Appendix D

Traffic Impact Assessment

Intex Southbay Logistics Center - Long Beach, CA

Traffic Impact Analysis

Prepared for:
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FEHR PEERS

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1. Executive Summary

Fehr & Peers has completed a traffic impact analysis (TIA) for the proposed Intex Southbay Logistics Center Project ("Project"), located at 4000 Via Oro. The Project consists of the following:

- The construction of a new 60-foot-tall, 543,239-sq. ft. combination warehouse and distribution center with 16,800 sq. ft. of accessory offices.
- An open surface parking field with 570 parking stalls and 174 loading/trailer parking spaces.

The Project site is contained within the West Long Beach Business Parks Planned Development District (PD-26) of the city of Long Beach. Starting in July 2020, the State of California required that transportation analysis under the California Environmental Quality Act (CEQA) no longer use intersection level of service (LOS) to analyze the potential for project related transportation impacts, and instead should use vehicle miles travelled (VMT). The City of Long Beach's Traffic Impact Analysis (TIA) Guidelines (June 2020) were adopted to address these changes.

The new traffic impact study guidelines still require traffic operation analysis, but outside of CEQA. PD-26 provides a framework to guide private development within the business center and establishes the framework for how transportation should be analyzed for projects within the PD-26 area. Evaluating the consistency of the Project with the trip allocation of the PD-26 Plan enables tiering opportunities that can cover most aspects of the traffic operations analysis.

This study was completed in support of the City's preparation of an Environmental Impact Report (EIR). Provided below is a description of metrics and scenarios analyzed in this study in coordination with the City of Long Beach and consistent with the TIA guidelines.

CEQA Checklist for Significant Transportation Impacts

- Project consistency with City transportation-related plans, programs, ordinances, and policies
- VMT per Employee of the Project in Opening Year (2027) compared to the existing regional baseline
- Review of the site access and circulation plan to assess potential geometric hazards
- Emergency access evaluation

Non-CEQA Checklist for Traffic Operation Deficiencies

- **Existing Baseline (2023) Conditions** – This constitutes the environmental setting for a traffic analysis. The most recent available traffic conditions and physical geometry were used to determine existing baseline conditions.

- **Opening Year (2027) No Project** – Traffic conditions at the proposed opening year of the Project. The traffic forecasts reflect ambient growth using a 0.4% annual growth rate (per the City's TIA guidelines), followed by the inclusion of additional vehicles generated by pending and approved projects in the study area.

- **Opening Year (2027) Plus Project** – Traffic generated from the proposed Project was added onto the Opening Year (2027) No Project conditions to estimate Opening Year (2027) Plus Project conditions. This scenario was then compared to Opening Year (2027) No Project conditions to identify potential traffic effects resulting from the addition of the Project.

1.1 Major Findings

1.1.1 CEQA Project VMT

The Project is an industrial land use project. It will generate more than 500 average daily vehicle trips and is located outside Transportation Priority Areas. Therefore, the Project does not meet the screening criteria in the City Guidelines and requires a VMT analysis.

The Project VMT per employee metric is estimated to be 18.8 VMT per employee, which is below the existing baseline VMT of 20.2. Therefore, the Project is presumed to result in a **less than significant VMT impact**.

Given that the Project is expected to have a less than significant VMT impact, VMT mitigation is not required.

Other CEQA Project Findings

The Project's features, location, and design generally support multimodal transportation options and would be consistent with policies, plans, and programs that support alternative transportation, including the *Southern California Association of Governments (SCAG) Regional Transportation Plan, Mobility Element 2035*, *Long Beach Bicycle Master Plan,* and the *Safe Streets Action Plan*. Additionally, the Project would not substantially increase hazards or conflicts and all access driveways will be designed according to City standards. Finally, the proposed Project site access would not result in inadequate emergency access.

1.1.2 Non-CEQA Traffic Analysis

The Project is estimated to generate 1,573 daily passenger car equivalents (PCE) trips, 397 AM peak hour PCE trips (309 inbound/88 outbound), and 397 PM peak hour PCE trips (108 inbound/289 outbound). These trips were evaluated to assess network capacity and LOS for informational (non-CEQA) purposes only. Under Existing Baseline (2023) Conditions, all study intersections operate at LOS D or better, except for Santa Fe Avenue & West Wardlow Road in the AM peak hour.

Opening Year (2027) No Project Traffic Analysis

Five of the six study intersections are projected to operate at LOS D or better during the morning and afternoon peak hours under Opening Year (2027) No Project conditions. The following signalized intersection is projected to operate at LOS E or F under Opening Year (2027) No Project conditions:

5. Santa Fe Avenue & West Wardlow Road – AM peak hour and PM peak hour

Opening Year (2027) Plus Project Traffic Analysis

Five of the six study intersections are projected to operate at LOS D or better during the morning and afternoon peak hours under Opening Year (2027) Plus Project conditions. The following signalized intersection is projected to operate at LOS E or F under Opening Year (2027) Plus Project conditions:

5. Santa Fe Avenue & West Wardlow Road – AM peak hour and PM peak hour

Per the City's intersection performance criteria, the addition of project traffic would be responsible for LOS deficiencies if a signalized intersection would degrade from LOS D or better under baseline conditions to LOS E or LOS F with the addition of project trips in the opening year. Furthermore, at locations already operating with LOS E or LOS F under opening year baseline conditions, the average delay increases by less than 2.5 seconds with the addition of Project trips. Using the performance criteria in the City's guidelines, the following intersections are expected to have LOS deficiencies caused by the Project:

5. Santa Fe Avenue & West Wardlow Road – PM peak hour only

Consistent with the City's TIA guidelines, optimizing intersection signal timing as a potential traffic operation improvement can be feasibly implemented and address this LOS deficiency.

Additionally, three study locations are projected to experience at least one turning movement with insufficient queuing storage per the City's performance criteria. The majority of the deficient queueing locations are projected to occur in the Opening Year (2027) No Project. Potential roadway improvements were identified for three study locations by extending the turn bays storage length to accommodate the projected 95th percentile queue length under Project conditions. Given the deficient turning movements in Opening Year (2027) No Project conditions, a fair share contribution to implement these roadway improvements should be applied.

2. Introduction

Fehr & Peers has completed a traffic impact analysis (TIA) for the proposed Intex Southbay Logistics Center Project ("Project") in the city of Long Beach. This report summarizes the methodology, findings, and conclusions of the analysis. This chapter outlines the transportation characteristics of the Project and the study area.

2.1 Project Description

The proposed Project is located at 4000 Via Oro Avenue in the city of Long Beach, California. The site is bounded by West Carson Street to the south, the Long Beach Freeway (Interstate 710, or I-710) to the east, Via Oro Avenue to the west and West Via Plata Street to the north. The project site is regionally accessible from I-710 and the San Diego Freeway (Interstate 405, or I-405). The project site is in the "I" (Industrial) Place Type of the City's newly adopted General Plan Land Use Element.

The proposed Project includes the construction of a new 60-foot-tall, 543,239-sq. ft. combination warehouse and distribution center with 16,800-sq. ft. of accessory offices. The currently undeveloped Project site encompasses two parcels on 26.47 gross acres (26.34 net acres). Goods would be imported from the nearby Port of Los Angeles and Port of Long Beach, sorted, and stored on-site, and then distributed nationally from the Project site.

2.1.1 Site Access

On-site access is provided by two driveways along Carson Street, one driveway along Via Plata Street, and two driveways from Via Oro Avenue as described below:

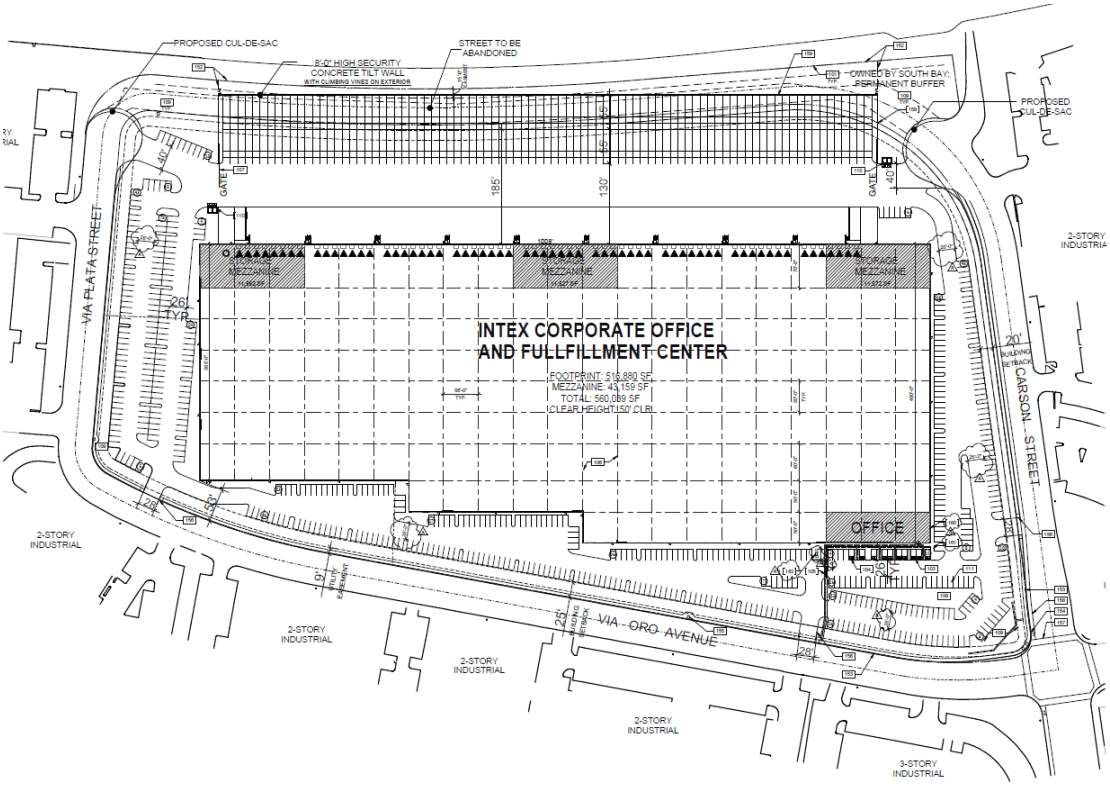
- One 40-foot-wide driveway at the proposed cul-de-sacs on Carson Street providing access to the loading docks and other areas on the eastern side of the property.
- One 40-foot-wide driveway at the proposed cul-de-sacs on Via Plata Street providing access to the loading docks and other areas on the eastern side of the property.
- Two 28-foot-wide driveways providing access to the western side of the property from Via Oro Avenue.
- One 28-foot-wide driveway providing access to the southern side of the property from Carson Street.

The Project site would be developed with 570 parking stalls and 174 loading/trailer parking spaces, all in an open surface parking field.

A major roadway component of the proposed Project is vacating Via Alcalde Avenue, which forms the eastern boundary of the Project site. This right-of-way, once vacated, would become part of the site to be used for vehicle and truck parking and for on-site truck turning and maneuvering.

The Project site plan is provided in **Figure 1.**

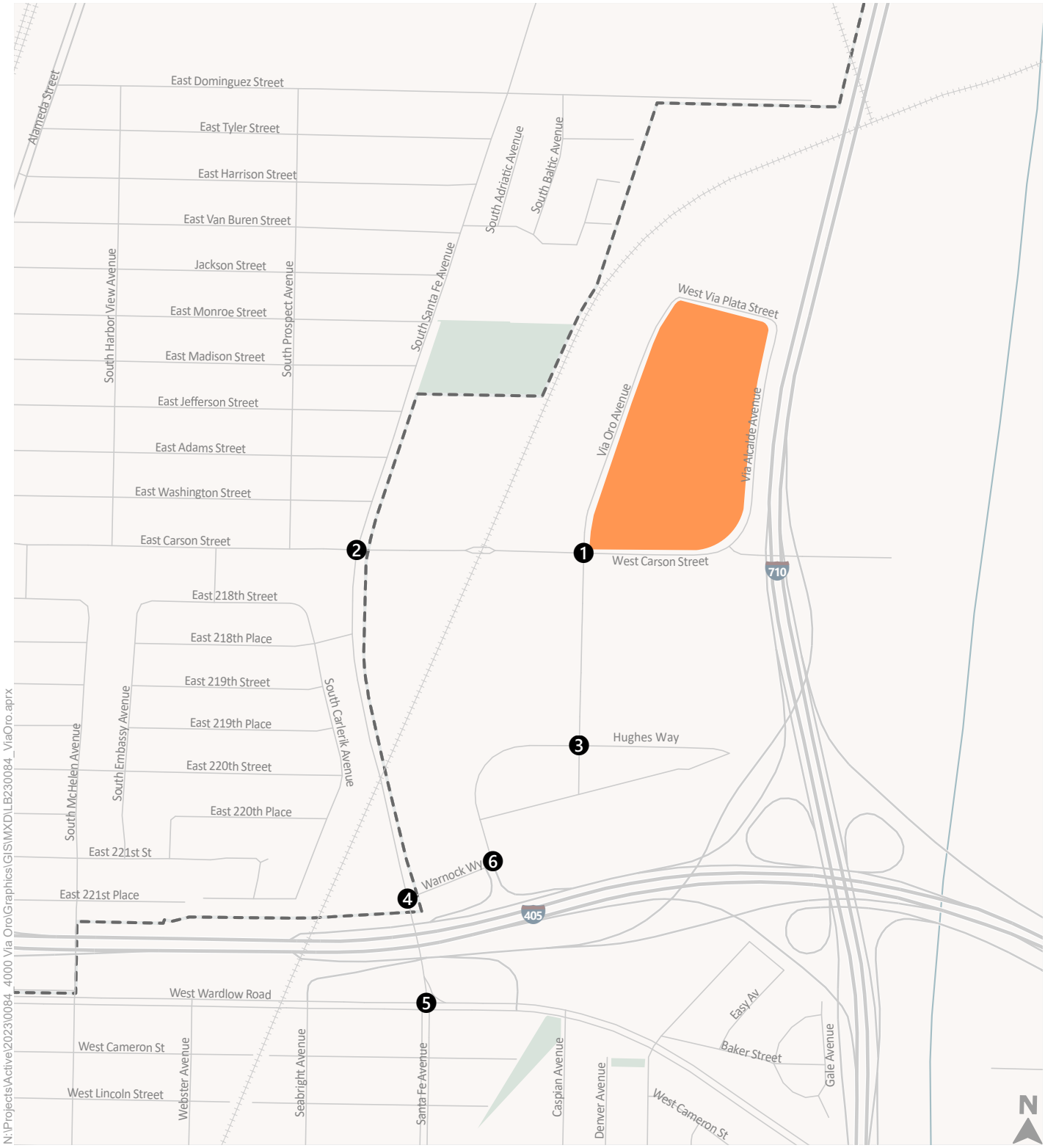
Figure 1 – Site Plan



2.2 Study Area

The study area and analyzed intersections were determined based on trip generation, trip distribution, and trip assignment estimates developed for the Project. Traffic operations were evaluated at the following six Long Beach signalized intersections (unless otherwise noted) in the vicinity of the Project site, as shown on **Figure 2**:

1. Via Oro Avenue & West Carson Street
2. Santa Fe Avenue & West Carson Street – City of Carson
3. Via Oro Avenue & Hughes Way
4. Santa Fe Avenue & Warnock Way – City of Carson
5. Santa Fe Avenue & West Wardlow Road
6. Hughes Way & Warnock Way



Study Intersections

City of Long Beach Boundary

Project Site

Figure 2

Study Intersections

2.3 Analysis Scenarios

To identify potential significant Project impacts, the following five scenarios were analyzed:

CEQA and Non-CEQA Scenarios

- **Existing Baseline (2023) Conditions** – This constitutes the environmental setting for a traffic analysis. The most recent available traffic conditions and physical geometry were used to determine existing baseline conditions.

- **Opening Year (2027) No Project** – Traffic conditions at the proposed opening year of the project. This scenario includes traffic generated by other proposed and/or pending projects in the study area. The Existing Baseline (2023) Conditions traffic volumes were adjusted to account for ambient growth using a 0.4% annual growth rate (per the City's TIA guidelines), followed by the inclusion of additional vehicles generated by pending and approved projects in the study area.

- **Opening Year (2027) Plus Project** – Traffic generated from the proposed Project was added onto the Opening Year (2027) No Project conditions to estimate Opening Year (2027) Plus Project conditions. This scenario was then compared to Opening Year (2027) No Project conditions to identify potential traffic effects resulting from the addition of the Project.

CEQA Scenarios

- **Cumulative Baseline (2045) No Project –** Vehicle miles traveled (VMT) generated under the Cumulative Baseline (2045) conditions without the project. This scenario is developed to fulfill CEQA requirements per Senate Bill (SB) 743 guidelines. The Southern California Association of Governments (SCAG) regional travel demand forecasting model that reflects the 2020 Regional Transportation Plan/Sustainable Communities (RTP/SCS) was used for the VMT analysis. This scenario includes the projected population and employment generated by other proposed and/or pending projects in the study area.

