16 | 17 | 5 | 3 | 8 | 33 |
| 04:30 PM | 5 | 1 | 6 | 0 | 22 | 22 | 6 | 2 | 8 | 36 |
| 04:45 PM | 2 | 3 | 5 | 1 | 18 | 19 | 2 | 4 | 6 | 30 |
| Total Volume | 20 | 8 | 28 | 4 | 79 | 83 | 15 | 16 | 31 | 142 |
| % App. Total | 71.4 | 28.6 | | 4.8 | 95.2 | | 48.4 | 51.6 | | |
| PHF | .714 | .667 | .778 | .500 | .859 | .830 | .625 | .571 | .861 | .826 |

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

City of Carson
 N/S: Alameda Street Connector
 E/W: East 223rd Street
 Weather: Clear

File Name : 06_CRS_AI Con_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | 04:00 PM | | | 04:00 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 6 | 3 | 9 | 2 | 23 | 25 | 2 | 7 | 9 |
| +15 mins. | 7 | 1 | 8 | 1 | 16 | 17 | 5 | 3 | 8 |
| +30 mins. | 5 | 1 | 6 | 0 | 22 | 22 | 6 | 2 | 8 |
| +45 mins. | 2 | 3 | 5 | 1 | 18 | 19 | 2 | 4 | 6 |
| Total Volume | 20 | 8 | 28 | 4 | 79 | 83 | 15 | 16 | 31 |
| % App. Total | 71.4 | 28.6 | | 4.8 | 95.2 | | 48.4 | 51.6 | |
| PHF | .714 | .667 | .778 | .500 | .859 | .830 | .625 | .571 | .861 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

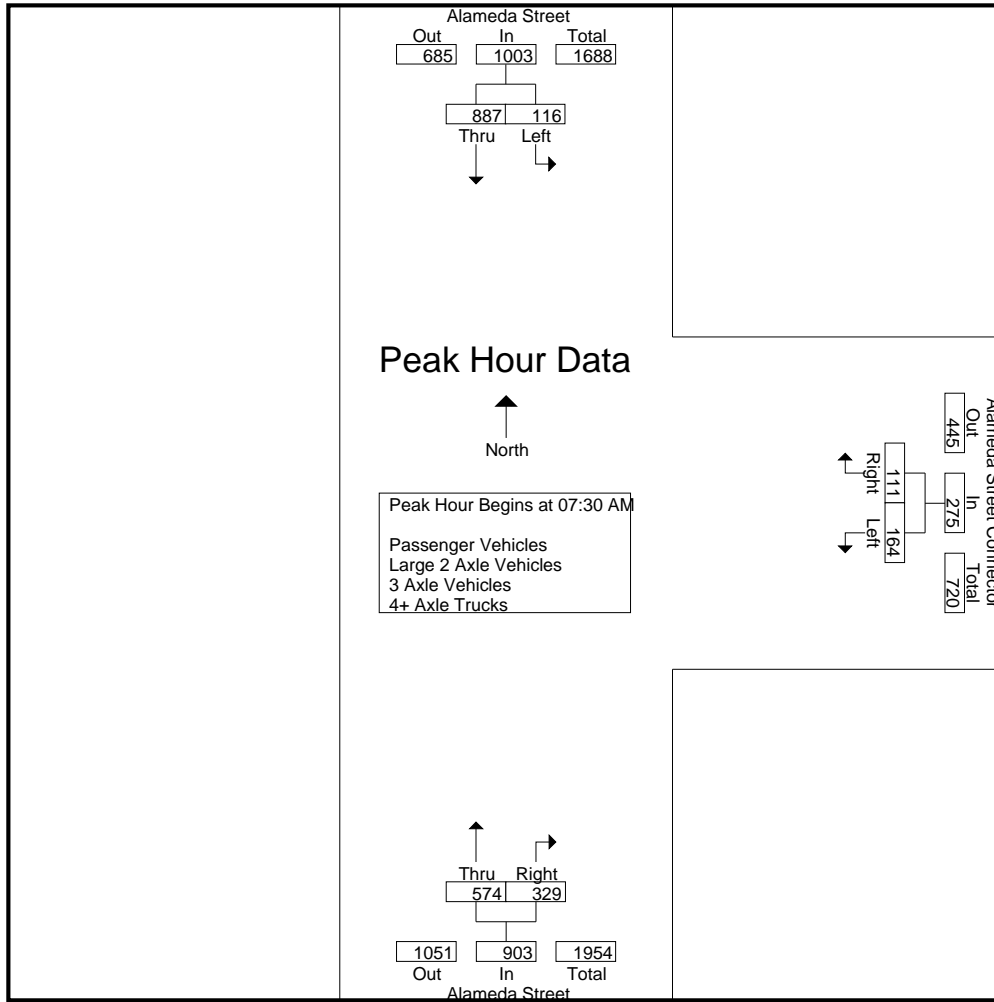
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 16 | 177 | 193 | 40 | 32 | 72 | 69 | 58 | 127 | 392 |
| 07:15 AM | 25 | 239 | 264 | 35 | 20 | 55 | 98 | 67 | 165 | 484 |
| 07:30 AM | 29 | 260 | 289 | 50 | 25 | 75 | 116 | 73 | 189 | 553 |
| 07:45 AM | 42 | 255 | 297 | 45 | 34 | 79 | 174 | 77 | 251 | 627 |
| Total | 112 | 931 | 1043 | 170 | 111 | 281 | 457 | 275 | 732 | 2056 |
| 08:00 AM | 22 | 201 | 223 | 32 | 29 | 61 | 147 | 83 | 230 | 514 |
| 08:15 AM | 23 | 171 | 194 | 37 | 23 | 60 | 137 | 96 | 233 | 487 |
| 08:30 AM | 41 | 171 | 212 | 36 | 22 | 58 | 112 | 73 | 185 | 455 |
| 08:45 AM | 36 | 178 | 214 | 30 | 17 | 47 | 87 | 63 | 150 | 411 |
| Total | 122 | 721 | 843 | 135 | 91 | 226 | 483 | 315 | 798 | 1867 |
| Grand Total | 234 | 1652 | 1886 | 305 | 202 | 507 | 940 | 590 | 1530 | 3923 |
| Apprch % | 12.4 | 87.6 | | 60.2 | 39.8 | | 61.4 | 38.6 | | |
| Total % | 6 | 42.1 | 48.1 | 7.8 | 5.1 | 12.9 | 24 | 15 | 39 | |
| Passenger Vehicles | 198 | 1129 | 1327 | 213 | 162 | 375 | 678 | 363 | 1041 | 2743 |
| % Passenger Vehicles | 84.6 | 68.3 | 70.4 | 69.8 | 80.2 | 74 | 72.1 | 61.5 | 68 | 69.9 |
| Large 2 Axle Vehicles | 6 | 56 | 62 | 17 | 2 | 19 | 31 | 26 | 57 | 138 |
| % Large 2 Axle Vehicles | 2.6 | 3.4 | 3.3 | 5.6 | 1 | 3.7 | 3.3 | 4.4 | 3.7 | 3.5 |
| 3 Axle Vehicles | 8 | 56 | 64 | 26 | 18 | 44 | 58 | 20 | 78 | 186 |
| % 3 Axle Vehicles | 3.4 | 3.4 | 3.4 | 8.5 | 8.9 | 8.7 | 6.2 | 3.4 | 5.1 | 4.7 |
| 4+ Axle Trucks | 22 | 411 | 433 | 49 | 20 | 69 | 173 | 181 | 354 | 856 |
| % 4+ Axle Trucks | 9.4 | 24.9 | 23 | 16.1 | 9.9 | 13.6 | 18.4 | 30.7 | 23.1 | 21.8 |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 29 | 260 | 289 | 50 | 25 | 75 | 116 | 73 | 189 | 553 |
| 07:45 AM | 42 | 255 | 297 | 45 | 34 | 79 | 174 | 77 | 251 | 627 |
| 08:00 AM | 22 | 201 | 223 | 32 | 29 | 61 | 147 | 83 | 230 | 514 |
| 08:15 AM | 23 | 171 | 194 | 37 | 23 | 60 | 137 | 96 | 233 | 487 |
| Total Volume | 116 | 887 | 1003 | 164 | 111 | 275 | 574 | 329 | 903 | 2181 |
| % App. Total | 11.6 | 88.4 | | 59.6 | 40.4 | | 63.6 | 36.4 | | |
| PHF | .690 | .853 | .844 | .820 | .816 | .870 | .825 | .857 | .899 | .870 |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:00 AM | | | 07:30 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|------------|
| +0 mins. | 25 | 239 | 264 | 40 | 32 | 72 | 116 | 73 | 189 |
| +15 mins. | 29 | 260 | 289 | 35 | 20 | 55 | 174 | 77 | 251 |
| +30 mins. | 42 | 255 | 297 | 50 | 25 | 75 | 147 | 83 | 230 |
| +45 mins. | 22 | 201 | 223 | 45 | 34 | 79 | 137 | 96 | 233 |
| Total Volume | 118 | 955 | 1073 | 170 | 111 | 281 | 574 | 329 | 903 |
| % App. Total | 11 | 89 | | 60.5 | 39.5 | | 63.6 | 36.4 | |
| PHF | .702 | .918 | .903 | .850 | .816 | .889 | .825 | .857 | .899 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 15 | 123 | 138 | 27 | 23 | 50 | 51 | 28 | 79 | 267 |
| 07:15 AM | 22 | 162 | 184 | 26 | 13 | 39 | 81 | 46 | 127 | 350 |
| 07:30 AM | 27 | 192 | 219 | 35 | 22 | 57 | 93 | 42 | 135 | 411 |
| 07:45 AM | 40 | 182 | 222 | 32 | 33 | 65 | 142 | 57 | 199 | 486 |
| Total | 104 | 659 | 763 | 120 | 91 | 211 | 367 | 173 | 540 | 1514 |
| 08:00 AM | 20 | 140 | 160 | 25 | 21 | 46 | 120 | 54 | 174 | 380 |
| 08:15 AM | 20 | 117 | 137 | 23 | 19 | 42 | 92 | 64 | 156 | 335 |
| 08:30 AM | 28 | 106 | 134 | 27 | 19 | 46 | 60 | 42 | 102 | 282 |
| 08:45 AM | 26 | 107 | 133 | 18 | 12 | 30 | 39 | 30 | 69 | 232 |
| Total | 94 | 470 | 564 | 93 | 71 | 164 | 311 | 190 | 501 | 1229 |
| Grand Total | 198 | 1129 | 1327 | 213 | 162 | 375 | 678 | 363 | 1041 | 2743 |
| Apprch % | 14.9 | 85.1 | | 56.8 | 43.2 | | 65.1 | 34.9 | | |
| Total % | 7.2 | 41.2 | 48.4 | 7.8 | 5.9 | 13.7 | 24.7 | 13.2 | 38 | |

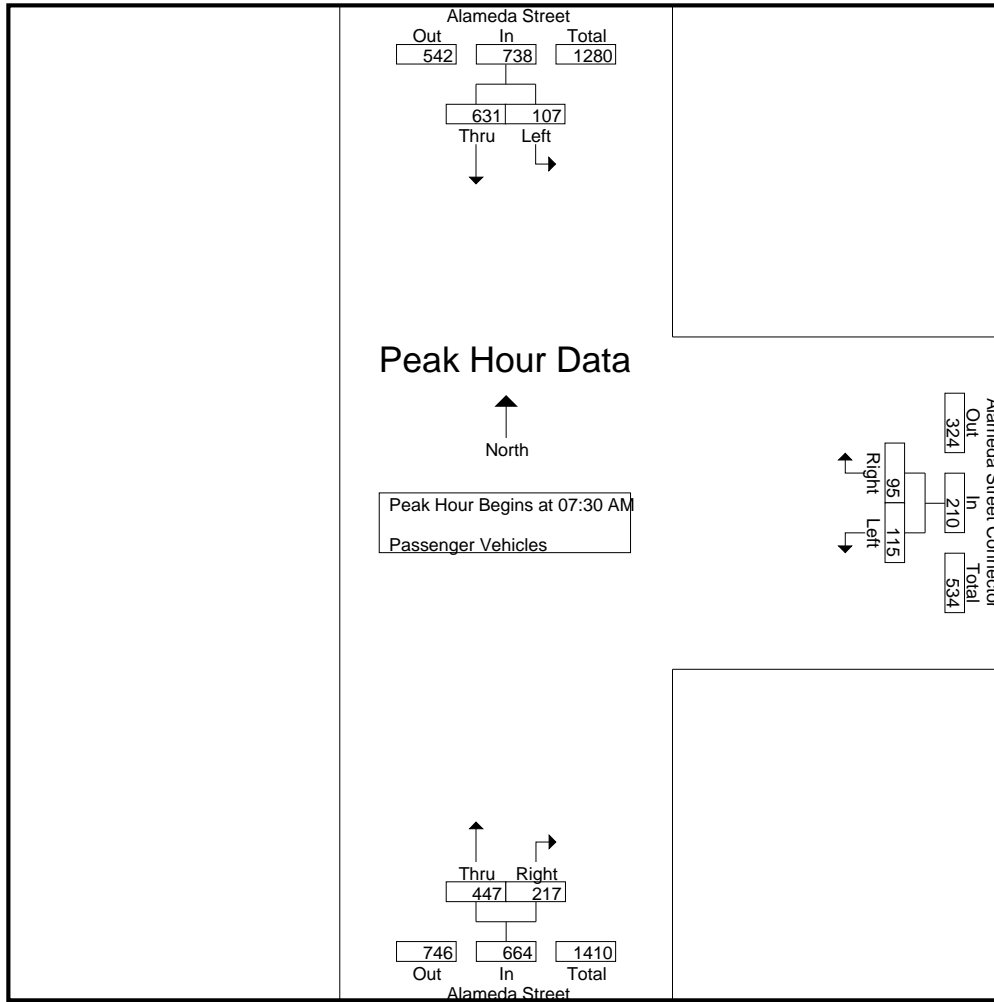
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------------|------------|------------------------------------|-----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 27 | 192 | 219 | 35 | 22 | 57 | 93 | 42 | 135 | 411 |
| 07:45 AM | 40 | 182 | 222 | 32 | 33 | 65 | 142 | 57 | 199 | 486 |
| 08:00 AM | 20 | 140 | 160 | 25 | 21 | 46 | 120 | 54 | 174 | 380 |
| 08:15 AM | 20 | 117 | 137 | 23 | 19 | 42 | 92 | 64 | 156 | 335 |
| Total Volume | 107 | 631 | 738 | 115 | 95 | 210 | 447 | 217 | 664 | 1612 |
| % App. Total | 14.5 | 85.5 | | 54.8 | 45.2 | | 67.3 | 32.7 | | |
| PHF | .669 | .822 | .831 | .821 | .720 | .808 | .787 | .848 | .834 | .829 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|------------|
| +0 mins. | 27 | 192 | 219 | 35 | 22 | 57 | 93 | 42 | 135 |
| +15 mins. | 40 | 182 | 222 | 32 | 33 | 65 | 142 | 57 | 199 |
| +30 mins. | 20 | 140 | 160 | 25 | 21 | 46 | 120 | 54 | 174 |
| +45 mins. | 20 | 117 | 137 | 23 | 19 | 42 | 92 | 64 | 156 |
| Total Volume | 107 | 631 | 738 | 115 | 95 | 210 | 447 | 217 | 664 |
| % App. Total | 14.5 | 85.5 | | 54.8 | 45.2 | | 67.3 | 32.7 | |
| PHF | .669 | .822 | .831 | .821 | .720 | .808 | .787 | .848 | .834 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 4 | 4 | 2 | 0 | 2 | 2 | 3 | 5 | 11 |
| 07:15 AM | 0 | 6 | 6 | 1 | 0 | 1 | 2 | 4 | 6 | 13 |
| 07:30 AM | 0 | 5 | 5 | 2 | 0 | 2 | 2 | 1 | 3 | 10 |
| 07:45 AM | 1 | 11 | 12 | 4 | 0 | 4 | 4 | 4 | 8 | 24 |
| Total | 1 | 26 | 27 | 9 | 0 | 9 | 10 | 12 | 22 | 58 |
| 08:00 AM | 0 | 9 | 9 | 3 | 1 | 4 | 4 | 0 | 4 | 17 |
| 08:15 AM | 1 | 4 | 5 | 2 | 1 | 3 | 6 | 5 | 11 | 19 |
| 08:30 AM | 2 | 7 | 9 | 1 | 0 | 1 | 8 | 5 | 13 | 23 |
| 08:45 AM | 2 | 10 | 12 | 2 | 0 | 2 | 3 | 4 | 7 | 21 |
| Total | 5 | 30 | 35 | 8 | 2 | 10 | 21 | 14 | 35 | 80 |
| Grand Total | 6 | 56 | 62 | 17 | 2 | 19 | 31 | 26 | 57 | 138 |
| Apprch % | 9.7 | 90.3 | | 89.5 | 10.5 | | 54.4 | 45.6 | | |
| Total % | 4.3 | 40.6 | 44.9 | 12.3 | 1.4 | 13.8 | 22.5 | 18.8 | 41.3 | |

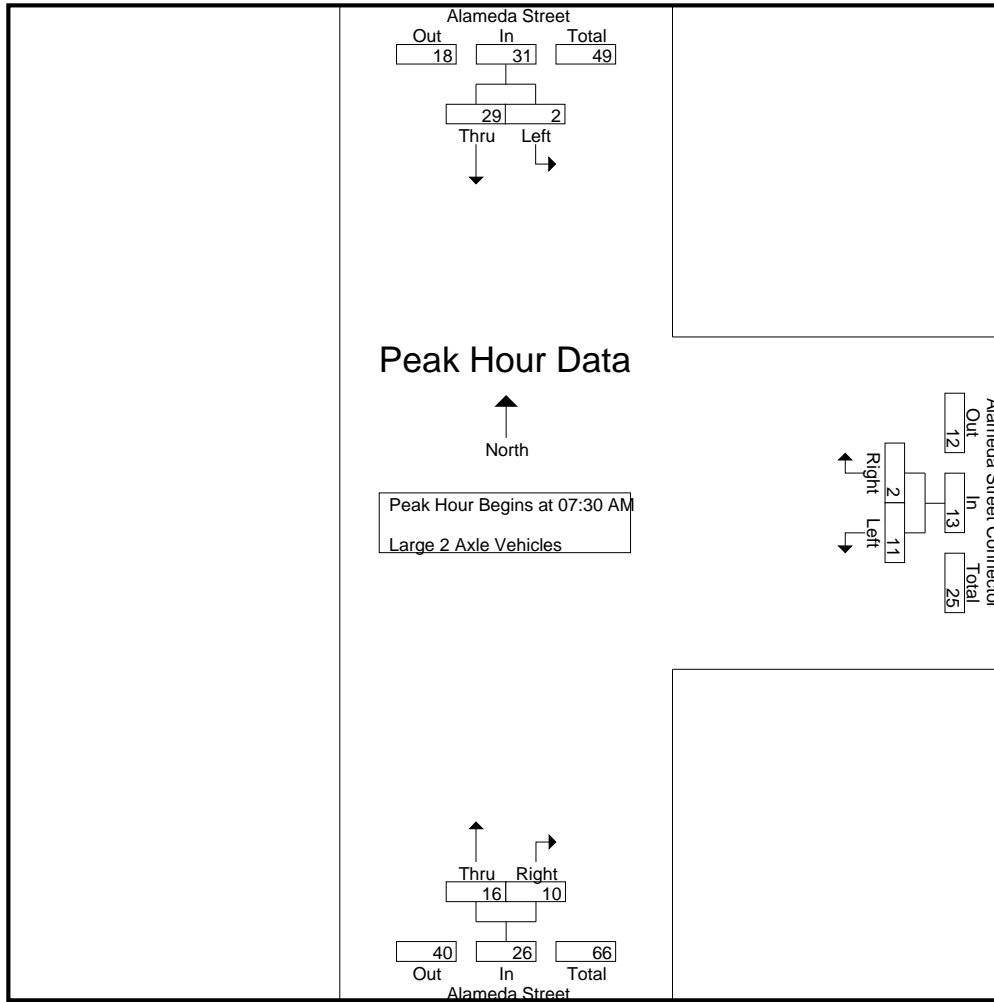
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 0 | 5 | 5 | 2 | 0 | 2 | 2 | 1 | 3 | 10 |
| 07:45 AM | 1 | 11 | 12 | 4 | 0 | 4 | 4 | 4 | 8 | 24 |
| 08:00 AM | 0 | 9 | 9 | 3 | 1 | 4 | 4 | 0 | 4 | 17 |
| 08:15 AM | 1 | 4 | 5 | 2 | 1 | 3 | 6 | 5 | 11 | 19 |
| Total Volume | 2 | 29 | 31 | 11 | 2 | 13 | 16 | 10 | 26 | 70 |
| % App. Total | 6.5 | 93.5 | | 84.6 | 15.4 | | 61.5 | 38.5 | | |
| PHF | .500 | .659 | .646 | .688 | .500 | .813 | .667 | .500 | .591 | .729 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 5 | 5 | 2 | 0 | 2 | 2 | 1 | 3 |
| +15 mins. | 1 | 11 | 12 | 4 | 0 | 4 | 4 | 4 | 8 |
| +30 mins. | 0 | 9 | 9 | 3 | 1 | 4 | 4 | 0 | 4 |
| +45 mins. | 1 | 4 | 5 | 2 | 1 | 3 | 6 | 5 | 11 |
| Total Volume | 2 | 29 | 31 | 11 | 2 | 13 | 16 | 10 | 26 |
| % App. Total | 6.5 | 93.5 | | 84.6 | 15.4 | | 61.5 | 38.5 | |
| PHF | .500 | .659 | .646 | .688 | .500 | .813 | .667 | .500 | .591 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

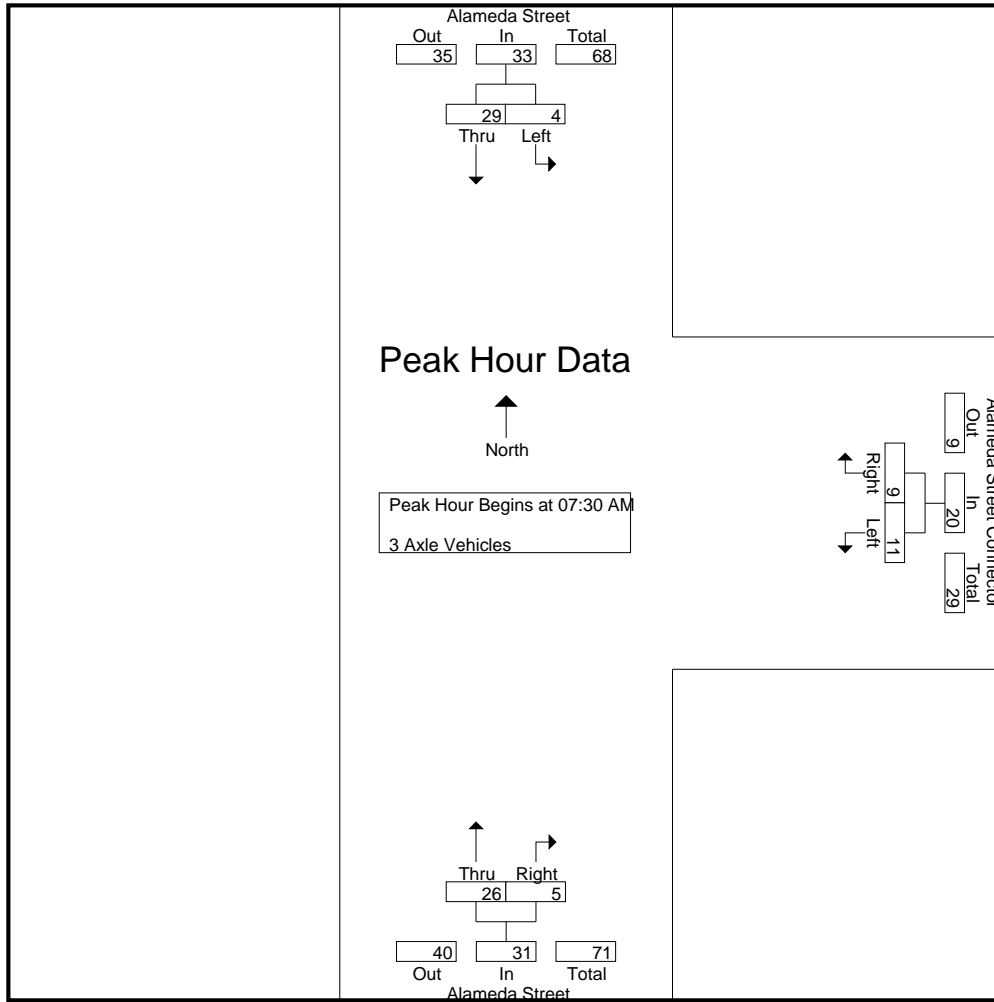
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 1 | 4 | 5 | 5 | 4 | 9 | 3 | 5 | 8 | 22 |
| 07:15 AM | 0 | 6 | 6 | 5 | 3 | 8 | 8 | 3 | 11 | 25 |
| 07:30 AM | 2 | 5 | 7 | 6 | 1 | 7 | 6 | 0 | 6 | 20 |
| 07:45 AM | 0 | 11 | 11 | 2 | 0 | 2 | 7 | 2 | 9 | 22 |
| Total | 3 | 26 | 29 | 18 | 8 | 26 | 24 | 10 | 34 | 89 |
| 08:00 AM | 2 | 9 | 11 | 0 | 7 | 7 | 7 | 2 | 9 | 27 |
| 08:15 AM | 0 | 4 | 4 | 3 | 1 | 4 | 6 | 1 | 7 | 15 |
| 08:30 AM | 2 | 7 | 9 | 4 | 1 | 5 | 5 | 3 | 8 | 22 |
| 08:45 AM | 1 | 10 | 11 | 1 | 1 | 2 | 16 | 4 | 20 | 33 |
| Total | 5 | 30 | 35 | 8 | 10 | 18 | 34 | 10 | 44 | 97 |
| Grand Total | 8 | 56 | 64 | 26 | 18 | 44 | 58 | 20 | 78 | 186 |
| Apprch % | 12.5 | 87.5 | | 59.1 | 40.9 | | 74.4 | 25.6 | | |
| Total % | 4.3 | 30.1 | 34.4 | 14 | 9.7 | 23.7 | 31.2 | 10.8 | 41.9 | |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 2 | 5 | 7 | 6 | 1 | 7 | 6 | 0 | 6 | 20 |
| 07:45 AM | 0 | 11 | 11 | 2 | 0 | 2 | 7 | 2 | 9 | 22 |
| 08:00 AM | 2 | 9 | 11 | 0 | 7 | 7 | 7 | 2 | 9 | 27 |
| 08:15 AM | 0 | 4 | 4 | 3 | 1 | 4 | 6 | 1 | 7 | 15 |
| Total Volume | 4 | 29 | 33 | 11 | 9 | 20 | 26 | 5 | 31 | 84 |
| % App. Total | 12.1 | 87.9 | | 55 | 45 | | 83.9 | 16.1 | | |
| PHF | .500 | .659 | .750 | .458 | .321 | .714 | .929 | .625 | .861 | .778 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 2 | 5 | 7 | 6 | 1 | 7 | 6 | 0 | 6 |
| +15 mins. | 0 | 11 | 11 | 2 | 0 | 2 | 7 | 2 | 9 |
| +30 mins. | 2 | 9 | 11 | 0 | 7 | 7 | 7 | 2 | 9 |
| +45 mins. | 0 | 4 | 4 | 3 | 1 | 4 | 6 | 1 | 7 |
| Total Volume | 4 | 29 | 33 | 11 | 9 | 20 | 26 | 5 | 31 |
| % App. Total | 12.1 | 87.9 | | 55 | 45 | | 83.9 | 16.1 | |
| PHF | .500 | .659 | .750 | .458 | .321 | .714 | .929 | .625 | .861 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 0 | 46 | 46 | 6 | 5 | 11 | 13 | 22 | 35 | 92 |
| 07:15 AM | 3 | 65 | 68 | 3 | 4 | 7 | 7 | 14 | 21 | 96 |
| 07:30 AM | 0 | 58 | 58 | 7 | 2 | 9 | 15 | 30 | 45 | 112 |
| 07:45 AM | 1 | 51 | 52 | 7 | 1 | 8 | 21 | 14 | 35 | 95 |
| Total | 4 | 220 | 224 | 23 | 12 | 35 | 56 | 80 | 136 | 395 |
| 08:00 AM | 0 | 43 | 43 | 4 | 0 | 4 | 16 | 27 | 43 | 90 |
| 08:15 AM | 2 | 46 | 48 | 9 | 2 | 11 | 33 | 26 | 59 | 118 |
| 08:30 AM | 9 | 51 | 60 | 4 | 2 | 6 | 39 | 23 | 62 | 128 |
| 08:45 AM | 7 | 51 | 58 | 9 | 4 | 13 | 29 | 25 | 54 | 125 |
| Total | 18 | 191 | 209 | 26 | 8 | 34 | 117 | 101 | 218 | 461 |
| Grand Total | 22 | 411 | 433 | 49 | 20 | 69 | 173 | 181 | 354 | 856 |
| Apprch % | 5.1 | 94.9 | | 71 | 29 | | 48.9 | 51.1 | | |
| Total % | 2.6 | 48 | 50.6 | 5.7 | 2.3 | 8.1 | 20.2 | 21.1 | 41.4 | |

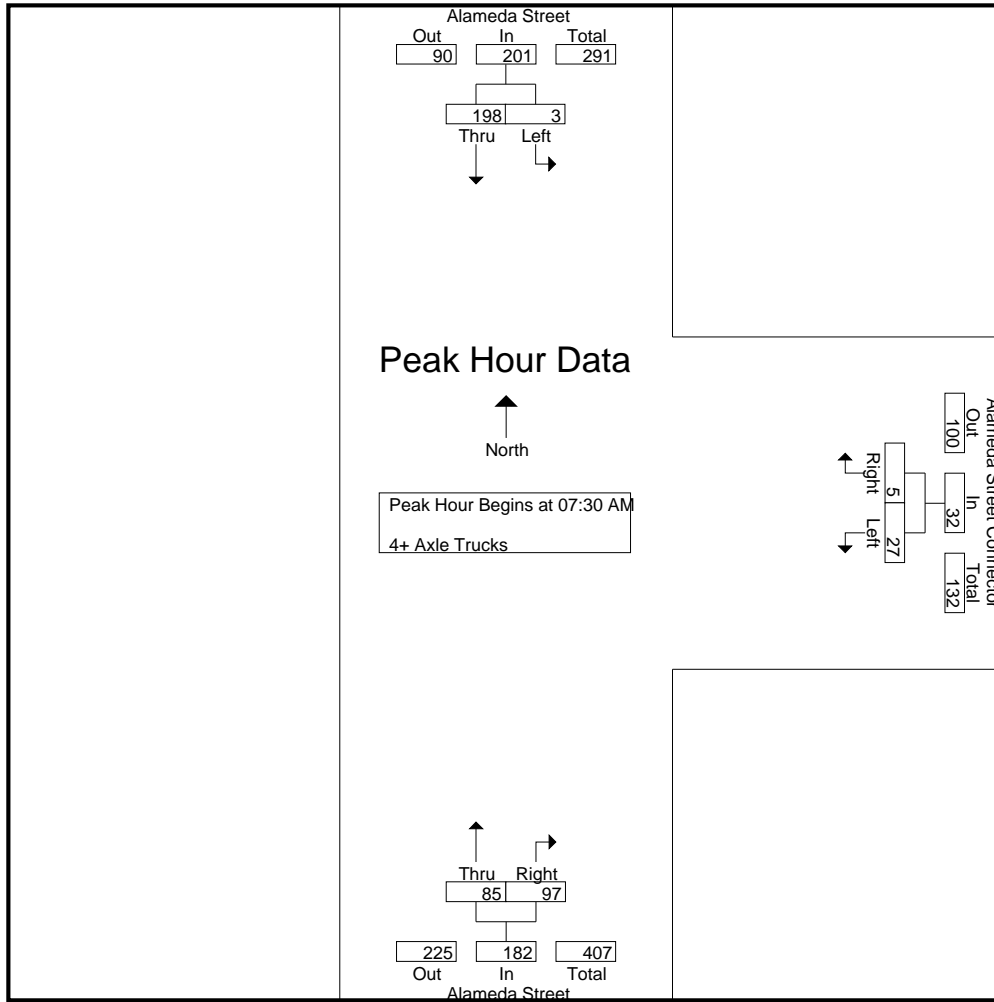
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|-----------|------------|------------------------------------|----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:30 AM | 0 | 58 | 58 | 7 | 2 | 9 | 15 | 30 | 45 | 112 |
| 07:45 AM | 1 | 51 | 52 | 7 | 1 | 8 | 21 | 14 | 35 | 95 |
| 08:00 AM | 0 | 43 | 43 | 4 | 0 | 4 | 16 | 27 | 43 | 90 |
| 08:15 AM | 2 | 46 | 48 | 9 | 2 | 11 | 33 | 26 | 59 | 118 |
| Total Volume | 3 | 198 | 201 | 27 | 5 | 32 | 85 | 97 | 182 | 415 |
| % App. Total | 1.5 | 98.5 | | 84.4 | 15.6 | | 46.7 | 53.3 | | |
| PHF | .375 | .853 | .866 | .750 | .625 | .727 | .644 | .808 | .771 | .879 |

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 07:30 AM | | | 07:30 AM | | |
|--------------|----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| +0 mins. | 0 | 58 | 58 | 7 | 2 | 9 | 15 | 30 | 45 |
| +15 mins. | 1 | 51 | 52 | 7 | 1 | 8 | 21 | 14 | 35 |
| +30 mins. | 0 | 43 | 43 | 4 | 0 | 4 | 16 | 27 | 43 |
| +45 mins. | 2 | 46 | 48 | 9 | 2 | 11 | 33 | 26 | 59 |
| Total Volume | 3 | 198 | 201 | 27 | 5 | 32 | 85 | 97 | 182 |
| % App. Total | 1.5 | 98.5 | | 84.4 | 15.6 | | 46.7 | 53.3 | |
| PHF | .375 | .853 | .866 | .750 | .625 | .727 | .644 | .808 | .771 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