- **Cumulative Baseline (2045) Plus Project –** The projected number of daily employees at the Project site was added to the Cumulative Baseline (2045) No Project conditions to estimate Cumulative Baseline (2045) Plus Project conditions. This scenario was then compared to the threshold of significance defined by the City's guidelines to identify potential VMT impacts resulting from the addition of the Project.

3. Environmental Setting

This chapter discusses the environmental setting of the Project, as outlined in the *City of Long Beach Traffic Impact Analysis (TIA) Guidelines (*TIA guidelines*)*. It includes a description of the existing roadway configuration, as well as public transit, bicycle, and pedestrian facilities in the vicinity of the Project. The chapter also presents the existing baseline traffic volumes at the study locations, as well as a cumulative list of related projects provided by the City.

3.1 Land Use Setting

The Project site is comprised of vacant and undeveloped land. The land uses in the immediate vicinity of the Project site are within the West Long Beach Business Park and are comprised of light industrial, research and development, and office and distribution-related land uses. South of Carson Street, the land uses are predominantly office and distribution-related land uses. West of the railroad corridor that bisects the study area there are two schools and a community park. Further west, in the City of Carson (west of Santa Fe Avenue), the land use is predominantly single-family residential.

3.2 Roadway Configuration

Regional access to the site is provided by the I-405 and I-710. Local access to the site is provided by Via Oro Avenue, West Carson Street, Santa Fe Avenue, Warnock Way, and West Wardlow Road. The following discusses the roadways that would provide access to the site and are most likely to experience increases in traffic volumes from the proposed Project.

Interstate 405 (I-405) is a major north-south highway that extends for 72 miles through Los Angeles and Orange counties from Irvine to the south and San Fernando to the north. It's also known as the northern portion of the San Diego Freeway. The number of lanes on I-405 varies between four and five travel lanes in each direction. The facility serves several major airports, including Los Angeles International Airport (LAX), Long Beach Airport (LGB), and Orange County's John Wayne Airport (SNA). Access to the Project site from I-405 is provided via Del Amo Boulevard, Wardlow Road, and Warnock Way.

Interstate 710 (I-710) is a major north-south highway that extends for approximately 23 miles through Los Angeles County from the Port of Long Beach to the south and Alhambra/Pasadena to the north. It's also known as the Long Beach Freeway. The number of lanes on the I-710 varies between three and four travel lanes in each direction. The facility serves a large number of trucks and freight facilities, including the Ports of Los Angeles and Long Beach (or the San Pedro Bay Ports). Access to the Project site from I-710 is provided via Del Amo Blvd.

Via Oro Avenue is a north-south facility that runs immediately adjacent to the Project site and serves as the western boundary of the Project and provides north–south connectivity between the Project site and

Warnock Way. It is primarily a four-lane divided roadway with a two-way-left-turn lane between West Via Plata Street and Carson Street, and a four-lane undivided roadway between Carson Street and Hughes Way. The posted speed limit on Via Oro Avenue is 35 mph. On-street parking is prohibited between Hughes Way and Carson Street. For segments between Carson Street and Via Plata Street, vehicles with dimensions not exceeding 85 inches in height, 80 inches in width, or 20 feet in length are permitted to park on-street in this area. The restriction is in place to prevent larger vehicles from causing traffic disruptions and to ensure that parking spaces are available for standard-sized vehicles. Although large vehicles are prohibited for on-street parking, several large trucks were observed to be parked between Carson Street and Via Plata Street.

Large vehicle parking restriction, Via Oro Avenue southbound at Carson Street. Crosswalk at Via Oro Avenue and Carson Street (Photo Credit: Fehr & Peers, July 2023).

Sidewalks are not provided on both sides of the roadway within the Project's vicinity and only provided between Hughes Way and Carson Street. Pedestrian crosswalks are generally provided at all signalized intersections. The nearest available crosswalk is provided at the intersection of Via Oro Avenue and Carson Street. The City's *Mobility Element* designates Via Oro Avenue as a Neighborhood Connector.

Carson Street is a four-lane undivided roadway with a raised median that will change to left-turn lanes between Santa Fe Avenue and Via Alcalde Avenue, and a four-lane undivided roadway between Alameda Street and Santa Fe Avenue. The land use on the east side of Santa Fe Avenue along Carson Street is primarily residential. Carson Street is oriented in the east–west direction and provides connectivity between the city of Carson and the city of Long Beach. The posted speed limit on Carson Street is 35 mph.

Large truck parking restriction on Carson Street (Photo Credit: Fehr & Peers, July 2023).

Vehicles with dimensions not exceeding 85 inches in height, 80 inches in width, or 20 feet in length are generally permitted to on-street parking on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the Project's vicinity but are not provided on the Project sides of the roadway between Via Alcalde Avenue and Via Oro Avenue. Pedestrian crosswalks are generally provided at all signalized intersections. The City's *Mobility Element* designates Carson Street as a Neighborhood Connector.

Santa Fe Avenue is a four-lane roadway with a raised median that will alternate to left-turn lanes between Del Amo Boulevard and Carson Street, and a four-lane divided roadway between Carson Street and Wardlow Road. The posted speed limit on Santa Fe Avenue is 40 mph; the segments between Van Buren Street and Carson Street are adjacent to school zones with a speed limit of 25 mph. On-street parking is generally not permitted on both sides of the street. A bike lane begins from south of Wardlow Road along Santa Fe Avenue.

Bike lane on Santa Fe Avenue, south of Wardlow Road (Photo Credit: Fehr & Peers, July 2023).

Sidewalks are generally provided on both sides of the roadway within the Project's vicinity. The City's *Mobility Element* designates Santa Fe Avenue as a Major Avenue.

Hughes Way is a minor neighborhood connector that connects Via Oro Avenue and Warnock Way with a distinct 90-degree horizontal curvature along its path. It is a four-lane divided roadway south of the Project site. Hughes Way provides connectivity between the Project site and the I-405/I-710 on/off ramps. The posted speed limit is 35 mph eastbound at Via Oro Avenue. Adjacent to the curve, drivers are advised to approach it with a lower speed limit to ensure safe maneuvering.

Sidewalks are provided only on one side of the roadway and missing a small segment at the entrance of Intex Recreation Crop Warehouse which has a driveway located right at the 90-degree corner. Signals and a pedestrian crosswalk are installed at this intersection to ensure safety and efficiency. The City's *Mobility Element* designates Warnock Way as a Neighborhood Connector.

Suggested speed sign before 90-degree curve on Hughes Way. Signalized Intersection in front of Intex Recreation Crop driveway (Photo Credit: Fehr & Peers, July 2023).

Warnock Way is a small six-lane undivided roadway that runs parallel with I-405. It provides east-west connectivity between Santa Fe Avenue, Hughes Way, and the I-405/I-710 on/off ramps. The posted speed limit on Warnock Way is 35 mph. On-street parking is generally permitted for small or medium vehicles on both sides of the street. However, truck parking is restricted on this road. Sidewalks are provided on both sides of the roadway. The City's *Mobility Element* designates Warnock Way as a Neighborhood Connector.

Truck parking restriction on Warnock Way (Photo Credit: Fehr & Peers, July 2023).

Wardlow Road is a four-lane divided, west/east running avenue, with a high-raised center median south of the Project site. Wardlow Road provides east–west connectivity between State Route (SR) 47 Alameda Street, the LGB airport, and I-405 on/off ramps. Wardlow Road's eastbound left-turn approach is channelized at Santa Fe Avenue. The posted speed limit on Wardlow Road is 35 mph. Sidewalks are generally provided on both sides of the roadway and pedestrian crosswalks are generally provided at all signalized intersections. The City's *Mobility Element* designates this part of Wardlow Road as a Major Avenue.

Wardlow Road eastbound channelization at Santa Fe Avenue (Photo Credit: Fehr & Peers, July 2023).

3.3 Public Transit Facilities

The existing transit services in the vicinity of the Project site are described below.

3.3.1 Bus Transit

Long Beach Transit (LBT) provides public transit services in the vicinity of the proposed Project area. The nearest bus stop can be found east of the Project site at Carson Street and Via Oro Avenue. Near the proposed Project, there are bus stops along Via Oro Avenue, Santa Fe Avenue, and Wardlow Road.

LBT routes that serve areas closest to the Project site include the following:

- **Routes 192**: This route operates daily via Santa Fe Avenue, Carson Street, and Via Oro Avenue.
- **Routes 4 (Carson), 191**: These routes operate daily via Santa Fe Avenue and Carson Street.
- **Routes 8 (Carson)**: This route operates daily via Wardlow Road.
- **Route 405**: This route operates only on weekdays via I-405; it is the UCLA/Westwood Commuter Express bus route.

3.3.2 LA Metro

Los Angeles (LA) Metro provides rail service in the vicinity of the Project site. The LA Metro Blue/A Rail line provides a connection between downtown Long Beach and downtown Los Angeles.

- The Wardlow Blue line/A line station is approximately 2 miles south of the Project site at Pacific Place and Wardlow Road. There are 16 enclosed bike lockers available for rent at the station.
- The Del Amo Blue line/A line station is approximately 1.5 miles north of the Project site at Santa Fe Avenue and Del Amo Boulevard.

Figure 3 shows the LBT and LA Metro transit routes in operation within the vicinity of the Project.

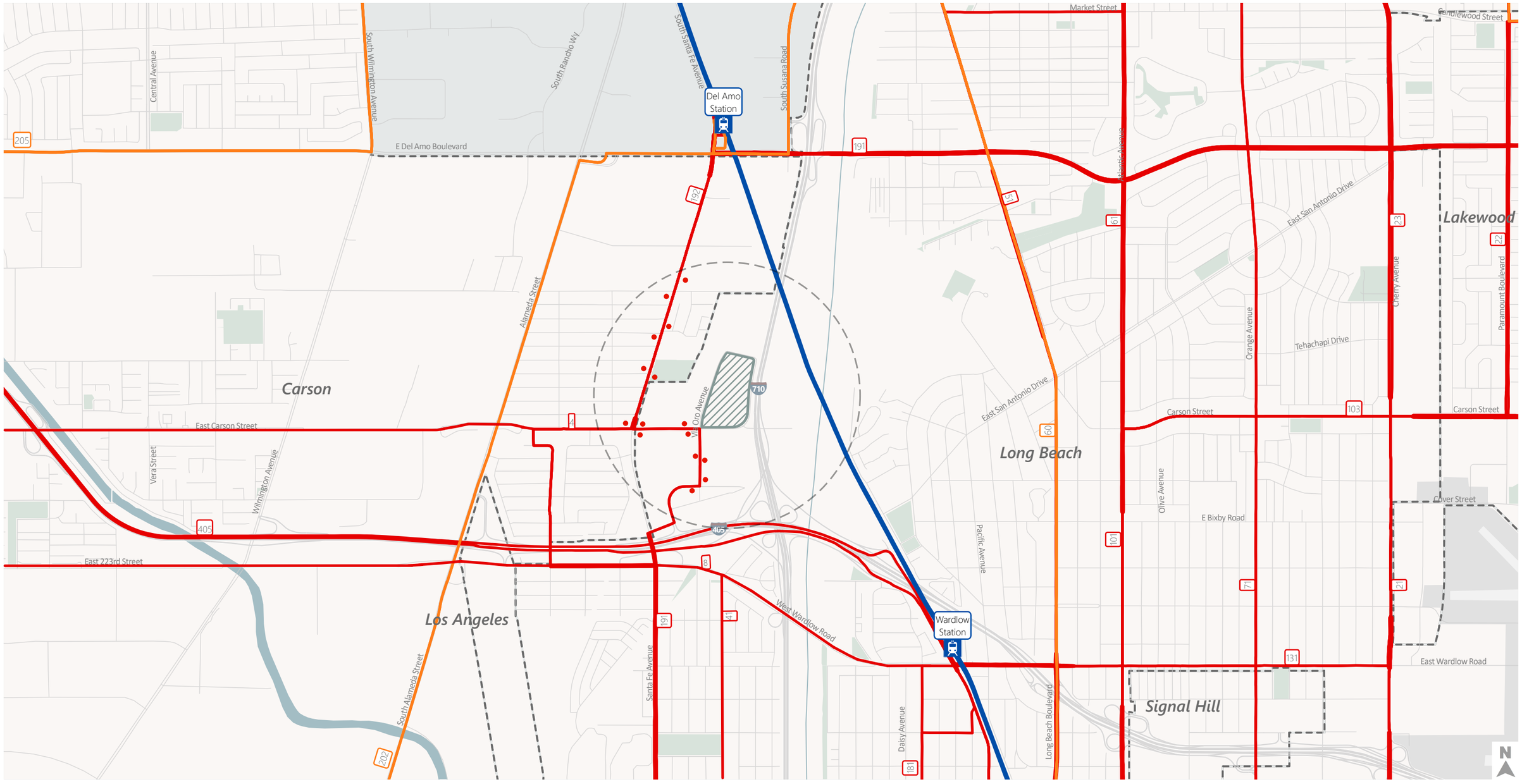


Figure 3

Existing Transit Facilities

3.4 Bicycle Facilities

The city has an extensive network of bicycle facilities consisting of 15 miles of bike routes, 19 miles of bike lanes, and 29 miles of bike paths. The city also has priority "8-to-80" bicycle facilities. Per the City's 2040 Bicycle Master plan, these bikeways are designed so that anyone between the ages of 8 and 80 years can ride in the facility safely and comfortably. In addition to the on-street bicycle network, the city of Long Beach has over 60 miles of off-street bike and pedestrian paths. In total, the city has approximately 156 miles of bikeways.

Bicycle facilities in the city of Long Beach are classified as follows:

3.4.1 Class I Bikeways (Bike Paths)

Class I bicycle facilities are bicycle trails or paths that are off-street and separated from automobiles. They are a minimum of eight feet in width for two-way travel and include bike lane signage and designated street crossings where needed. A Class I Bike Path may parallel a roadway (within the parkway) or may be a separate right-of-way that meanders through a neighborhood or along a flood control channel or utility right-of-way.

3.4.2 Class II Bikeways (Bike Lanes)

Class II bicycle facilities are striped lanes that provide bike travel and can be located next to either a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended; however, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.

3.4.3 Class III (Bike Routes)

Class III bicycle facilities are streets providing for shared use by motor vehicles and bicyclists. While bicyclists have no exclusive use or priority, signage both by the side of the street and stenciled on the roadway surface alerts motorists to bicyclists sharing the roadway space and denotes that the street is an official bike route.

3.4.4 Class IV Bikeways (Cycle Tracks)

Class IV bicycle facilities, sometimes called cycle tracks or separated bikeways, provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and are protected from vehicular traffic via separations (e.g., grade separation, flexible posts, inflexible physical barriers, on-street parking). California Assembly Bill (AB) 1193 legalized and established design standards for Class IV bikeways in 2015.

Figure 4 shows Long Beach's existing and proposed bicycle facilities.

Within a half-mile radius of the Project site, there are currently no existing bicycle facilities. The nearest bicycle facilities are bike sharrows on Santa Fe Avenue, south of Wardlow Road. Proposed bicycle facilities are located along the following streets.

- Class I bikeways along the west side of the Los Angeles River
- Class II bikeways along Wardlow Road
- Class II & Class III bikeways along Santa Fe Avenue north of Warnock Way

Bike sharrows on Santa Fe Avenue, south of Wardlow Road (Photo Credit: Fehr & Peers, July 2023).