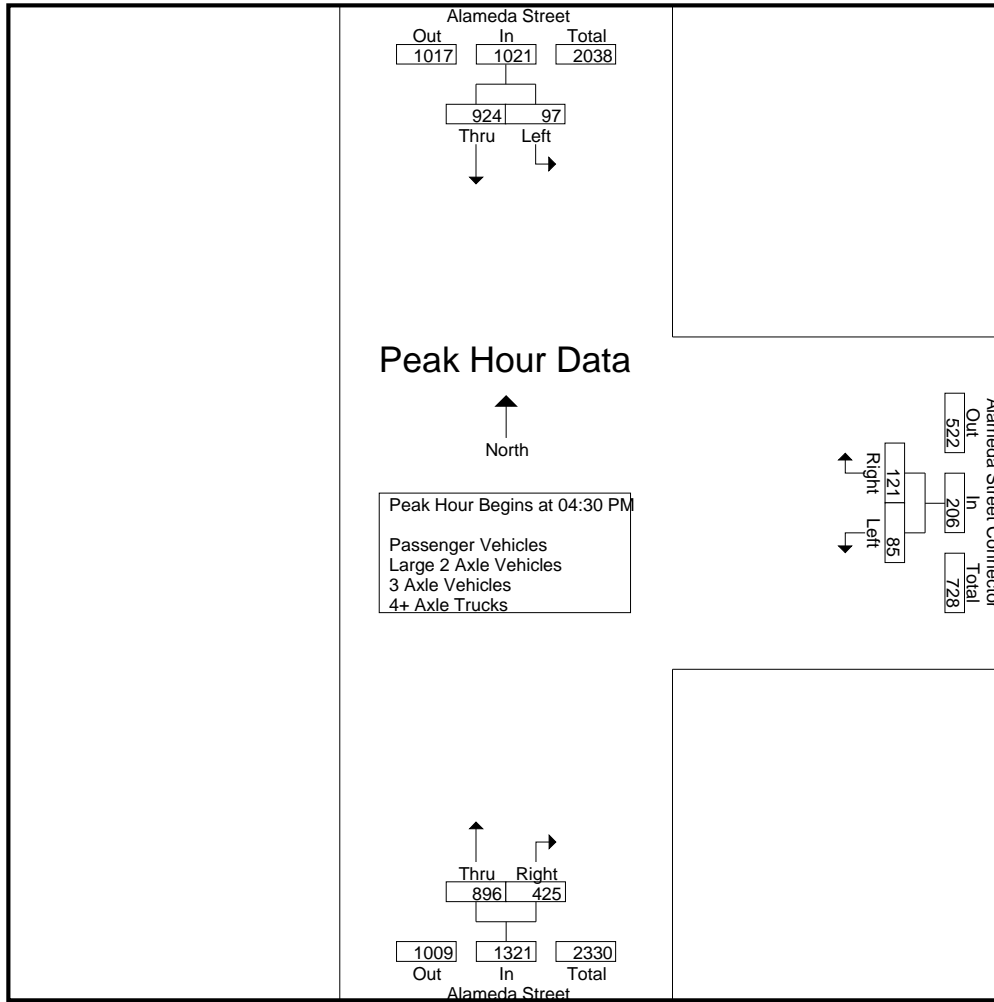
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 21 | 203 | 224 | 24 | 30 | 54 | 183 | 132 | 315 | 593 |
| 04:15 PM | 24 | 227 | 251 | 22 | 21 | 43 | 180 | 113 | 293 | 587 |
| 04:30 PM | 24 | 214 | 238 | 26 | 26 | 52 | 228 | 117 | 345 | 635 |
| 04:45 PM | 33 | 234 | 267 | 30 | 38 | 68 | 221 | 109 | 330 | 665 |
| Total | 102 | 878 | 980 | 102 | 115 | 217 | 812 | 471 | 1283 | 2480 |
| 05:00 PM | 22 | 231 | 253 | 16 | 28 | 44 | 215 | 106 | 321 | 618 |
| 05:15 PM | 18 | 245 | 263 | 13 | 29 | 42 | 232 | 93 | 325 | 630 |
| 05:30 PM | 20 | 196 | 216 | 24 | 23 | 47 | 200 | 119 | 319 | 582 |
| 05:45 PM | 20 | 198 | 218 | 24 | 24 | 48 | 191 | 111 | 302 | 568 |
| Total | 80 | 870 | 950 | 77 | 104 | 181 | 838 | 429 | 1267 | 2398 |
| Grand Total | 182 | 1748 | 1930 | 179 | 219 | 398 | 1650 | 900 | 2550 | 4878 |
| Apprch % | 9.4 | 90.6 | | 45 | 55 | | 64.7 | 35.3 | | |
| Total % | 3.7 | 35.8 | 39.6 | 3.7 | 4.5 | 8.2 | 33.8 | 18.5 | 52.3 | |
| Passenger Vehicles | 151 | 1284 | 1435 | 105 | 183 | 288 | 1248 | 730 | 1978 | 3701 |
| % Passenger Vehicles | 83 | 73.5 | 74.4 | 58.7 | 83.6 | 72.4 | 75.6 | 81.1 | 77.6 | 75.9 |
| Large 2 Axle Vehicles | 5 | 35 | 40 | 6 | 5 | 11 | 20 | 15 | 35 | 86 |
| % Large 2 Axle Vehicles | 2.7 | 2 | 2.1 | 3.4 | 2.3 | 2.8 | 1.2 | 1.7 | 1.4 | 1.8 |
| 3 Axle Vehicles | 3 | 35 | 38 | 25 | 12 | 37 | 130 | 30 | 160 | 235 |
| % 3 Axle Vehicles | 1.6 | 2 | 2 | 14 | 5.5 | 9.3 | 7.9 | 3.3 | 6.3 | 4.8 |
| 4+ Axle Trucks | 23 | 394 | 417 | 43 | 19 | 62 | 252 | 125 | 377 | 856 |
| % 4+ Axle Trucks | 12.6 | 22.5 | 21.6 | 24 | 8.7 | 15.6 | 15.3 | 13.9 | 14.8 | 17.5 |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--|---------------------------|------------|------------|------------------------------------|-----------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | |
| 04:30 PM | 24 | 214 | 238 | 26 | 26 | 52 | 228 | 117 | 345 | 635 |
| 04:45 PM | 33 | 234 | 267 | 30 | 38 | 68 | 221 | 109 | 330 | 665 |
| 05:00 PM | 22 | 231 | 253 | 16 | 28 | 44 | 215 | 106 | 321 | 618 |
| 05:15 PM | 18 | 245 | 263 | 13 | 29 | 42 | 232 | 93 | 325 | 630 |
| Total Volume | 97 | 924 | 1021 | 85 | 121 | 206 | 896 | 425 | 1321 | 2548 |
| % App. Total | 9.5 | 90.5 | | 41.3 | 58.7 | | 67.8 | 32.2 | | |
| PHF | .735 | .943 | .956 | .708 | .796 | .757 | .966 | .908 | .957 | .958 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:00 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 24 | 214 | 238 | 24 | 30 | 54 | 228 | 117 | 345 |
| +15 mins. | 33 | 234 | 267 | 22 | 21 | 43 | 221 | 109 | 330 |
| +30 mins. | 22 | 231 | 253 | 26 | 26 | 52 | 215 | 106 | 321 |
| +45 mins. | 18 | 245 | 263 | 30 | 38 | 68 | 232 | 93 | 325 |
| Total Volume | 97 | 924 | 1021 | 102 | 115 | 217 | 896 | 425 | 1321 |
| % App. Total | 9.5 | 90.5 | | 47 | 53 | | 67.8 | 32.2 | |
| PHF | .735 | .943 | .956 | .850 | .757 | .798 | .966 | .908 | .957 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Passenger Vehicles

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 17 | 144 | 161 | 14 | 21 | 35 | 112 | 101 | 213 | 409 |
| 04:15 PM | 18 | 181 | 199 | 14 | 15 | 29 | 114 | 92 | 206 | 434 |
| 04:30 PM | 16 | 153 | 169 | 19 | 25 | 44 | 168 | 93 | 261 | 474 |
| 04:45 PM | 30 | 173 | 203 | 24 | 34 | 58 | 171 | 91 | 262 | 523 |
| Total | 81 | 651 | 732 | 71 | 95 | 166 | 565 | 377 | 942 | 1840 |
| 05:00 PM | 22 | 172 | 194 | 14 | 24 | 38 | 172 | 75 | 247 | 479 |
| 05:15 PM | 16 | 183 | 199 | 6 | 27 | 33 | 192 | 78 | 270 | 502 |
| 05:30 PM | 17 | 141 | 158 | 5 | 19 | 24 | 161 | 107 | 268 | 450 |
| 05:45 PM | 15 | 137 | 152 | 9 | 18 | 27 | 158 | 93 | 251 | 430 |
| Total | 70 | 633 | 703 | 34 | 88 | 122 | 683 | 353 | 1036 | 1861 |
| Grand Total | 151 | 1284 | 1435 | 105 | 183 | 288 | 1248 | 730 | 1978 | 3701 |
| Apprch % | 10.5 | 89.5 | | 36.5 | 63.5 | | 63.1 | 36.9 | | |
| Total % | 4.1 | 34.7 | 38.8 | 2.8 | 4.9 | 7.8 | 33.7 | 19.7 | 53.4 | |

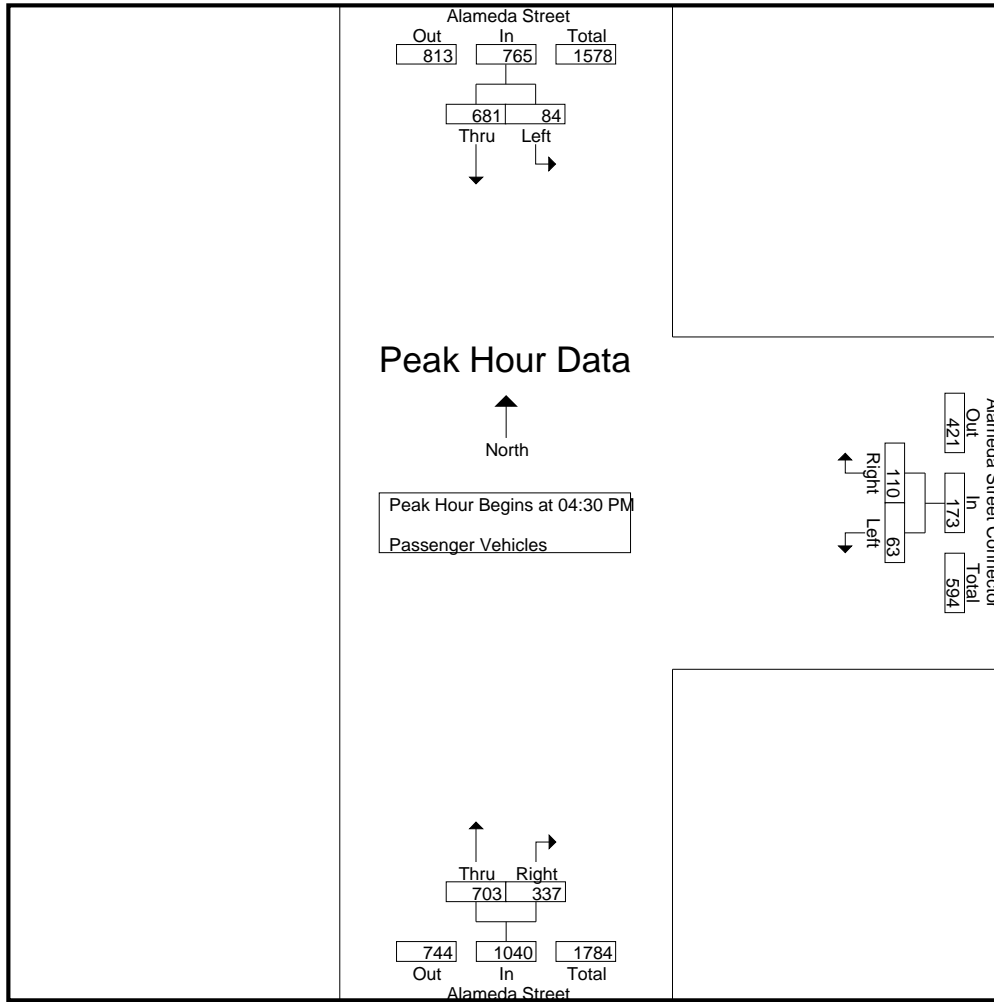
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------------|------------|------------------------------------|-----------|------------|---------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 16 | 153 | 169 | 19 | 25 | 44 | 168 | 93 | 261 | 474 |
| 04:45 PM | 30 | 173 | 203 | 24 | 34 | 58 | 171 | 91 | 262 | 523 |
| 05:00 PM | 22 | 172 | 194 | 14 | 24 | 38 | 172 | 75 | 247 | 479 |
| 05:15 PM | 16 | 183 | 199 | 6 | 27 | 33 | 192 | 78 | 270 | 502 |
| Total Volume | 84 | 681 | 765 | 63 | 110 | 173 | 703 | 337 | 1040 | 1978 |
| % App. Total | 11 | 89 | | 36.4 | 63.6 | | 67.6 | 32.4 | | |
| PHF | .700 | .930 | .942 | .656 | .809 | .746 | .915 | .906 | .963 | .946 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 16 | 153 | 169 | 19 | 25 | 44 | 168 | 93 | 261 |
| +15 mins. | 30 | 173 | 203 | 24 | 34 | 58 | 171 | 91 | 262 |
| +30 mins. | 22 | 172 | 194 | 14 | 24 | 38 | 172 | 75 | 247 |
| +45 mins. | 16 | 183 | 199 | 6 | 27 | 33 | 192 | 78 | 270 |
| Total Volume | 84 | 681 | 765 | 63 | 110 | 173 | 703 | 337 | 1040 |
| % App. Total | 11 | 89 | | 36.4 | 63.6 | | 67.6 | 32.4 | |
| PHF | .700 | .930 | .942 | .656 | .809 | .746 | .915 | .906 | .963 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

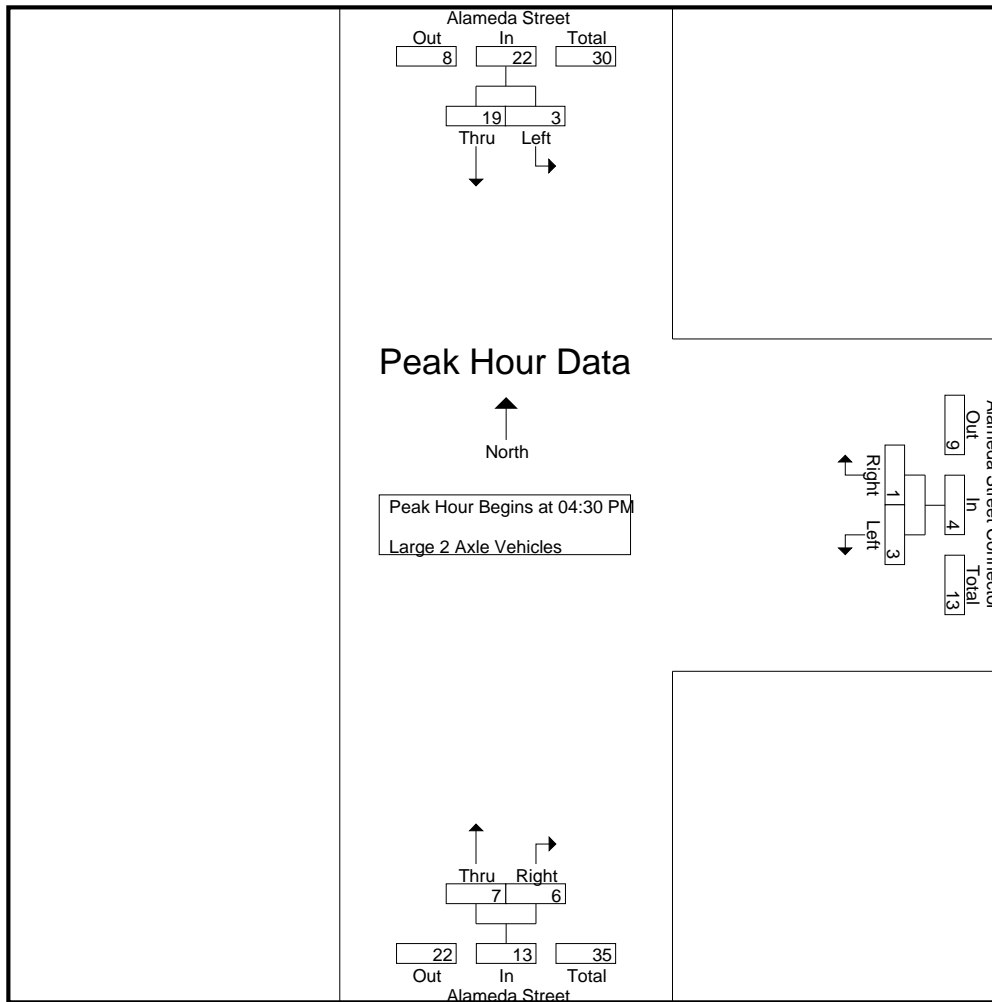
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 1 | 7 | 8 | 0 | 0 | 0 | 6 | 4 | 10 | 18 |
| 04:15 PM | 1 | 4 | 5 | 0 | 2 | 2 | 4 | 2 | 6 | 13 |
| 04:30 PM | 1 | 11 | 12 | 1 | 0 | 1 | 3 | 6 | 9 | 22 |
| 04:45 PM | 2 | 3 | 5 | 1 | 0 | 1 | 2 | 0 | 2 | 8 |
| Total | 5 | 25 | 30 | 2 | 2 | 4 | 15 | 12 | 27 | 61 |
| 05:00 PM | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 6 |
| 05:15 PM | 0 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 3 |
| 05:30 PM | 0 | 2 | 2 | 1 | 0 | 1 | 1 | 2 | 3 | 6 |
| 05:45 PM | 0 | 3 | 3 | 2 | 2 | 4 | 2 | 1 | 3 | 10 |
| Total | 0 | 10 | 10 | 4 | 3 | 7 | 5 | 3 | 8 | 25 |
| Grand Total | 5 | 35 | 40 | 6 | 5 | 11 | 20 | 15 | 35 | 86 |
| Apprch % | 12.5 | 87.5 | | 54.5 | 45.5 | | 57.1 | 42.9 | | |
| Total % | 5.8 | 40.7 | 46.5 | 7 | 5.8 | 12.8 | 23.3 | 17.4 | 40.7 | |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 1 | 11 | 12 | 1 | 0 | 1 | 3 | 6 | 9 | 22 |
| 04:45 PM | 2 | 3 | 5 | 1 | 0 | 1 | 2 | 0 | 2 | 8 |
| 05:00 PM | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 6 |
| 05:15 PM | 0 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 3 |
| Total Volume | 3 | 19 | 22 | 3 | 1 | 4 | 7 | 6 | 13 | 39 |
| % App. Total | 13.6 | 86.4 | | 75 | 25 | | 53.8 | 46.2 | | |
| PHF | .375 | .432 | .458 | .750 | .250 | 1.00 | .583 | .250 | .361 | .443 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|-------|----------|------|------|
| +0 mins. | 1 | 11 | 12 | 1 | 0 | 1 | 3 | 6 | 9 |
| +15 mins. | 2 | 3 | 5 | 1 | 0 | 1 | 2 | 0 | 2 |
| +30 mins. | 0 | 3 | 3 | 0 | 1 | 1 | 2 | 0 | 2 |
| +45 mins. | 0 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| Total Volume | 3 | 19 | 22 | 3 | 1 | 4 | 7 | 6 | 13 |
| % App. Total | 13.6 | 86.4 | | 75 | 25 | | 53.8 | 46.2 | |
| PHF | .375 | .432 | .458 | .750 | .250 | 1.000 | .583 | .250 | .361 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

Groups Printed- 3 Axle Vehicles

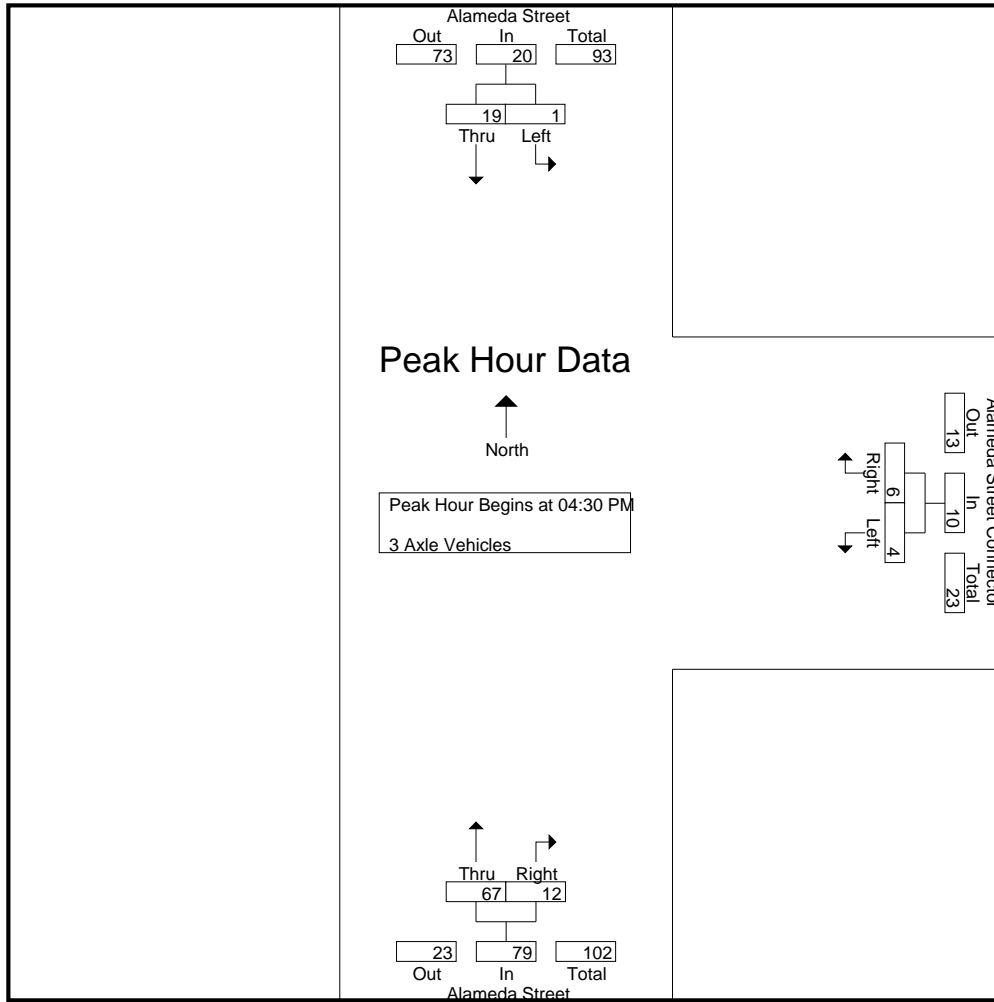
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 0 | 7 | 7 | 4 | 2 | 6 | 20 | 9 | 29 | 42 |
| 04:15 PM | 0 | 4 | 4 | 1 | 1 | 2 | 27 | 7 | 34 | 40 |
| 04:30 PM | 0 | 11 | 11 | 0 | 0 | 0 | 18 | 1 | 19 | 30 |
| 04:45 PM | 0 | 3 | 3 | 1 | 2 | 3 | 19 | 3 | 22 | 28 |
| Total | 0 | 25 | 25 | 6 | 5 | 11 | 84 | 20 | 104 | 140 |
| 05:00 PM | 0 | 3 | 3 | 1 | 2 | 3 | 17 | 5 | 22 | 28 |
| 05:15 PM | 1 | 2 | 3 | 2 | 2 | 4 | 13 | 3 | 16 | 23 |
| 05:30 PM | 2 | 2 | 4 | 11 | 2 | 13 | 10 | 1 | 11 | 28 |
| 05:45 PM | 0 | 3 | 3 | 5 | 1 | 6 | 6 | 1 | 7 | 16 |
| Total | 3 | 10 | 13 | 19 | 7 | 26 | 46 | 10 | 56 | 95 |
| Grand Total | 3 | 35 | 38 | 25 | 12 | 37 | 130 | 30 | 160 | 235 |
| Apprch % | 7.9 | 92.1 | | 67.6 | 32.4 | | 81.2 | 18.8 | | |
| Total % | 1.3 | 14.9 | 16.2 | 10.6 | 5.1 | 15.7 | 55.3 | 12.8 | 68.1 | |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|-----------|------------|------------------------------------|-------|------------|---------------------------|----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 0 | 11 | 11 | 0 | 0 | 0 | 18 | 1 | 19 | 30 |
| 04:45 PM | 0 | 3 | 3 | 1 | 2 | 3 | 19 | 3 | 22 | 28 |
| 05:00 PM | 0 | 3 | 3 | 1 | 2 | 3 | 17 | 5 | 22 | 28 |
| 05:15 PM | 1 | 2 | 3 | 2 | 2 | 4 | 13 | 3 | 16 | 23 |
| Total Volume | 1 | 19 | 20 | 4 | 6 | 10 | 67 | 12 | 79 | 109 |
| % App. Total | 5 | 95 | | 40 | 60 | | 84.8 | 15.2 | | |
| PHF | .250 | .432 | .455 | .500 | .750 | .625 | .882 | .600 | .898 | .908 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 0 | 11 | 11 | 0 | 0 | 0 | 18 | 1 | 19 |
| +15 mins. | 0 | 3 | 3 | 1 | 2 | 3 | 19 | 3 | 22 |
| +30 mins. | 0 | 3 | 3 | 1 | 2 | 3 | 17 | 5 | 22 |
| +45 mins. | 1 | 2 | 3 | 2 | 2 | 4 | 13 | 3 | 16 |
| Total Volume | 1 | 19 | 20 | 4 | 6 | 10 | 67 | 12 | 79 |
| % App. Total | 5 | 95 | | 40 | 60 | | 84.8 | 15.2 | |
| PHF | .250 | .432 | .455 | .500 | .750 | .625 | .882 | .600 | .898 |

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
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Groups Printed- 4+ Axle Trucks

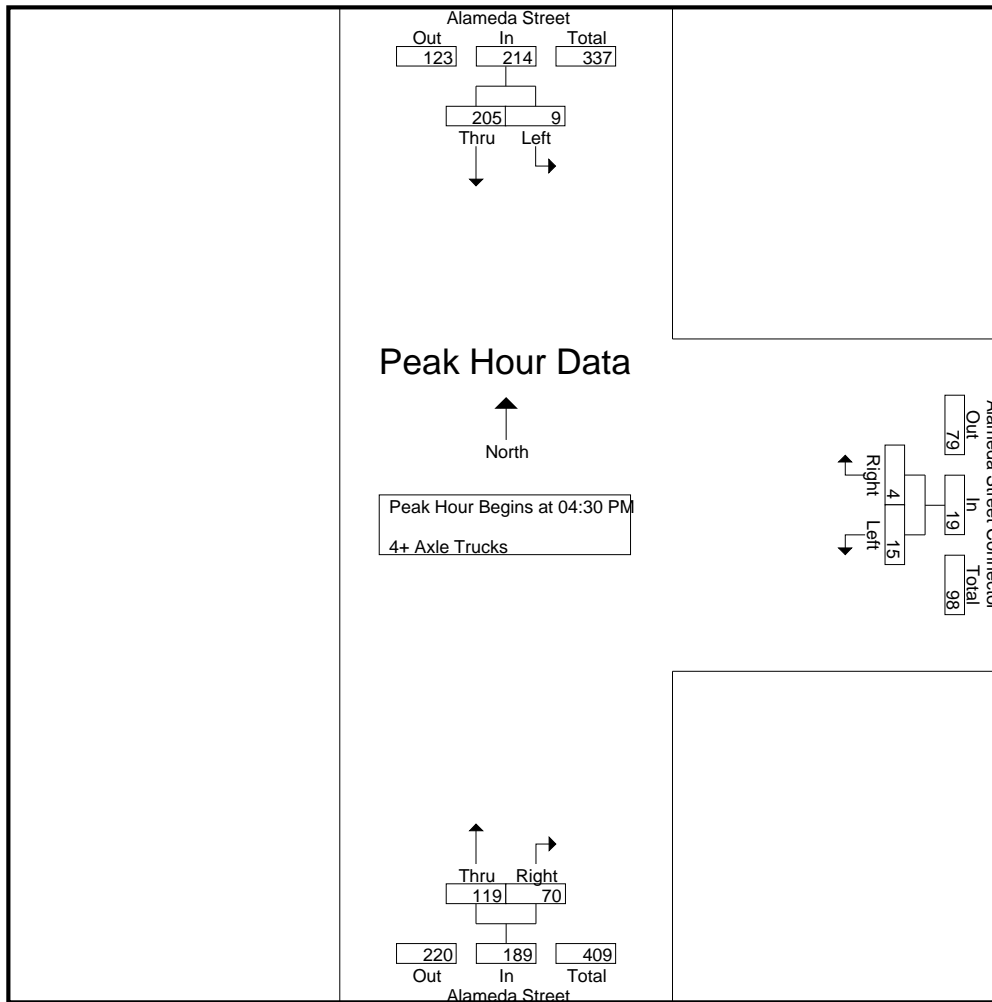
| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|-------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 3 | 45 | 48 | 6 | 7 | 13 | 45 | 18 | 63 | 124 |
| 04:15 PM | 5 | 38 | 43 | 7 | 3 | 10 | 35 | 12 | 47 | 100 |
| 04:30 PM | 7 | 39 | 46 | 6 | 1 | 7 | 39 | 17 | 56 | 109 |
| 04:45 PM | 1 | 55 | 56 | 4 | 2 | 6 | 29 | 15 | 44 | 106 |
| Total | 16 | 177 | 193 | 23 | 13 | 36 | 148 | 62 | 210 | 439 |
| 05:00 PM | 0 | 53 | 53 | 1 | 1 | 2 | 24 | 26 | 50 | 105 |
| 05:15 PM | 1 | 58 | 59 | 4 | 0 | 4 | 27 | 12 | 39 | 102 |
| 05:30 PM | 1 | 51 | 52 | 7 | 2 | 9 | 28 | 9 | 37 | 98 |
| 05:45 PM | 5 | 55 | 60 | 8 | 3 | 11 | 25 | 16 | 41 | 112 |
| Total | 7 | 217 | 224 | 20 | 6 | 26 | 104 | 63 | 167 | 417 |
| Grand Total | 23 | 394 | 417 | 43 | 19 | 62 | 252 | 125 | 377 | 856 |
| Apprch % | 5.5 | 94.5 | | 69.4 | 30.6 | | 66.8 | 33.2 | | |
| Total % | 2.7 | 46 | 48.7 | 5 | 2.2 | 7.2 | 29.4 | 14.6 | 44 | |

| Start Time | Alameda Street Southbound | | | Alameda Street Connector Westbound | | | Alameda Street Northbound | | | Int. Total |
|--------------|---------------------------|------|------------|------------------------------------|-------|------------|---------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 7 | 39 | 46 | 6 | 1 | 7 | 39 | 17 | 56 | 109 |
| 04:45 PM | 1 | 55 | 56 | 4 | 2 | 6 | 29 | 15 | 44 | 106 |
| 05:00 PM | 0 | 53 | 53 | 1 | 1 | 2 | 24 | 26 | 50 | 105 |
| 05:15 PM | 1 | 58 | 59 | 4 | 0 | 4 | 27 | 12 | 39 | 102 |
| Total Volume | 9 | 205 | 214 | 15 | 4 | 19 | 119 | 70 | 189 | 422 |
| % App. Total | 4.2 | 95.8 | | 78.9 | 21.1 | | 63 | 37 | | |
| PHF | .321 | .884 | .907 | .625 | .500 | .679 | .763 | .673 | .844 | .968 |

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

City of Carson
 N/S: Alameda Street
 E/W: Alameda Street Connector
 Weather: Clear

File Name : 07_CRS_Alameda_AI Con PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:30 PM | | | 04:30 PM | | |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins. | 7 | 39 | 46 | 6 | 1 | 7 | 39 | 17 | 56 |
| +15 mins. | 1 | 55 | 56 | 4 | 2 | 6 | 29 | 15 | 44 |
| +30 mins. | 0 | 53 | 53 | 1 | 1 | 2 | 24 | 26 | 50 |
| +45 mins. | 1 | 58 | 59 | 4 | 0 | 4 | 27 | 12 | 39 |
| Total Volume | 9 | 205 | 214 | 15 | 4 | 19 | 119 | 70 | 189 |
| % App. Total | 4.2 | 95.8 | | 78.9 | 21.1 | | 63 | 37 | |
| PHF | .321 | .884 | .907 | .625 | .500 | .679 | .763 | .673 | .844 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

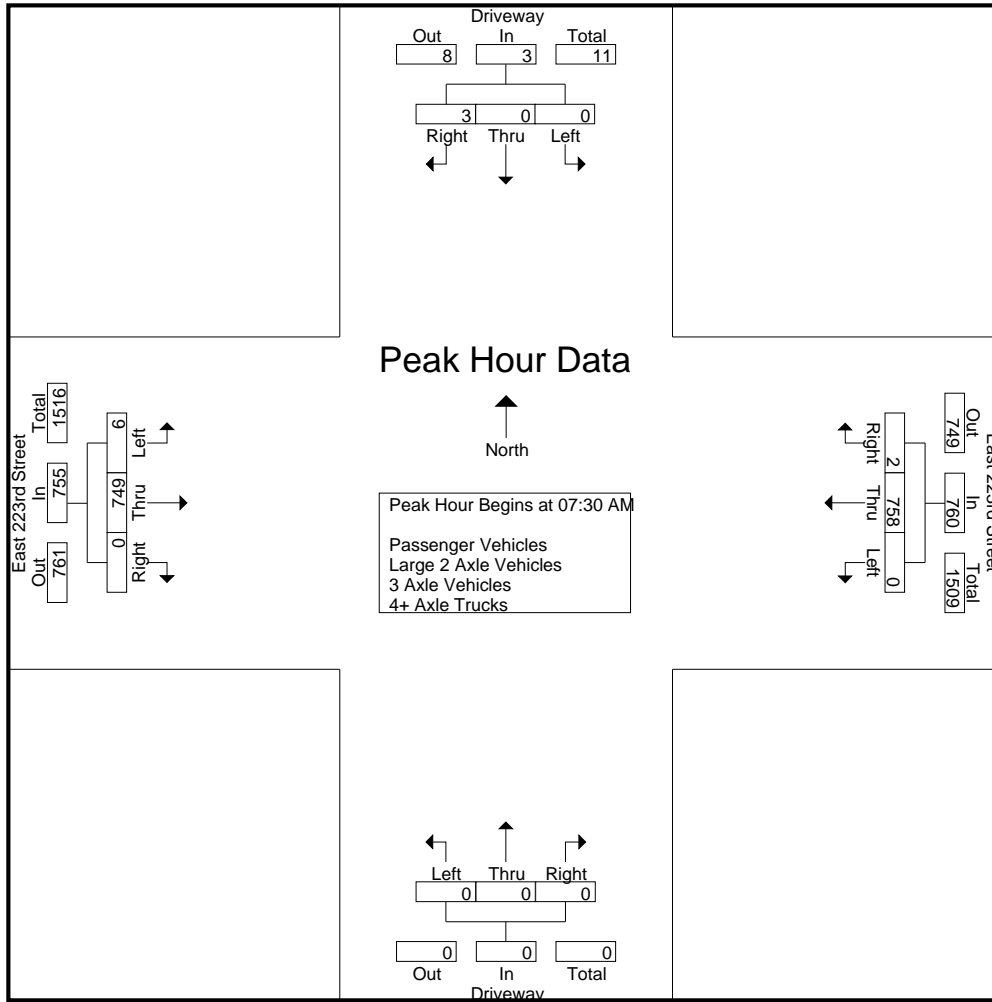
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 1 | 1 | 0 | 166 | 0 | 166 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 138 | 305 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 178 | 1 | 180 | 0 | 0 | 0 | 0 | 0 | 150 | 0 | 150 | 330 |
| 07:30 AM | 0 | 0 | 1 | 1 | 0 | 208 | 0 | 208 | 0 | 0 | 0 | 0 | 1 | 231 | 0 | 232 | 441 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 213 | 2 | 215 | 0 | 0 | 0 | 0 | 0 | 179 | 0 | 179 | 395 |
| Total | 0 | 0 | 3 | 3 | 1 | 765 | 3 | 769 | 0 | 0 | 0 | 0 | 1 | 698 | 0 | 699 | 1471 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 169 | 0 | 169 | 0 | 0 | 0 | 0 | 1 | 151 | 0 | 152 | 322 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 168 | 0 | 168 | 0 | 0 | 0 | 0 | 4 | 188 | 0 | 192 | 360 |
| 08:30 AM | 0 | 0 | 2 | 2 | 0 | 173 | 1 | 174 | 0 | 0 | 1 | 1 | 3 | 166 | 1 | 170 | 347 |
| 08:45 AM | 2 | 0 | 0 | 2 | 0 | 156 | 0 | 156 | 0 | 0 | 0 | 0 | 5 | 116 | 0 | 121 | 279 |
| Total | 2 | 0 | 3 | 5 | 0 | 666 | 1 | 667 | 0 | 0 | 1 | 1 | 13 | 621 | 1 | 635 | 1308 |
| Grand Total | 2 | 0 | 6 | 8 | 1 | 1431 | 4 | 1436 | 0 | 0 | 1 | 1 | 14 | 1319 | 1 | 1334 | 2779 |
| Apprch % | 25 | 0 | 75 | | 0.1 | 99.7 | 0.3 | | 0 | 0 | 100 | | 1 | 98.9 | 0.1 | | |
| Total % | 0.1 | 0 | 0.2 | 0.3 | 0 | 51.5 | 0.1 | 51.7 | 0 | 0 | 0 | 0 | 0.5 | 47.5 | 0 | 48 | |
| Passenger Vehicles | 2 | 0 | 5 | 7 | 1 | 1361 | 4 | 1366 | 0 | 0 | 1 | 1 | 14 | 1201 | 1 | 1216 | 2590 |
| % Passenger Vehicles | 100 | 0 | 83.3 | 87.5 | 100 | 95.1 | 100 | 95.1 | 0 | 0 | 100 | 100 | 100 | 91.1 | 100 | 91.2 | 93.2 |
| Large 2 Axle Vehicles | 0 | 0 | 1 | 1 | 0 | 26 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 26 | 53 |
| % Large 2 Axle Vehicles | 0 | 0 | 16.7 | 12.5 | 0 | 1.8 | 0 | 1.8 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1.9 | 1.9 |
| 3 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 31 | 50 |
| % 3 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 1.3 | 0 | 1.3 | 0 | 0 | 0 | 0 | 0 | 2.4 | 0 | 2.3 | 1.8 |
| 4+ Axle Trucks | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 61 | 0 | 61 | 86 |
| % 4+ Axle Trucks | 0 | 0 | 0 | 0 | 0 | 1.7 | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 | 4.6 | 0 | 4.6 | 3.1 |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 1 | 1 | 0 | 208 | 0 | 208 | 0 | 0 | 0 | 0 | 1 | 231 | 0 | 232 | 441 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 213 | 2 | 215 | 0 | 0 | 0 | 0 | 0 | 179 | 0 | 179 | 395 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 169 | 0 | 169 | 0 | 0 | 0 | 0 | 1 | 151 | 0 | 152 | 322 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 168 | 0 | 168 | 0 | 0 | 0 | 0 | 4 | 188 | 0 | 192 | 360 |
| Total Volume | 0 | 0 | 3 | 3 | 0 | 758 | 2 | 760 | 0 | 0 | 0 | 0 | 6 | 749 | 0 | 755 | 1518 |
| % App. Total | 0 | 0 | 100 | | 0 | 99.7 | 0.3 | | 0 | 0 | 0 | | 0.8 | 99.2 | 0 | | |
| PHF | .000 | .000 | .750 | .750 | .000 | .890 | .250 | .884 | .000 | .000 | .000 | .000 | .375 | .811 | .000 | .814 | .861 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 08:00 AM | | | | 07:15 AM | | | | 07:45 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------------|------|------------|
| +0 mins. | 0 | 0 | 1 | 1 | 1 | 178 | 1 | 180 | 0 | 0 | 0 | 0 | 1 | 231 | 0 | 232 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 208 | 0 | 208 | 0 | 0 | 0 | 0 | 0 | 179 | 0 | 179 |
| +30 mins. | 0 | 0 | 2 | 2 | 0 | 213 | 2 | 215 | 0 | 0 | 0 | 0 | 1 | 151 | 0 | 152 |
| +45 mins. | 2 | 0 | 0 | 2 | 0 | 169 | 0 | 169 | 0 | 0 | 1 | 1 | 4 | 188 | 0 | 192 |
| Total Volume | 2 | 0 | 3 | 5 | 1 | 768 | 3 | 772 | 0 | 0 | 1 | 1 | 6 | 749 | 0 | 755 |
| % App. Total | 40 | 0 | 60 | | 0.1 | 99.5 | 0.4 | | 0 | 0 | 100 | | 0.8 | 99.2 | 0 | |
| PHF | .250 | .000 | .375 | .625 | .250 | .901 | .375 | .898 | .000 | .000 | .250 | .250 | .375 | .811 | .000 | .814 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

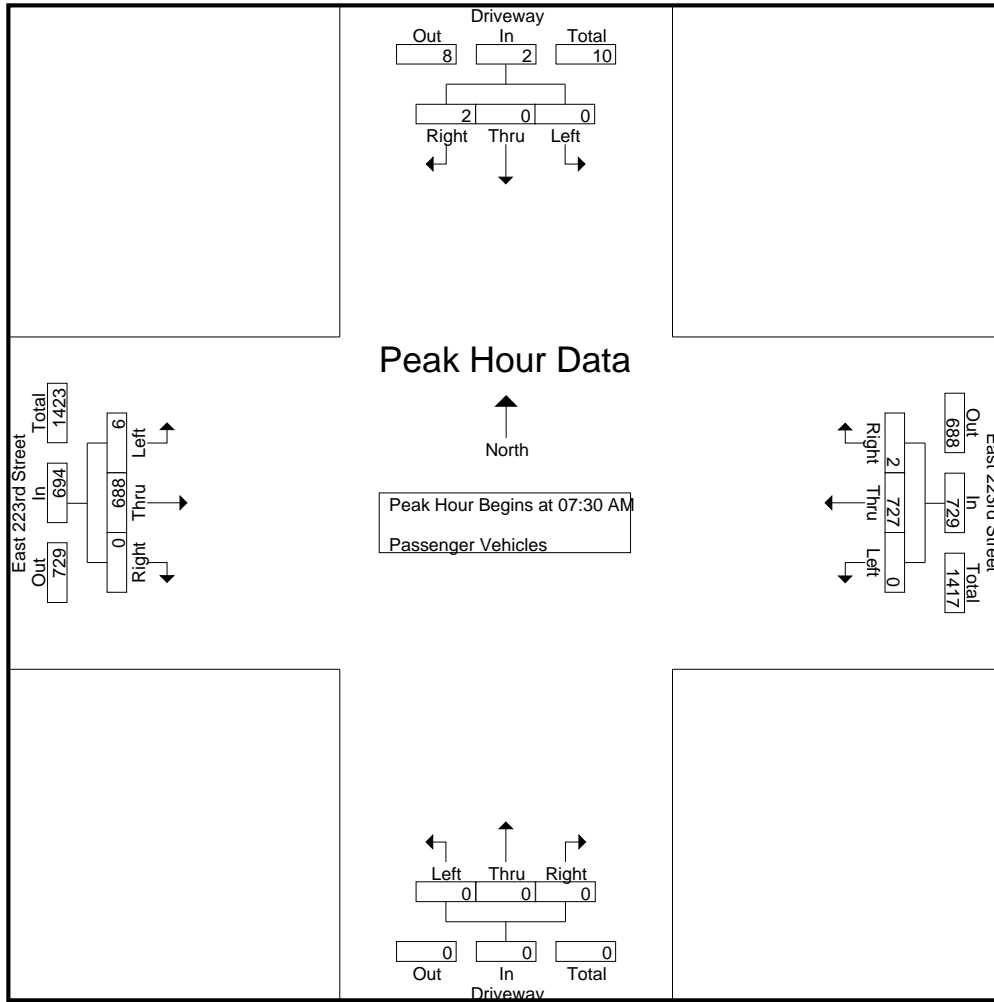
Groups Printed- Passenger Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 1 | 1 | 0 | 157 | 0 | 157 | 0 | 0 | 0 | 0 | 0 | 124 | 0 | 124 | 282 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 171 | 1 | 173 | 0 | 0 | 0 | 0 | 0 | 137 | 0 | 137 | 310 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 205 | 0 | 205 | 0 | 0 | 0 | 0 | 1 | 214 | 0 | 215 | 420 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 207 | 2 | 209 | 0 | 0 | 0 | 0 | 0 | 167 | 0 | 167 | 377 |
| Total | 0 | 0 | 2 | 2 | 1 | 740 | 3 | 744 | 0 | 0 | 0 | 0 | 1 | 642 | 0 | 643 | 1389 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 160 | 0 | 160 | 0 | 0 | 0 | 0 | 1 | 136 | 0 | 137 | 298 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 155 | 0 | 155 | 0 | 0 | 0 | 0 | 4 | 171 | 0 | 175 | 330 |
| 08:30 AM | 0 | 0 | 2 | 2 | 0 | 157 | 1 | 158 | 0 | 0 | 1 | 1 | 3 | 145 | 1 | 149 | 310 |
| 08:45 AM | 2 | 0 | 0 | 2 | 0 | 149 | 0 | 149 | 0 | 0 | 0 | 0 | 5 | 107 | 0 | 112 | 263 |
| Total | 2 | 0 | 3 | 5 | 0 | 621 | 1 | 622 | 0 | 0 | 1 | 1 | 13 | 559 | 1 | 573 | 1201 |
| Grand Total | 2 | 0 | 5 | 7 | 1 | 1361 | 4 | 1366 | 0 | 0 | 1 | 1 | 14 | 1201 | 1 | 1216 | 2590 |
| Apprch % | 28.6 | 0 | 71.4 | | 0.1 | 99.6 | 0.3 | | 0 | 0 | 100 | | 1.2 | 98.8 | 0.1 | | |
| Total % | 0.1 | 0 | 0.2 | 0.3 | 0 | 52.5 | 0.2 | 52.7 | 0 | 0 | 0 | 0 | 0.5 | 46.4 | 0 | 46.9 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 205 | 0 | 205 | 0 | 0 | 0 | 0 | 1 | 214 | 0 | 215 | 420 |
| 07:45 AM | 0 | 0 | 1 | 1 | 0 | 207 | 2 | 209 | 0 | 0 | 0 | 0 | 0 | 167 | 0 | 167 | 377 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 160 | 0 | 160 | 0 | 0 | 0 | 0 | 1 | 136 | 0 | 137 | 298 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 155 | 0 | 155 | 0 | 0 | 0 | 0 | 4 | 171 | 0 | 175 | 330 |
| Total Volume | 0 | 0 | 2 | 2 | 0 | 727 | 2 | 729 | 0 | 0 | 0 | 0 | 6 | 688 | 0 | 694 | 1425 |
| % App. Total | 0 | 0 | 100 | | 0 | 99.7 | 0.3 | | 0 | 0 | 0 | | 0.9 | 99.1 | 0 | | |
| PHF | .000 | .000 | .500 | .500 | .000 | .878 | .250 | .872 | .000 | .000 | .000 | .000 | .375 | .804 | .000 | .807 | .848 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|------------|------|------------|----------|------|------|------|----------|------------|------|------------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 205 | 0 | 205 | 0 | 0 | 0 | 0 | 1 | 214 | 0 | 215 |
| +15 mins. | 0 | 0 | 1 | 1 | 0 | 207 | 2 | 209 | 0 | 0 | 0 | 0 | 0 | 167 | 0 | 167 |
| +30 mins. | 0 | 0 | 1 | 1 | 0 | 160 | 0 | 160 | 0 | 0 | 0 | 0 | 1 | 136 | 0 | 137 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 155 | 0 | 155 | 0 | 0 | 0 | 0 | 4 | 171 | 0 | 175 |
| Total Volume | 0 | 0 | 2 | 2 | 0 | 727 | 2 | 729 | 0 | 0 | 0 | 0 | 6 | 688 | 0 | 694 |
| % App. Total | 0 | 0 | 100 | | 0 | 99.7 | 0.3 | | 0 | 0 | 0 | | 0.9 | 99.1 | 0 | |
| PHF | .000 | .000 | .500 | .500 | .000 | .878 | .250 | .872 | .000 | .000 | .000 | .000 | .375 | .804 | .000 | .807 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

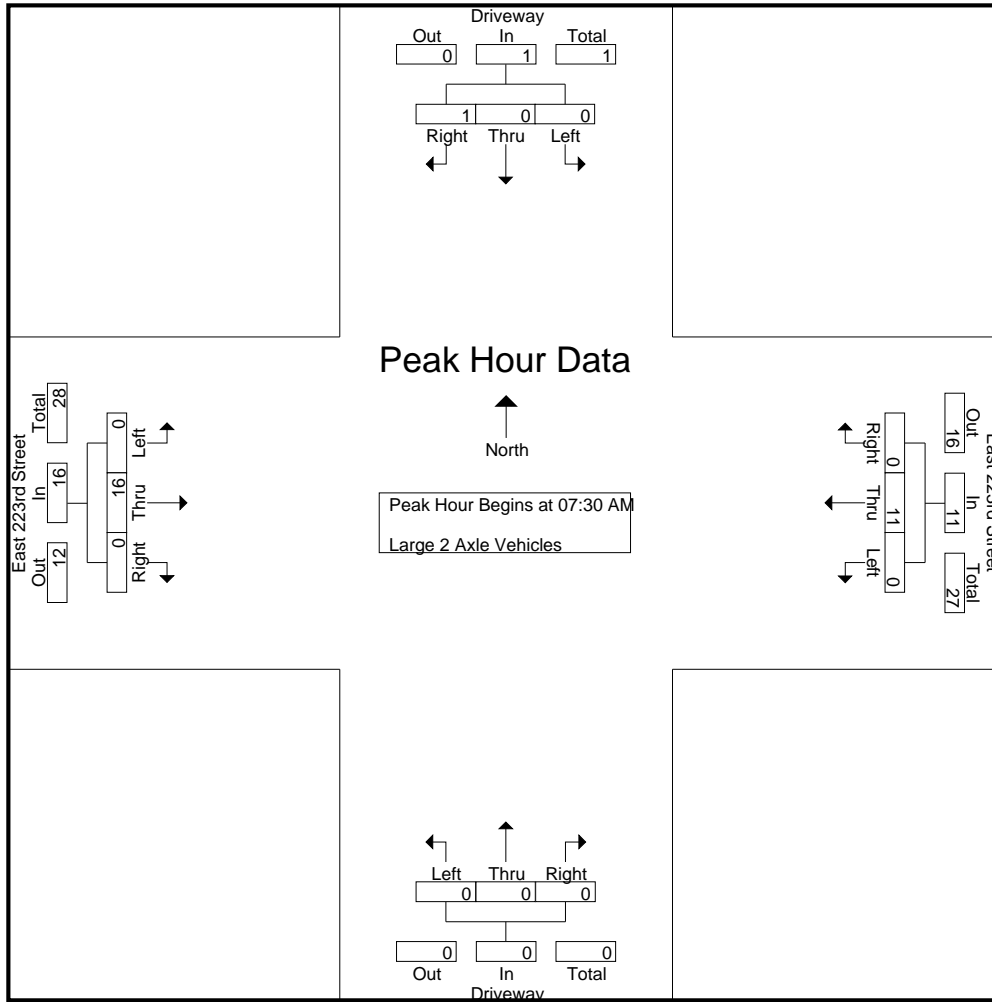
Groups Printed- Large 2 Axle Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 5 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 |
| 07:30 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 6 |
| Total | 0 | 0 | 1 | 1 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 22 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 5 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 10 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 10 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 6 |
| Total | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 16 | 31 |
| Grand Total | 0 | 0 | 1 | 1 | 0 | 26 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 26 | 53 |
| Apprch % | 0 | 0 | 100 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| Total % | 0 | 0 | 1.9 | 1.9 | 0 | 49.1 | 0 | 49.1 | 0 | 0 | 0 | 0 | 0 | 49.1 | 0 | 49.1 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 6 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 5 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 10 |
| Total Volume | 0 | 0 | 1 | 1 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 16 | 28 |
| % App. Total | 0 | 0 | 100 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .250 | .250 | .000 | .550 | .000 | .550 | .000 | .000 | .000 | .000 | .000 | .667 | .000 | .667 | .700 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| Total Volume | 0 | 0 | 1 | 1 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 16 |
| % App. Total | 0 | 0 | 100 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | |
| PHF | .000 | .000 | .250 | .250 | .000 | .550 | .000 | .550 | .000 | .000 | .000 | .000 | .000 | .667 | .000 | .667 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

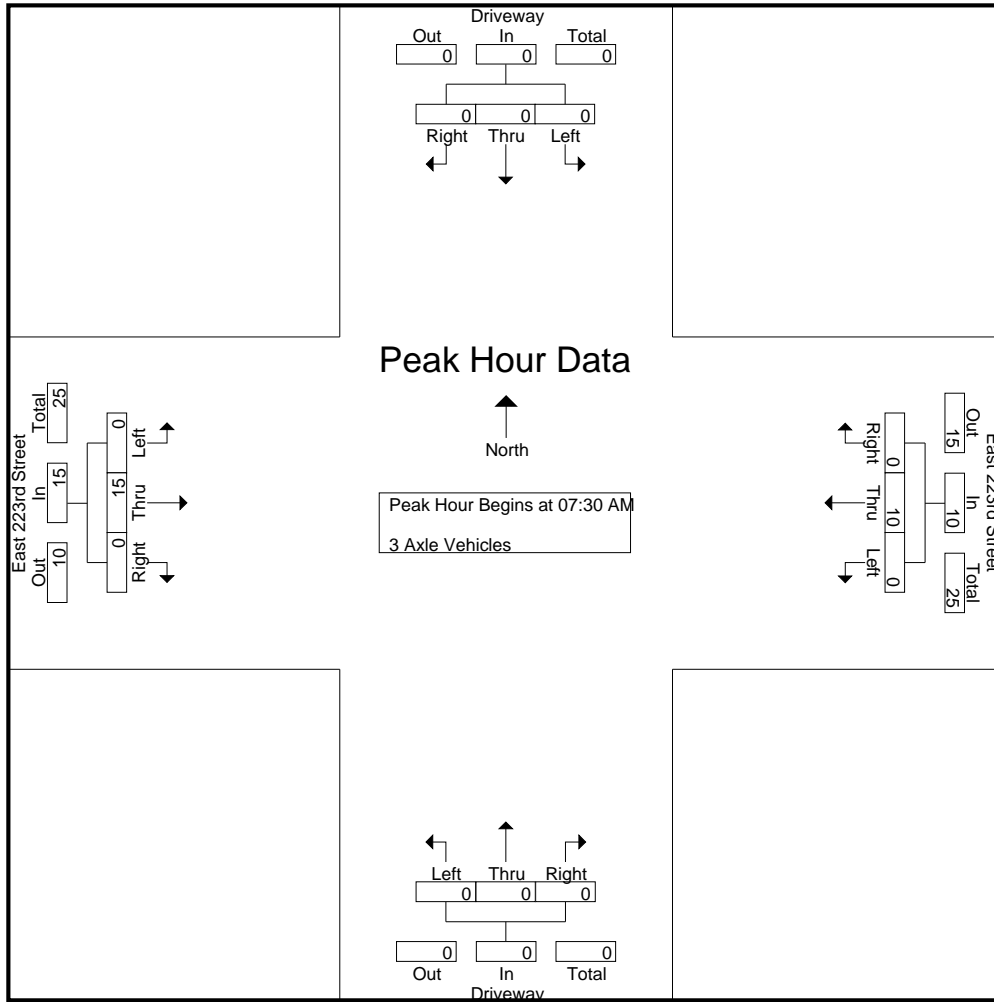
Groups Printed- 3 Axle Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 6 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 5 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 6 |
| Total | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 17 | 26 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 11 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 8 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 |
| Total | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 14 | 24 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 31 | 50 |
| Apprch % | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| Total % | 0 | 0 | 0 | | 0 | 38 | 0 | 38 | 0 | 0 | 0 | | 0 | 62 | 0 | 62 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 5 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 6 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 11 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 15 | 25 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 | .568 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|----------|------|----------|----------|------|------|------|----------|----------|------|----------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 15 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 |
| PHF | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

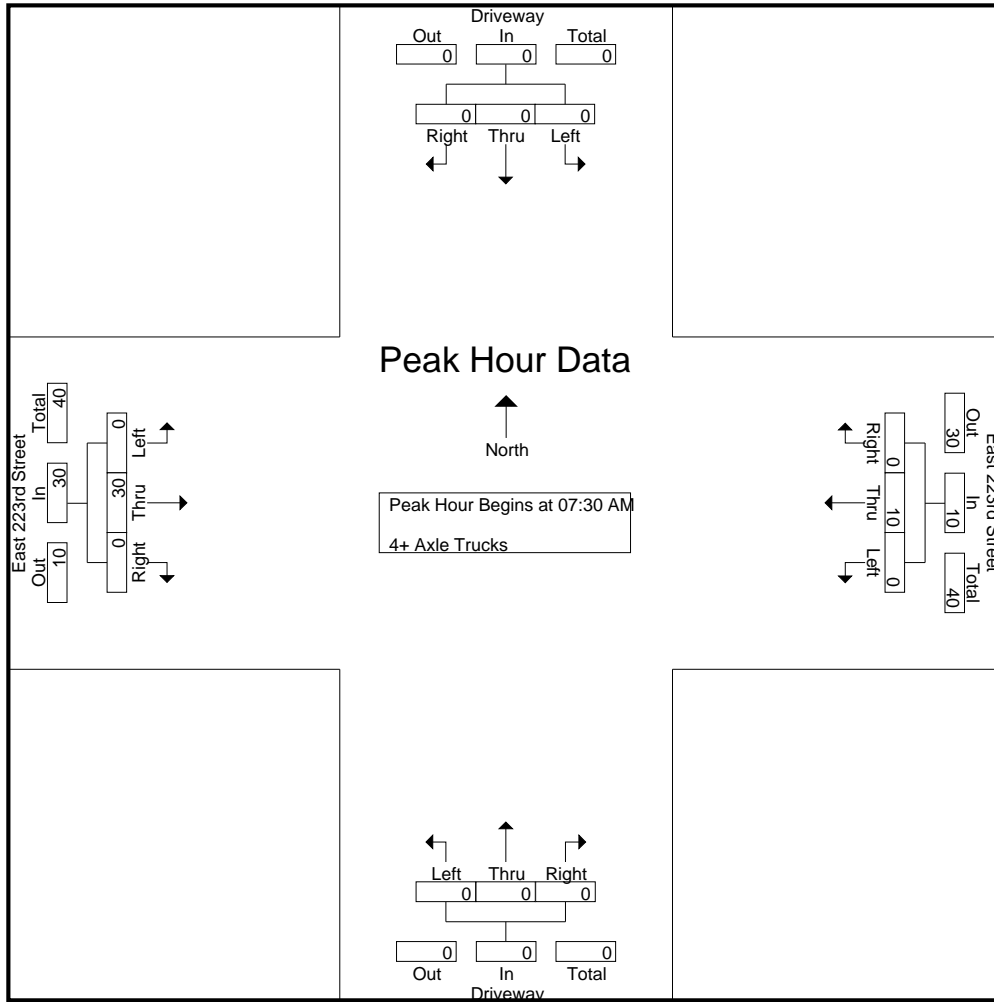
Groups Printed- 4+ Axle Trucks

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 12 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 7 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 9 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 6 |
| Total | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 29 | 34 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 8 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 17 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 | 19 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 8 |
| Total | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 32 | 52 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 61 | 0 | 61 | 86 |
| Apprch % | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| Total % | 0 | 0 | 0 | | 0 | 29.1 | 0 | 29.1 | 0 | 0 | 0 | | 0 | 70.9 | 0 | 70.9 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 9 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 6 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 8 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 17 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 | 40 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .357 | .000 | .357 | .000 | .000 | .000 | .000 | .000 | .750 | .000 | .750 | .588 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd AM
 Site Code : 22520115
 Start Date : 2/25/2020
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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | | 07:30 AM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 |
| PHF | .000 | .000 | .000 | .000 | .000 | .357 | .000 | .357 | .000 | .000 | .000 | .000 | .000 | .750 | .000 | .750 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

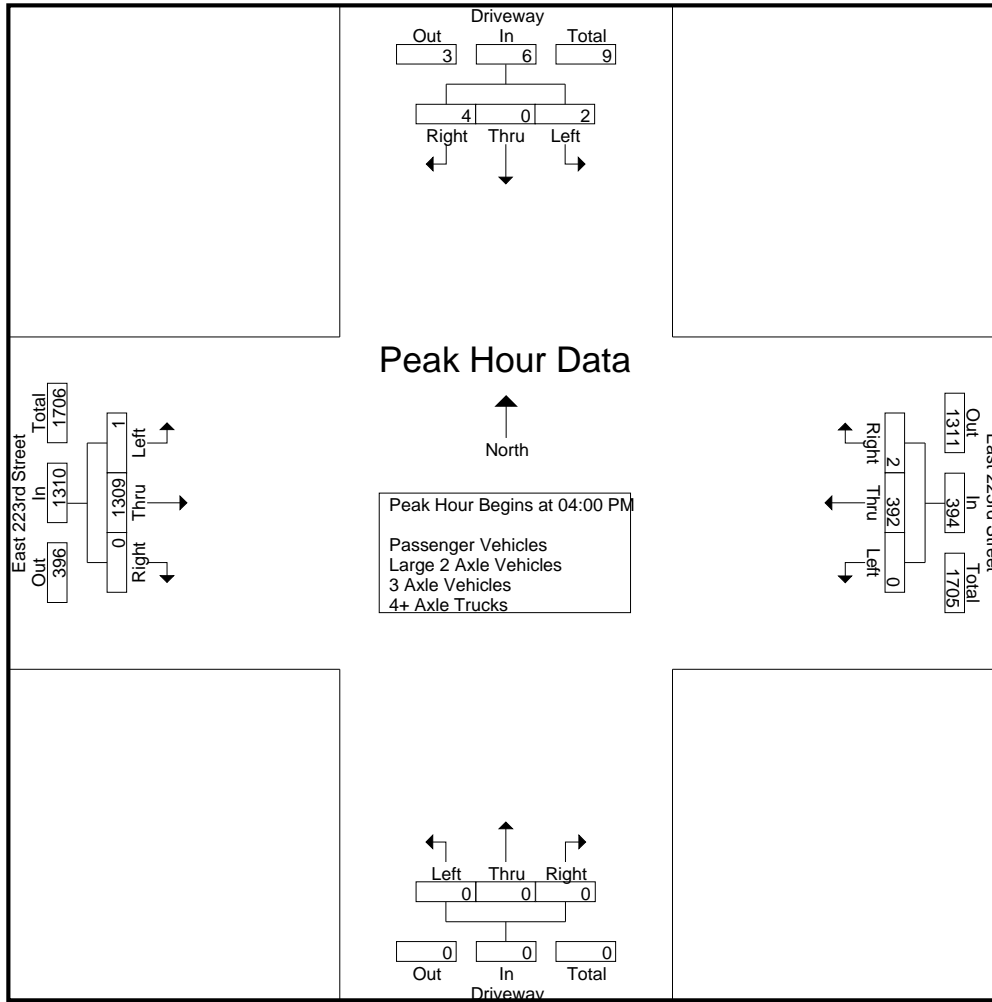
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------------------|---------------------|----------|----------|------------|-----------------------------|------------|----------|------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 1 | 0 | 1 | 2 | 0 | 107 | 0 | 107 | 0 | 0 | 0 | 0 | 0 | 309 | 0 | 309 | 418 |
| 04:15 PM | 0 | 0 | 1 | 1 | 0 | 71 | 2 | 73 | 0 | 0 | 0 | 0 | 1 | 351 | 0 | 352 | 426 |
| 04:30 PM | 1 | 0 | 1 | 2 | 0 | 118 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 312 | 0 | 312 | 432 |
| 04:45 PM | 0 | 0 | 1 | 1 | 0 | 96 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 337 | 0 | 337 | 434 |
| Total | 2 | 0 | 4 | 6 | 0 | 392 | 2 | 394 | 0 | 0 | 0 | 0 | 1 | 1309 | 0 | 1310 | 1710 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 78 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 336 | 0 | 336 | 415 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 86 | 0 | 0 | 0 | 0 | 1 | 255 | 0 | 256 | 342 |
| 05:30 PM | 1 | 0 | 0 | 1 | 0 | 83 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 350 | 0 | 350 | 434 |
| 05:45 PM | 0 | 0 | 1 | 1 | 0 | 68 | 0 | 68 | 0 | 0 | 0 | 0 | 1 | 339 | 0 | 340 | 409 |
| Total | 1 | 0 | 2 | 3 | 0 | 315 | 0 | 315 | 0 | 0 | 0 | 0 | 2 | 1280 | 0 | 1282 | 1600 |
| Grand Total | 3 | 0 | 6 | 9 | 0 | 707 | 2 | 709 | 0 | 0 | 0 | 0 | 3 | 2589 | 0 | 2592 | 3310 |
| Apprch % | 33.3 | 0 | 66.7 | | 0 | 99.7 | 0.3 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | | |
| Total % | 0.1 | 0 | 0.2 | 0.3 | 0 | 21.4 | 0.1 | 21.4 | 0 | 0 | 0 | 0 | 0.1 | 78.2 | 0 | 78.3 | |
| Passenger Vehicles | 3 | 0 | 6 | 9 | 0 | 664 | 2 | 666 | 0 | 0 | 0 | 0 | 2 | 2452 | 0 | 2454 | 3129 |
| % Passenger Vehicles | 100 | 0 | 100 | 100 | 0 | 93.9 | 100 | 93.9 | 0 | 0 | 0 | 0 | 66.7 | 94.7 | 0 | 94.7 | 94.5 |
| Large 2 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 15 | 0 | 0 | 0 | 0 | 1 | 37 | 0 | 38 | 53 |
| % Large 2 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 2.1 | 0 | 2.1 | 0 | 0 | 0 | 0 | 33.3 | 1.4 | 0 | 1.5 | 1.6 |
| 3 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 42 | 52 |
| % 3 Axle Vehicles | 0 | 0 | 0 | 0 | 0 | 1.4 | 0 | 1.4 | 0 | 0 | 0 | 0 | 0 | 1.6 | 0 | 1.6 | 1.6 |
| 4+ Axle Trucks | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 58 | 76 |
| % 4+ Axle Trucks | 0 | 0 | 0 | 0 | 0 | 2.5 | 0 | 2.5 | 0 | 0 | 0 | 0 | 0 | 2.2 | 0 | 2.2 | 2.3 |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|----------|----------|------------|-----------------------------|------------|----------|------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 1 | 0 | 1 | 2 | 0 | 107 | 0 | 107 | 0 | 0 | 0 | 0 | 0 | 309 | 0 | 309 | 418 |
| 04:15 PM | 0 | 0 | 1 | 1 | 0 | 71 | 2 | 73 | 0 | 0 | 0 | 0 | 1 | 351 | 0 | 352 | 426 |
| 04:30 PM | 1 | 0 | 1 | 2 | 0 | 118 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 312 | 0 | 312 | 432 |
| 04:45 PM | 0 | 0 | 1 | 1 | 0 | 96 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 337 | 0 | 337 | 434 |
| Total Volume | 2 | 0 | 4 | 6 | 0 | 392 | 2 | 394 | 0 | 0 | 0 | 0 | 1 | 1309 | 0 | 1310 | 1710 |
| % App. Total | 33.3 | 0 | 66.7 | | 0 | 99.5 | 0.5 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | | |
| PHF | .500 | .000 | 1.00 | .750 | .000 | .831 | .250 | .835 | .000 | .000 | .000 | .000 | .250 | .932 | .000 | .930 | .985 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:15 PM | | | |
|--------------|----------|------|-------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 0 | 1 | 2 | 0 | 107 | 0 | 107 | 0 | 0 | 0 | 0 | 1 | 351 | 0 | 352 |
| +15 mins. | 0 | 0 | 1 | 1 | 0 | 71 | 2 | 73 | 0 | 0 | 0 | 0 | 0 | 312 | 0 | 312 |
| +30 mins. | 1 | 0 | 1 | 2 | 0 | 118 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 337 | 0 | 337 |
| +45 mins. | 0 | 0 | 1 | 1 | 0 | 96 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 336 | 0 | 336 |
| Total Volume | 2 | 0 | 4 | 6 | 0 | 392 | 2 | 394 | 0 | 0 | 0 | 0 | 1 | 1336 | 0 | 1337 |
| % App. Total | 33.3 | 0 | 66.7 | | 0 | 99.5 | 0.5 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | |
| PHF | .500 | .000 | 1.000 | .750 | .000 | .831 | .250 | .835 | .000 | .000 | .000 | .000 | .250 | .952 | .000 | .950 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

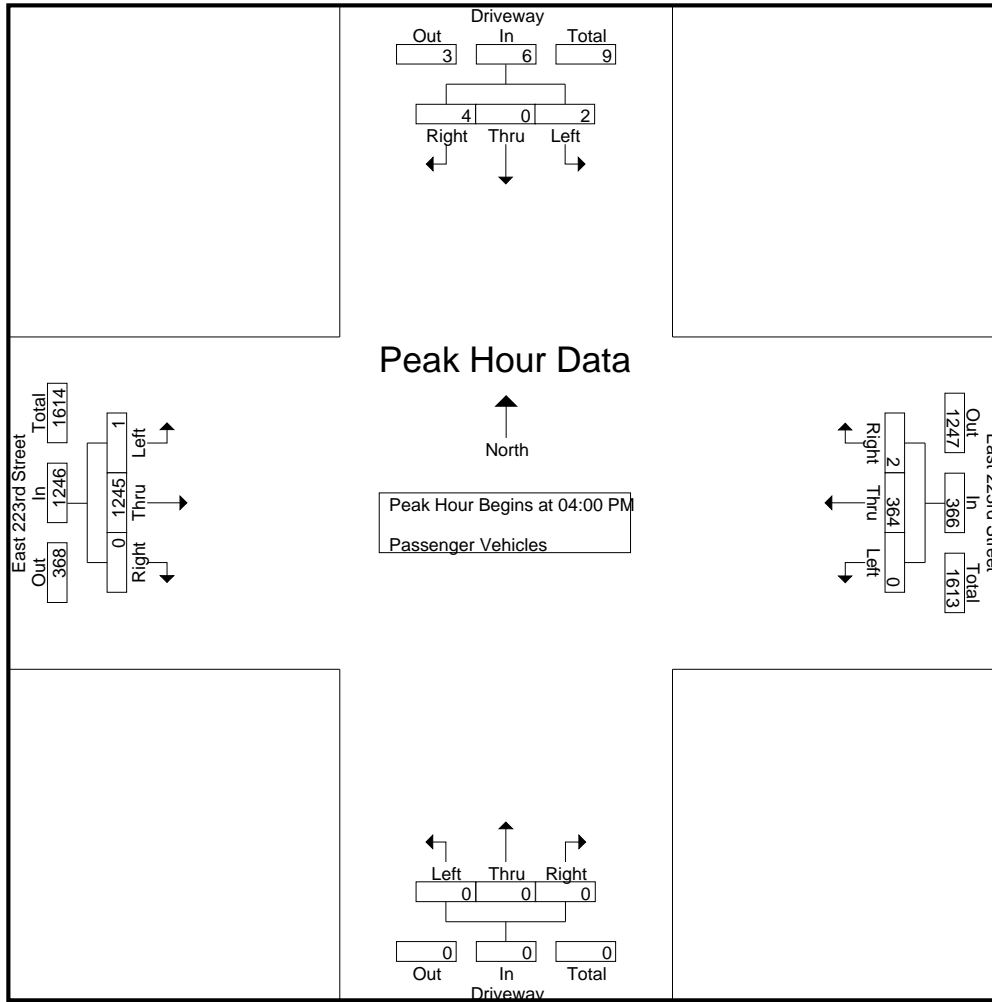
Groups Printed- Passenger Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--------------------|---------------------|----------|----------|------------|-----------------------------|------------|----------|------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 1 | 0 | 1 | 2 | 0 | 97 | 0 | 97 | 0 | 0 | 0 | 0 | 0 | 287 | 0 | 287 | 386 |
| 04:15 PM | 0 | 0 | 1 | 1 | 0 | 65 | 2 | 67 | 0 | 0 | 0 | 0 | 1 | 335 | 0 | 336 | 404 |
| 04:30 PM | 1 | 0 | 1 | 2 | 0 | 115 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 302 | 0 | 302 | 419 |
| 04:45 PM | 0 | 0 | 1 | 1 | 0 | 87 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 321 | 0 | 321 | 409 |
| Total | 2 | 0 | 4 | 6 | 0 | 364 | 2 | 366 | 0 | 0 | 0 | 0 | 1 | 1245 | 0 | 1246 | 1618 |
| 05:00 PM | 0 | 0 | 1 | 1 | 0 | 72 | 0 | 72 | 0 | 0 | 0 | 0 | 0 | 321 | 0 | 321 | 394 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 83 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 237 | 0 | 237 | 320 |
| 05:30 PM | 1 | 0 | 0 | 1 | 0 | 79 | 0 | 79 | 0 | 0 | 0 | 0 | 0 | 323 | 0 | 323 | 403 |
| 05:45 PM | 0 | 0 | 1 | 1 | 0 | 66 | 0 | 66 | 0 | 0 | 0 | 0 | 1 | 326 | 0 | 327 | 394 |
| Total | 1 | 0 | 2 | 3 | 0 | 300 | 0 | 300 | 0 | 0 | 0 | 0 | 1 | 1207 | 0 | 1208 | 1511 |
| Grand Total | 3 | 0 | 6 | 9 | 0 | 664 | 2 | 666 | 0 | 0 | 0 | 0 | 2 | 2452 | 0 | 2454 | 3129 |
| Apprch % | 33.3 | 0 | 66.7 | | 0 | 99.7 | 0.3 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | | |
| Total % | 0.1 | 0 | 0.2 | 0.3 | 0 | 21.2 | 0.1 | 21.3 | 0 | 0 | 0 | 0 | 0.1 | 78.4 | 0 | 78.4 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|----------|----------|------------|-----------------------------|------------|----------|------------|---------------------|----------|----------|------------|-----------------------------|-------------|----------|-------------|-------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 1 | 0 | 1 | 2 | 0 | 97 | 0 | 97 | 0 | 0 | 0 | 0 | 0 | 287 | 0 | 287 | 386 |
| 04:15 PM | 0 | 0 | 1 | 1 | 0 | 65 | 2 | 67 | 0 | 0 | 0 | 0 | 1 | 335 | 0 | 336 | 404 |
| 04:30 PM | 1 | 0 | 1 | 2 | 0 | 115 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 302 | 0 | 302 | 419 |
| 04:45 PM | 0 | 0 | 1 | 1 | 0 | 87 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 321 | 0 | 321 | 409 |
| Total Volume | 2 | 0 | 4 | 6 | 0 | 364 | 2 | 366 | 0 | 0 | 0 | 0 | 1 | 1245 | 0 | 1246 | 1618 |
| % App. Total | 33.3 | 0 | 66.7 | | 0 | 99.5 | 0.5 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | | |
| PHF | .500 | .000 | 1.00 | .750 | .000 | .791 | .250 | .796 | .000 | .000 | .000 | .000 | .250 | .929 | .000 | .927 | .965 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|----------|------|-------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 1 | 0 | 1 | 2 | 0 | 97 | 0 | 97 | 0 | 0 | 0 | 0 | 0 | 287 | 0 | 287 |
| +15 mins. | 0 | 0 | 1 | 1 | 0 | 65 | 2 | 67 | 0 | 0 | 0 | 0 | 1 | 335 | 0 | 336 |
| +30 mins. | 1 | 0 | 1 | 2 | 0 | 115 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 302 | 0 | 302 |
| +45 mins. | 0 | 0 | 1 | 1 | 0 | 87 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 321 | 0 | 321 |
| Total Volume | 2 | 0 | 4 | 6 | 0 | 364 | 2 | 366 | 0 | 0 | 0 | 0 | 1 | 1245 | 0 | 1246 |
| % App. Total | 33.3 | 0 | 66.7 | | 0 | 99.5 | 0.5 | | 0 | 0 | 0 | | 0.1 | 99.9 | 0 | |
| PHF | .500 | .000 | 1.000 | .750 | .000 | .791 | .250 | .796 | .000 | .000 | .000 | .000 | .250 | .929 | .000 | .927 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