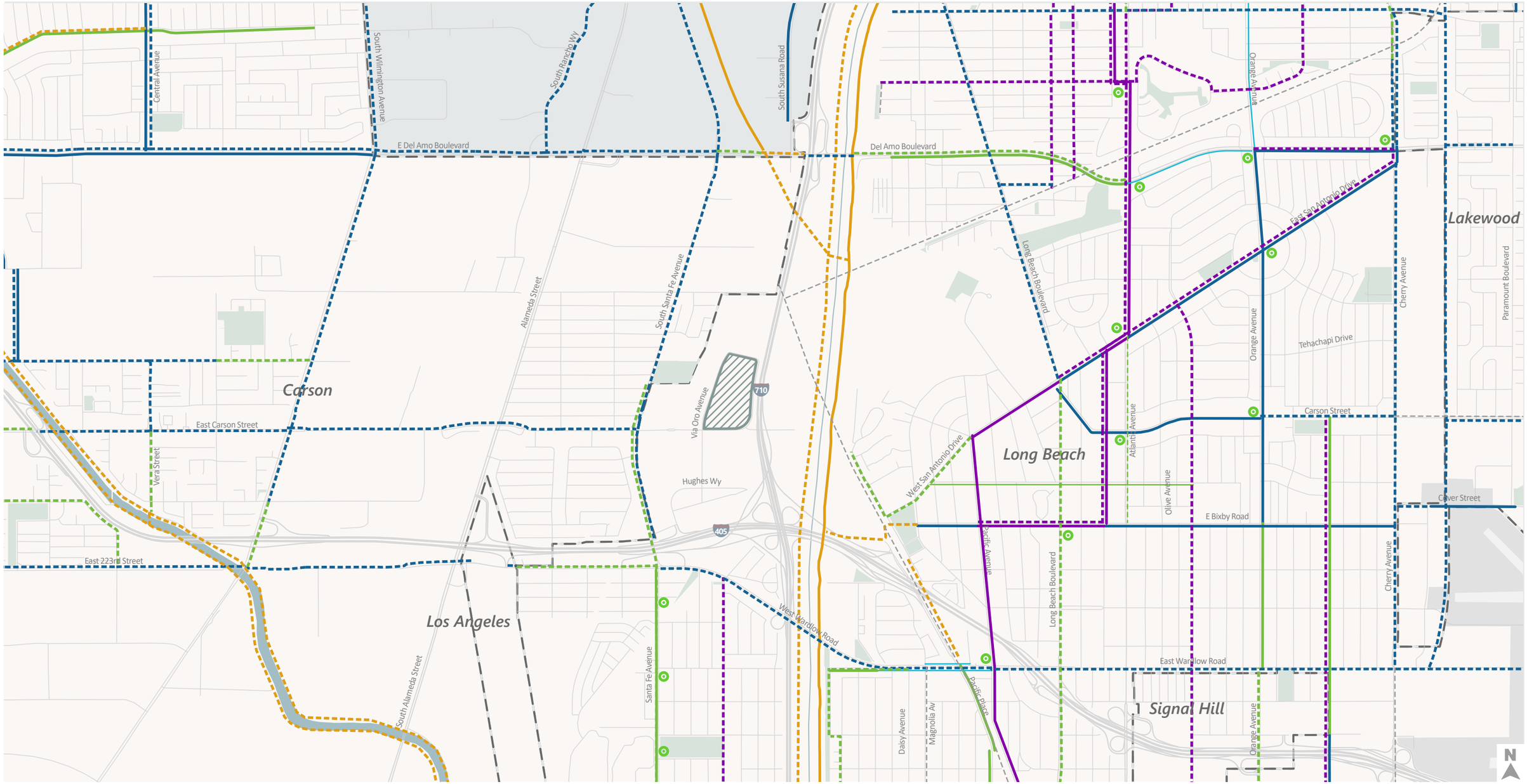
3.4.5 Bike Share Program

The City of Long Beach launched Long Beach Bike Share in March 2016 as part of its effort to enhance mobility and bicycle infrastructure. This bike share program currently has 472 bikes and 82 stations in operation. The nearest station is located approximately one mile south of the Project on Santa Fe Avenue, at Lincoln Street. There are two additional bike share stations located on Santa Fe Avenue, south of 34th Street.

Long Beach bike share station on Wardlow Road, east of the Wardlow Metro Station at Pacific Avenue (Photo Credit: Fehr & Peers, March 2021).

Users have the option of renting the bike on an hourly basis for $7.00/hour or purchasing either of the following plans: a membership monthly plan for $15 which includes 90 minutes of daily use time or an annual plan for $120 which includes 90 minutes of daily use. Up to six people can share one membership account. Prospective users can assess the availability of bicycles at a station via a mobile phone app. Within the vicinity of the Project, stations are located at the following intersections:

- Santa Fe Avenue and Lincoln Street
- Santa Fe Avenue and 34th Street
- Pacific Avenue and Wardlow Road



Project Site

Existing Class III-A Bikeway (Bike Boulevard)

Existing Class I Bikeway (Shared-Use Path)

Existing Class II Bikeway (Bicycle Lane)

Existing Class III Bikeway (Bicycle Route)

Existing Class III-B Bikeway (Sharrows)

Existing Class IV Bikeway (Separated Bikeways)

Proposed Class III-A Bikeway (Bike Boulevard)

Proposed Class I Bikeway (Shared-Use Path)

Proposed Class II Bikeway (Bicycle Lane)

Proposed Class III Bikeway (Bicycle Route)

Proposed Class III-B Bikeway (Sharrows)

To Be Determined

Bike Share Station

Figure 4

Existing and Planned Bicycle Facilities

3.5 Pedestrian Facilities

The City of Long Beach has goals, policies, and implementation measures designed to create a system of complete streets that support and encourage all mobility users, regardless of age or ability including pedestrians, bicyclists, and transit riders. Pedestrian facilities in the study area include sidewalks, crosswalks, and pedestrian signals. The major streets that provide access to the Project include Carson Street, Via Oro Avenue, and Santa Fe Avenue. These roadways have well-connected and maintained sidewalk networks near the Project site. Sidewalks are provided on both sides of these streets, except for portions of Carson Street (north side, west of Via Oro Avenue) and portions of Via Oro Avenue (east side, north of Carson Street). At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided.

3.6 Truck Routes

Designated truck routes provide for the regulated movement of medium and heavy truck traffic through the city and minimizes intrusion of truck traffic in sensitive areas, such as residential neighborhoods. The designation of truck routes is intended to direct truck traffic to those streets/freeways where they would cause the least amount of neighborhood intrusion and where noise, vibration, and other factors would have the least impact. Per the City General Plan Mobility 2035, designated truck routes near the Project area are provided on Alameda Street (City of Carson), Willow Street east of I-710, Del Amo Boulevard (City of Carson), and Santa Fe Avenue south of the Pacific Coast Highway. Regional freeway access is provided at the Hughes Way & Warnock Way with I-405 west on/off-ramp intersection (study location #6). Also, the I-710 freeway, which is predominately used by heavy duty trucks to transport goods to and from the San Pedro Bay ports, is the nearest regional truck route of the Project site and will be provided access at the Wardlow Road and I-405 eastbound on-ramp.

Based on City instruction, in instances when developments are not located immediately adjacent to a truck route, operators should take the most direct route between their trip origin/destination and the nearest truck route. Since the Project is not adjacent to a truck route, medium and heavy trucks should use the nearest street to access regional freeways for freight travel.

3.7 Baseline Traffic Volumes

Per the City's TIA guidelines, the most recent available traffic conditions and physical geometry are used to determine existing conditions. Turning movement intersection counts for the AM and PM peak periods were collected at the following six study intersections in May 2023:

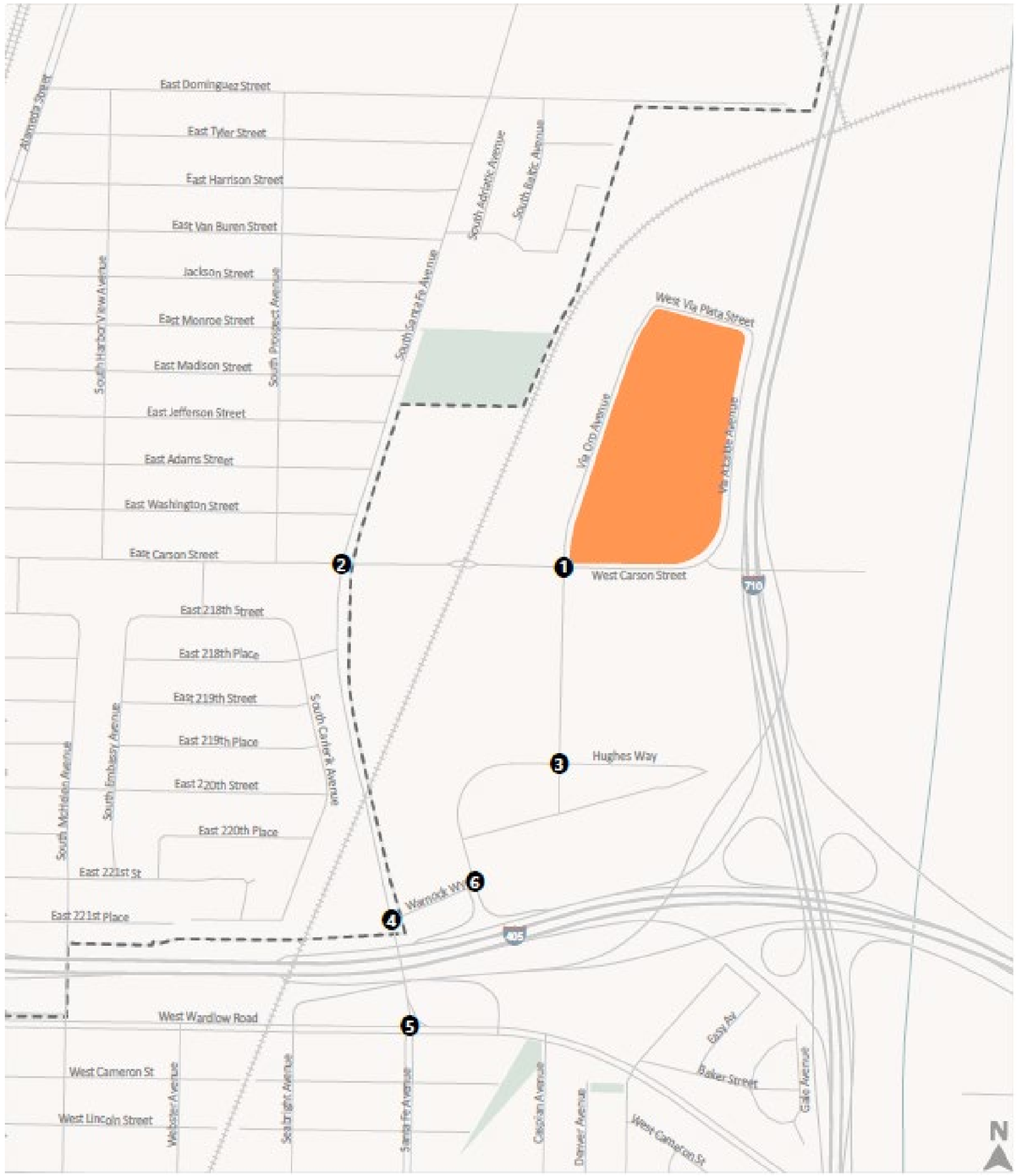
- Intersection #1 – Via Oro Avenue & West Carson Street
- Intersection #2 – Santa Fe Avenue & West Carson Street
- Intersection #3 – Via Oro Avenue & Hughes Way