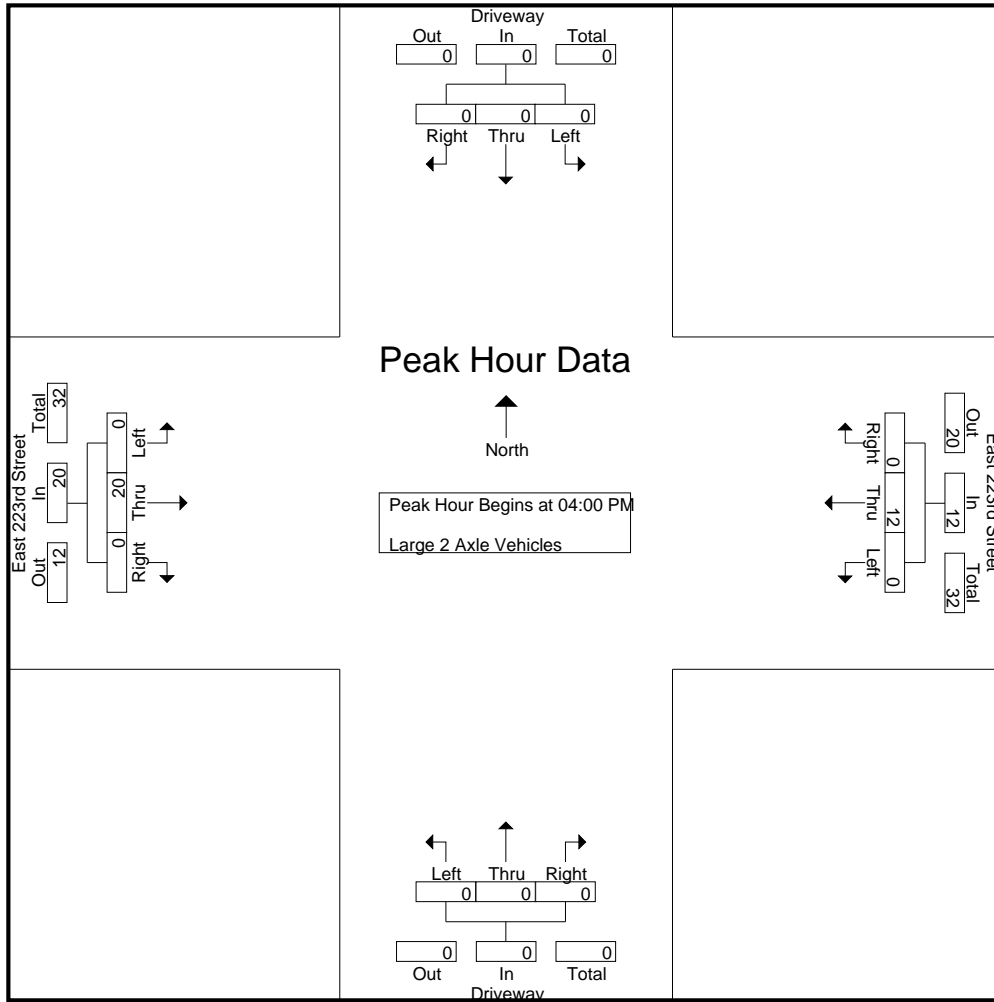
Groups Printed- Large 2 Axle Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 10 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 6 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 7 |
| Total | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 20 | 32 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 6 | 7 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 5 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 |
| Total | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 17 | 0 | 18 | 21 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 15 | 0 | 0 | 0 | 0 | 1 | 37 | 0 | 38 | 53 |
| Apprch % | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 2.6 | 97.4 | 0 | | |
| Total % | 0 | 0 | 0 | | 0 | 28.3 | 0 | 28.3 | 0 | 0 | 0 | | 1.9 | 69.8 | 0 | 71.7 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 10 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 6 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 7 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 20 | 32 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .750 | .000 | .750 | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 | .800 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 20 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 |
| PHF | .000 | .000 | .000 | .000 | .000 | .750 | .000 | .750 | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

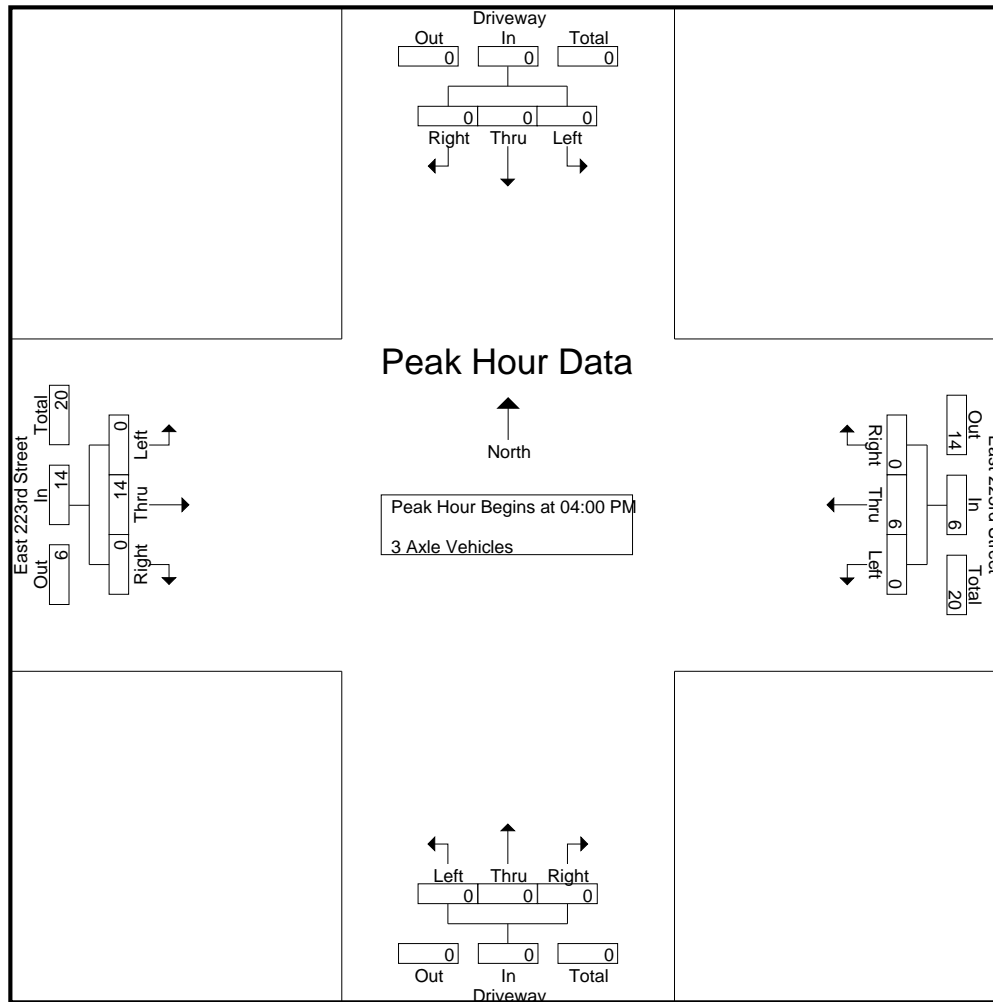
Groups Printed- 3 Axle Vehicles

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 7 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 4 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| Total | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 14 | 20 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 5 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 8 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 15 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 4 |
| Total | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 28 | 32 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 42 | 52 |
| Apprch % | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| Total % | 0 | 0 | 0 | | 0 | 19.2 | 0 | 19.2 | 0 | 0 | 0 | | 0 | 80.8 | 0 | 80.8 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 7 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 4 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 14 | 20 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .375 | .000 | .375 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .556 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 14 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 |
| PHF | .000 | .000 | .000 | .000 | .000 | .375 | .000 | .375 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 1

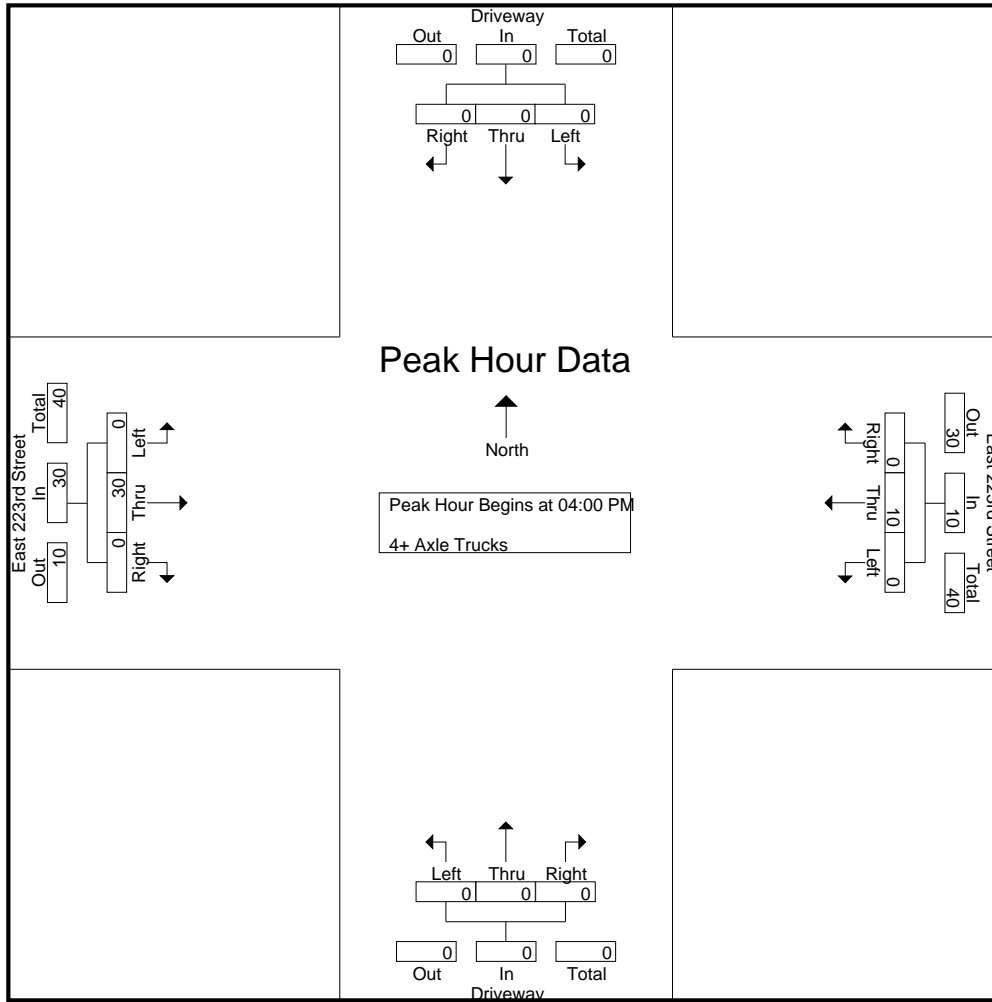
Groups Printed- 4+ Axle Trucks

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|-------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 11 | 15 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 9 |
| Total | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 | 40 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 9 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 11 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| Total | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 28 | 36 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 58 | 76 |
| Apprch % | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| Total % | 0 | 0 | 0 | | 0 | 23.7 | 0 | 23.7 | 0 | 0 | 0 | | 0 | 76.3 | 0 | 76.3 | |

| Start Time | Driveway Southbound | | | | East 223rd Street Westbound | | | | Driveway Northbound | | | | East 223rd Street Eastbound | | | | Int. Total |
|--|---------------------|------|-------|------------|-----------------------------|------|-------|------------|---------------------|------|-------|------------|-----------------------------|------|-------|------------|------------|
| | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 11 | 15 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 9 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 7 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 9 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 | 40 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 | .000 | .000 | .000 | .000 | .000 | .682 | .000 | .682 | .667 |

City of Carson
 N/S: Driveway
 E/W: East 223rd Street
 Weather: Clear

File Name : 08_CRS_DW_E 223rd PM
 Site Code : 22520115
 Start Date : 2/25/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|--------------|----------|------|------|------|----------|----------|------|----------|----------|------|------|------|----------|-----------|------|-----------|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 11 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 100 |
| PHF | .000 | .000 | .000 | .000 | .000 | .625 | .000 | .625 | .000 | .000 | .000 | .000 | .000 | .682 | .000 | .682 |

APPENDIX D

INTERSECTION LEVEL OF SERVICE WORKSHEETS

EXISTING

Panattoni Project

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

Scenario 1 Existing without Project
3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|--------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.639 | - | B |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.870 | - | D |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.710 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | SB Thru | 0.568 | - | A |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Left | 0.547 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.565 | - | A |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.639 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 115 | 0 | 0 | 216 | 259 | 112 |
| Total Analysis Volume [veh/h] | 459 | 0 | 0 | 862 | 1035 | 447 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.18 | 0.32 | 0.28 |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.639 | | | | | |

Intersection Level Of Service Report

Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.870 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 109 | 223 | 96 | 347 | 0 | 21 | 0 | 48 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.09 | 0.53 | 0.12 | 0.29 | 0.00 | 0.05 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.870 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.710 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 206 | 52 | 22 | 246 | 118 | 104 | 131 | 3 | 48 | 133 | 17 |
| Total Analysis Volume [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.17 | 0.13 | 0.03 | 0.30 | 0.30 | 0.13 | 0.17 | 0.17 | 0.06 | 0.17 | 0.04 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.710 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.568 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 171 | 28 | 19 | 293 | 82 | 40 |
| Total Analysis Volume [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.21 | 0.00 | 0.05 | 0.24 | 0.21 | 0.10 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.568 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.547 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 20 | 1 | 29 | 159 | 97 | 0 | 1 | 193 | 12 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.05 | 0.07 | 0.07 | 0.20 | 0.12 | 0.00 | 0.00 | 0.17 | 0.17 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.547 | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)**

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.565 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 45 | 121 | 147 | 49 | 43 | 176 |
| Total Analysis Volume [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.11 | 0.25 | 0.16 | 0.16 | 0.05 | 0.15 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.565 | | | | | |

Panattoni Project

Vistro File: G:\...\PM.vistro
Report File: G:\...\PME.pdf

Scenario 1 Existing without Project
3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|--------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.714 | - | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.761 | - | C |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.722 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | NB Thru | 0.829 | - | D |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Thru | 0.558 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.840 | - | D |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.714 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 112 | 0 | 0 | 306 | 288 | 93 |
| Total Analysis Volume [veh/h] | 446 | 0 | 0 | 1223 | 1150 | 372 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.25 | 0.36 | 0.23 |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.714 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.761 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 143 | 171 | 164 | 373 | 0 | 4 | 0 | 12 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.12 | 0.43 | 0.20 | 0.31 | 0.00 | 0.01 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.761 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.722 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 186 | 81 | 33 | 242 | 137 | 71 | 204 | 2 | 33 | 53 | 25 |
| Total Analysis Volume [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.16 | 0.20 | 0.04 | 0.32 | 0.32 | 0.09 | 0.26 | 0.26 | 0.04 | 0.07 | 0.06 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.722 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.829 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 295 | 71 | 29 | 251 | 115 | 58 |
| Total Analysis Volume [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.37 | 0.00 | 0.07 | 0.21 | 0.29 | 0.14 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.829 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.558 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 28 | 0 | 10 | 242 | 266 | 1 | 1 | 64 | 29 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.01 | 0.07 | 0.00 | 0.03 | 0.30 | 0.33 | 0.00 | 0.00 | 0.08 | 0.08 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.558 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.840 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 164 | 348 | 48 | 27 | 59 |
| Total Analysis Volume [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.06 | 0.38 | 0.33 | 0.33 | 0.03 | 0.05 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.840 | | | | | |

EXISTING PLUS PROJECT

Panattoni Project

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

Scenario 2 Existing with Project
3/13/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.642 | - | B |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.888 | - | D |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.710 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | SB Thru | 0.587 | - | A |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Left | 0.550 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.569 | - | A |
| 7 | Project Dwy 3 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | SB Left | 0.000 | 21.8 | C |
| 8 | Project Dwy 2 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.034 | 17.7 | C |
| 9 | Project Dwy 1 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.023 | 17.4 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.642 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 4 | 9 | 0 | 16 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 463 | 97 | 0 | 878 | 1035 | 447 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 0 | 0 | 220 | 259 | 112 |
| Total Analysis Volume [veh/h] | 463 | 0 | 0 | 878 | 1035 | 447 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.18 | 0.32 | 0.28 |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.642 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.888 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 13 | 0 | 0 | 16 | 0 | 0 | 0 | 29 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 448 | 892 | 383 | 1404 | 0 | 85 | 0 | 220 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 112 | 223 | 96 | 351 | 0 | 21 | 0 | 55 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 448 | 892 | 383 | 1404 | 0 | 85 | 0 | 220 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.09 | 0.53 | 0.12 | 0.29 | 0.00 | 0.05 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.888 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.710 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 12 | 45 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 823 | 221 | 134 | 982 | 473 | 416 | 527 | 12 | 193 | 532 | 82 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 206 | 55 | 34 | 246 | 118 | 104 | 132 | 3 | 48 | 133 | 21 |
| Total Analysis Volume [veh/h] | 17 | 823 | 221 | 134 | 982 | 473 | 416 | 527 | 12 | 193 | 532 | 82 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.17 | 0.14 | 0.04 | 0.30 | 0.30 | 0.13 | 0.17 | 0.17 | 0.06 | 0.17 | 0.05 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.710 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.587 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 4 | 0 | 0 | 13 | 29 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 688 | 110 | 77 | 1184 | 358 | 160 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 172 | 28 | 19 | 296 | 90 | 40 |
| Total Analysis Volume [veh/h] | 688 | 110 | 77 | 1184 | 358 | 160 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.22 | 0.00 | 0.05 | 0.25 | 0.22 | 0.10 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.587 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.550 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 3 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 642 | 389 | 0 | 4 | 776 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 20 | 1 | 29 | 161 | 97 | 0 | 1 | 194 | 12 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 642 | 389 | 0 | 4 | 776 | 49 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.05 | 0.07 | 0.07 | 0.20 | 0.12 | 0.00 | 0.00 | 0.17 | 0.17 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.550 | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)**

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.569 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 66 | 0 | 8 | 12 | 0 | 3 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 244 | 483 | 596 | 208 | 171 | 707 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 61 | 121 | 149 | 52 | 43 | 177 |
| Total Analysis Volume [veh/h] | 244 | 483 | 596 | 208 | 171 | 707 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.15 | 0.25 | 0.17 | 0.17 | 0.05 | 0.15 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.569 | | | | | |

Intersection Level Of Service Report
Intersection 7: Project Dwy 3 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

Intersection Setup

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|------------------------|---------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T | | | TT | | | T T | | | T T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | No | | | No | | |

Volumes

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|---|---------------|--------|--------|--------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 832 | 0 | 0 | 793 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 13 | 7 | 23 | 46 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 0 | 7 | 0 | 0 | 3 | 6 | 845 | 7 | 23 | 839 | 2 |
| Peak Hour Factor | 0.8605 | 1.0000 | 0.8605 | 0.8605 | 1.0000 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 0 | 2 | 0 | 0 | 1 | 2 | 245 | 2 | 7 | 244 | 1 |
| Total Analysis Volume [veh/h] | 2 | 0 | 8 | 0 | 0 | 3 | 7 | 982 | 8 | 27 | 975 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Stop | Stop | Free | Free |
| Flared Lane | No | | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | Yes | | |
| Number of Storage Spaces in Median | 2 | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|-------|-------|------|-------|-------|------|------|-------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.16 | 0.00 | 12.06 | 21.78 | 0.00 | 11.82 | 10.09 | 0.00 | 0.00 | 10.30 | 0.00 | 0.00 |
| Movement LOS | C | | B | C | | B | B | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.00 | 0.07 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.85 | 0.00 | 1.85 | 0.00 | 0.00 | 0.43 | 0.74 | 0.00 | 0.00 | 2.98 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.88 | | | 11.82 | | | 0.07 | | | 0.28 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.26 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 8: Project Dwy 2 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.034 |

Intersection Setup

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ⇐⇐ | | ⇐⇐ | | ⇐⇐ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 838 | 0 | 0 | 796 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 9 | 8 | 12 | 29 | 32 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 8 | 850 | 29 | 32 | 812 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 2 | 231 | 8 | 9 | 221 |
| Total Analysis Volume [veh/h] | 10 | 9 | 924 | 32 | 35 | 883 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.02 | 0.01 | 0.00 | 0.05 | 0.01 |
| d_M, Delay for Movement [s/veh] | 17.68 | 11.79 | 0.00 | 0.00 | 10.20 | 0.00 |
| Movement LOS | C | B | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.11 | 0.05 | 0.00 | 0.00 | 0.15 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.63 | 1.27 | 0.00 | 0.00 | 3.78 | 0.00 |
| d_A, Approach Delay [s/veh] | 14.89 | | 0.00 | | 0.39 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.34 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report

Intersection 9: Project Dwy 1 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.4 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.023 |

Intersection Setup

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 822 | 0 | 0 | 790 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 5 | 36 | 24 | 14 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 5 | 858 | 24 | 14 | 801 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 233 | 7 | 4 | 218 |
| Total Analysis Volume [veh/h] | 7 | 5 | 933 | 26 | 15 | 871 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.01 | 0.00 | 0.02 | 0.01 |
| d_M, Delay for Movement [s/veh] | 17.36 | 12.03 | 0.00 | 0.00 | 10.07 | 0.00 |
| Movement LOS | C | B | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.00 | 0.00 | 0.06 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.53 | 2.53 | 0.00 | 0.00 | 1.58 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.14 | | 0.00 | | 0.17 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.18 | | | | | |
| Intersection LOS | C | | | | | |

Panattoni Project

Vistro File: G:\...\PM.vistro

Scenario 2 Existing with Project

Report File: G:\...\PMEp.pdf

3/13/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.715 | - | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.768 | - | C |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.726 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | NB Thru | 0.838 | - | D |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Thru | 0.566 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.853 | - | D |
| 7 | Project Dwy 3 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.046 | 34.2 | D |
| 8 | Project Dwy 2 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.172 | 32.6 | D |
| 9 | Project Dwy 1 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.135 | 27.6 | D |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.715 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 14 | 25 | 0 | 6 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 460 | 129 | 0 | 1229 | 1150 | 372 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 115 | 0 | 0 | 307 | 288 | 93 |
| Total Analysis Volume [veh/h] | 460 | 0 | 0 | 1229 | 1150 | 372 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.26 | 0.36 | 0.23 |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.715 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.768 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 39 | 0 | 0 | 6 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 610 | 683 | 654 | 1498 | 0 | 15 | 1 | 58 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 153 | 171 | 164 | 375 | 0 | 4 | 0 | 15 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 610 | 683 | 654 | 1498 | 0 | 15 | 1 | 58 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.13 | 0.43 | 0.20 | 0.31 | 0.00 | 0.01 | 0.01 | 0.04 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.768 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.726 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 5 | 16 | 0 | 0 | 0 | 1 | 0 | 12 | 3 | 39 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 12 | 745 | 327 | 148 | 968 | 549 | 284 | 815 | 9 | 143 | 214 | 138 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 186 | 82 | 37 | 242 | 137 | 71 | 204 | 2 | 36 | 54 | 35 |
| Total Analysis Volume [veh/h] | 12 | 745 | 327 | 148 | 968 | 549 | 284 | 815 | 9 | 143 | 214 | 138 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.16 | 0.20 | 0.05 | 0.32 | 0.32 | 0.09 | 0.26 | 0.26 | 0.04 | 0.07 | 0.09 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.726 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.838 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 0 | 0 | 5 | 10 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1191 | 282 | 116 | 1010 | 470 | 230 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 298 | 71 | 29 | 253 | 118 | 58 |
| Total Analysis Volume [veh/h] | 1191 | 282 | 116 | 1010 | 470 | 230 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| V/C, Movement V/C Ratio | 0.37 | 0.00 | 0.07 | 0.21 | 0.29 | 0.14 |
|-------------------------|-------|------|------|------|------|------|
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.838 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.566 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 3 | 0 | 0 | 1 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 995 | 1067 | 5 | 3 | 258 | 116 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 28 | 0 | 10 | 249 | 267 | 1 | 1 | 65 | 29 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 995 | 1067 | 5 | 3 | 258 | 116 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.01 | 0.07 | 0.00 | 0.03 | 0.31 | 0.33 | 0.00 | 0.00 | 0.08 | 0.08 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.566 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.853 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 0 | 30 | 30 | 0 | 1 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 125 | 657 | 1421 | 220 | 108 | 237 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 31 | 164 | 355 | 55 | 27 | 59 |
| Total Analysis Volume [veh/h] | 125 | 657 | 1421 | 220 | 108 | 237 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.08 | 0.38 | 0.34 | 0.34 | 0.03 | 0.05 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.853 | | | | | |

Intersection Level Of Service Report
Intersection 7: Project Dwy 3 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 34.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.046 |

Intersection Setup

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|------------------------|---------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T | | | TT | | | T T | | | T T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | No | | | No | | |

Volumes

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|---|---------------|--------|--------|--------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 1393 | 0 | 0 | 424 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 19 | 0 | 0 | 0 | 0 | 41 | 2 | 9 | 16 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 0 | 19 | 2 | 0 | 4 | 1 | 1434 | 2 | 9 | 440 | 2 |
| Peak Hour Factor | 0.9850 | 1.0000 | 0.9850 | 0.9850 | 1.0000 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 0 | 5 | 1 | 0 | 1 | 0 | 364 | 1 | 2 | 112 | 1 |
| Total Analysis Volume [veh/h] | 6 | 0 | 19 | 2 | 0 | 4 | 1 | 1456 | 2 | 9 | 447 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Stop | Stop | Free | Free |
| Flared Lane | No | | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | Yes | | |
| Number of Storage Spaces in Median | 2 | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|-------|-------|------|------|------|------|------|-------|------|------|
| V/C, Movement V/C Ratio | 0.05 | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 34.18 | 0.00 | 16.24 | 16.93 | 0.00 | 9.61 | 8.21 | 0.00 | 0.00 | 12.81 | 0.00 | 0.00 |
| Movement LOS | D | | C | C | | A | A | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 0.00 | 0.32 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.01 | 0.00 | 8.01 | 0.50 | 0.00 | 0.38 | 0.07 | 0.00 | 0.00 | 1.46 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 20.55 | | | 12.05 | | | 0.01 | | | 0.25 | | |
| Approach LOS | C | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.36 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 8: Project Dwy 2 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 32.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.172 |

Intersection Setup

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ⇐⇐ | | ⇐⇐ | | ⇐⇐ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1394 | 0 | 0 | 428 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 25 | 30 | 13 | 10 | 12 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 25 | 30 | 1407 | 10 | 12 | 438 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 7 | 8 | 382 | 3 | 3 | 119 |
| Total Analysis Volume [veh/h] | 27 | 33 | 1529 | 11 | 13 | 476 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.17 | 0.09 | 0.02 | 0.00 | 0.03 | 0.00 |
| d_M, Delay for Movement [s/veh] | 32.64 | 16.44 | 0.00 | 0.00 | 13.49 | 0.00 |
| Movement LOS | D | C | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.60 | 0.31 | 0.00 | 0.00 | 0.09 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.03 | 7.80 | 0.00 | 0.00 | 2.29 | 0.00 |
| d_A, Approach Delay [s/veh] | 23.73 | | 0.00 | | 0.36 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.77 | | | | | |
| Intersection LOS | D | | | | | |

Intersection Level Of Service Report
Intersection 9: Project Dwy 1 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 27.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.135 |

Intersection Setup

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1268 | 0 | 0 | 441 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 11 | 12 | 10 | 4 | 31 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 11 | 1280 | 10 | 4 | 472 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 348 | 3 | 1 | 128 |
| Total Analysis Volume [veh/h] | 25 | 12 | 1391 | 11 | 4 | 513 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.13 | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 27.55 | 17.51 | 0.00 | 0.00 | 12.35 | 0.00 |
| Movement LOS | D | C | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.58 | 0.58 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 14.53 | 14.53 | 0.00 | 0.00 | 0.61 | 0.00 |
| d_A, Approach Delay [s/veh] | 24.29 | | 0.00 | | 0.10 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | D | | | | | |

OPENING YEAR (2021) WITHOUT PROJECT

Panattoni Project

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

Scenario 3 Opening Year without Project
3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|--------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.645 | - | B |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.886 | - | D |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Right | 0.718 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | SB Thru | 0.592 | - | A |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Left | 0.560 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.577 | - | A |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.645 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | rrr | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 0 | 0 | 17 | -13 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 13 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 472 | 88 | 0 | 883 | 1040 | 465 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 0 | 0 | 221 | 260 | 116 |
| Total Analysis Volume [veh/h] | 472 | 0 | 0 | 883 | 1040 | 465 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.15 | 0.00 | 0.00 | 0.18 | 0.33 | 0.29 |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.645 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.886 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | -2 | -19 | 13 | -16 | 0 | 13 | 0 | 13 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 2 | 19 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 437 | 896 | 398 | 1395 | 0 | 98 | 0 | 205 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 109 | 224 | 100 | 349 | 0 | 25 | 0 | 51 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 437 | 896 | 398 | 1395 | 0 | 98 | 0 | 205 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.09 | 0.53 | 0.12 | 0.29 | 0.00 | 0.06 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.886 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.718 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | -30 | 0 | 18 | -21 | 0 | 0 | 10 | 10 | 0 | 6 | 9 |
| Diverted Trips [veh/h] | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 827 | 210 | 107 | 987 | 475 | 418 | 537 | 22 | 191 | 540 | 78 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 207 | 53 | 27 | 247 | 119 | 105 | 134 | 6 | 48 | 135 | 20 |
| Total Analysis Volume [veh/h] | 23 | 827 | 210 | 107 | 987 | 475 | 418 | 537 | 22 | 191 | 540 | 78 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.17 | 0.13 | 0.03 | 0.30 | 0.30 | 0.13 | 0.17 | 0.17 | 0.06 | 0.17 | 0.05 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.718 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.592 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 6 | 0 | 8 | 25 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 709 | 117 | 77 | 1185 | 356 | 174 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 177 | 29 | 19 | 296 | 89 | 44 |
| Total Analysis Volume [veh/h] | 709 | 117 | 77 | 1185 | 356 | 174 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.22 | 0.00 | 0.05 | 0.25 | 0.22 | 0.11 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.592 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.560 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 8 | 13 | 10 | 0 | 0 | 6 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 651 | 400 | 0 | 4 | 783 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 20 | 1 | 31 | 163 | 100 | 0 | 1 | 196 | 12 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 651 | 400 | 0 | 4 | 783 | 49 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.05 | 0.08 | 0.08 | 0.20 | 0.13 | 0.00 | 0.00 | 0.17 | 0.17 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.560 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.577 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 9 | 14 | 5 | 4 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 202 | 494 | 605 | 202 | 176 | 718 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 51 | 124 | 151 | 51 | 44 | 180 |
| Total Analysis Volume [veh/h] | 202 | 494 | 605 | 202 | 176 | 718 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.13 | 0.25 | 0.17 | 0.17 | 0.06 | 0.15 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.577 | | | | | |

Panattoni Project

Vistro File: G:\...\IPM.vistro

Scenario 3 Opening Year without Project

Report File: G:\...\IPMOY.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|--------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.728 | - | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.777 | - | C |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.734 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | NB Thru | 0.849 | - | D |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Thru | 0.571 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.858 | - | D |

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

Intersection Level Of Service Report
Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.728 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 1 | 5 | 0 | 49 | -39 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 39 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 449 | 110 | 0 | 1278 | 1156 | 382 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 112 | 0 | 0 | 320 | 289 | 96 |
| Total Analysis Volume [veh/h] | 449 | 0 | 0 | 1278 | 1156 | 382 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.27 | 0.36 | 0.24 |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.728 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.777 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | -4 | -32 | 40 | -46 | 0 | 10 | 0 | -9 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 4 | 32 | 0 | 46 | 0 | 0 | 0 | 9 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 574 | 686 | 697 | 1499 | 0 | 25 | 1 | 48 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 144 | 172 | 174 | 375 | 0 | 6 | 0 | 12 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 574 | 686 | 697 | 1499 | 0 | 25 | 1 | 48 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.12 | 0.43 | 0.22 | 0.31 | 0.00 | 0.02 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.777 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.734 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 9 | -58 | 0 | 14 | -70 | 0 | 0 | 6 | 6 | 0 | 9 | 22 |
| Diverted Trips [veh/h] | 0 | 58 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 21 | 749 | 324 | 147 | 973 | 552 | 285 | 824 | 15 | 132 | 221 | 121 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 187 | 81 | 37 | 243 | 138 | 71 | 206 | 4 | 33 | 55 | 30 |
| Total Analysis Volume [veh/h] | 21 | 749 | 324 | 147 | 973 | 552 | 285 | 824 | 15 | 132 | 221 | 121 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.16 | 0.20 | 0.05 | 0.32 | 0.32 | 0.09 | 0.26 | 0.26 | 0.04 | 0.07 | 0.08 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.734 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.849 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 12 | 10 | 0 | 18 | 21 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1198 | 293 | 117 | 1028 | 483 | 246 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 300 | 73 | 29 | 257 | 121 | 62 |
| Total Analysis Volume [veh/h] | 1198 | 293 | 117 | 1028 | 483 | 246 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.37 | 0.00 | 0.07 | 0.21 | 0.30 | 0.15 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.849 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.571 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 9 | 29 | 6 | 0 | 0 | 9 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1002 | 1075 | 5 | 3 | 267 | 117 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 28 | 0 | 12 | 251 | 269 | 1 | 1 | 67 | 29 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1002 | 1075 | 5 | 3 | 267 | 117 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.01 | 0.07 | 0.00 | 0.03 | 0.31 | 0.34 | 0.00 | 0.00 | 0.08 | 0.08 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.571 | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)**

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.858 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ⇐⇐ | | ⇐⇐⇐ | | ⇐⇐⇐⇐ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 13 | 11 | 24 | 13 | 8 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 116 | 671 | 1422 | 204 | 117 | 247 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 168 | 356 | 51 | 29 | 62 |
| Total Analysis Volume [veh/h] | 116 | 671 | 1422 | 204 | 117 | 247 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.07 | 0.38 | 0.34 | 0.34 | 0.04 | 0.05 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.858 | | | | | |

OPENING YEAR (2021) WITH PROJECT

Panattoni Project

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

Scenario 4 Opening Year with Project
3/13/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.648 | - | B |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.893 | - | D |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Right | 0.719 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | SB Thru | 0.612 | - | B |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Left | 0.563 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.581 | - | A |
| 7 | Project Dwy 3 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | SB Left | 0.000 | 22.4 | C |
| 8 | Project Dwy 2 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.035 | 18.2 | C |
| 9 | Project Dwy 1 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.024 | 17.9 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.648 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | rrr | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 9 | 0 | 33 | -13 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 13 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 476 | 97 | 0 | 899 | 1040 | 465 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 119 | 0 | 0 | 225 | 260 | 116 |
| Total Analysis Volume [veh/h] | 476 | 0 | 0 | 899 | 1040 | 465 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.15 | 0.00 | 0.00 | 0.19 | 0.33 | 0.29 |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.648 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.893 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 11 | -19 | 13 | 0 | 0 | 13 | 0 | 42 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 448 | 877 | 398 | 1395 | 0 | 98 | 0 | 234 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 112 | 219 | 100 | 349 | 0 | 25 | 0 | 59 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 448 | 877 | 398 | 1395 | 0 | 98 | 0 | 234 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.09 | 0.52 | 0.12 | 0.29 | 0.00 | 0.06 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.893 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.719 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 17 | 823 | 209 | 89 | 982 | 473 | 416 | 524 | 12 | 190 | 531 | 69 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | -30 | 12 | 63 | -21 | 0 | 0 | 13 | 10 | 3 | 7 | 22 |
| Diverted Trips [veh/h] | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 827 | 222 | 152 | 987 | 475 | 418 | 540 | 22 | 194 | 541 | 91 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 207 | 56 | 38 | 247 | 119 | 105 | 135 | 6 | 49 | 135 | 23 |
| Total Analysis Volume [veh/h] | 23 | 827 | 222 | 152 | 987 | 475 | 418 | 540 | 22 | 194 | 541 | 91 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.17 | 0.14 | 0.05 | 0.30 | 0.30 | 0.13 | 0.18 | 0.18 | 0.06 | 0.17 | 0.06 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.719 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.612 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 26 | 6 | 0 | 21 | 54 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 713 | 117 | 77 | 1198 | 385 | 174 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 178 | 29 | 19 | 300 | 96 | 44 |
| Total Analysis Volume [veh/h] | 713 | 117 | 77 | 1198 | 385 | 174 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.22 | 0.00 | 0.05 | 0.25 | 0.24 | 0.11 |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.612 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.563 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 8 | 20 | 11 | 0 | 0 | 9 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 658 | 401 | 0 | 4 | 786 | 49 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 20 | 1 | 31 | 165 | 100 | 0 | 1 | 197 | 12 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 658 | 401 | 0 | 4 | 786 | 49 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.05 | 0.08 | 0.08 | 0.21 | 0.13 | 0.00 | 0.00 | 0.17 | 0.17 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.563 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.581 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 178 | 483 | 588 | 196 | 171 | 704 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 89 | 9 | 22 | 17 | 4 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 268 | 494 | 613 | 214 | 176 | 721 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 67 | 124 | 153 | 54 | 44 | 180 |
| Total Analysis Volume [veh/h] | 268 | 494 | 613 | 214 | 176 | 721 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.17 | 0.25 | 0.17 | 0.17 | 0.06 | 0.15 |
| Intersection LOS | A | | | | | |
| Intersection V/C | 0.581 | | | | | |

Intersection Level Of Service Report
Intersection 7: Project Dwy 3 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.000 |

Intersection Setup

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|------------------------|---------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T | | | TT | | | T T | | | T T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | No | | | No | | |

Volumes

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|---|---------------|--------|--------|--------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 832 | 0 | 0 | 793 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.00 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 41 | 7 | 23 | 61 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 0 | 7 | 0 | 0 | 3 | 6 | 877 | 7 | 23 | 858 | 2 |
| Peak Hour Factor | 0.8605 | 1.0000 | 0.8605 | 0.8605 | 1.0000 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 | 0.8605 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 0 | 2 | 0 | 0 | 1 | 2 | 255 | 2 | 7 | 249 | 1 |
| Total Analysis Volume [veh/h] | 2 | 0 | 8 | 0 | 0 | 3 | 7 | 1019 | 8 | 27 | 997 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Stop | Stop | Free | Free |
| Flared Lane | No | | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | Yes | | |
| Number of Storage Spaces in Median | 2 | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|-------|-------|------|-------|-------|------|------|-------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 21.96 | 0.00 | 12.27 | 22.36 | 0.00 | 11.94 | 10.19 | 0.00 | 0.00 | 10.48 | 0.00 | 0.00 |
| Movement LOS | C | | B | C | | B | B | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.00 | 0.08 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.92 | 0.00 | 1.92 | 0.00 | 0.00 | 0.43 | 0.76 | 0.00 | 0.00 | 3.08 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 14.21 | | | 11.94 | | | 0.07 | | | 0.28 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.26 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 8: Project Dwy 2 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.035 |