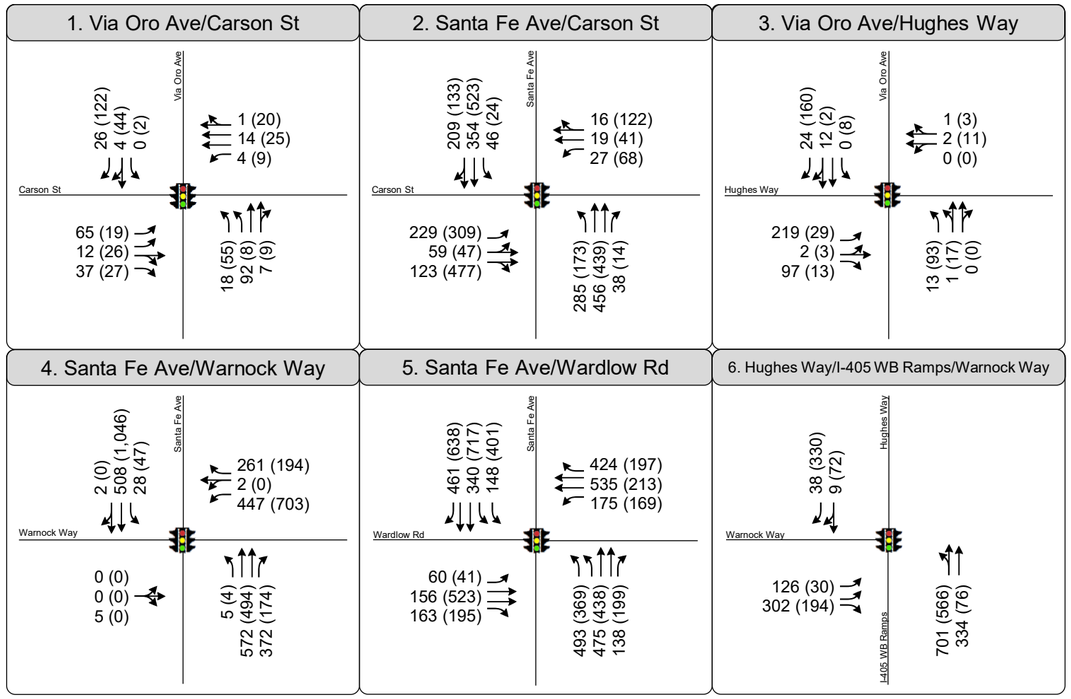
- Intersection #4 – Santa Fe Avenue & Warnock Way
- Intersection #5 – Santa Fe Avenue & West Wardlow Road
- Intersection #6 – Hughes Way & Warnock Way

Baseline (2023) Conditions peak hour traffic volumes for the study intersections are shown on **Figure 5**. The 2023 traffic count sheets are provided in **Appendix A**.

As part of the field inventory, Fehr & Peers also collected the following information:

- Lane configurations
- Signal phasing
- Land uses in the study area
- Existing pedestrian and bicycle facilities
- Transit service





LEGEND

#	Study Intersection	AM (PM)	Peak Hour Traffic Volume
	Signalized		Lane Configuration

Figure 5
Peak Hour Traffic Volumes and Lane Configurations
Existing (2023) Conditions

3.8 Cumulative Project List

In coordination with the City, several proposed development projects were identified for inclusion in the opening year analysis within a one-mile radius of the Project site. Three of the related projects are residential projects and seven are commercial/office projects as described below.

- A three-story, 20 dwelling unit per story townhome is under construction at the corner of 49th Street and Long Beach Boulevard, northeast of the Project site. The related project is expected to generate 404 average daily trips, based on ITE's *Trip Generation 11th Edition*.
- A 38-dwelling unit, three-story townhome at 5100 Long Beach Boulevard between E. Sunset and E. Home Street is under construction and expected to generate 768 average daily trips.
- A development agreement for a housing project consisting of 233 (214 attached and 7 detached) dwelling units with a 5% affordable component is under site plan review at 712 Baker Street. This related project is expected to generate 1,665 average daily trips.
- Additionally, there are seven commercial/office related projects happening within a one-mile radius of the Project site. However, six of them won't generate over 500 average daily trips and fewer than 50 weekday trips per peak hour based on *ITE's Trip Generation 11th Edition*. The other proposed project is building a 26-room, three-story boutique hotel in the SP-1CDR District with an estimated 623 average daily trips. It will generate approximately 36 trips in the AM peak hour and 46 trips in the PM peak hour during the weekday.

There are no transportation system infrastructure changes in the study area planned for implementation by year 2027 per confirmation by City staff. Therefore, network changes were not included in the analysis.

Per the City's *Mobility Element 2035*, the following capital improvement projects are under consideration by the city in the vicinity of the Project. However, because none of the identified improvements are included in the City's Fiscal Year 2023 Capital Improvement Program or affect any intersection operation analysis, they were not included in the Opening Year (2027) analysis.

- **The Metro Blue Line (or A Line) Wardlow Station Park and Ride.** Capital project would develop increased vehicle capacity at the station to encourage ridesharing, transit use, and multimodal connectivity.
- **Santa Fe Avenue Project**. Upgrade traffic signal and sharrow markings between Wardlow Road and Anaheim Street. Traffic signal improvements include larger signal indications, new protected left-turn arrows, pedestrian countdown signals, and upgraded signal integration with emergency vehicles. Since Santa Fe Avenue and West Wardlow Road (intersection #5) is already a protected left-turn intersection, the Santa Fe Avenue Project won't have an impact on the study intersection operation.

- **Measure A Infrastructure Investment Plan (Fiscal Year 2023 – Fiscal Year 2027).** A citywide infrastructure investment plan to fix Long Beach streets, roads, and alleys; repair the city's infrastructure; maintain and add more police officers on our streets; maintain and improve 911 paramedic response times; and maintain and restore firefighters at critical locations. Via Alcalde Avenue and Hughes Way will be upgraded as slurry seal streets in this five-year plan without changing geometry. Thus, it won't affect the Project Opening Year (2027) lane configuration.

4. Vehicle Miles Traveled (VMT) Analysis

This chapter summarizes the methodology and analysis of the City's TIA criteria using VMT as the new CEQA metric for determining a Project's potential for significant impacts. The State Office of Planning and Research (OPR) finalized the revisions to the CEQA Guidelines in accordance with SB 743, which replaces automobile delay and level of service (LOS) with VMT as the new metric of analysis. The screening criteria, VMT analysis, thresholds, and mitigation presented below are in accordance with the City's TIA guidelines adopted in July 2020. Both a Project-level and cumulative analysis was performed using the SCAG adopted 2020 RTP/SCS Travel Demand Model.

4.1 Project VMT Methodology

The Project VMT impact analysis methodology includes: (1) Determining the appropriate VMT metric and corresponding threshold of significance, (2) Calculating the Project VMT, (3) Determining the impact significance, and (4) Recommending appropriate VMT mitigation measures (if necessary). For the purposes of SB 743, VMT to be analyzed is generated by on-road passenger vehicles, specifically cars and light-duty trucks.

4.1.1 VMT Metric and Threshold of Significance Determination

To identify potential significant Project impacts, the following VMT metric was analyzed per the City's TIA guidelines:

- **Daily home-based work VMT per employee**. This metric represents the commute portion of the daily trips associated with the Project employees and is consistent with the City's TIA guidelines and CEQA transportation impact methodology per SB 743.

Table 1 below shows the corresponding thresholds of significance for the VMT metrics, according to the City's TIA guidelines. The regional area for City of Long Beach is Los Angeles County. As calculated from the 2020 SCAG RTP/SCS Travel Demand Model, the existing (2023) regional average daily home-based work VMT per employee in Los Angeles County is 20.2.

TABLE 1 CITY OF LONG BEACH VMT THRESHOLDS OF SIGNIFICANCE

Metric	Description	VMT Threshold
Residential	15% below the existing (year 2023) regional average VMT per capita (or 19.2 X 0.85)	16.3
Office	15% below the existing (year 2023) regional average VMT per employee (or 20.2 X 0.85)	17.2
Retail	No net change in total VMT	Δ VMT = 0
Industrial	**No net change in total VMT if consistent with the General Plan Land Use Element;** 15% below the existing regional average VMT per employee if inconsistent with the General Plan Land Use Element	**Δ VMT = 0;** otherwise, 17.2
Other Land Uses	No net change in VMT per capita or VMT per employee if consistent with the General Plan Land Use Element; 15% below the regional average if seeking a General Plan Amendment	Δ VMT = 0; otherwise, 15% below regional average

Source: City of Long Beach TIA Guidelines, June 2020.

4.2 City Screening Thresholds

The City of Long Beach has reviewed the recommendations and examples in the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* and has established several screening thresholds. Land development projects that have one or more of the following attributes may be presumed to create a less than significant VMT impact pursuant to CEQA Guidelines Section 15064.3, subdivision (b).

- Low Trip Generator, i.e., < 500 Average Daily Trips
- Low-VMT Area
- Transit Priority Area (TPA)
- Local-Serving Retail < 50,000 Square Feet *(not applicable)*
- 100% Affordable Housing *(not applicable)*
- Institutional/Government and Public Service Uses that Support Community, Health, Safety, and Welfare *(not applicable)*
- Harbor District *(not applicable)*

4.2.1 Presumption of Less Than Significant Impact for Small Projects

Threshold

The City of Long Beach has historically established a screening threshold of 50 peak-hour trips for requiring a TIA. For most land use types, approximately 10% of daily trips occur during the busiest peak hour. Therefore, per the City's TIA guidelines, a project generating fewer than 50 peak-hour trips would generate approximately 500 average daily trips (ADT). This assumption might be very different for facilities such as a last mile delivery warehouse, where they intentionally avoid generating many trips during peak hour but may have large daily trip generation.

Analysis

Based on the Project's proposed land uses, a trip generation analysis presented in section 5.1.1 showed that the Project generates more than than 500 ADT. Therefore, the Project cannot be presumed to have a less than significant impact due to project size, and a VMT analysis may be required if other screening criteria are not met.

4.2.2 Presumption of Less Than Significant Impact Near Transit Stations

Threshold

CEQA Guidelines Section 15064.3, Subsection (b), states that "generally, [land use] projects within 0.5-mile of either an existing major transit stop or an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact." Transit priority areas (TPAs) in Long Beach are based on the California Public Resource Code definitions for major transit stops[1] or high-quality transit corridors[2]. The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* identifies the following four criteria for which the presumption would not apply.

- Has an overall floor area ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required (if parking minimums pertain to the site) or allowed without a conditional use permit (if minimums and/or maximums pertain to the site)
- Is inconsistent with the Long Beach Land Use Element or the SCAG RTP/SCS
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

[1] A "major transit stop" is defined as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (CA Public Resource Code, § 21064.3).

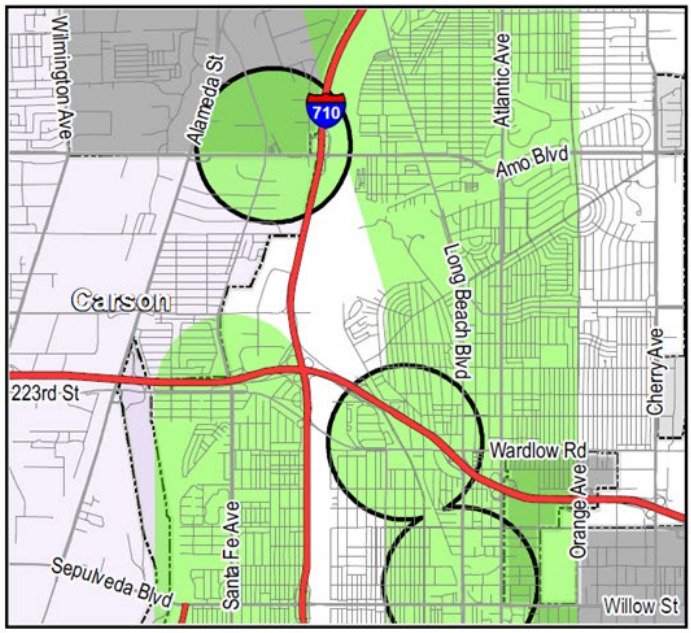
[2] "High-quality transit corridor" (HQTC) means a corridor with fixed-route bus service with service intervals no longer than 15 minutes during peak commute hours (CA Public Resource Code, § 21155).

Analysis

According to the City's TIA guidelines, the Project site is not located within a transit priority area. Therefore, the Project cannot be presumed to have a less than significant impact due to project size, and a VMT analysis is required since no other screening criteria are met.

Figure 6 shows Long Beach Transit Priority Areas within the vicinity of the Project.

Figure 6 – Long Beach Transit Priority Area



Source: City of Long Beach Traffic Impact Analysis Guideline
Long Beach Transit Priority Areas

4.3 Project VMT Impact Analysis

The methodology used to estimate Project daily home-based work VMT per employee follows the City's TIA guidelines. Home-based work VMT per employee for the Project is based on VMT estimates using the 2045 SCAG Travel Demand Model based on the 2020 RTP/SCS. The commute portion of the employee trip is represented in the model as the home-based work (attraction) trip for the respective Project Traffic Analysis Zone (TAZ). **Table 2** shows the home-based work VMT per employee generated from the Project in the Project Opening Year (2027) and the existing (2023) County of Los Angeles baseline VMT.

TABLE 2 PROJECT HOME-BASED WORK DAILY VMT PER EMPLOYEE

Variable	Project Located Traffic Analysis Zone (TAZ)		County of Los Angeles
	2027 no Project	2027 plus Project	2023 Baseline
Number of Employees	4,392	4,640	4,901,633
Home-Based Work VMT	86,751	87,267	98,827,394
Home-Based Work VMT per Employee	19.8	**18.8**	20.2

Source: *Fehr & Peers, 2023*.

Next, the Project home-based work VMT per employee was compared to the appropriate significance threshold identified in the City's TIA guidelines. Developed within the West Long Beach Business Parks Planned Development District (PD-26) area, the Project is consistent with the Long Beach Land Use Element. Therefore, since the Project VMT metric (18.8) is less than the County's baseline VMT (20.2), the Project is presumed to result in a **less than significant VMT impact**.

The cumulative VMT analysis results are provided in **Table 3**. As shown, the Project home-based work VMT per employee is lower than the 2045 no Project scenario. Therefore, the Project will also result in a **less than significant VMT impact** under cumulative conditions.

TABLE 3 PROJECT WORK VMT PER EMPLOYEE IN CUMULATIVE SCENARIO

Variable	Project Located Traffic Analysis Zone (TAZ)	
	2045 no Project	2045 plus Project
Number of Employees	4,394	4,642
Home-Based Work VMT	77,117	80,296
HBW VMT per Employee	17.6	**17.3**

Source: *Fehr & Peers, 2023*.

4.4 Other CEQA Significance Criteria

In addition to the VMT analysis described above, pursuant to CEQA Guidelines Section 15064.3, subdivision (b), the Project may have a significant impact on transportation if it does any of the following:

- Conflicts with a plan, ordinance, or policy addressing the circulation system, including transit, roadways, and bicycle and pedestrian facilities.
- Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Results in inadequate emergency access.

4.4.1 Conflict with a Plan, Ordinance, or Policy

The purpose of this section is to determine whether the Project conflicts with a transportation-related local or city plan, ordinance, or policy that was adopted to protect the environment. Under CEQA, a project is considered consistent with an applicable plan if it is consistent with the overall intent of the plan and would not preclude the attainment of its primary goals. A project does not need to be in perfect conformity with each and every policy. Any inconsistency with an applicable plan, ordinance, or policy is only a significant impact under CEQA if the plan, ordinance, or policy was adopted for the purpose of avoiding or mitigating an environmental effect and if the inconsistency itself would result in a direct physical impact on the environment.