Intersection Setup

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | TT | | IT | | TTL | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 838 | 0 | 0 | 796 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 9 | 8 | 40 | 29 | 32 | 32 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 9 | 8 | 882 | 29 | 32 | 832 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 2 | 240 | 8 | 9 | 226 |
| Total Analysis Volume [veh/h] | 10 | 9 | 959 | 32 | 35 | 904 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.04 | 0.02 | 0.01 | 0.00 | 0.05 | 0.01 |
| d_M, Delay for Movement [s/veh] | 18.20 | 11.98 | 0.00 | 0.00 | 10.37 | 0.00 |
| Movement LOS | C | B | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.11 | 0.05 | 0.00 | 0.00 | 0.16 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.74 | 1.31 | 0.00 | 0.00 | 3.91 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.25 | | 0.00 | | 0.39 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.33 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report
Intersection 9: Project Dwy 1 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.9 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.024 |

Intersection Setup

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 822 | 0 | 0 | 790 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 5 | 64 | 24 | 14 | 26 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 5 | 890 | 24 | 14 | 820 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 1 | 242 | 7 | 4 | 223 |
| Total Analysis Volume [veh/h] | 7 | 5 | 967 | 26 | 15 | 891 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.01 | 0.01 | 0.00 | 0.02 | 0.01 |
| d_M, Delay for Movement [s/veh] | 17.86 | 12.22 | 0.00 | 0.00 | 10.22 | 0.00 |
| Movement LOS | C | B | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.10 | 0.00 | 0.00 | 0.07 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.62 | 2.62 | 0.00 | 0.00 | 1.63 | 0.00 |
| d_A, Approach Delay [s/veh] | 15.51 | | 0.00 | | 0.17 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.18 | | | | | |
| Intersection LOS | C | | | | | |

Panattoni Project

Vistro File: G:\...\IPM.vistro

Scenario 4 Opening Year with Project

Report File: G:\...\IPMOYp.pdf

3/13/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | WB Left | 0.729 | - | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | ICU 1 | NB Right | 0.777 | - | C |
| 3 | Wilmington Ave (NS) at 223rd St (EW) | Signalized | ICU 1 | SB Thru | 0.738 | - | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | ICU 1 | NB Thru | 0.859 | - | D |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | ICU 1 | EB Thru | 0.580 | - | A |
| 6 | Alameda St (NS) at 223rd St (EW) | Signalized | ICU 1 | NB Right | 0.871 | - | D |
| 7 | Project Dwy 3 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.048 | 35.4 | E |
| 8 | Project Dwy 2 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.179 | 33.9 | D |
| 9 | Project Dwy 1 (NS) at 223rd St (EW) | Two-way stop | HCM 6th Edition | NB Left | 0.140 | 28.5 | D |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.729 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | l | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 30 | 0 | 55 | -39 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 39 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 463 | 135 | 0 | 1284 | 1156 | 382 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 0 | 0 | 321 | 289 | 96 |
| Total Analysis Volume [veh/h] | 463 | 0 | 0 | 1284 | 1156 | 382 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|
| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.00 | 0.00 | 0.27 | 0.36 | 0.24 |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.729 | | | | | |

Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.777 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 35 | -32 | 40 | -40 | 0 | 10 | 0 | 1 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 32 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 609 | 686 | 697 | 1499 | 0 | 25 | 1 | 49 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 152 | 172 | 174 | 375 | 0 | 6 | 0 | 12 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 609 | 686 | 697 | 1499 | 0 | 25 | 1 | 49 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|-------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.13 | 0.43 | 0.22 | 0.31 | 0.00 | 0.02 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.777 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Wilmington Ave (NS) at 223rd St (EW)

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

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | [Diagram] | | | [Diagram] | | | [Diagram] | | | [Diagram] | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Pocket Length [ft] | 130.00 | 100.00 | 214.00 | 218.00 | 100.00 | 100.00 | 285.00 | 100.00 | 100.00 | 246.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | Yes | | | No | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | 223rd St | | | 223rd St | | |
|---|----------------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 12 | 745 | 322 | 132 | 968 | 549 | 284 | 814 | 9 | 131 | 211 | 99 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 9 | -58 | 5 | 30 | -70 | 0 | 0 | 7 | 6 | 12 | 12 | 61 |
| Diverted Trips [veh/h] | 0 | 58 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 21 | 749 | 329 | 163 | 973 | 552 | 285 | 825 | 15 | 144 | 224 | 160 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 187 | 82 | 41 | 243 | 138 | 71 | 206 | 4 | 36 | 56 | 40 |
| Total Analysis Volume [veh/h] | 21 | 749 | 329 | 163 | 973 | 552 | 285 | 825 | 15 | 144 | 224 | 160 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| Signal group | 5 | 2 | 0 | 1 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.16 | 0.21 | 0.05 | 0.32 | 0.32 | 0.09 | 0.26 | 0.26 | 0.05 | 0.07 | 0.10 |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.738 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.859 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 10 | 0 | 23 | 31 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1209 | 293 | 117 | 1033 | 493 | 246 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 302 | 73 | 29 | 258 | 123 | 62 |
| Total Analysis Volume [veh/h] | 1209 | 293 | 117 | 1033 | 493 | 246 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|-------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.38 | 0.00 | 0.07 | 0.22 | 0.31 | 0.15 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.859 | | | | | |

Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.580 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 9 | 56 | 9 | 0 | 0 | 10 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1029 | 1078 | 5 | 3 | 268 | 117 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 28 | 0 | 12 | 257 | 270 | 1 | 1 | 67 | 29 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1029 | 1078 | 5 | 3 | 268 | 117 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

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

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|-------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.01 | 0.07 | 0.00 | 0.03 | 0.32 | 0.34 | 0.00 | 0.00 | 0.08 | 0.08 |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.580 | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 6: Alameda St (NS) at 223rd St (EW)

| | | | |
|------------------|------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | - |
| Analysis Method: | ICU 1 | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.871 |

Intersection Setup

| Name | Alameda St | | 223rd St | | 223rd St | |
|------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | T T | | T T T | | T T T T | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 2 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 427.00 | 100.00 |
| Speed [mph] | 30.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | No | |

Volumes

| Name | Alameda St | | 223rd St | | 223rd St | |
|---|------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 102 | 657 | 1391 | 190 | 108 | 236 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 36 | 11 | 54 | 43 | 8 | 11 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 139 | 671 | 1452 | 234 | 117 | 248 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 35 | 168 | 363 | 59 | 29 | 62 |
| Total Analysis Volume [veh/h] | 139 | 671 | 1452 | 234 | 117 | 248 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

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

Phasing & Timing

| | | | | | | |
|-------------------------|------------|---------|------------|------------|-----------|------------|
| Control Type | Permissive | Overlap | Permissive | Permissive | Protected | Permissive |
| Signal group | 5 | 2 | 8 | 0 | 7 | 4 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | Lead | - | - | - | Lead | - |

Movement, Approach, & Intersection Results

| | | | | | | |
|-------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.09 | 0.38 | 0.35 | 0.35 | 0.04 | 0.05 |
| Intersection LOS | D | | | | | |
| Intersection V/C | 0.871 | | | | | |

Intersection Level Of Service Report
Intersection 7: Project Dwy 3 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 35.4 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.048 |

Intersection Setup

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|------------------------|---------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | T | | | TT | | | TTL | | | TTL | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 45.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | No | | | No | | |

Volumes

| Name | Project Dwy 3 | | | | | | 223rd St | | | 223rd St | | |
|---|---------------|--------|--------|--------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 1393 | 0 | 0 | 424 | 2 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.00 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 6 | 0 | 19 | 0 | 0 | 0 | 0 | 61 | 2 | 9 | 47 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 6 | 0 | 19 | 2 | 0 | 4 | 1 | 1461 | 2 | 9 | 473 | 2 |
| Peak Hour Factor | 0.9850 | 1.0000 | 0.9850 | 0.9850 | 1.0000 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 | 0.9850 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 0 | 5 | 1 | 0 | 1 | 0 | 371 | 1 | 2 | 120 | 1 |
| Total Analysis Volume [veh/h] | 6 | 0 | 19 | 2 | 0 | 4 | 1 | 1483 | 2 | 9 | 480 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Stop | Stop | Free | Free |
| Flared Lane | No | | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | Yes | | |
| Number of Storage Spaces in Median | 2 | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|-------|-------|------|------|------|------|------|-------|------|------|
| V/C, Movement V/C Ratio | 0.05 | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 35.37 | 0.00 | 16.54 | 17.33 | 0.00 | 9.72 | 8.30 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 |
| Movement LOS | E | | C | C | | A | A | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.33 | 0.00 | 0.33 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 8.27 | 0.00 | 8.27 | 0.51 | 0.00 | 0.39 | 0.07 | 0.00 | 0.00 | 1.50 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 21.06 | | | 12.26 | | | 0.01 | | | 0.24 | | |
| Approach LOS | C | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.36 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 8: Project Dwy 2 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 33.9 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.179 |

Intersection Setup

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ⇐⇐ | | ⇐⇐ | | ⇐⇐ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 2 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1394 | 0 | 0 | 428 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 25 | 30 | 33 | 10 | 12 | 41 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 25 | 30 | 1434 | 10 | 12 | 471 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 7 | 8 | 390 | 3 | 3 | 128 |
| Total Analysis Volume [veh/h] | 27 | 33 | 1559 | 11 | 13 | 512 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.18 | 0.10 | 0.02 | 0.00 | 0.03 | 0.01 |
| d_M, Delay for Movement [s/veh] | 33.93 | 16.73 | 0.00 | 0.00 | 13.72 | 0.00 |
| Movement LOS | D | C | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.63 | 0.32 | 0.00 | 0.00 | 0.09 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.68 | 8.00 | 0.00 | 0.00 | 2.36 | 0.00 |
| d_A, Approach Delay [s/veh] | 24.47 | | 0.00 | | 0.34 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.76 | | | | | |
| Intersection LOS | D | | | | | |

Intersection Level Of Service Report
Intersection 9: Project Dwy 1 (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 28.5 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.140 |

Intersection Setup

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|------------------------|---------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | 45.00 | | 45.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | No | |

Volumes

| Name | Project Dwy 1 | | 223rd St | | 223rd St | |
|---|---------------|--------|----------|--------|----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 1268 | 0 | 0 | 441 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 11 | 32 | 10 | 4 | 62 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 23 | 11 | 1306 | 10 | 4 | 505 |
| Peak Hour Factor | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 3 | 355 | 3 | 1 | 137 |
| Total Analysis Volume [veh/h] | 25 | 12 | 1420 | 11 | 4 | 549 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | Yes | | |
| Number of Storage Spaces in Median | 2 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.14 | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 |
| d_M, Delay for Movement [s/veh] | 28.51 | 17.95 | 0.00 | 0.00 | 12.55 | 0.00 |
| Movement LOS | D | C | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.60 | 0.60 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 15.10 | 15.10 | 0.00 | 0.00 | 0.63 | 0.00 |
| d_A, Approach Delay [s/veh] | 25.09 | | 0.00 | | 0.09 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.48 | | | | | |
| Intersection LOS | D | | | | | |

APPENDIX E
TRAFFIC SIGNAL WARRANT WORKSHEETS

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - AM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1765.82**

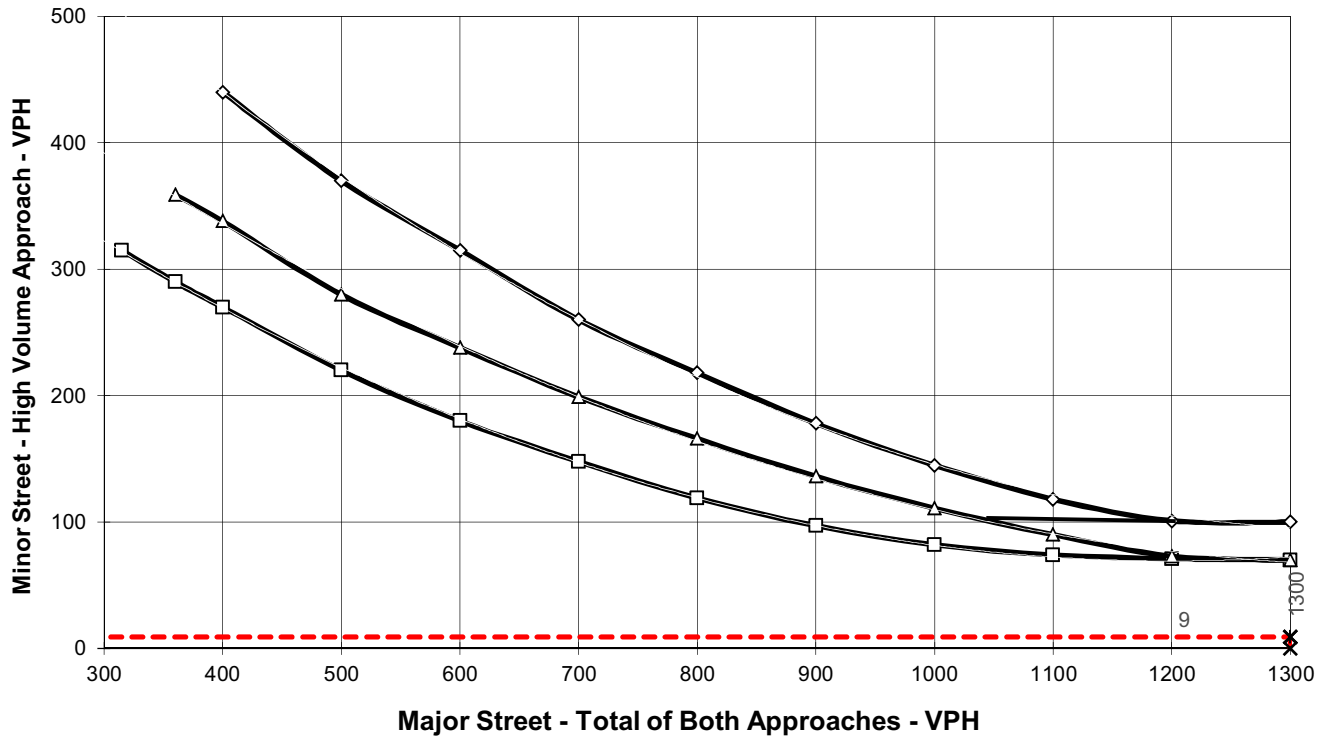
Number of Approach Lanes Major Street = **2**

Minor Street Name = **West Driveway #7**

High Volume Approach (VPH) = **9**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- - - × - - - Minor Street Approaches

**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - PM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1939.91**

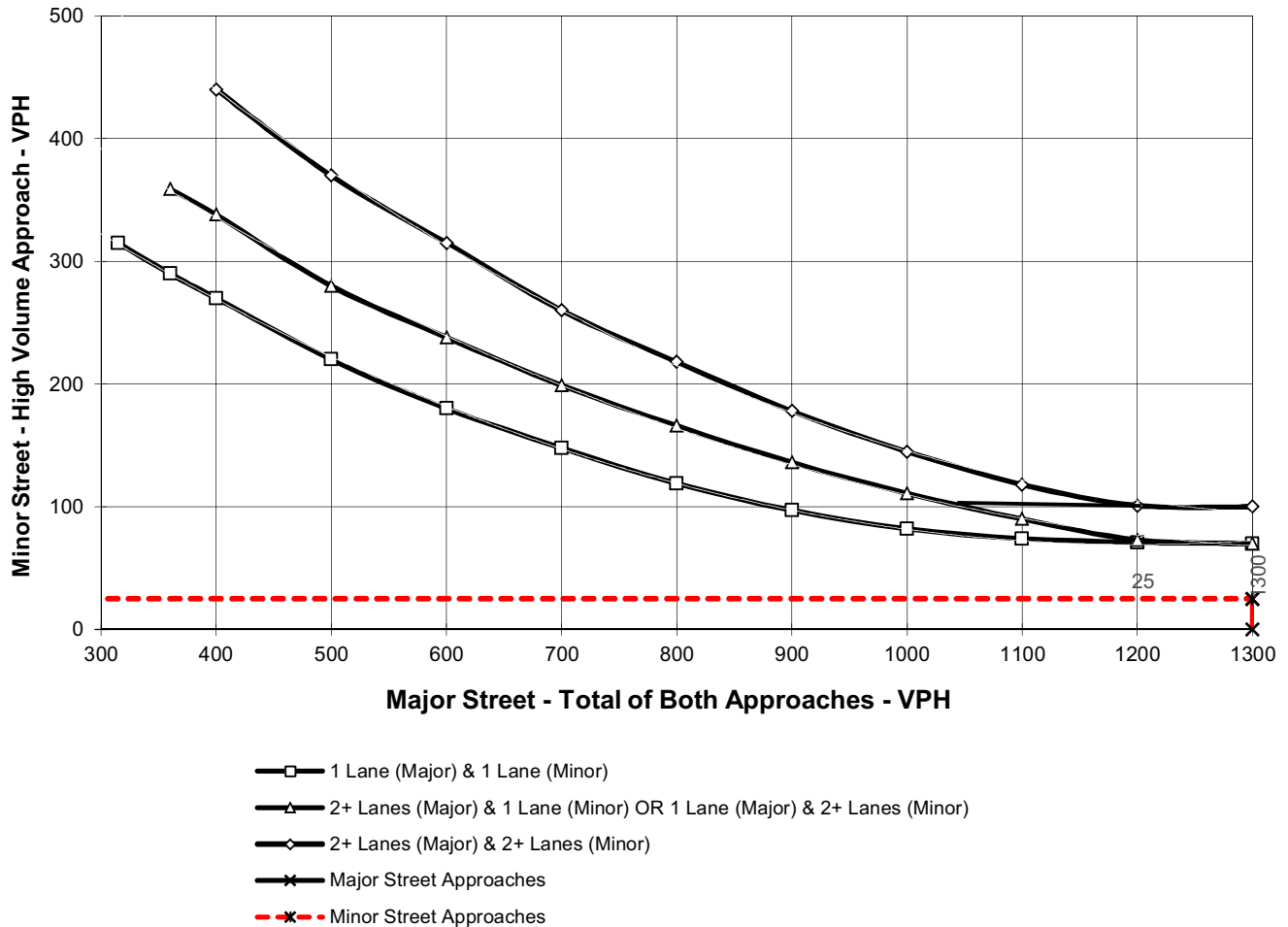
Number of Approach Lanes Major Street = **2**

Minor Street Name = **West Driveway #7**

High Volume Approach (VPH) = **25**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - AM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1766.82**

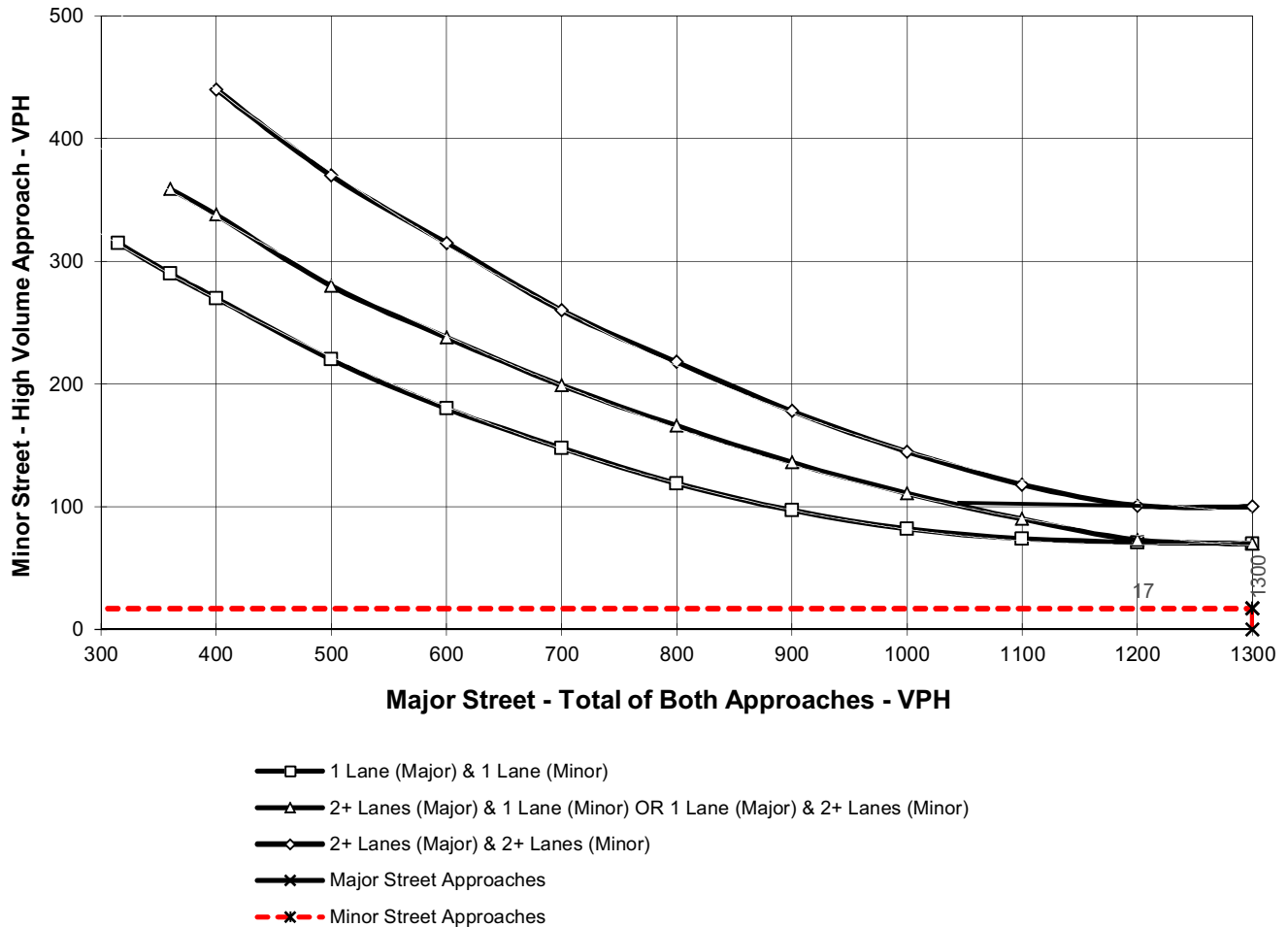
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Center Driveway #8**

High Volume Approach (VPH) = **17**

Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - PM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1918.91**

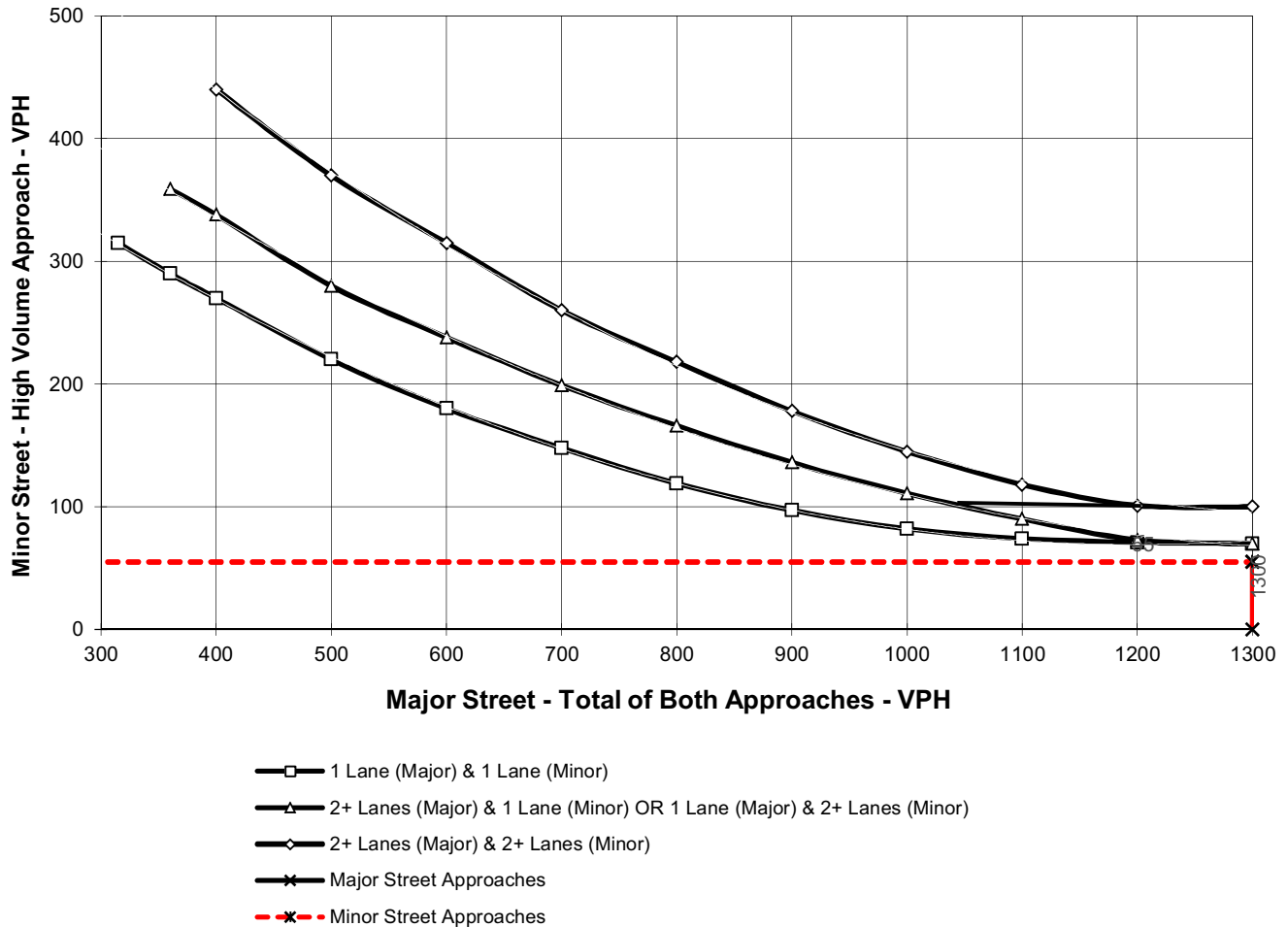
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Center Driveway #8**

High Volume Approach (VPH) = **55**

Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - AM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1740.81**

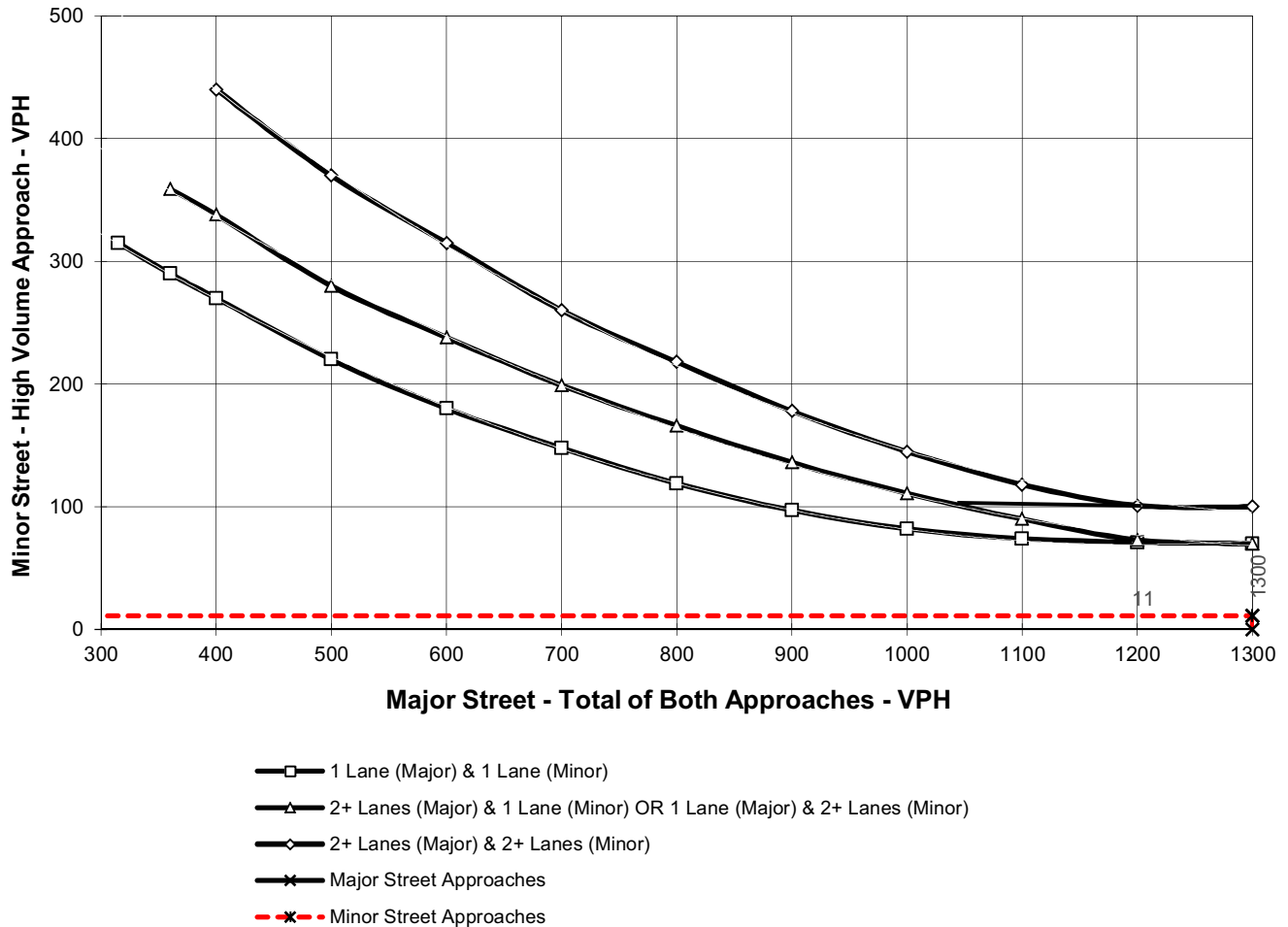
Number of Approach Lanes Major Street = **2**

Minor Street Name = **East Driveway #9**

High Volume Approach (VPH) = **11**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT (Rural Areas)

Opening Year (2021) With Project - PM

Major Street Name = **223rd Street**

Total of Both Approaches (VPH) = **1817.85**

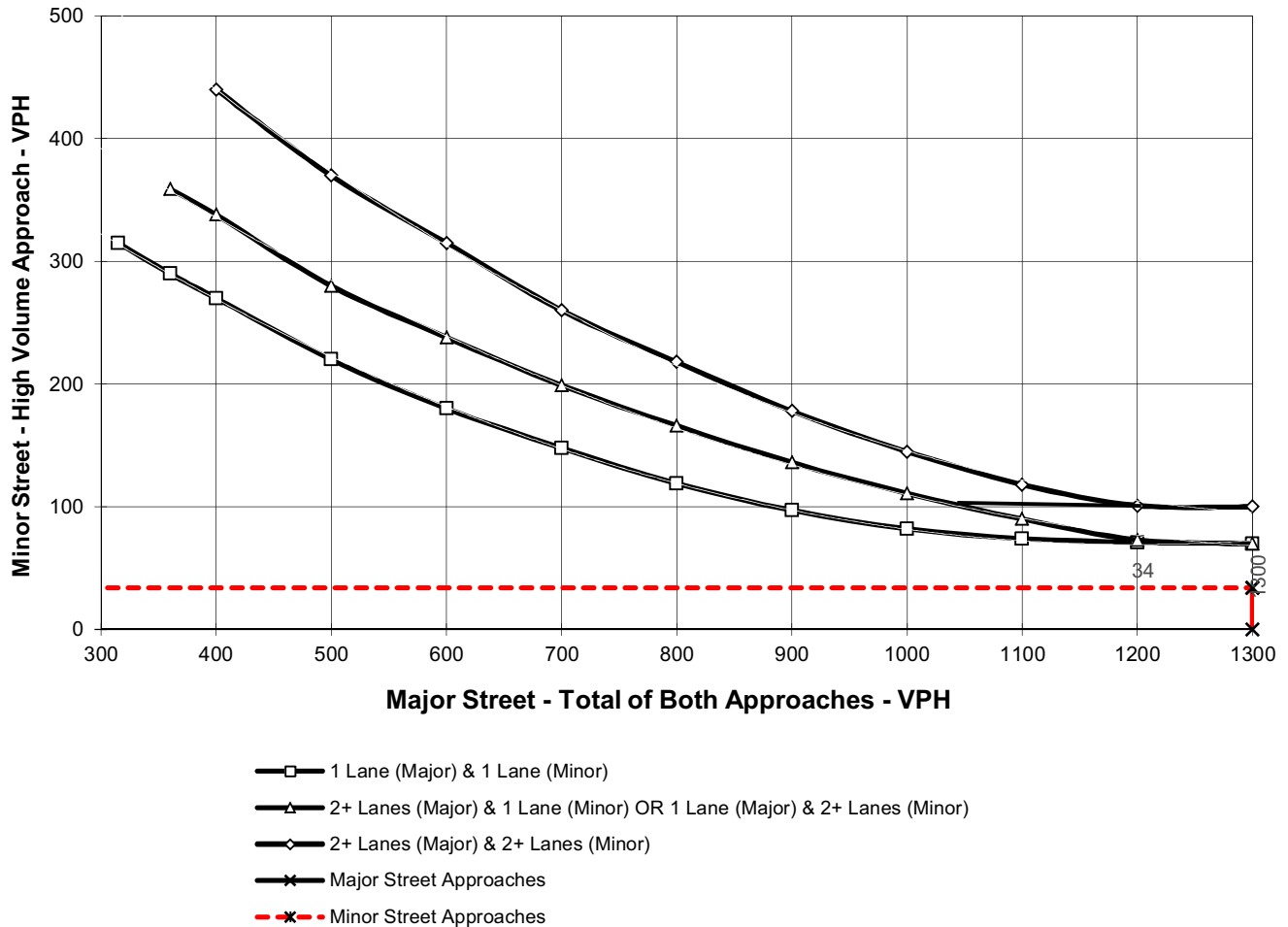
Number of Approach Lanes Major Street = **2**

Minor Street Name = **East Driveway #9**

High Volume Approach (VPH) = **34**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



**** NOTE:**

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

APPENDIX F

STATE HIGHWAY LEVEL OF SERVICE WORKSHEETS

EXISTING

Panattoni Project

Vistro File: G:\...\AM_Delay.vistro

Scenario 1 Existing without Project

Report File: G:\...\AME_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Right | 0.534 | 22.1 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.884 | 20.8 | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.563 | 17.8 | B |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.518 | 24.8 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.1 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.534 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Peak Hour Factor | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 120 | 0 | 0 | 224 | 270 | 116 |
| Total Analysis Volume [veh/h] | 478 | 0 | 0 | 898 | 1078 | 466 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 56 | 56 | 56 | 36 | 36 |
| g / C, Green / Cycle | 0.56 | 0.56 | 0.56 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.17 | 0.31 | 0.29 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 2025 | 904 | 2897 | 1266 | 582 |
| d1, Uniform Delay [s] | 11.16 | 0.00 | 11.72 | 29.48 | 28.73 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.27 | 0.00 | 0.28 | 1.72 | 2.61 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.31 | 0.85 | 0.80 |
| d, Delay for Lane Group [s/veh] | 11.43 | 0.00 | 12.00 | 31.20 | 31.34 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.53 | 0.00 | 3.30 | 11.86 | 10.16 |
| 50th-Percentile Queue Length [ft/ln] | 63.18 | 0.00 | 82.42 | 296.48 | 253.96 |
| 95th-Percentile Queue Length [veh/ln] | 4.55 | 0.00 | 5.93 | 17.51 | 15.39 |
| 95th-Percentile Queue Length [ft/ln] | 113.72 | 0.00 | 148.36 | 437.68 | 384.64 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.43 | 0.00 | 0.00 | 12.00 | 31.20 | 31.34 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 11.43 | | 12.00 | | 31.24 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 22.08 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.534 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.512 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.527 | 4.626 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 20.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.884 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 111 | 227 | 98 | 354 | 0 | 22 | 0 | 49 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 444 | 910 | 391 | 1416 | 0 | 87 | 0 | 195 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 17 | 38 | 0 | 0 | 62 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 61 | 61 | 13 | 78 | 14 | 14 | |
| g / C, Green / Cycle | 0.61 | 0.61 | 0.13 | 0.78 | 0.14 | 0.14 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.56 | 0.11 | 0.27 | 0.05 | 0.12 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1810 | 1615 | |
| c, Capacity [veh/h] | 3135 | 978 | 455 | 4012 | 262 | 234 | |
| d1, Uniform Delay [s] | 8.51 | 17.81 | 42.64 | 3.48 | 38.41 | 41.59 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.09 | 16.21 | 4.84 | 0.24 | 0.74 | 7.56 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|--------|--|
| X, volume / capacity | 0.14 | 0.93 | 0.86 | 0.35 | 0.33 | 0.83 | |
| d, Delay for Lane Group [s/veh] | 8.60 | 34.02 | 47.48 | 3.73 | 39.15 | 49.14 | |
| Lane Group LOS | A | C | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.26 | 20.27 | 4.89 | 1.98 | 1.96 | 5.12 | |
| 50th-Percentile Queue Length [ft/ln] | 31.49 | 506.67 | 122.31 | 49.48 | 49.03 | 128.01 | |
| 95th-Percentile Queue Length [veh/ln] | 2.27 | 27.65 | 8.52 | 3.56 | 3.53 | 8.83 | |
| 95th-Percentile Queue Length [ft/ln] | 56.67 | 691.24 | 213.00 | 89.06 | 88.25 | 220.78 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.60 | 34.02 | 47.48 | 3.73 | 0.00 | 39.15 | 39.15 | 49.14 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | C | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | 25.69 | | | 13.19 | | | 46.06 | | | 0.00 | | |
| Approach LOS | C | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 20.80 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.884 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | | | 0.0 | | | 11.0 | | | 11.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 0.00 | | | 0.00 | | | 39.61 | | | 39.61 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | | | 0.000 | | | 1.857 | | | 2.354 | | |
| Crosswalk LOS | F | | | F | | | A | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 340 | | | 680 | | | 1160 | | | 0 | | |
| d_b, Bicycle Delay [s] | 34.45 | | | 21.78 | | | 8.82 | | | 50.00 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.304 | | | 2.553 | | | 2.025 | | | 4.132 | | |
| Bicycle LOS | B | | | B | | | B | | | D | | |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 17.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.563 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Peak Hour Factor | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 209 | 34 | 24 | 359 | 101 | 49 |
| Total Analysis Volume [veh/h] | 838 | 135 | 94 | 1434 | 403 | 196 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 50 | 71 | 29 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 57 | 85 | 7 | 68 | 24 | 24 |
| g / C, Green / Cycle | 0.57 | 0.85 | 0.07 | 0.68 | 0.24 | 0.24 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.08 | 0.05 | 0.28 | 0.22 | 0.12 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 2064 | 1376 | 124 | 3514 | 436 | 389 |
| d1, Uniform Delay [s] | 12.00 | 1.20 | 45.79 | 7.13 | 37.06 | 32.78 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.26 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.59 | 0.14 | 9.21 | 0.35 | 17.39 | 1.01 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|--------|
| X, volume / capacity | 0.41 | 0.10 | 0.76 | 0.41 | 0.92 | 0.50 |
| d, Delay for Lane Group [s/veh] | 12.59 | 1.34 | 55.00 | 7.48 | 54.45 | 33.79 |
| Lane Group LOS | B | A | D | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.72 | 0.13 | 2.53 | 3.65 | 11.54 | 4.17 |
| 50th-Percentile Queue Length [ft/ln] | 118.11 | 3.37 | 63.25 | 91.34 | 288.59 | 104.22 |
| 95th-Percentile Queue Length [veh/ln] | 8.29 | 0.24 | 4.55 | 6.58 | 17.12 | 7.50 |
| 95th-Percentile Queue Length [ft/ln] | 207.22 | 6.06 | 113.84 | 164.41 | 427.89 | 187.60 |

Movement, Approach, & Intersection Results

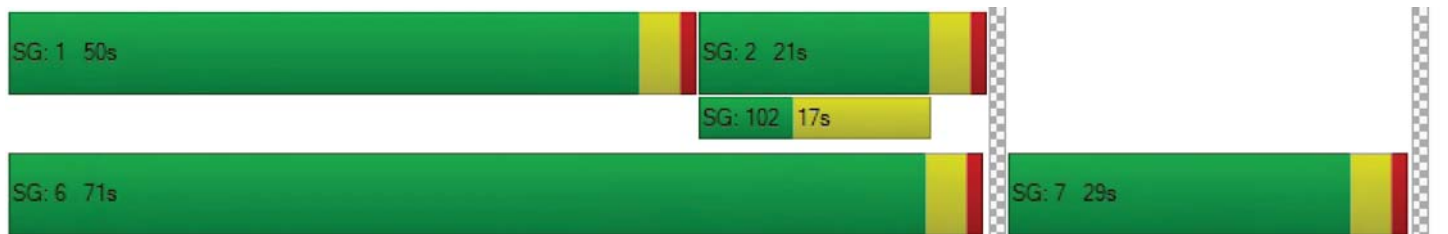
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.59 | 1.34 | 55.00 | 7.48 | 54.45 | 33.79 |
| Movement LOS | B | A | D | A | D | C |
| d_A, Approach Delay [s/veh] | 11.03 | | 10.40 | | 47.69 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 17.81 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.563 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.214 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.935 | 4.973 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.518 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | RORR | | | ORR | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Peak Hour Factor | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 23 | 1 | 33 | 182 | 111 | 0 | 1 | 221 | 14 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 92 | 2 | 133 | 727 | 444 | 0 | 5 | 885 | 56 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 11 | 11 | 24 | 71 | 71 | 1 | 48 | 48 |
| g / C, Green / Cycle | 0.01 | 0.11 | 0.11 | 0.24 | 0.71 | 0.71 | 0.01 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.05 | 0.08 | 0.21 | 0.12 | 0.00 | 0.00 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1767 | 1810 | 1619 | 3514 | 3618 | 1615 | 1810 | 3618 | 1843 |
| c, Capacity [veh/h] | 21 | 192 | 172 | 848 | 2576 | 1150 | 19 | 1740 | 887 |
| d1, Uniform Delay [s] | 49.05 | 42.16 | 43.66 | 36.35 | 4.73 | 0.00 | 49.18 | 16.28 | 16.30 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.15 | 1.85 | 7.74 | 2.66 | 0.15 | 0.00 | 7.51 | 0.57 | 1.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|-------|------|-------|--------|--------|
| X, volume / capacity | 0.28 | 0.48 | 0.79 | 0.86 | 0.17 | 0.00 | 0.27 | 0.36 | 0.36 |
| d, Delay for Lane Group [s/veh] | 56.19 | 44.02 | 51.40 | 39.01 | 4.88 | 0.00 | 56.69 | 16.86 | 17.43 |
| Lane Group LOS | E | D | D | D | A | A | E | B | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 2.23 | 3.61 | 8.35 | 1.17 | 0.00 | 0.16 | 4.38 | 4.62 |
| 50th-Percentile Queue Length [ft/ln] | 4.78 | 55.71 | 90.13 | 208.74 | 29.17 | 0.00 | 4.03 | 109.58 | 115.57 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 4.01 | 6.49 | 13.09 | 2.10 | 0.00 | 0.29 | 7.82 | 8.15 |
| 95th-Percentile Queue Length [ft/ln] | 8.61 | 100.29 | 162.24 | 327.22 | 52.50 | 0.00 | 7.26 | 195.42 | 203.72 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 56.19 | 56.19 | 56.19 | 44.02 | 51.40 | 51.40 | 39.01 | 4.88 | 0.00 | 56.69 | 17.03 | 17.43 |
| Movement LOS | E | E | E | D | D | D | D | A | A | E | B | B |
| d_A, Approach Delay [s/veh] | 56.19 | | | 48.41 | | | 26.07 | | | 17.26 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 24.76 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.518 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.725 | 2.383 | 3.131 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.570 | 1.934 | 2.526 | 2.080 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Panattoni Project

Vistro File: G:\...\PM_Delay.vistro

Scenario 1 Existing without Project

Report File: G:\...\PME_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Left | 0.644 | 21.3 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.725 | 14.5 | B |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.746 | 21.7 | C |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.486 | 21.5 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.644 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Peak Hour Factor | 0.9719 | 0.9719 | 1.0000 | 0.9719 | 0.9719 | 0.9719 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 115 | 0 | 0 | 315 | 296 | 96 |
| Total Analysis Volume [veh/h] | 459 | 0 | 0 | 1258 | 1183 | 383 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 53 | 53 | 53 | 39 | 39 |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.53 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.24 | 0.34 | 0.24 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 1921 | 857 | 2748 | 1367 | 628 |
| d1, Uniform Delay [s] | 12.59 | 0.00 | 14.52 | 28.11 | 24.44 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.29 | 0.00 | 0.55 | 1.78 | 0.96 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.46 | 0.87 | 0.61 |
| d, Delay for Lane Group [s/veh] | 12.88 | 0.00 | 15.07 | 29.88 | 25.40 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.63 | 0.00 | 5.51 | 12.88 | 7.23 |
| 50th-Percentile Queue Length [ft/ln] | 65.66 | 0.00 | 137.77 | 322.02 | 180.76 |
| 95th-Percentile Queue Length [veh/ln] | 4.73 | 0.00 | 9.36 | 18.77 | 11.64 |
| 95th-Percentile Queue Length [ft/ln] | 118.19 | 0.00 | 234.01 | 469.17 | 291.01 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.88 | 0.00 | 0.00 | 15.07 | 29.88 | 25.40 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 12.88 | | 15.07 | | 28.79 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 21.31 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.644 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.518 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.511 | 4.824 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 14.5 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.725 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 146 | 174 | 167 | 381 | 0 | 4 | 0 | 12 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 583 | 698 | 668 | 1524 | 0 | 15 | 1 | 49 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 58 | 0 | 30 | 88 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 61 | 61 | 22 | 86 | 6 | 6 | |
| g / C, Green / Cycle | 0.61 | 0.61 | 0.22 | 0.86 | 0.06 | 0.06 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.43 | 0.19 | 0.29 | 0.01 | 0.03 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1815 | 1615 | |
| c, Capacity [veh/h] | 3133 | 978 | 758 | 4456 | 107 | 95 | |
| d1, Uniform Delay [s] | 8.77 | 13.71 | 37.98 | 1.37 | 44.67 | 45.66 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.13 | 4.44 | 3.58 | 0.21 | 0.64 | 4.25 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|-------|--|
| X, volume / capacity | 0.19 | 0.71 | 0.88 | 0.34 | 0.15 | 0.51 | |
| d, Delay for Lane Group [s/veh] | 8.91 | 18.15 | 41.56 | 1.58 | 45.31 | 49.91 | |
| Lane Group LOS | A | B | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.71 | 10.57 | 7.99 | 0.46 | 0.39 | 1.29 | |
| 50th-Percentile Queue Length [ft/ln] | 42.65 | 264.24 | 199.64 | 11.45 | 9.86 | 32.20 | |
| 95th-Percentile Queue Length [veh/ln] | 3.07 | 15.90 | 12.62 | 0.82 | 0.71 | 2.32 | |
| 95th-Percentile Queue Length [ft/ln] | 76.78 | 397.53 | 315.50 | 20.61 | 17.75 | 57.95 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 8.91 | 18.15 | 41.56 | 1.58 | 0.00 | 45.31 | 45.31 | 49.91 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | B | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | | 13.95 | | 13.76 | | | 48.78 | | | 0.00 | | |
| Approach LOS | | B | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.47 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.725 | | | | | | | | | | | |

Other Modes

| | | | | | | | | |
|--|--|-------|--|-------|--|-------|--|-------|
| g_Walk,mi, Effective Walk Time [s] | | 0.0 | | 0.0 | | 11.0 | | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| d_p, Pedestrian Delay [s] | | 0.00 | | 0.00 | | 39.61 | | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | | 0.000 | | 0.000 | | 1.751 | | 2.386 |
| Crosswalk LOS | | F | | F | | A | | B |
| s_b, Saturation Flow Rate of the bicycle lane | | 2000 | | 2000 | | 2000 | | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | | 1080 | | 1680 | | 160 | | 0 |
| d_b, Bicycle Delay [s] | | 10.58 | | 1.28 | | 42.32 | | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | | 2.264 | | 2.765 | | 1.667 | | 4.132 |
| Bicycle LOS | | B | | C | | A | | D |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.7 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.746 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Peak Hour Factor | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 307 | 73 | 30 | 262 | 120 | 60 |
| Total Analysis Volume [veh/h] | 1229 | 294 | 121 | 1047 | 479 | 240 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 44 | 65 | 35 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 51 | 83 | 9 | 63 | 29 | 29 |
| g / C, Green / Cycle | 0.51 | 0.83 | 0.09 | 0.63 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.34 | 0.18 | 0.07 | 0.20 | 0.26 | 0.15 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1833 | 1348 | 155 | 3271 | 521 | 465 |
| d1, Uniform Delay [s] | 18.44 | 1.67 | 44.82 | 8.49 | 34.48 | 29.78 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.34 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 1.97 | 0.37 | 8.33 | 0.26 | 18.12 | 0.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|--------|--------|--------|--------|
| X, volume / capacity | 0.67 | 0.22 | 0.78 | 0.32 | 0.92 | 0.52 |
| d, Delay for Lane Group [s/veh] | 20.41 | 2.05 | 53.15 | 8.74 | 52.61 | 30.67 |
| Lane Group LOS | C | A | D | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 9.93 | 0.51 | 3.19 | 2.99 | 13.63 | 4.88 |
| 50th-Percentile Queue Length [ft/ln] | 248.31 | 12.68 | 79.77 | 74.75 | 340.76 | 121.95 |
| 95th-Percentile Queue Length [veh/ln] | 15.10 | 0.91 | 5.74 | 5.38 | 19.69 | 8.50 |
| 95th-Percentile Queue Length [ft/ln] | 377.52 | 22.83 | 143.59 | 134.54 | 492.13 | 212.50 |

Movement, Approach, & Intersection Results

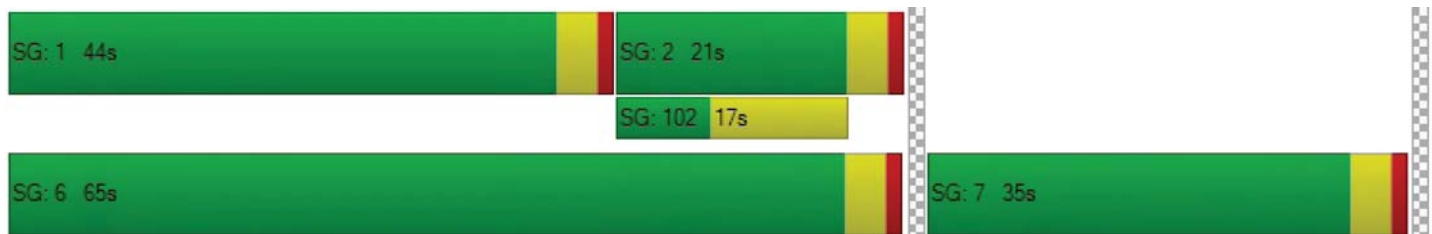
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 20.41 | 2.05 | 53.15 | 8.74 | 52.61 | 30.67 |
| Movement LOS | C | A | D | A | D | C |
| d_A, Approach Delay [s/veh] | 16.86 | | 13.34 | | 45.28 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 21.65 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.746 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.314 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 5.389 | 4.775 | 4.132 |
| Bicycle LOS | F | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.486 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Peak Hour Factor | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 29 | 0 | 10 | 253 | 278 | 1 | 1 | 67 | 30 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 117 | 0 | 42 | 1010 | 1111 | 5 | 3 | 268 | 121 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 2 | 9 | 9 | 33 | 73 | 73 | 1 | 41 | 41 |
| g / C, Green / Cycle | 0.02 | 0.09 | 0.09 | 0.33 | 0.73 | 0.73 | 0.01 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.06 | 0.03 | 0.29 | 0.31 | 0.00 | 0.00 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1774 | 1810 | 1615 | 3514 | 3618 | 1615 | 1810 | 3618 | 1627 |
| c, Capacity [veh/h] | 37 | 155 | 138 | 1142 | 2629 | 1174 | 12 | 1478 | 665 |
| d1, Uniform Delay [s] | 48.31 | 44.76 | 42.99 | 32.02 | 5.39 | 3.75 | 49.47 | 18.88 | 19.00 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.85 | 7.28 | 1.22 | 2.49 | 0.50 | 0.01 | 9.93 | 0.26 | 0.64 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|-------|--------|--------|------|-------|-------|-------|
| X, volume / capacity | 0.32 | 0.76 | 0.30 | 0.88 | 0.42 | 0.00 | 0.24 | 0.18 | 0.19 |
| d, Delay for Lane Group [s/veh] | 53.16 | 52.05 | 44.21 | 34.50 | 5.89 | 3.76 | 59.41 | 19.14 | 19.64 |
| Lane Group LOS | D | D | D | C | A | A | E | B | B |
| Critical Lane Group | Yes | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 3.13 | 1.02 | 11.16 | 3.38 | 0.02 | 0.11 | 1.93 | 1.96 |
| 50th-Percentile Queue Length [ft/ln] | 8.68 | 78.33 | 25.48 | 278.89 | 84.55 | 0.55 | 2.69 | 48.29 | 49.00 |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 5.64 | 1.83 | 16.63 | 6.09 | 0.04 | 0.19 | 3.48 | 3.53 |
| 95th-Percentile Queue Length [ft/ln] | 15.62 | 140.99 | 45.86 | 415.83 | 152.20 | 1.00 | 4.84 | 86.92 | 88.21 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.16 | 53.16 | 53.16 | 52.05 | 44.21 | 44.21 | 34.50 | 5.89 | 3.76 | 59.41 | 19.15 | 19.64 |
| Movement LOS | D | D | D | D | D | D | C | A | A | E | B | B |
| d_A, Approach Delay [s/veh] | 53.16 | | | 49.98 | | | 19.48 | | | 19.61 | | |
| Approach LOS | D | | | D | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 21.45 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.486 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.728 | 2.452 | 3.176 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.579 | 1.822 | 3.314 | 1.775 |
| Bicycle LOS | A | A | C | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



EXISTING PLUS PROJECT

Panattoni Project

Vistro File: G:\...\AM_Delay.vistro

Scenario 2 Existing with Project

Report File: G:\...\AMEp_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Right | 0.537 | 22.0 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.904 | 22.8 | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.586 | 18.8 | B |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.522 | 24.8 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.0 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.537 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 4 | 9 | 0 | 16 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 463 | 97 | 0 | 878 | 1035 | 447 |
| Peak Hour Factor | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 121 | 0 | 0 | 229 | 270 | 116 |
| Total Analysis Volume [veh/h] | 482 | 0 | 0 | 915 | 1078 | 466 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 56 | 56 | 56 | 36 | 36 |
| g / C, Green / Cycle | 0.56 | 0.56 | 0.56 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.18 | 0.31 | 0.29 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 2025 | 904 | 2897 | 1266 | 582 |
| d1, Uniform Delay [s] | 11.17 | 0.00 | 11.76 | 29.48 | 28.73 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.00 | 0.29 | 1.72 | 2.61 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.32 | 0.85 | 0.80 |
| d, Delay for Lane Group [s/veh] | 11.45 | 0.00 | 12.05 | 31.20 | 31.34 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.55 | 0.00 | 3.37 | 11.86 | 10.16 |
| 50th-Percentile Queue Length [ft/ln] | 63.79 | 0.00 | 84.32 | 296.48 | 253.96 |
| 95th-Percentile Queue Length [veh/ln] | 4.59 | 0.00 | 6.07 | 17.51 | 15.39 |
| 95th-Percentile Queue Length [ft/ln] | 114.82 | 0.00 | 151.78 | 437.68 | 384.64 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.45 | 0.00 | 0.00 | 12.05 | 31.20 | 31.34 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 11.45 | | 12.05 | | 31.24 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 22.03 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.537 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.512 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.530 | 4.636 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.904 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 13 | 0 | 0 | 16 | 0 | 0 | 0 | 29 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 448 | 892 | 383 | 1404 | 0 | 85 | 0 | 220 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 114 | 227 | 98 | 358 | 0 | 22 | 0 | 56 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 457 | 910 | 391 | 1432 | 0 | 87 | 0 | 224 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 17 | 38 | 0 | 0 | 62 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 59 | 59 | 13 | 76 | 16 | 16 | |
| g / C, Green / Cycle | 0.59 | 0.59 | 0.13 | 0.76 | 0.16 | 0.16 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.56 | 0.11 | 0.28 | 0.05 | 0.14 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1810 | 1615 | |
| c, Capacity [veh/h] | 3040 | 949 | 455 | 3918 | 295 | 263 | |
| d1, Uniform Delay [s] | 9.33 | 19.50 | 42.64 | 4.08 | 36.80 | 40.67 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.10 | 20.87 | 4.84 | 0.26 | 0.55 | 7.56 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|-------|--------|--|
| X, volume / capacity | 0.15 | 0.96 | 0.86 | 0.37 | 0.29 | 0.85 | |
| d, Delay for Lane Group [s/veh] | 9.44 | 40.36 | 47.48 | 4.35 | 37.35 | 48.23 | |
| Lane Group LOS | A | D | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.39 | 22.42 | 4.89 | 2.35 | 1.91 | 5.85 | |
| 50th-Percentile Queue Length [ft/ln] | 34.64 | 560.42 | 122.31 | 58.69 | 47.66 | 146.25 | |
| 95th-Percentile Queue Length [veh/ln] | 2.49 | 30.18 | 8.52 | 4.23 | 3.43 | 9.82 | |
| 95th-Percentile Queue Length [ft/ln] | 62.35 | 754.54 | 213.00 | 105.64 | 85.79 | 245.42 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.44 | 40.36 | 47.48 | 4.35 | 0.00 | 37.35 | 37.35 | 48.23 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | D | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | | 30.02 | | 13.60 | | | 45.19 | | | 0.00 | | |
| Approach LOS | | C | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 22.82 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.904 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 1.871 | 2.354 |
| Crosswalk LOS | F | F | A | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 340 | 680 | 1160 | 0 |
| d_b, Bicycle Delay [s] | 34.45 | 21.78 | 8.82 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 2.311 | 2.562 | 2.073 | 4.132 |
| Bicycle LOS | B | B | B | D |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.586 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 4 | 0 | 0 | 13 | 29 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 688 | 110 | 77 | 1184 | 358 | 160 |
| Peak Hour Factor | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 211 | 34 | 24 | 363 | 110 | 49 |
| Total Analysis Volume [veh/h] | 843 | 135 | 94 | 1450 | 438 | 196 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 47 | 68 | 32 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 55 | 85 | 7 | 66 | 26 | 26 |
| g / C, Green / Cycle | 0.55 | 0.85 | 0.07 | 0.66 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.23 | 0.08 | 0.05 | 0.28 | 0.24 | 0.12 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1988 | 1376 | 124 | 3404 | 475 | 424 |
| d1, Uniform Delay [s] | 13.23 | 1.20 | 45.79 | 8.14 | 35.91 | 30.98 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.31 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.67 | 0.14 | 9.23 | 0.39 | 18.37 | 0.79 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|--------|
| X, volume / capacity | 0.42 | 0.10 | 0.76 | 0.43 | 0.92 | 0.46 |
| d, Delay for Lane Group [s/veh] | 13.90 | 1.34 | 55.02 | 8.53 | 54.28 | 31.76 |
| Lane Group LOS | B | A | E | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.10 | 0.13 | 2.53 | 4.11 | 12.60 | 4.02 |
| 50th-Percentile Queue Length [ft/ln] | 127.41 | 3.36 | 63.26 | 102.82 | 314.95 | 100.53 |
| 95th-Percentile Queue Length [veh/ln] | 8.80 | 0.24 | 4.55 | 7.40 | 18.42 | 7.24 |
| 95th-Percentile Queue Length [ft/ln] | 219.96 | 6.05 | 113.87 | 185.07 | 460.48 | 180.95 |

Movement, Approach, & Intersection Results

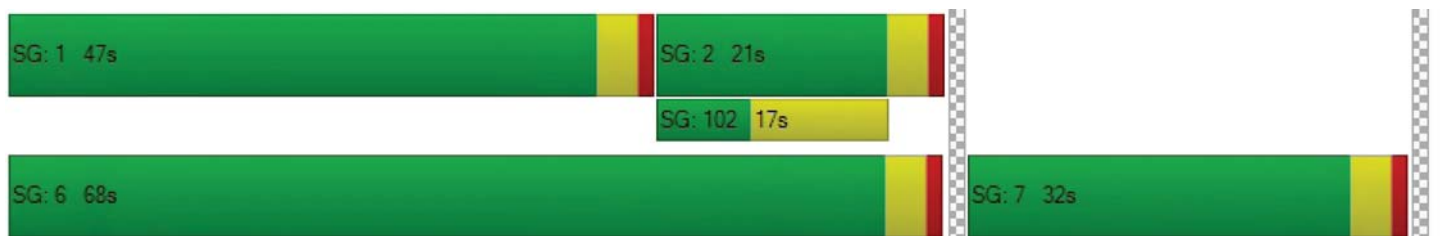
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 13.90 | 1.34 | 55.02 | 8.53 | 54.28 | 31.76 |
| Movement LOS | B | A | E | A | D | C |
| d_A, Approach Delay [s/veh] | 12.16 | | 11.36 | | 47.32 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 18.83 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.586 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.226 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.939 | 4.982 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 24.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.522 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 3 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 642 | 389 | 0 | 4 | 776 | 49 |
| Peak Hour Factor | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 23 | 1 | 33 | 184 | 111 | 0 | 1 | 222 | 14 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 92 | 2 | 133 | 735 | 446 | 0 | 5 | 889 | 56 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 11 | 11 | 24 | 71 | 71 | 1 | 48 | 48 |
| g / C, Green / Cycle | 0.01 | 0.11 | 0.11 | 0.24 | 0.71 | 0.71 | 0.01 | 0.48 | 0.48 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.05 | 0.08 | 0.21 | 0.12 | 0.00 | 0.00 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1767 | 1810 | 1619 | 3514 | 3618 | 1615 | 1810 | 3618 | 1843 |
| c, Capacity [veh/h] | 21 | 192 | 172 | 856 | 2576 | 1150 | 19 | 1732 | 882 |
| d1, Uniform Delay [s] | 49.05 | 42.16 | 43.66 | 36.23 | 4.74 | 0.00 | 49.18 | 16.45 | 16.46 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.15 | 1.85 | 7.74 | 2.65 | 0.15 | 0.00 | 7.51 | 0.59 | 1.15 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|-------|------|-------|--------|--------|
| X, volume / capacity | 0.28 | 0.48 | 0.79 | 0.86 | 0.17 | 0.00 | 0.27 | 0.36 | 0.36 |
| d, Delay for Lane Group [s/veh] | 56.19 | 44.02 | 51.40 | 38.88 | 4.88 | 0.00 | 56.69 | 17.04 | 17.62 |
| Lane Group LOS | E | D | D | D | A | A | E | B | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 2.23 | 3.61 | 8.43 | 1.17 | 0.00 | 0.16 | 4.43 | 4.67 |
| 50th-Percentile Queue Length [ft/ln] | 4.78 | 55.71 | 90.13 | 210.82 | 29.32 | 0.00 | 4.03 | 110.81 | 116.87 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 4.01 | 6.49 | 13.20 | 2.11 | 0.00 | 0.29 | 7.88 | 8.22 |
| 95th-Percentile Queue Length [ft/ln] | 8.61 | 100.29 | 162.24 | 329.88 | 52.77 | 0.00 | 7.26 | 197.12 | 205.52 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 56.19 | 56.19 | 56.19 | 44.02 | 51.40 | 51.40 | 38.88 | 4.88 | 0.00 | 56.69 | 17.21 | 17.62 |
| Movement LOS | E | E | E | D | D | D | D | A | A | E | B | B |
| d_A, Approach Delay [s/veh] | 56.19 | | | 48.41 | | | 26.04 | | | 17.44 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 24.81 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.522 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.725 | 2.385 | 3.133 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.570 | 1.934 | 2.534 | 2.082 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Panattoni Project

Vistro File: G:\...\IPM_Delay.vistro

Scenario 2 Existing with Project

Report File: G:\...\PMEp_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Left | 0.646 | 21.3 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.732 | 14.6 | B |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.755 | 21.9 | C |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.495 | 21.5 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.3 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.646 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 14 | 25 | 0 | 6 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 460 | 129 | 0 | 1229 | 1150 | 372 |
| Peak Hour Factor | 0.9719 | 0.9719 | 1.0000 | 0.9719 | 0.9719 | 0.9719 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 118 | 0 | 0 | 316 | 296 | 96 |
| Total Analysis Volume [veh/h] | 473 | 0 | 0 | 1265 | 1183 | 383 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 53 | 53 | 53 | 39 | 39 |
| g / C, Green / Cycle | 0.53 | 0.53 | 0.53 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.24 | 0.34 | 0.24 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 1921 | 857 | 2748 | 1367 | 628 |
| d1, Uniform Delay [s] | 12.64 | 0.00 | 14.54 | 28.11 | 24.44 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.31 | 0.00 | 0.56 | 1.78 | 0.96 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.25 | 0.00 | 0.46 | 0.87 | 0.61 |
| d, Delay for Lane Group [s/veh] | 12.95 | 0.00 | 15.10 | 29.88 | 25.40 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.72 | 0.00 | 5.55 | 12.88 | 7.23 |
| 50th-Percentile Queue Length [ft/ln] | 67.98 | 0.00 | 138.79 | 322.02 | 180.76 |
| 95th-Percentile Queue Length [veh/ln] | 4.89 | 0.00 | 9.42 | 18.77 | 11.64 |
| 95th-Percentile Queue Length [ft/ln] | 122.36 | 0.00 | 235.39 | 469.17 | 291.01 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.95 | 0.00 | 0.00 | 15.10 | 29.88 | 25.40 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 12.95 | | 15.10 | | 28.79 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 21.28 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.646 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.518 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.523 | 4.828 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 14.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.732 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 39 | 0 | 0 | 6 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 610 | 683 | 654 | 1498 | 0 | 15 | 1 | 58 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 156 | 174 | 167 | 382 | 0 | 4 | 0 | 15 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 623 | 698 | 668 | 1530 | 0 | 15 | 1 | 59 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 57 | 0 | 31 | 88 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 60 | 60 | 22 | 86 | 6 | 6 | |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.22 | 0.86 | 0.06 | 0.06 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.43 | 0.19 | 0.30 | 0.01 | 0.04 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1815 | 1615 | |
| c, Capacity [veh/h] | 3114 | 972 | 761 | 4442 | 112 | 100 | |
| d1, Uniform Delay [s] | 9.02 | 13.98 | 37.88 | 1.43 | 44.41 | 45.69 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.14 | 4.56 | 3.44 | 0.21 | 0.58 | 5.48 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|-------|--|
| X, volume / capacity | 0.20 | 0.72 | 0.88 | 0.34 | 0.14 | 0.59 | |
| d, Delay for Lane Group [s/veh] | 9.17 | 18.54 | 41.32 | 1.64 | 44.99 | 51.17 | |
| Lane Group LOS | A | B | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.86 | 10.72 | 7.96 | 0.52 | 0.39 | 1.57 | |
| 50th-Percentile Queue Length [ft/ln] | 46.62 | 268.12 | 199.02 | 12.93 | 9.81 | 39.29 | |
| 95th-Percentile Queue Length [veh/ln] | 3.36 | 16.10 | 12.59 | 0.93 | 0.71 | 2.83 | |
| 95th-Percentile Queue Length [ft/ln] | 83.92 | 402.40 | 314.70 | 23.27 | 17.65 | 70.73 | |

Movement, Approach, & Intersection Results

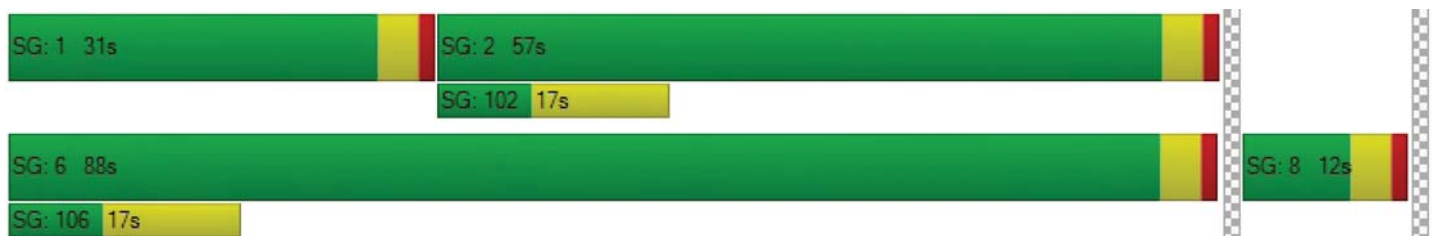
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.17 | 18.54 | 41.32 | 1.64 | 0.00 | 44.99 | 44.99 | 51.17 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | B | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | | 14.12 | | 13.70 | | | 49.85 | | | 0.00 | | |
| Approach LOS | | B | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.61 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.732 | | | | | | | | | | | |

Other Modes

| | | | | | | | | |
|--|--|-------|--|-------|--|-------|--|-------|
| g_Walk,mi, Effective Walk Time [s] | | 0.0 | | 0.0 | | 11.0 | | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| d_p, Pedestrian Delay [s] | | 0.00 | | 0.00 | | 39.61 | | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | | 0.000 | | 0.000 | | 1.756 | | 2.386 |
| Crosswalk LOS | | F | | F | | A | | B |
| s_b, Saturation Flow Rate of the bicycle lane | | 2000 | | 2000 | | 2000 | | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | | 1060 | | 1680 | | 160 | | 0 |
| d_b, Bicycle Delay [s] | | 11.05 | | 1.28 | | 42.32 | | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | | 2.286 | | 2.769 | | 1.683 | | 4.132 |
| Bicycle LOS | | B | | C | | A | | D |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.9 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.755 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 0 | 0 | 5 | 10 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1191 | 282 | 116 | 1010 | 470 | 230 |
| Peak Hour Factor | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 310 | 73 | 30 | 263 | 122 | 60 |
| Total Analysis Volume [veh/h] | 1240 | 294 | 121 | 1052 | 489 | 240 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 43 | 64 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 50 | 83 | 9 | 63 | 29 | 29 |
| g / C, Green / Cycle | 0.50 | 0.83 | 0.09 | 0.63 | 0.29 | 0.29 |
| (v / s)_i Volume / Saturation Flow Rate | 0.34 | 0.18 | 0.07 | 0.20 | 0.27 | 0.15 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1810 | 1348 | 155 | 3238 | 533 | 475 |
| d1, Uniform Delay [s] | 19.00 | 1.67 | 44.82 | 8.79 | 34.12 | 29.25 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.34 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.13 | 0.37 | 8.34 | 0.27 | 17.46 | 0.83 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|--------|--------|--------|--------|
| X, volume / capacity | 0.69 | 0.22 | 0.78 | 0.32 | 0.92 | 0.50 |
| d, Delay for Lane Group [s/veh] | 21.13 | 2.05 | 53.16 | 9.06 | 51.59 | 30.08 |
| Lane Group LOS | C | A | D | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 10.26 | 0.51 | 3.19 | 3.09 | 13.79 | 4.82 |
| 50th-Percentile Queue Length [ft/ln] | 256.53 | 12.68 | 79.78 | 77.18 | 344.67 | 120.57 |
| 95th-Percentile Queue Length [veh/ln] | 15.51 | 0.91 | 5.74 | 5.56 | 19.88 | 8.42 |
| 95th-Percentile Queue Length [ft/ln] | 387.87 | 22.82 | 143.61 | 138.92 | 496.90 | 210.62 |

Movement, Approach, & Intersection Results

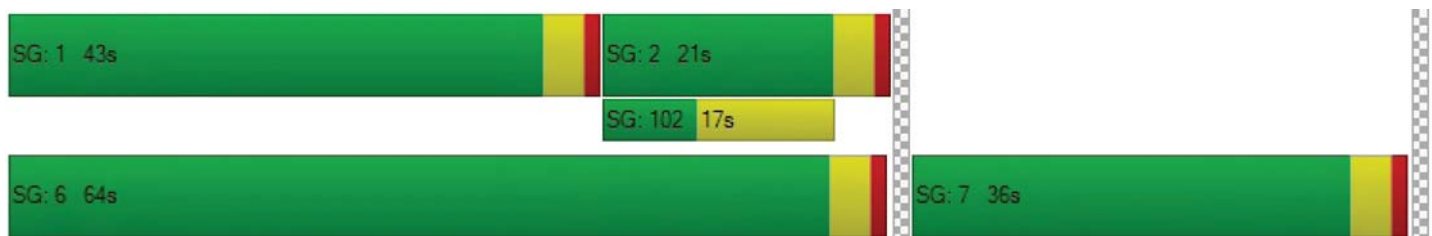
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 21.13 | 2.05 | 53.16 | 9.06 | 51.59 | 30.08 |
| Movement LOS | C | A | D | A | D | C |
| d_A, Approach Delay [s/veh] | 17.48 | | 13.61 | | 44.51 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 21.89 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.755 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.317 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 5.398 | 4.778 | 4.132 |
| Bicycle LOS | F | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.495 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 3 | 0 | 0 | 1 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 995 | 1067 | 5 | 3 | 258 | 116 |
| Peak Hour Factor | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 29 | 0 | 10 | 260 | 278 | 1 | 1 | 67 | 30 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 117 | 0 | 42 | 1039 | 1114 | 5 | 3 | 269 | 121 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 2 | 9 | 9 | 33 | 73 | 73 | 1 | 40 | 40 |
| g / C, Green / Cycle | 0.02 | 0.09 | 0.09 | 0.33 | 0.73 | 0.73 | 0.01 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.06 | 0.03 | 0.30 | 0.31 | 0.00 | 0.00 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1774 | 1810 | 1615 | 3514 | 3618 | 1615 | 1810 | 3618 | 1628 |
| c, Capacity [veh/h] | 37 | 155 | 138 | 1171 | 2629 | 1174 | 12 | 1448 | 652 |
| d1, Uniform Delay [s] | 48.31 | 44.76 | 42.99 | 31.61 | 5.40 | 3.75 | 49.47 | 19.41 | 19.53 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.85 | 7.28 | 1.22 | 2.49 | 0.50 | 0.01 | 9.93 | 0.27 | 0.67 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|-------|--------|--------|------|-------|-------|-------|
| X, volume / capacity | 0.32 | 0.76 | 0.30 | 0.89 | 0.42 | 0.00 | 0.24 | 0.18 | 0.20 |
| d, Delay for Lane Group [s/veh] | 53.16 | 52.05 | 44.21 | 34.10 | 5.90 | 3.76 | 59.41 | 19.68 | 20.21 |
| Lane Group LOS | D | D | D | C | A | A | E | B | C |
| Critical Lane Group | Yes | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 3.13 | 1.02 | 11.43 | 3.40 | 0.02 | 0.11 | 1.97 | 2.00 |
| 50th-Percentile Queue Length [ft/ln] | 8.68 | 78.33 | 25.48 | 285.78 | 84.89 | 0.55 | 2.69 | 49.29 | 50.04 |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 5.64 | 1.83 | 16.98 | 6.11 | 0.04 | 0.19 | 3.55 | 3.60 |
| 95th-Percentile Queue Length [ft/ln] | 15.62 | 140.99 | 45.86 | 424.40 | 152.80 | 1.00 | 4.84 | 88.72 | 90.06 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.16 | 53.16 | 53.16 | 52.05 | 44.21 | 44.21 | 34.10 | 5.90 | 3.76 | 59.41 | 19.70 | 20.21 |
| Movement LOS | D | D | D | D | D | D | C | A | A | E | B | C |
| d_A, Approach Delay [s/veh] | 53.16 | | | 49.98 | | | 19.48 | | | 20.16 | | |
| Approach LOS | D | | | D | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.50 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.495 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.728 | 2.459 | 3.182 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.579 | 1.822 | 3.340 | 1.776 |
| Bicycle LOS | A | A | C | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



OPENING YEAR (2021) WITHOUT PROJECT

Panattoni Project

Vistro File: G:\...\AM_Delay.vistro

Scenario 3 Opening Year without Project

Report File: G:\...\AMOY_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Right | 0.536 | 22.2 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.888 | 21.5 | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.592 | 18.8 | B |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.534 | 25.1 | C |

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

Intersection Level Of Service Report
Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.536 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 0 | 0 | 17 | -13 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 472 | 88 | 0 | 883 | 1027 | 465 |
| Peak Hour Factor | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 123 | 0 | 0 | 230 | 267 | 121 |
| Total Analysis Volume [veh/h] | 492 | 0 | 0 | 920 | 1070 | 484 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 56 | 56 | 56 | 36 | 36 |
| g / C, Green / Cycle | 0.56 | 0.56 | 0.56 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.00 | 0.18 | 0.30 | 0.30 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 2031 | 907 | 2905 | 1260 | 579 |
| d1, Uniform Delay [s] | 11.12 | 0.00 | 11.68 | 29.55 | 29.34 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.00 | 0.29 | 1.70 | 3.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.32 | 0.85 | 0.84 |
| d, Delay for Lane Group [s/veh] | 11.40 | 0.00 | 11.97 | 31.24 | 32.62 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.60 | 0.00 | 3.38 | 11.77 | 10.83 |
| 50th-Percentile Queue Length [ft/ln] | 64.98 | 0.00 | 84.43 | 294.20 | 270.83 |
| 95th-Percentile Queue Length [veh/ln] | 4.68 | 0.00 | 6.08 | 17.39 | 16.23 |
| 95th-Percentile Queue Length [ft/ln] | 116.96 | 0.00 | 151.98 | 434.85 | 405.78 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.40 | 0.00 | 0.00 | 11.97 | 31.24 | 32.62 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 11.40 | | 11.97 | | 31.67 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 22.20 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.536 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.515 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.538 | 4.638 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.888 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | -2 | -19 | 13 | -16 | 0 | 13 | 0 | 13 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 435 | 877 | 398 | 1379 | 0 | 98 | 0 | 205 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 111 | 224 | 101 | 352 | 0 | 25 | 0 | 52 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 444 | 895 | 406 | 1407 | 0 | 100 | 0 | 209 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 17 | 38 | 0 | 0 | 62 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 60 | 60 | 13 | 77 | 15 | 15 | |
| g / C, Green / Cycle | 0.60 | 0.60 | 0.13 | 0.77 | 0.15 | 0.15 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.55 | 0.12 | 0.27 | 0.06 | 0.13 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1810 | 1615 | |
| c, Capacity [veh/h] | 3082 | 962 | 459 | 3965 | 279 | 249 | |
| d1, Uniform Delay [s] | 8.95 | 18.35 | 42.73 | 3.76 | 37.89 | 41.12 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.10 | 16.45 | 5.84 | 0.25 | 0.78 | 7.48 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|--------|--------|--|
| X, volume / capacity | 0.14 | 0.93 | 0.88 | 0.35 | 0.36 | 0.84 | |
| d, Delay for Lane Group [s/veh] | 9.05 | 34.80 | 48.57 | 4.01 | 38.67 | 48.59 | |
| Lane Group LOS | A | C | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.31 | 20.23 | 5.15 | 2.13 | 2.24 | 5.47 | |
| 50th-Percentile Queue Length [ft/ln] | 32.63 | 505.77 | 128.78 | 53.14 | 56.08 | 136.67 | |
| 95th-Percentile Queue Length [veh/ln] | 2.35 | 27.61 | 8.87 | 3.83 | 4.04 | 9.30 | |
| 95th-Percentile Queue Length [ft/ln] | 58.73 | 690.18 | 221.84 | 95.66 | 100.94 | 232.54 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.05 | 34.80 | 48.57 | 4.01 | 0.00 | 38.67 | 38.67 | 48.59 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | C | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | | 26.26 | | 13.99 | | | 45.38 | | | 0.00 | | |
| Approach LOS | | C | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 21.54 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.888 | | | | | | | | | | | |

Other Modes

| | | | | | | | | |
|--|--|-------|--|-------|--|-------|--|-------|
| g_Walk,mi, Effective Walk Time [s] | | 0.0 | | 0.0 | | 11.0 | | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| d_p, Pedestrian Delay [s] | | 0.00 | | 0.00 | | 39.61 | | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | | 0.000 | | 0.000 | | 1.870 | | 2.354 |
| Crosswalk LOS | | F | | F | | A | | B |
| s_b, Saturation Flow Rate of the bicycle lane | | 2000 | | 2000 | | 2000 | | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | | 340 | | 680 | | 1160 | | 0 |
| d_b, Bicycle Delay [s] | | 34.45 | | 21.78 | | 8.82 | | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | | 2.296 | | 2.557 | | 2.069 | | 4.132 |
| Bicycle LOS | | B | | B | | B | | D |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 18.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.592 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | r | | rr | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 22 | 6 | 0 | 8 | 25 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 709 | 117 | 77 | 1185 | 356 | 174 |
| Peak Hour Factor | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 217 | 36 | 24 | 363 | 109 | 53 |
| Total Analysis Volume [veh/h] | 868 | 143 | 94 | 1451 | 436 | 213 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 47 | 68 | 32 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 55 | 85 | 7 | 66 | 26 | 26 |
| g / C, Green / Cycle | 0.55 | 0.85 | 0.07 | 0.66 | 0.26 | 0.26 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.09 | 0.05 | 0.28 | 0.24 | 0.13 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1990 | 1376 | 124 | 3408 | 473 | 422 |
| d1, Uniform Delay [s] | 13.31 | 1.21 | 45.79 | 8.11 | 35.92 | 31.41 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.31 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.70 | 0.15 | 9.23 | 0.39 | 18.06 | 0.93 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|--------|
| X, volume / capacity | 0.44 | 0.10 | 0.76 | 0.43 | 0.92 | 0.50 |
| d, Delay for Lane Group [s/veh] | 14.01 | 1.36 | 55.02 | 8.50 | 53.98 | 32.34 |
| Lane Group LOS | B | A | E | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.29 | 0.14 | 2.53 | 4.10 | 12.50 | 4.44 |
| 50th-Percentile Queue Length [ft/ln] | 132.15 | 3.58 | 63.26 | 102.58 | 312.51 | 110.88 |
| 95th-Percentile Queue Length [veh/ln] | 9.06 | 0.26 | 4.55 | 7.39 | 18.30 | 7.89 |
| 95th-Percentile Queue Length [ft/ln] | 226.42 | 6.45 | 113.87 | 184.65 | 457.47 | 197.22 |

Movement, Approach, & Intersection Results

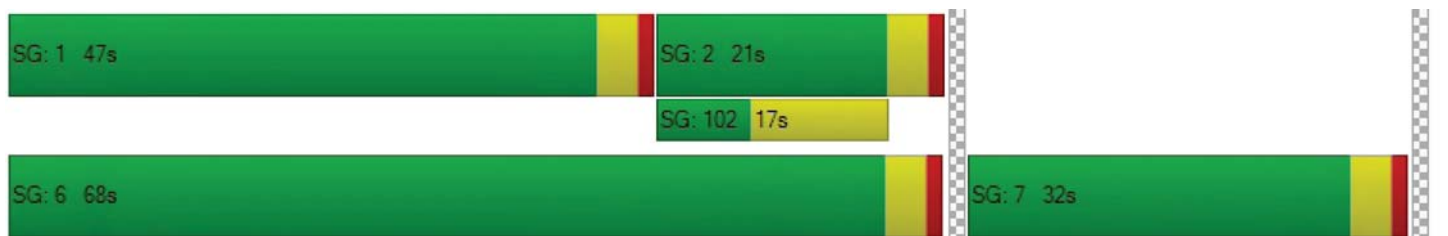
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 14.01 | 1.36 | 55.02 | 8.50 | 53.98 | 32.34 |
| Movement LOS | B | A | E | A | D | C |
| d_A, Approach Delay [s/veh] | 12.22 | | 11.33 | | 46.88 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 18.81 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.592 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.233 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.966 | 4.982 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.1 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.534 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 8 | 13 | 10 | 0 | 0 | 6 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 651 | 400 | 0 | 4 | 783 | 49 |
| Peak Hour Factor | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 23 | 1 | 36 | 186 | 115 | 0 | 1 | 224 | 14 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 92 | 2 | 143 | 746 | 458 | 0 | 5 | 897 | 56 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 12 | 0 | 0 | 21 | 0 | 46 | 55 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 11 | 11 | 25 | 71 | 71 | 1 | 47 | 47 |
| g / C, Green / Cycle | 0.01 | 0.11 | 0.11 | 0.25 | 0.71 | 0.71 | 0.01 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.05 | 0.09 | 0.21 | 0.13 | 0.00 | 0.00 | 0.17 | 0.17 |
| s, saturation flow rate [veh/h] | 1767 | 1810 | 1618 | 3514 | 3618 | 1615 | 1810 | 3618 | 1844 |
| c, Capacity [veh/h] | 21 | 203 | 182 | 867 | 2553 | 1140 | 19 | 1697 | 865 |
| d1, Uniform Delay [s] | 49.05 | 41.56 | 43.33 | 36.05 | 4.97 | 0.00 | 49.18 | 17.10 | 17.11 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.15 | 1.57 | 7.75 | 2.64 | 0.15 | 0.00 | 7.51 | 0.63 | 1.23 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|--------|--------|-------|------|-------|--------|--------|
| X, volume / capacity | 0.28 | 0.45 | 0.80 | 0.86 | 0.18 | 0.00 | 0.27 | 0.37 | 0.37 |
| d, Delay for Lane Group [s/veh] | 56.19 | 43.13 | 51.09 | 38.70 | 5.12 | 0.00 | 56.69 | 17.72 | 18.34 |
| Lane Group LOS | E | D | D | D | A | A | E | B | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 2.20 | 3.86 | 8.55 | 1.26 | 0.00 | 0.16 | 4.59 | 4.84 |
| 50th-Percentile Queue Length [ft/ln] | 4.78 | 55.03 | 96.58 | 213.67 | 31.40 | 0.00 | 4.03 | 114.63 | 120.95 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 3.96 | 6.95 | 13.34 | 2.26 | 0.00 | 0.29 | 8.10 | 8.45 |
| 95th-Percentile Queue Length [ft/ln] | 8.61 | 99.06 | 173.84 | 333.53 | 56.52 | 0.00 | 7.26 | 202.42 | 211.14 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 56.19 | 56.19 | 56.19 | 43.13 | 51.09 | 51.09 | 38.70 | 5.12 | 0.00 | 56.69 | 17.91 | 18.34 |
| Movement LOS | E | E | E | D | D | D | D | A | A | E | B | B |
| d_A, Approach Delay [s/veh] | 56.19 | | | 48.00 | | | 25.93 | | | 18.13 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 25.07 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.534 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| l_p,int, Pedestrian LOS Score for Intersection | 1.725 | 2.390 | 3.141 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 160 | 340 | 1020 | 340 |
| d_b, Bicycle Delay [s] | 42.32 | 34.45 | 12.01 | 34.45 |
| l_b,int, Bicycle LOS Score for Intersection | 1.570 | 1.951 | 2.553 | 2.087 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Panattoni Project

Vistro File: G:\...\IPM_Delay.vistro

Scenario 3 Opening Year without Project

Report File: G:\...\IPMOY_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Left | 0.646 | 21.2 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.712 | 14.8 | B |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.767 | 22.4 | C |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.500 | 21.6 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.646 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 1 | 5 | 0 | 49 | -39 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 449 | 110 | 0 | 1278 | 1117 | 382 |
| Peak Hour Factor | 0.9719 | 0.9719 | 1.0000 | 0.9719 | 0.9719 | 0.9719 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 115 | 0 | 0 | 329 | 287 | 98 |
| Total Analysis Volume [veh/h] | 462 | 0 | 0 | 1315 | 1149 | 393 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 54 | 54 | 54 | 38 | 38 |
| g / C, Green / Cycle | 0.54 | 0.54 | 0.54 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.25 | 0.33 | 0.24 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 1957 | 873 | 2799 | 1332 | 612 |
| d1, Uniform Delay [s] | 12.07 | 0.00 | 14.11 | 28.61 | 25.45 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.28 | 0.00 | 0.57 | 1.78 | 1.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.47 | 0.86 | 0.64 |
| d, Delay for Lane Group [s/veh] | 12.35 | 0.00 | 14.68 | 30.39 | 26.58 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.57 | 0.00 | 5.68 | 12.57 | 7.64 |
| 50th-Percentile Queue Length [ft/ln] | 64.28 | 0.00 | 142.05 | 314.31 | 191.04 |
| 95th-Percentile Queue Length [veh/ln] | 4.63 | 0.00 | 9.59 | 18.39 | 12.18 |
| 95th-Percentile Queue Length [ft/ln] | 115.71 | 0.00 | 239.78 | 459.68 | 304.38 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.35 | 0.00 | 0.00 | 14.68 | 30.39 | 26.58 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 12.35 | | 14.68 | | 29.42 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 21.20 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.646 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.512 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.514 | 4.856 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 14.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.712 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | -4 | -32 | 40 | -46 | 0 | 10 | 0 | -9 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 570 | 654 | 697 | 1453 | 0 | 25 | 1 | 39 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 146 | 167 | 178 | 371 | 0 | 6 | 0 | 10 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 582 | 668 | 712 | 1484 | 0 | 26 | 1 | 40 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 67 | 88 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 58 | 58 | 24 | 86 | 6 | 6 | |
| g / C, Green / Cycle | 0.58 | 0.58 | 0.24 | 0.86 | 0.06 | 0.06 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.11 | 0.41 | 0.20 | 0.29 | 0.01 | 0.02 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1813 | 1615 | |
| c, Capacity [veh/h] | 3023 | 943 | 830 | 4453 | 108 | 96 | |
| d1, Uniform Delay [s] | 9.74 | 14.75 | 36.57 | 1.37 | 44.89 | 45.34 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.14 | 4.48 | 2.70 | 0.20 | 1.20 | 2.84 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|-------|--|
| X, volume / capacity | 0.19 | 0.71 | 0.86 | 0.33 | 0.25 | 0.42 | |
| d, Delay for Lane Group [s/veh] | 9.89 | 19.22 | 39.28 | 1.57 | 46.08 | 48.19 | |
| Lane Group LOS | A | B | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.83 | 10.52 | 8.29 | 0.45 | 0.67 | 1.03 | |
| 50th-Percentile Queue Length [ft/ln] | 45.84 | 263.08 | 207.33 | 11.33 | 16.82 | 25.74 | |
| 95th-Percentile Queue Length [veh/ln] | 3.30 | 15.84 | 13.02 | 0.82 | 1.21 | 1.85 | |
| 95th-Percentile Queue Length [ft/ln] | 82.52 | 396.08 | 325.40 | 20.39 | 30.28 | 46.33 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 9.89 | 19.22 | 39.28 | 1.57 | 0.00 | 46.08 | 46.08 | 48.19 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | B | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | 14.88 | | | 13.79 | | | 47.34 | | | 0.00 | | |
| Approach LOS | B | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.82 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.712 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | | | 0.0 | | | 11.0 | | | 11.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 0.00 | | | 0.00 | | | 39.61 | | | 39.61 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | | | 0.000 | | | 1.752 | | | 2.393 | | |
| Crosswalk LOS | F | | | F | | | A | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 340 | | | 1680 | | | 160 | | | 0 | | |
| d_b, Bicycle Delay [s] | 34.45 | | | 1.28 | | | 42.32 | | | 50.00 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.247 | | | 2.767 | | | 1.670 | | | 4.132 | | |
| Bicycle LOS | B | | | C | | | A | | | D | | |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.767 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 12 | 10 | 0 | 18 | 21 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1198 | 293 | 117 | 1028 | 483 | 246 |
| Peak Hour Factor | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 312 | 76 | 30 | 268 | 126 | 64 |
| Total Analysis Volume [veh/h] | 1248 | 305 | 122 | 1070 | 503 | 256 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 43 | 64 | 36 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 49 | 83 | 9 | 62 | 30 | 30 |
| g / C, Green / Cycle | 0.49 | 0.83 | 0.09 | 0.62 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.34 | 0.19 | 0.07 | 0.21 | 0.28 | 0.16 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1785 | 1347 | 156 | 3206 | 544 | 486 |
| d1, Uniform Delay [s] | 19.60 | 1.70 | 44.79 | 9.13 | 33.87 | 29.07 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.36 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.31 | 0.39 | 8.32 | 0.28 | 18.69 | 0.89 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|--------|--------|--------|--------|
| X, volume / capacity | 0.70 | 0.23 | 0.78 | 0.33 | 0.92 | 0.53 |
| d, Delay for Lane Group [s/veh] | 21.90 | 2.09 | 53.11 | 9.41 | 52.56 | 29.96 |
| Lane Group LOS | C | A | D | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 10.58 | 0.54 | 3.22 | 3.23 | 14.35 | 5.15 |
| 50th-Percentile Queue Length [ft/ln] | 264.41 | 13.44 | 80.39 | 80.86 | 358.75 | 128.83 |
| 95th-Percentile Queue Length [veh/ln] | 15.91 | 0.97 | 5.79 | 5.82 | 20.56 | 8.88 |
| 95th-Percentile Queue Length [ft/ln] | 397.75 | 24.19 | 144.71 | 145.54 | 514.06 | 221.90 |

Movement, Approach, & Intersection Results

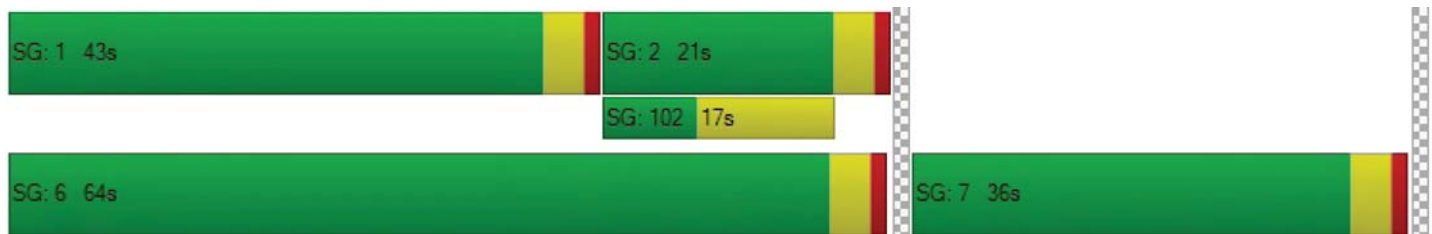
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 21.90 | 2.09 | 53.11 | 9.41 | 52.56 | 29.96 |
| Movement LOS | C | A | D | A | D | C |
| d_A, Approach Delay [s/veh] | 18.01 | | 13.89 | | 44.94 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 22.44 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.767 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.330 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 5.414 | 4.788 | 4.132 |
| Bicycle LOS | F | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.500 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | T | | | T | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 9 | 29 | 6 | 0 | 0 | 9 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1002 | 1075 | 5 | 3 | 267 | 117 |
| Peak Hour Factor | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 29 | 0 | 13 | 261 | 281 | 1 | 1 | 70 | 31 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 118 | 0 | 51 | 1046 | 1122 | 5 | 3 | 279 | 122 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 2 | 9 | 9 | 34 | 73 | 73 | 1 | 40 | 40 |
| g / C, Green / Cycle | 0.02 | 0.09 | 0.09 | 0.34 | 0.73 | 0.73 | 0.01 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.03 | 0.30 | 0.31 | 0.00 | 0.00 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1774 | 1810 | 1615 | 3514 | 3618 | 1615 | 1810 | 3618 | 1632 |
| c, Capacity [veh/h] | 37 | 157 | 140 | 1178 | 2626 | 1172 | 12 | 1438 | 649 |
| d1, Uniform Delay [s] | 48.31 | 44.69 | 43.14 | 31.51 | 5.46 | 3.78 | 49.47 | 19.64 | 19.77 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.85 | 7.14 | 1.59 | 2.50 | 0.51 | 0.01 | 9.93 | 0.29 | 0.70 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|-------|--------|--------|------|-------|-------|-------|
| X, volume / capacity | 0.32 | 0.75 | 0.36 | 0.89 | 0.43 | 0.00 | 0.24 | 0.19 | 0.20 |
| d, Delay for Lane Group [s/veh] | 53.16 | 51.83 | 44.73 | 34.01 | 5.97 | 3.78 | 59.41 | 19.93 | 20.47 |
| Lane Group LOS | D | D | D | C | A | A | E | B | C |
| Critical Lane Group | Yes | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 3.15 | 1.25 | 11.50 | 3.45 | 0.02 | 0.11 | 2.04 | 2.08 |
| 50th-Percentile Queue Length [ft/ln] | 8.68 | 78.81 | 31.19 | 287.43 | 86.34 | 0.56 | 2.69 | 51.12 | 51.88 |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 5.67 | 2.25 | 17.06 | 6.22 | 0.04 | 0.19 | 3.68 | 3.74 |
| 95th-Percentile Queue Length [ft/ln] | 15.62 | 141.86 | 56.14 | 426.46 | 155.42 | 1.00 | 4.84 | 92.02 | 93.39 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.16 | 53.16 | 53.16 | 51.83 | 44.73 | 44.73 | 34.01 | 5.97 | 3.78 | 59.41 | 19.95 | 20.47 |
| Movement LOS | D | D | D | D | D | D | C | A | A | E | B | C |
| d_A, Approach Delay [s/veh] | 53.16 | | | 49.69 | | | 19.46 | | | 20.40 | | |
| Approach LOS | D | | | D | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.60 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.500 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.728 | 2.463 | 3.188 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.579 | 1.838 | 3.352 | 1.782 |
| Bicycle LOS | A | A | C | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



OPENING YEAR (2021) WITH PROJECT

Panattoni Project

Vistro File: G:\...\AM_Delay.vistro

Scenario 4 Opening Year with Project

Report File: G:\...\AMOYp_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Right | 0.539 | 22.1 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.909 | 23.9 | C |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.616 | 20.0 | B |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.537 | 25.1 | C |

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

Intersection Level Of Service Report

Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.1 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.539 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 459 | 88 | 0 | 862 | 1035 | 447 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 9 | 0 | 33 | -13 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 476 | 97 | 0 | 899 | 1027 | 465 |
| Peak Hour Factor | 0.9600 | 0.9600 | 1.0000 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 124 | 0 | 0 | 234 | 267 | 121 |
| Total Analysis Volume [veh/h] | 496 | 0 | 0 | 936 | 1070 | 484 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 56 | 56 | 56 | 36 | 36 |
| g / C, Green / Cycle | 0.56 | 0.56 | 0.56 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.00 | 0.18 | 0.30 | 0.30 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 2031 | 907 | 2905 | 1260 | 579 |
| d1, Uniform Delay [s] | 11.13 | 0.00 | 11.73 | 29.55 | 29.34 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.29 | 0.00 | 0.29 | 1.70 | 3.28 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.32 | 0.85 | 0.84 |
| d, Delay for Lane Group [s/veh] | 11.42 | 0.00 | 12.02 | 31.24 | 32.62 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.62 | 0.00 | 3.45 | 11.77 | 10.83 |
| 50th-Percentile Queue Length [ft/ln] | 65.59 | 0.00 | 86.23 | 294.20 | 270.83 |
| 95th-Percentile Queue Length [veh/ln] | 4.72 | 0.00 | 6.21 | 17.39 | 16.23 |
| 95th-Percentile Queue Length [ft/ln] | 118.07 | 0.00 | 155.22 | 434.85 | 405.78 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 11.42 | 0.00 | 0.00 | 12.02 | 31.24 | 32.62 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 11.42 | | 12.02 | | 31.67 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 22.15 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.539 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.515 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.542 | 4.647 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 23.9 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.909 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 435 | 892 | 383 | 1388 | 0 | 85 | 0 | 191 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 11 | -19 | 13 | 0 | 0 | 13 | 0 | 42 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 448 | 877 | 398 | 1395 | 0 | 98 | 0 | 234 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 0.9804 | 0.9804 | 0.9804 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 114 | 224 | 101 | 356 | 0 | 25 | 0 | 60 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 457 | 895 | 406 | 1423 | 0 | 100 | 0 | 239 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 18 | 39 | 0 | 0 | 61 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|-------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 57 | 57 | 13 | 75 | 17 | 17 | |
| g / C, Green / Cycle | 0.57 | 0.57 | 0.13 | 0.75 | 0.17 | 0.17 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.55 | 0.12 | 0.27 | 0.06 | 0.15 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1810 | 1615 | |
| c, Capacity [veh/h] | 2965 | 925 | 473 | 3868 | 313 | 279 | |
| d1, Uniform Delay [s] | 10.01 | 20.47 | 42.35 | 4.40 | 36.23 | 40.17 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.11 | 22.68 | 4.68 | 0.27 | 0.58 | 7.48 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|-------|--------|--|
| X, volume / capacity | 0.15 | 0.97 | 0.86 | 0.37 | 0.32 | 0.86 | |
| d, Delay for Lane Group [s/veh] | 10.12 | 43.15 | 47.03 | 4.67 | 36.81 | 47.65 | |
| Lane Group LOS | B | D | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.45 | 22.94 | 5.06 | 2.50 | 2.18 | 6.22 | |
| 50th-Percentile Queue Length [ft/ln] | 36.36 | 573.44 | 126.51 | 62.62 | 54.45 | 155.43 | |
| 95th-Percentile Queue Length [veh/ln] | 2.62 | 30.79 | 8.75 | 4.51 | 3.92 | 10.31 | |
| 95th-Percentile Queue Length [ft/ln] | 65.44 | 769.81 | 218.74 | 112.72 | 98.02 | 257.66 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 10.12 | 43.15 | 47.03 | 4.67 | 0.00 | 36.81 | 36.81 | 47.65 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | D | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | | 31.98 | | 14.08 | | | 44.45 | | | 0.00 | | |
| Approach LOS | | C | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 23.88 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.909 | | | | | | | | | | | |

Other Modes

| | | | | | | | |
|--|-------|--|-------|--|-------|--|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | | 0.0 | | 11.0 | | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | | 0.00 | | 39.61 | | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | | 0.000 | | 1.885 | | 2.354 |
| Crosswalk LOS | F | | F | | A | | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | | 2000 | | 2000 | | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 340 | | 700 | | 1140 | | 0 |
| d_b, Bicycle Delay [s] | 34.45 | | 21.13 | | 9.25 | | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 2.303 | | 2.566 | | 2.119 | | 4.132 |
| Bicycle LOS | B | | B | | B | | D |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 20.0 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.616 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 684 | 110 | 77 | 1171 | 329 | 160 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 26 | 6 | 0 | 21 | 54 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 713 | 117 | 77 | 1198 | 385 | 174 |
| Peak Hour Factor | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 | 0.8165 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 218 | 36 | 24 | 367 | 118 | 53 |
| Total Analysis Volume [veh/h] | 873 | 143 | 94 | 1467 | 472 | 213 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 45 | 66 | 34 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 53 | 85 | 7 | 64 | 28 | 28 |
| g / C, Green / Cycle | 0.53 | 0.85 | 0.07 | 0.64 | 0.28 | 0.28 |
| (v / s)_i Volume / Saturation Flow Rate | 0.24 | 0.09 | 0.05 | 0.28 | 0.26 | 0.13 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1919 | 1376 | 123 | 3306 | 509 | 454 |
| d1, Uniform Delay [s] | 14.53 | 1.21 | 45.79 | 9.11 | 34.94 | 29.75 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.36 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.78 | 0.15 | 9.24 | 0.43 | 19.91 | 0.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|--------|
| X, volume / capacity | 0.45 | 0.10 | 0.76 | 0.44 | 0.93 | 0.47 |
| d, Delay for Lane Group [s/veh] | 15.31 | 1.36 | 55.03 | 9.54 | 54.85 | 30.50 |
| Lane Group LOS | B | A | E | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.66 | 0.14 | 2.53 | 4.55 | 13.72 | 4.29 |
| 50th-Percentile Queue Length [ft/ln] | 141.39 | 3.58 | 63.27 | 113.72 | 343.05 | 107.15 |
| 95th-Percentile Queue Length [veh/ln] | 9.56 | 0.26 | 4.56 | 8.05 | 19.80 | 7.68 |
| 95th-Percentile Queue Length [ft/ln] | 238.89 | 6.45 | 113.89 | 201.16 | 494.92 | 192.03 |

Movement, Approach, & Intersection Results

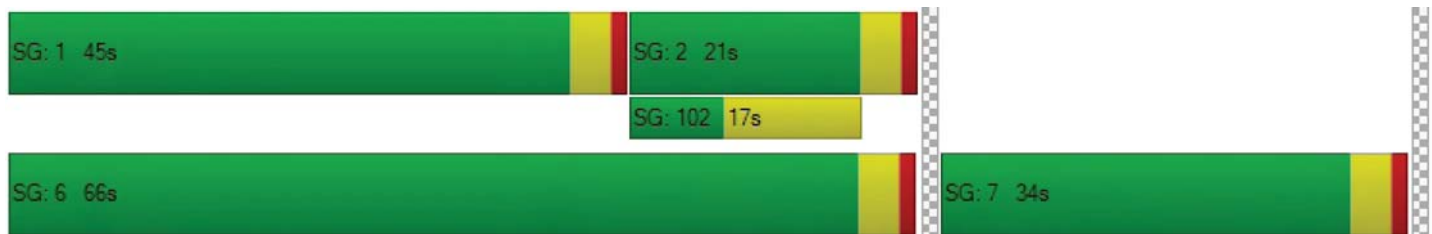
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 15.31 | 1.36 | 55.03 | 9.54 | 54.85 | 30.50 |
| Movement LOS | B | A | E | A | D | C |
| d_A, Approach Delay [s/veh] | 13.35 | | 12.28 | | 47.28 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 19.96 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.616 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.245 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.971 | 4.991 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.1 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.537 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | RORR | | | ORR | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 2 | 2 | 2 | 80 | 2 | 116 | 635 | 388 | 0 | 4 | 773 | 49 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 8 | 20 | 11 | 0 | 0 | 9 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 2 | 2 | 2 | 80 | 2 | 125 | 658 | 401 | 0 | 4 | 786 | 49 |
| Peak Hour Factor | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 | 0.8730 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 23 | 1 | 36 | 188 | 115 | 0 | 1 | 225 | 14 |
| Total Analysis Volume [veh/h] | 2 | 2 | 2 | 92 | 2 | 143 | 754 | 459 | 0 | 5 | 900 | 56 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 12 | 0 | 0 | 21 | 0 | 46 | 55 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 1 | 11 | 11 | 25 | 71 | 71 | 1 | 47 | 47 |
| g / C, Green / Cycle | 0.01 | 0.11 | 0.11 | 0.25 | 0.71 | 0.71 | 0.01 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.05 | 0.09 | 0.21 | 0.13 | 0.00 | 0.00 | 0.17 | 0.18 |
| s, saturation flow rate [veh/h] | 1767 | 1810 | 1618 | 3514 | 3618 | 1615 | 1810 | 3618 | 1844 |
| c, Capacity [veh/h] | 21 | 203 | 182 | 876 | 2553 | 1140 | 19 | 1688 | 860 |
| d1, Uniform Delay [s] | 49.05 | 41.56 | 43.33 | 35.93 | 4.97 | 0.00 | 49.18 | 17.26 | 17.27 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.15 | 1.57 | 7.75 | 2.63 | 0.15 | 0.00 | 7.51 | 0.64 | 1.26 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|--------|--------|-------|------|-------|--------|--------|
| X, volume / capacity | 0.28 | 0.45 | 0.80 | 0.86 | 0.18 | 0.00 | 0.27 | 0.37 | 0.38 |
| d, Delay for Lane Group [s/veh] | 56.19 | 43.13 | 51.09 | 38.56 | 5.12 | 0.00 | 56.69 | 17.90 | 18.53 |
| Lane Group LOS | E | D | D | D | A | A | E | B | B |
| Critical Lane Group | Yes | No | Yes | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.19 | 2.20 | 3.86 | 8.63 | 1.26 | 0.00 | 0.16 | 4.63 | 4.89 |
| 50th-Percentile Queue Length [ft/ln] | 4.78 | 55.03 | 96.58 | 215.73 | 31.48 | 0.00 | 4.03 | 115.74 | 122.14 |
| 95th-Percentile Queue Length [veh/ln] | 0.34 | 3.96 | 6.95 | 13.45 | 2.27 | 0.00 | 0.29 | 8.16 | 8.51 |
| 95th-Percentile Queue Length [ft/ln] | 8.61 | 99.06 | 173.84 | 336.17 | 56.66 | 0.00 | 7.26 | 203.96 | 212.77 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 56.19 | 56.19 | 56.19 | 43.13 | 51.09 | 51.09 | 38.56 | 5.12 | 0.00 | 56.69 | 18.09 | 18.53 |
| Movement LOS | E | E | E | D | D | D | D | A | A | E | B | B |
| d_A, Approach Delay [s/veh] | 56.19 | | | 48.00 | | | 25.91 | | | 18.31 | | |
| Approach LOS | E | | | D | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 25.13 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.537 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.725 | 2.392 | 3.143 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 160 | 340 | 1020 | 340 |
| d_b, Bicycle Delay [s] | 42.32 | 34.45 | 12.01 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.570 | 1.951 | 2.560 | 2.088 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Panattoni Project

Vistro File: G:\...\IPM_Delay.vistro

Scenario 4 Opening Year with Project

Report File: G:\...\IPMOYp_Delay.pdf

3/9/2020

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|--|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Wilmington Ave (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | WB Left | 0.647 | 21.2 | C |
| 2 | Wilmington Ave (NS) at I-405 EB Ramps (EW) | Signalized | HCM 6th Edition | EB Right | 0.719 | 15.0 | B |
| 4 | Alameda St (NS) at I-405 WB Ramps (EW) | Signalized | HCM 6th Edition | SB Left | 0.777 | 22.7 | C |
| 5 | I-405 EB Ramps (NS) at 223rd St (EW) | Signalized | HCM 6th Edition | WB Left | 0.509 | 21.6 | C |

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

Intersection Level Of Service Report
Intersection 1: Wilmington Ave (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.647 |

Intersection Setup

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|------------------------|----------------|--------|----------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | r | | | | r r | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | 40.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Wilmington Ave | | Wilmington Ave | | I-405 WB Ramps | |
|---|----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 446 | 104 | 0 | 1223 | 1150 | 372 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 30 | 0 | 55 | -39 | 8 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 463 | 135 | 0 | 1284 | 1117 | 382 |
| Peak Hour Factor | 0.9719 | 0.9719 | 1.0000 | 0.9719 | 0.9719 | 0.9719 |
| Other Adjustment Factor | 1.0000 | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 119 | 0 | 0 | 330 | 287 | 98 |
| Total Analysis Volume [veh/h] | 476 | 0 | 0 | 1321 | 1149 | 393 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | Permissive | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|------------|------------|------------|------------|
| Signal group | 2 | 0 | 0 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | - | - | Lead | - |
| Minimum Green [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 0 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 0 | 0 | 21 | 79 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 0 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | | No | No | |
| Maximum Recall | No | | | No | No | |
| Pedestrian Recall | No | | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | C | L | R |
|---|-------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 54 | 54 | 54 | 38 | 38 |
| g / C, Green / Cycle | 0.54 | 0.54 | 0.54 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.13 | 0.00 | 0.26 | 0.33 | 0.24 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 5176 | 3514 | 1615 |
| c, Capacity [veh/h] | 1957 | 873 | 2799 | 1332 | 612 |
| d1, Uniform Delay [s] | 12.12 | 0.00 | 14.14 | 28.61 | 25.45 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.30 | 0.00 | 0.57 | 1.78 | 1.13 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | |
|---------------------------------------|--------|------|--------|--------|--------|
| X, volume / capacity | 0.24 | 0.00 | 0.47 | 0.86 | 0.64 |
| d, Delay for Lane Group [s/veh] | 12.42 | 0.00 | 14.71 | 30.39 | 26.58 |
| Lane Group LOS | B | A | B | C | C |
| Critical Lane Group | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.66 | 0.00 | 5.72 | 12.57 | 7.64 |
| 50th-Percentile Queue Length [ft/ln] | 66.54 | 0.00 | 142.93 | 314.31 | 191.04 |
| 95th-Percentile Queue Length [veh/ln] | 4.79 | 0.00 | 9.64 | 18.39 | 12.18 |
| 95th-Percentile Queue Length [ft/ln] | 119.77 | 0.00 | 240.96 | 459.68 | 304.38 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 12.42 | 0.00 | 0.00 | 14.71 | 30.39 | 26.58 |
| Movement LOS | B | A | | B | C | C |
| d_A, Approach Delay [s/veh] | 12.42 | | 14.71 | | 29.42 | |
| Approach LOS | B | | B | | C | |
| d_I, Intersection Delay [s/veh] | 21.18 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.647 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.512 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 4.525 | 4.859 | 4.132 |
| Bicycle LOS | E | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Wilmington Ave (NS) at I-405 EB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 15.0 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.719 |

Intersection Setup

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|------------------------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | + | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 340.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 40.00 | | | 40.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Wilmington Ave | | | Wilmington Ave | | | I-405 EB Ramps | | | I-405 EB Ramps | | |
|---|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 571 | 683 | 654 | 1492 | 0 | 15 | 1 | 48 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| Growth Rate | 1.00 | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 35 | -32 | 40 | -40 | 0 | 10 | 0 | 1 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 609 | 654 | 697 | 1459 | 0 | 25 | 1 | 49 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 0.9791 | 0.9791 | 0.9791 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 155 | 167 | 178 | 373 | 0 | 6 | 0 | 13 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 622 | 668 | 712 | 1490 | 0 | 26 | 1 | 50 | 0 | 0 | 0 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | | | |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permiss | Permiss | Permiss | Protecte | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss | Permiss |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal group | 0 | 2 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | Lead | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Split [s] | 0 | 21 | 0 | 67 | 88 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Rest In Walk | | No | | | No | | | No | | | | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Minimum Recall | | No | | No | No | | | No | | | | |
| Maximum Recall | | No | | No | No | | | No | | | | |
| Pedestrian Recall | | No | | No | No | | | No | | | | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | C | R | |
|---|------|-------|-------|------|-------|-------|--|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | |
| g_i, Effective Green Time [s] | 58 | 58 | 24 | 86 | 6 | 6 | |
| g / C, Green / Cycle | 0.58 | 0.58 | 0.24 | 0.86 | 0.06 | 0.06 | |
| (v / s)_i Volume / Saturation Flow Rate | 0.12 | 0.41 | 0.20 | 0.29 | 0.01 | 0.03 | |
| s, saturation flow rate [veh/h] | 5176 | 1615 | 3514 | 5176 | 1813 | 1615 | |
| c, Capacity [veh/h] | 3010 | 939 | 830 | 4440 | 113 | 100 | |
| d1, Uniform Delay [s] | 9.95 | 14.94 | 36.57 | 1.42 | 44.64 | 45.38 | |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| d2, Incremental Delay [s] | 0.16 | 4.56 | 2.70 | 0.20 | 1.08 | 3.77 | |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

Lane Group Results

| | | | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|-------|--|
| X, volume / capacity | 0.21 | 0.71 | 0.86 | 0.34 | 0.24 | 0.50 | |
| d, Delay for Lane Group [s/veh] | 10.11 | 19.50 | 39.28 | 1.62 | 45.72 | 49.15 | |
| Lane Group LOS | B | B | D | A | D | D | |
| Critical Lane Group | No | Yes | Yes | No | No | Yes | |
| 50th-Percentile Queue Length [veh/ln] | 1.99 | 10.62 | 8.29 | 0.51 | 0.67 | 1.30 | |
| 50th-Percentile Queue Length [ft/ln] | 49.87 | 265.60 | 207.33 | 12.68 | 16.72 | 32.52 | |
| 95th-Percentile Queue Length [veh/ln] | 3.59 | 15.97 | 13.02 | 0.91 | 1.20 | 2.34 | |
| 95th-Percentile Queue Length [ft/ln] | 89.77 | 399.23 | 325.40 | 22.82 | 30.10 | 58.54 | |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|------|
| d_M, Delay for Movement [s/veh] | 0.00 | 10.11 | 19.50 | 39.28 | 1.62 | 0.00 | 45.72 | 45.72 | 49.15 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | B | D | A | | D | D | D | | | |
| d_A, Approach Delay [s/veh] | 14.97 | | | 13.80 | | | 47.95 | | | 0.00 | | |
| Approach LOS | B | | | B | | | D | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.96 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.719 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | | | 0.0 | | | 11.0 | | | 11.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 0.00 | | | 0.00 | | | 39.61 | | | 39.61 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | | | 0.000 | | | 1.757 | | | 2.393 | | |
| Crosswalk LOS | F | | | F | | | A | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 340 | | | 1680 | | | 160 | | | 0 | | |
| d_b, Bicycle Delay [s] | 34.45 | | | 1.28 | | | 42.32 | | | 50.00 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.269 | | | 2.771 | | | 1.687 | | | 4.132 | | |
| Bicycle LOS | B | | | C | | | A | | | D | | |

Sequence

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



Intersection Level Of Service Report
Intersection 4: Alameda St (NS) at I-405 WB Ramps (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.7 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.777 |

Intersection Setup

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|------------------------|------------|--------|------------|--------|----------------|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 1 | 0 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 308.00 | 100.00 | 100.00 | 100.00 |
| Speed [mph] | 45.00 | | 45.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | No | | No | | Yes | |

Volumes

| Name | Alameda St | | Alameda St | | I-405 WB Ramps | |
|---|------------|--------|------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 1180 | 282 | 116 | 1005 | 460 | 230 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 10 | 0 | 23 | 31 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1209 | 293 | 117 | 1033 | 493 | 246 |
| Peak Hour Factor | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 | 0.9603 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 315 | 76 | 30 | 269 | 128 | 64 |
| Total Analysis Volume [veh/h] | 1259 | 305 | 122 | 1076 | 513 | 256 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Permissive | Overlap | Protected | Permissive | Permissive | Permissive |
|------------------------------|------------|---------|-----------|------------|------------|------------|
| Signal group | 2 | 2 | 1 | 6 | 7 | 0 |
| Auxiliary Signal Groups | | 2,7 | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 7 | 7 | 7 | 7 | 7 | 0 |
| Maximum Green [s] | 30 | 30 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 21 | 21 | 42 | 63 | 37 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 7 | 7 | 0 | 7 | 7 | 0 |
| Pedestrian Clearance [s] | 10 | 10 | 0 | 10 | 10 | 0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | No | No | No | |
| Maximum Recall | No | No | No | No | No | |
| Pedestrian Recall | No | No | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|------|-------|------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 49 | 83 | 9 | 61 | 31 | 31 |
| g / C, Green / Cycle | 0.49 | 0.83 | 0.09 | 0.61 | 0.31 | 0.31 |
| (v / s)_i Volume / Saturation Flow Rate | 0.35 | 0.19 | 0.07 | 0.21 | 0.28 | 0.16 |
| s, saturation flow rate [veh/h] | 3618 | 1615 | 1810 | 5176 | 1810 | 1615 |
| c, Capacity [veh/h] | 1761 | 1347 | 156 | 3172 | 556 | 496 |
| d1, Uniform Delay [s] | 20.19 | 1.70 | 44.79 | 9.46 | 33.51 | 28.53 |
| k, delay calibration | 0.50 | 0.50 | 0.11 | 0.50 | 0.35 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.51 | 0.39 | 8.33 | 0.29 | 17.98 | 0.83 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|--------|--------|--------|--------|
| X, volume / capacity | 0.71 | 0.23 | 0.78 | 0.34 | 0.92 | 0.52 |
| d, Delay for Lane Group [s/veh] | 22.71 | 2.09 | 53.12 | 9.75 | 51.49 | 29.36 |
| Lane Group LOS | C | A | D | A | D | C |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 10.93 | 0.54 | 3.22 | 3.34 | 14.49 | 5.09 |
| 50th-Percentile Queue Length [ft/ln] | 273.19 | 13.43 | 80.40 | 83.50 | 362.32 | 127.33 |
| 95th-Percentile Queue Length [veh/ln] | 16.35 | 0.97 | 5.79 | 6.01 | 20.74 | 8.79 |
| 95th-Percentile Queue Length [ft/ln] | 408.72 | 24.18 | 144.73 | 150.29 | 518.40 | 219.86 |

Movement, Approach, & Intersection Results

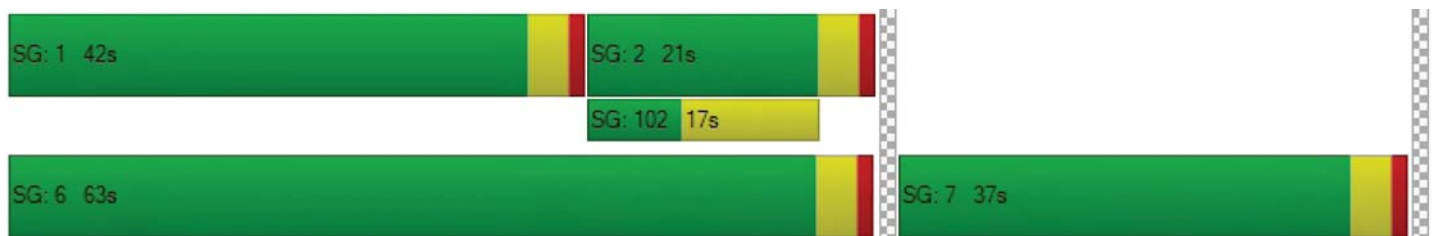
| | | | | | | |
|---------------------------------|-------|------|-------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 22.71 | 2.09 | 53.12 | 9.75 | 51.49 | 29.36 |
| Movement LOS | C | A | D | A | D | C |
| d_A, Approach Delay [s/veh] | 18.69 | | 14.17 | | 44.13 | |
| Approach LOS | B | | B | | D | |
| d_I, Intersection Delay [s/veh] | 22.69 | | | | | |
| Intersection LOS | C | | | | | |
| Intersection V/C | 0.777 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 0.0 | 0.0 | 11.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 0.00 | 0.00 | 39.61 |
| I_p,int, Pedestrian LOS Score for Intersection | 0.000 | 0.000 | 2.334 |
| Crosswalk LOS | F | F | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 0 | 0 | 0 |
| d_b, Bicycle Delay [s] | 50.00 | 50.00 | 50.00 |
| I_b,int, Bicycle LOS Score for Intersection | 5.423 | 4.791 | 4.132 |
| Bicycle LOS | F | E | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 5: I-405 EB Ramps (NS) at 223rd St (EW)

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.509 |

Intersection Setup

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|------------------------|------------|--------|--------|----------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | T | | | RORR | | | ORR | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 156.00 | 100.00 | 166.00 | 118.00 | 100.00 | 100.00 |
| Speed [mph] | 25.00 | | | 30.00 | | | 45.00 | | | 35.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | No | | |

Volumes

| Name | ICTF Dwy | | | I-405 EB Ramps | | | 223rd St | | | 223rd St | | |
|---|----------|--------|--------|----------------|--------|--------|----------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 3 | 5 | 4 | 112 | 0 | 40 | 968 | 1064 | 5 | 3 | 257 | 116 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Rate | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 9 | 56 | 9 | 0 | 0 | 10 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right-Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 3 | 5 | 4 | 113 | 0 | 49 | 1029 | 1078 | 5 | 3 | 268 | 117 |
| Peak Hour Factor | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 | 0.9581 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 1 | 29 | 0 | 13 | 269 | 281 | 1 | 1 | 70 | 31 |
| Total Analysis Volume [veh/h] | 3 | 5 | 4 | 118 | 0 | 51 | 1074 | 1125 | 5 | 3 | 280 | 122 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing m | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 100 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | LeadGreen |
| Permissive Mode | SingleBand |
| Lost time [s] | 10.00 |

Phasing & Timing

| Control Type | Split | Split | Split | Split | Split | Split | Protecte | Permiss | Permiss | Protecte | Permiss | Permiss |
|------------------------------|-------|-------|-------|-------|-------|-------|----------|---------|---------|----------|---------|---------|
| Signal group | 0 | 2 | 0 | 0 | 6 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 7 | 0 | 0 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 |
| Maximum Green [s] | 0 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 0 | 11 | 0 | 0 | 21 | 0 | 47 | 56 | 0 | 12 | 21 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | | No | | | No | | No | No | | No | No | |
| Maximum Recall | | No | | | No | | No | No | | No | No | |
| Pedestrian Recall | | No | | | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

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

Lane Group Calculations

| Lane Group | C | L | C | L | C | R | L | C | C |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|
| C, Cycle Length [s] | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 2 | 9 | 9 | 34 | 73 | 73 | 1 | 39 | 39 |
| g / C, Green / Cycle | 0.02 | 0.09 | 0.09 | 0.34 | 0.73 | 0.73 | 0.01 | 0.39 | 0.39 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.07 | 0.03 | 0.31 | 0.31 | 0.00 | 0.00 | 0.07 | 0.08 |
| s, saturation flow rate [veh/h] | 1774 | 1810 | 1615 | 3514 | 3618 | 1615 | 1810 | 3618 | 1633 |
| c, Capacity [veh/h] | 37 | 157 | 140 | 1206 | 2626 | 1172 | 12 | 1409 | 636 |
| d1, Uniform Delay [s] | 48.31 | 44.69 | 43.14 | 31.11 | 5.46 | 3.78 | 49.47 | 20.17 | 20.30 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.85 | 7.14 | 1.59 | 2.50 | 0.51 | 0.01 | 9.93 | 0.30 | 0.74 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|--------|-------|--------|--------|------|-------|-------|-------|
| X, volume / capacity | 0.32 | 0.75 | 0.36 | 0.89 | 0.43 | 0.00 | 0.24 | 0.19 | 0.21 |
| d, Delay for Lane Group [s/veh] | 53.16 | 51.83 | 44.73 | 33.62 | 5.98 | 3.78 | 59.41 | 20.47 | 21.04 |
| Lane Group LOS | D | D | D | C | A | A | E | C | C |
| Critical Lane Group | Yes | Yes | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.35 | 3.15 | 1.25 | 11.76 | 3.47 | 0.02 | 0.11 | 2.09 | 2.12 |
| 50th-Percentile Queue Length [ft/ln] | 8.68 | 78.81 | 31.19 | 293.97 | 86.68 | 0.56 | 2.69 | 52.13 | 52.92 |
| 95th-Percentile Queue Length [veh/ln] | 0.62 | 5.67 | 2.25 | 17.38 | 6.24 | 0.04 | 0.19 | 3.75 | 3.81 |
| 95th-Percentile Queue Length [ft/ln] | 15.62 | 141.86 | 56.14 | 434.56 | 156.03 | 1.00 | 4.84 | 93.84 | 95.26 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 53.16 | 53.16 | 53.16 | 51.83 | 44.73 | 44.73 | 33.62 | 5.98 | 3.78 | 59.41 | 20.49 | 21.04 |
| Movement LOS | D | D | D | D | D | D | C | A | A | E | C | C |
| d_A, Approach Delay [s/veh] | 53.16 | | | 49.69 | | | 19.44 | | | 20.94 | | |
| Approach LOS | D | | | D | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 21.64 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.509 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 0.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 39.61 | 39.61 | 39.61 | 0.00 |
| I_p,int, Pedestrian LOS Score for Intersection | 1.728 | 2.470 | 3.194 | 0.000 |
| Crosswalk LOS | A | B | C | F |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 140 | 340 | 1040 | 340 |
| d_b, Bicycle Delay [s] | 43.25 | 34.45 | 11.52 | 34.45 |
| I_b,int, Bicycle LOS Score for Intersection | 1.579 | 1.838 | 3.378 | 1.782 |
| Bicycle LOS | A | A | C | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 6 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |





GANDDINI GROUP, INC.

550 Parkcenter Drive, Suite 202, Santa Ana, CA 92705
714.795.3100 | www.ganddini.com

Draft Memorandum

Date: May 22, 2020
To: Alicia Gonzalez, Michael Baker International
From: Miguel Nunez, Fatemeh Ranaiefar, John Muggridge, Nico Boyd, and Johnny Schmidt
Subject: **Panattoni Warehouse Project: Vehicle Miles Traveled Analysis**

LA20-3188

This technical memorandum documents the Vehicle Miles Traveled (VMT) analysis for the Panattoni Warehouse Project located at 2112 East 223rd Street. The proposed project includes two options with the following land use components:

1. Warehouse and manufacturing option
 - o 165,200 square feet of warehouse
 - o 127,200 square feet of manufacturing
2. Warehouse only option: 292,400 square feet of warehouse

The Project is estimated to include up to 124 employees regardless of which project option is selected.

This VMT analysis is part of an environmental impact report being prepared for the proposed Project and follows the California Environmental Quality Act (CEQA) guidance for determining transportation impacts in accordance with Senate Bill (SB) 743. In lieu of the City adopting and setting its own VMT metric and thresholds, this analysis is consistent with the approach provided in the Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018).

The following information describes the VMT thresholds developed for the Project along with the VMT analysis findings.

Baseline VMT

On September 27, 2013, Governor Jerry Brown signed SB 743 into law, which initiated a process to change transportation impact analyses completed in support of CEQA documentation. SB 743 eliminates level of service (LOS) as a basis for determining significant transportation impacts under



CEQA and provides a new performance metric, VMT. As a result, the State is shifting from measuring a project's impact to drivers (LOS) to measuring the impact of driving (VMT) as it relates to achieving State goals of reducing greenhouse gas (GHG) emissions, encouraging infill development, and improving public health through active transportation.

The Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) trip-based model was used to estimate the baseline VMT for the City of Carson. The current SCAG model has a 2012 base year, a 2016 scenario and 2040 as the forecast year. The VMT analysis for this project is based on year 2016 results.

This baseline VMT methodology includes vehicle trips within the SCAG model to generate the following metric, per the OPR advisory:

1. Home-based Work VMT per Employee: Vehicle trips between home and work are counted, and then divided by the number of employees within the geographic area. This metric is used to estimate VMT for the manufacturing, warehousing, and areas associated with offices or administrative functions.

The City's baseline VMT for each metric is shown in Table 1 below. From this point forward the memo will focus exclusively on the work VMT as there are no residential components to the project.

Table 1: VMT for the City of Carson

| VMT Metrics | Baseline VMT |
|--|--------------|
| Home Based Work VMT (VMT per employee) | 19.6 |

VMT Impact Thresholds

Following guidance from OPR¹, the City of Carson identified a threshold of 15% reduction from baseline VMT as the threshold that would be appropriate to apply to the Project. If the Project would generate VMT higher than the threshold, then it would be expected to have a VMT impact, and if the Project would generate VMT lower than the threshold, then it would not be expected to have a VMT impact. The City's baseline VMT and VMT impact thresholds are summarized in Table 2.

¹ Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, 2018.



Table 2: City of Carson Baseline VMT and VMT Impact Thresholds for Home Based Work VMT

| VMT Metrics | Baseline VMT | VMT Impact Threshold* |
|---|--------------|-----------------------|
| Home Based Work VMT (VMT per employee) | 19.6 | 16.7 |

* The VMT Impact Threshold for each VMT metric is 15% below the respective Baseline VMT.

VMT Screening

The first step of a VMT analysis is to determine what type of analysis, if any, is needed. The project was evaluated against three different screening criteria to assess if a VMT analysis would be applicable as recommended by OPR's *Technical Advisory*. The screening criteria are detailed below and applied for the Project to determine if the project has the potential to result in a VMT impact.

Screening Criteria 1: Project Size

Land use projects that generate less than 110 daily trips and local-serving retail projects, defined as commercial projects with local-serving retail uses less than 50 thousand square feet (ksf), are presumed to have less than significant VMT impacts absent substantial evidence to the contrary. Therefore, these projects are screened out from completing a VMT analysis based on project size.

The Project options' estimated trip generation is greater than 110 daily trips and therefore is not screened out from VMT analysis under this screening criteria.

Screening Criteria 2: Low VMT Area Screening

OPR guidance states that residential and office projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In the City of Carson, a low VMT area for employment projects generates no more than 16.7 VMT per employee as shown above in Table 2. The traffic analysis zones (TAZ) contained in the SCAG model can be used to identify the low VMT areas in the City of Carson.

The TAZ the Project is located in is estimated to generate VMT per employment greater than 15% below the City's baseline VMT. Therefore, the Project is not in an area with low employment VMT, which means the Project cannot be presumed to have a less than significant VMT impact and may require further VMT analysis.

Screening Criteria 3: Transit Priority Areas (TPA) Screening

Projects located in a Transit Priority Area (TPA) or along a High-Quality Transit Corridor (HQTC) may also be screened out from conducting a VMT analysis because they are presumed to have a less



than significant impact absent substantial evidence to the contrary. TPAs are defined in the OPR technical advisory as a ½ mile radius around an existing or planned major transit stop or an existing stop along a HQTC. A HQTC is defined as a corridor with fixed route bus service frequency of 15 minutes (or less) during peak commute hours.

The presumption that a project in a TPA will have a less than significant impact absent substantial evidence to the contrary may not be appropriate if the project:

1. Has a Floor Area Ratio (FAR) of less than 0.75;
2. Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
4. Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on existing transit service in Carson, the Project is not located in an area that qualifies as a TPA or HQTC, so the Project is not screened out from further VMT analysis under this screening criteria.

VMT Methodology

This section presents the methodology for calculating VMT for the proposed Project. The SCAG 2016 RTP/SCS model was used as the basis for the information and analysis. Given that the Project is located in an area that does not qualify for Low VMT screening or within a Transit Priority Area (TPA)/High-Quality Transit Corridor, the Project's impact is to be assessed against the VMT per employee threshold described in Table 2.

The following steps were undertaken to develop the Project generated VMT.

Step 1 – Determine Average Person Trip Rates from the SCAG Model

Analysis was performed using the SCAG travel model to estimate an average trip rate for both warehouse and manufacturing uses. The trip generation rates at each TAZ were averaged to obtain a home-based work attraction trip per employee. Table 3 presents these results.



Table 3: Person trip rates for the City of Carson

| Metrics | Trip Rate |
|---|-----------|
| Home Based Work Attractions per Employee for Warehouse Use (includes employee commute trips between home and their work place) | 1.63 |
| Home Based Work Attractions per Employee for manufacturing Use (includes employee commute trips between home and their work place) | 1.67 |

Step 2 – Average Person Trip Rate to Vehicle Trips Conversion

Before conducting the VMT calculations, person trips need to be converted to vehicle trips. Average mode splits for the City of Carson were obtained from the SCAG model and used to obtain the vehicle trips for the Project.

Warehouse and Manufacturing Employee Trips

For warehouse and manufacturing employees, 86% of total trips were assumed to occur in vehicles occupied by one person and 11% in vehicles occupied by an average of 2.3 people. The remaining 3% of trips would take place using alternative modes such as walking, biking, or transit, and are not included in the VMT calculation.

For option one, assuming 70 employees are working at the warehouse and 54 employees are working at the manufacturing plant. Based on the above trip rates and mode split information the Project is estimated to generate 185 daily vehicle trips for employees’ commute trips.

For option two, 124 employees are working at the warehouse. Based on the above trip rates and mode split information the Project is estimated to generate 183 daily vehicle trips for employees’ commute trips.

Step 3 – Estimate Trip Length

The trip lengths were estimated using data from the 2016 SCAG model. The travel model has the ability to produce average trip lengths for each TAZ in the City of Carson. For the TAZ where the Project is located, the average trip length for home-based work attractions was 16.3 miles.



Step 4 – VMT Calculation

The final step to calculate VMT is to multiply the number of vehicle trips by the average trip length of those trips.

For option one, total commute VMT of the manufacturing and warehouse employees at the Project is projected to be 3,016. The weighted average of VMT per employee for warehouse and manufacturing employees is 24.3.

For option two, total commute VMT of the warehouse employees at the Project is projected to be 2,983. The warehouse VMT was divided by the 124 employees to obtain a work VMT per employee of 24.1.

These results are presented in Tables 4 & 5 below and are compared against the citywide VMT thresholds.

Table 4: VMT per Employee Calculation

| Land Use | Mode Split (SOV) | Mode Split (HOV) | Average Vehicle Occupancy | Trip Length (mi) | Person Trip Rate | VMT per Employee |
|---------------|------------------|------------------|---------------------------|------------------|------------------|------------------|
| Warehouse | 86% | 11% | 2.3 | 16.3 | 1.63 | 24.1 |
| Manufacturing | | | | | 1.67 | 24.7 |

For option one, the weighted average of warehouse and manufacturing employees of 24.3 VMT per employee reflects an average of the VMT per employee shown in Table 4 because it includes warehouse and manufacturing uses. For option two, only warehouse land uses are proposed, therefore the average is consistent with the VMT per employee shown for the warehouse land use.

Step 5 – Truck VMT Calculation

The truck trip generation and truck weight class distribution assumptions are consistent with the Project’s trip generation estimates presented in Attachment A. Truck trip length for light, medium and heavy-duty trucks are for the specific TAZ related to the Project from the SCAG model. This information is provided for the purposes of greenhouse gas (GHG) and air quality that reflect heavy vehicle types. Neither OPR guidance or the City of Carson have a VMT threshold for truck activity and this information is provided for informational purposes.



Table 5: Option One- Truck VMT Calculation

| Land Use | Size (KSF) | Light | Medium | Heavy | Light | Medium | Heavy | Truck Trips | VMT |
|---------------|------------|-------|--------|-------|-------|--------|-------|-------------|-------|
| Warehouse | 165.2 | 0.06 | 0.08 | 0.22 | 8.3 | 8.2 | 18.9 | 59 | 874 |
| Manufacturing | 127.2 | 0.28 | 0.15 | 0.42 | 8.3 | 8.2 | 18.9 | 107 | 1449 |
| Total | 292.4 | - | - | - | - | - | - | 166 | 2,322 |

Table 6: Option Two- Truck VMT Calculation

| Land Use | Size (KSF) | Light | Medium | Heavy | Light | Medium | Heavy | Truck Trips | VMT |
|-----------|------------|-------|--------|-------|-------|--------|-------|-------------|-------|
| Warehouse | 292.4 | 0.06 | 0.08 | 0.22 | 8.3 | 8.2 | 18.9 | 105 | 1,546 |

VMT Impacts

As shown in Table 4 above, both proposed Project options would exceed the Citywide VMT/Employee threshold of 16.7 VMT per employee for the home based work VMT and this is considered to be a significant impact under CEQA.

Mitigation Options

In order to mitigate the VMT/Employee impacts of the warehouse and manufacturing land use, employee VMT would need to be reduced by approximately 36%. In order to achieve this reduction, a range of travel demand management (TDM) measures were considered for the Project. These included the following options:

1. Parking: Off-street parking cost
2. Transit: Providing transit passes to employees



3. Commute Trip Reduction: Commuter incentives, transit subsidies, parking cashout, commute marketing program, carpool/vanpool incentives
4. Local hire considerations

The effect of combining some of these aforementioned TDM measures would result in a reduction of VMT for the warehouse and manufacturing employees. However, it would not be sufficient to mitigate the VMT impact without inclusion of the last strategy for consideration of incentives, monitoring, and enforcement for the hiring of individuals within a certain distance from the project site. While the details and structure of this approach are to be finalized, the underlying approach would include developing a framework for determining the site's average home-based work VMT per employee. Through a combination of incentives for local hiring and conditions of approval requiring regular monitoring of the site's average home-based work VMT per employee based on employee residential location and commute distance. By monitoring the residential location of residents to understand the length of employee commutes and the proportion of employees residing within certain distances from the project, it is possible to calculate the average employee commute trip length and determine whether it is within the identified employee VMT trip threshold of 16.7 VMT per employee trip.

Fehr & Peers has developed a sample tool in Attachment B that can be used to perform this monitoring. An example of the tool is shown at the end of this memo and provides the framework for entering commute distance bins and the proportion of staff within that bin to determine the home-based work VMT per employee. This tool solely provides the framework for calculating the average and the applicant or Project tenant would be responsible for the accuracy of the information and results.

Summary

This technical memorandum documents the process to determine the potential VMT impacts of the Panattoni Warehouse Project located at 2112 East 223rd Street in the City of Carson. The following summarizes the results of this analysis:

- The Project proposes two potential development options:
 - Warehouse and manufacturing option
 - 165,200 square feet of warehouse
 - 127,200 square feet of manufacturing
 - Warehouse only option: 292,400 square feet of warehouse
- The Project does not meet project size screening criteria or low VMT screening area options provided in the OPR *Technical Advisory*, hence the Project was evaluated using employment VMT methodologies consistent with guidance from that advisory document.



- Based on the results of the VMT methodologies outlined in this memorandum, the Project will result in a significant impact for the VMT per employee metric for either project option.
- The VMT thresholds and screening criteria applied in this study are based on CEQA guidance and VMT reduction goals provided by the OPR Technical Advisory.
- Based on the study of applicable mitigation measures, the Project was determined to have a significant impact that could be mitigated below a level of significance pending the City's acceptance and review of the mitigation measure described above.

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ATTACHMENT A – PROJECT TRIP GENERATION TABLES

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Table 2
Project Trip Generation for Option A (Warehouse and Manufacturing)

| Land Use/Vehicle Type | Source ¹ | Trip Generation Rates per TSF ² | | | | | | Daily |
|-----------------------|---------------------|--|-------|--------|--------------|-------|--------|--------|
| | | AM Peak Hour | | | PM Peak Hour | | | |
| | | % In | % Out | Total | % In | % Out | Total | |
| Warehouse | ITE 150 | 77% | 23% | 0.17 | 27% | 73% | 0.19 | 1.74 |
| Percent Cars | [a] | -- | -- | 62.86% | -- | -- | 64.38% | 79.57% |
| Percent Trucks | [a] | -- | -- | 37.14% | -- | -- | 35.62% | 20.43% |
| Car Trips per TSF | | 0.082 | 0.025 | 0.107 | 0.033 | 0.089 | 0.122 | 1.385 |
| Truck Trips per TSF | | 0.049 | 0.015 | 0.064 | 0.018 | 0.049 | 0.067 | 0.355 |
| Manufacturing | ITE 130 | 77% | 23% | 0.62 | 31% | 69% | 0.67 | 3.93 |
| Percent Cars | [b] | -- | -- | 60.53% | -- | -- | 76.83% | 78.60% |
| Percent Trucks | [b] | -- | -- | 39.47% | -- | -- | 23.17% | 21.40% |
| Car Trips per TSF | | 0.289 | 0.086 | 0.375 | 0.160 | 0.355 | 0.515 | 3.089 |
| Truck Trips per TSF | | 0.188 | 0.056 | 0.244 | 0.048 | 0.107 | 0.155 | 0.841 |

| Vehicle Trips Generated | | | | | | | | | |
|--------------------------------------|-----------------------------|-----------------------|--------------|-----------|------------|--------------|-----------|------------|------------|
| Land Use/Vehicle Type | Quantity (TSF) ³ | Land use in Buildings | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | 1, 2 & 3 | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | | | 8 | 3 | 11 | 3 | 8 | 11 | 59 |
| Manufacturing | 127.200 | 1, 2 & 3 | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | | | 24 | 7 | 31 | 6 | 14 | 20 | 107 |
| TOTAL VEHICLE TRIPS GENERATED | | | 83 | 25 | 108 | 34 | 83 | 117 | 788 |

| Passenger Car Equivalent (PCE) Trips Generated | | | | | | | | | |
|--|-------------------------|----------------------------|--------------|-----------|------------|--------------|------------|------------|--------------|
| Land Use/Vehicle Type | Quantity (TSF) | Truck Percent ⁴ | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 165.200 | | | | | | | | |
| Cars | | | 14 | 4 | 18 | 5 | 15 | 20 | 229 |
| Trucks | PCE Factor ⁵ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 16.95% | 2 | 1 | 3 | 1 | 2 | 3 | 15 |
| 3-Axle Trucks | 2.0 | 22.71% | 4 | 1 | 5 | 1 | 4 | 5 | 26 |
| 4+ Axle Trucks | 3.0 | 60.34% | 15 | 4 | 19 | 5 | 15 | 20 | 105 |
| Subtotal Trucks | -- | | 21 | 6 | 27 | 7 | 21 | 28 | 146 |
| Manufacturing | 127.200 | | | | | | | | |
| Cars | | | 37 | 11 | 48 | 20 | 46 | 66 | 393 |
| Trucks | PCE Factor ⁴ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 32.70% | 12 | 3 | 15 | 3 | 7 | 10 | 53 |
| 3-Axle Trucks | 2.0 | 17.90% | 9 | 2 | 11 | 2 | 5 | 7 | 38 |
| 4+ Axle Trucks | 3.0 | 49.40% | 35 | 11 | 46 | 9 | 20 | 29 | 159 |
| Subtotal Trucks | -- | | 56 | 16 | 72 | 14 | 32 | 46 | 250 |
| Subtotal Cars | | | 51 | 15 | 66 | 25 | 61 | 86 | 622 |
| Subtotal Trucks | | | 77 | 22 | 99 | 21 | 53 | 74 | 396 |
| TOTAL PCE TRIPS GENERATED | | | 128 | 37 | 165 | 46 | 114 | 160 | 1,018 |

Notes:

(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.

[a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.

[b] City of Fontana, Truck Trip Generation Study, August 2003. Light industrial values used for car to truck and truck by axle percentages.

(2) TSF = Thousand Square Feet

(3) Source: Site Plan A1.1; dated November 19, 2019

(4) Truck by axle percentages obtained from City of Fontana, Truck Trip Generation Study, August 2003.

(5) Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program.

PCE factor of 1.0 is used for passenger cars (such as employee vehicles); light duty trucks use a PCE factor of 1.5; medium duty trucks with 3 axles use a PCE factor of 2.0; and heavy duty trucks with 4 or more axles use a PCE factor of 3.0.

**Table 3
Project Trip Generation for Option B (Warehouse Only)**

| Land Use/Vehicle Type | Source ¹ | Trip Generation Rates per TSF ² | | | | | | |
|-----------------------|---------------------|--|-------|--------|--------------|-------|--------|--------|
| | | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | % In | % Out | Total | % In | % Out | Total | |
| Warehouse | ITE 150 | 77% | 23% | 0.17 | 27% | 73% | 0.19 | 1.74 |
| Percent Cars | [a] | -- | -- | 62.86% | -- | -- | 64.38% | 79.57% |
| Percent Trucks | [a] | -- | -- | 37.14% | -- | -- | 35.62% | 20.43% |
| Car Trips per TSF | | 0.082 | 0.025 | 0.107 | 0.033 | 0.089 | 0.122 | 1.385 |
| Truck Trips per TSF | | 0.049 | 0.015 | 0.064 | 0.018 | 0.049 | 0.067 | 0.355 |

| Vehicle Trips Generated | | | | | | | | | |
|--------------------------------------|-----------------------------|----------------------|--------------|-----------|-----------|--------------|-----------|-----------|------------|
| Land Use/Vehicle Type | Quantity (TSF) ³ | Land use in Building | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 292,400 | 1, 2 & 3 | | | | | | | |
| Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Trucks | | | 14 | 5 | 19 | 5 | 15 | 20 | 104 |
| TOTAL VEHICLE TRIPS GENERATED | | | 38 | 12 | 50 | 15 | 41 | 56 | 509 |

| Passenger Car Equivalent (PCE) Trips Generated | | | | | | | | | |
|--|-------------------------|----------------------------|--------------|-----------|-----------|--------------|-----------|-----------|------------|
| Land Use/Vehicle Type | Quantity (TSF) | Truck Percent ⁴ | AM Peak Hour | | | PM Peak Hour | | | Daily |
| | | | In | Out | Total | In | Out | Total | |
| Warehouse | 292,400 | | | | | | | | |
| Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Trucks | PCE Factor ⁵ | | | | | | | | |
| 2-Axle Trucks | 1.5 | 16.95% | 4 | 1 | 5 | 1 | 4 | 5 | 27 |
| 3-Axle Trucks | 2.0 | 22.71% | 7 | 1 | 8 | 2 | 7 | 9 | 48 |
| 4+ Axle Trucks | 3.0 | 60.34% | 26 | 8 | 34 | 10 | 25 | 35 | 189 |
| Subtotal Trucks | -- | | 37 | 10 | 47 | 13 | 36 | 49 | 264 |
| Subtotal Cars | | | 24 | 7 | 31 | 10 | 26 | 36 | 405 |
| Subtotal Trucks | | | 37 | 10 | 47 | 13 | 36 | 49 | 264 |
| TOTAL PCE TRIPS GENERATED | | | 61 | 17 | 78 | 23 | 62 | 85 | 669 |

Notes:

(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code ###.

[a] City of Fontana, Truck Trip Generation Study, August 2003. Heavy warehouse values used for car to truck and truck by axle percentages.

(2) TSF = Thousand Square Feet

(3) Source: Site Plan A1.1; dated November 19, 2019, and Project Description for Option 2 warehouse only.

(4) Truck by axle percentages obtained from City of Fontana, Truck Trip Generation Study, August 2003.

(5) Passenger Car Equivalent (PCE) factors have been obtained from the County of San Bernardino Congestion Management Program.

PCE factor of 1.0 is used for passenger cars (such as employee vehicles); light duty trucks use a PCE factor of 1.5; medium duty trucks with 3 axles use a PCE factor of 2.0; and heavy duty trucks with 4 or more axles use a PCE factor of 3.0.



ATTACHMENT B – SAMPLE VMT MONITORING TABLE

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SAMPLE EMPLOYEE VMT MONITORING TABLE

Legend:

| |
|----------------|
| user input |
| calculation |
| City threshold |

| | | |
|--|-------------|-------|
| Average Commute Distance Calculation = | 13.3 | miles |
| Carson work VMT/emp threshold = | 16.7 | miles |

Total (must = 100%)

100%

| Percent of Employees within each bin | Commute Distance Bins (miles) | |
|---|-------------------------------|---------|
| | At least | At most |
| 10% | 0 | 1 |
| 14% | 1 | 2 |
| 24% | 2 | 5 |
| 14% | 5 | 10 |
| 10% | 10 | 15 |
| 9% | 15 | 20 |
| 8% | 20 | 25 |
| 6% | 25 | 50 |
| 5% | 80 | 90 |
| | | |
| | | |
| | | |
| | | |
| | | |

Notes: For each row, average distance is the average of the bin ranges.
 The average commute distance will be calculated based on the user input regarding commute distance and percentage of employees at that distance.
 The Carson work VMT/emp threshold is not an input and should not be changed.