This evaluation was conducted by reviewing regional documents and City documents such as the SCAG *Regional Transportation Plan,* Long Beach *Mobility Element 2035*, *Safe Streets Action Plan*, and municipal code sections. As summarized in **Table 4,** no conflicts were identified. Therefore, no significant transportation impact is anticipated based on the criterion and no mitigation would be required.

TABLE 4 PROGRAMS, PLANS, ORDINANCES, AND POLICIES CONFLICTS REVIEW

Plans	Description	Relevant Goals, Policies and/or Objectives	Conflicts Discussion
Southern California Association of Governments (SCAG) Regional Transportation Plan	Every 4 years, SCAG updates its RTP for the 191-city SCAG region. Beginning with the 2012 RTP, SB 375 required the inclusion of a SCS in RTPs prepared by MPOs such as SCAG. The key goal of the SCS is to achieve GHG emission reduction targets through integrated land use and transportation strategies. A key objective is for planners and developers to consider how land use patterns influence travel demand.	The 2020-2045 RTP/SCS builds upon the progress made through implementation of the 2016-2040 RTP/SCS and includes 10 goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. The SCS implementation strategies include focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of sustainability policies. The SCS establishes a land use vision of center focused placemaking, concentrating growth in and near Priority Growth Areas, transferring of development rights, urban greening, creating greenbelts and community separators, and implementing regional advance mitigation (SCAG 2020).	As part of the transportation modeling and analysis for the RTP/SCS, SCAG prepares population and employment growth projections by Transportation Analysis Zone (TAZ) and creates a future transportation network that represents the changes to the existing network based on the regional project list. TAZs are geographic polygons representing communities and neighborhoods at a sub-city level of detail. The proposed Project was compared against the RTP/SCS forecasts and network changes included in the 2020 SCAG RTP model. Given that the proposed Project would not result in any changes to the existing transportation network, and with an industrial land use, the Project would not increase housing density in urban infill areas near transit, there are no conflicts with the RTP/SCS.
City of Long Beach Mobility Element 2035	The Long Beach General Plan Mobility Element was adopted October 2013. It is the City's document to guide the operations and design of streets and other public rights of way. It lays out a vision for improving the way people, goods, and resources move from place to place. The Mobility Element addresses all modes of travel, and in addition to improving mobility and accessibility to opportunities, the plan is about enhancing the quality of life for today's generation, as well as generations to come.	1) Goal 1 – Create a safe, efficient, balanced, and multimodal mobility network. 2) Goal 2 – Maintain and Enhance Air, Water, and Ground Transportation Capacity. 3) Goal 3 – Lead the Region by Example With Innovative and Experimental Practices.	The proposed Project won't increase residential density in an area with industrial land use and amenities. The Project would not preclude the City of Long Beach from implementing the goals of the Mobility Element, would provide street level access to proposed uses, and on-site parking. The construction of a sidewalk connecting Via Plata Street and Carson Street for pedestrian use also ensures pedestrian safety and mobility. Thus, the proposed Project has no conflicts with Mobility Element goals related to transportation.

Plans	Description	Relevant Goals, Policies and/or Objectives	Conflicts Discussion
Long Beach Bicycle Master Plan	The City of Long Beach Bicycle Master Plan is a supplement to the Mobility Element and was updated December 2016. The Plan expands upon the Mobility Element of the Long Beach General Plan by providing further details on bicycle planning and design. It also recommends a series of projects and programs to be implemented by Long Beach in the next few decades.	1) Goal 3 – Identify, develop, and maintain a complete and convenient bicycle network.	The proposed Project has no conflicts with the Bicycle Master Plan because the project would not make any changes to the existing bicycle infrastructure surrounding the Project site. It would not preclude the installation of any planned bicycle facilities in the City of Long Beach.
Safe Streets Long Beach Action Plan[3]	Safe Streets Long Beach Action Plan strives to eliminate traffic-related fatalities and serious injuries in Long Beach by 2026 through multiple strategies, such as modifying streets to better serve vulnerable road users. The plan uses data analysis, community input, and best practice research to identify programs and policies that can make the streets safer for everyone.	In 2016, Long Beach's City Council approved a Vision Zero policy with the goal of eliminating traffic fatalities and serious injuries among all road users by 2026. Keystone Action #1: Dedicate Resources to Vision Zero.	The Project meets the goals and objectives set forth in the Vision Zero plan. The Project is not located on a High Injury Corridor (HIC) and next to any High Injury Intersections, as identified in the plan. No specific Vision Zero projects are planned around the Project site, and the Project will not conflict with the implementation of future Vision Zero projects in the public right-of-way.

Source: *Fehr & Peers, 2023*.

The Project study area is serviced by LBT lines 191,192 and 4, which travel along Santa Fe Avenue, Carson Street, and Via Oro Avenue. The Project design and features would not preclude City action to fulfill or implement projects associated with these transit routes. Therefore, the Project would not conflict with adopted plans, ordinances, or policies regarding public transit, bicycle, or pedestrian facilities and impacts are considered **less than significant**.

4.4.2 Substantially Increase Hazards Due to a Geometric Design Feature

Impacts regarding the potential increase of hazards due to a geometric design feature generally relate to the design of access points to and from the Project site. Impacts can be related to vehicle/vehicle, vehicle/bicycle, or vehicle/pedestrian conflicts. These conflicts may be created by the driveway configuration or through the placement of project driveway(s) in areas of inadequate visibility, adjacent to bicycle or pedestrian facilities, or too close to busy or congested intersections. These impacts are typically evaluated for permanent conditions after project completion but can also be evaluated for temporary conditions during project construction.

[3] City of Long Beach, Safe Streets Action Plan, a Vision Zero Project, adopted July 2020.

Based on the previous Traffic Feasibility Study, the Project will not generate average daily traffic volumes that exceed the capacity on adjacent streets providing access to the Project site. As shown in the Project site plan in **Figure 1**, the Project's driveways are perpendicular to the public right-of-way and adequately spaced from existing intersections. Additionally, the Project does not introduce incompatible uses with the surrounding community, as the Project proposes uses that are already present in the area. Therefore, the Project is expected to result in a **less than significant impact** related to hazards resulting from geometric design features.

4.4.3 Result in Inadequate Emergency Access

Two driveways are available for the Project for emergency access. The Project is located approximately 2.5 miles from the existing Los Angeles County Fire Department Station 127, which serves the city of Carson. Within a one-mile radius of the Project site, there is a planned construction of Fire Department Station 9 at 4101 Long Beach Boulevard (as cited in the related project list). While the Project is expected to increase the number of vehicles on nearby roadways, emergency responders have sirens and are able to bypass intersection queues and utilize two-way left-turn lanes. The Project is well-served by nearby emergency service providers and grants adequate emergency vehicle access to, from, and within the Project site. Additionally, the Project does not propose any features that would inhibit emergency access to nearby areas. Therefore, the Project is expected to have a **less than significant impact** regarding emergency access.

5. Traffic Analysis

5.1 Project Trips

This section of the TIA applies traditional practices of assessing safety, capacity, and LOS for informational purposes only. It is important to note that with new CEQA guidelines that contain new criteria for significant impacts (VMT), auto delay is no longer considered a significant impact under CEQA (Id. at subd. (b)(2)). Transportation impacts related to air quality, noise, and safety must still be analyzed under CEQA where appropriate (Id. at subd. (b)(3)). With implementation of the SB 743 guidelines, the LOS analysis requirements will not affect the CEQA transportation impacts analysis previously presented and will be fully separate from CEQA.

The development of peak hour vehicular traffic volume estimates for the Project involves the use of a three-step process: trip generation, trip distribution, and traffic assignment.

5.1.1 Project Trip Generation

The proposed Project includes the development of the warehouse/distribution center site plan with the following components:

- The construction of a new 60-foot-tall, 543,239-sq. ft. combination warehouse and distribution center with 16,800-sq. ft. of accessory offices.
- An open surface parking field with 570 parking stalls and 174 loading/trailer parking spaces.

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the local roadway network. For this analysis, trip generation was estimated for typical daily and weekday AM peak and PM peak hours.

Table 5 summarizes the Baseline Conditions trip generation for the proposed Project in the Opening Year (2027) based on the land use type and number of employees. The estimates presented are based on the most recently published rates in the *Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition)*. Information about the number of employees was not available at the time of this study; therefore, the trip rates are based on the square footage of the proposed uses. No trip credits (internal, pass-by, or transit) were applied given the Project land use type and location.

The ITE Trip Generation manual provides trip generation rates for warehousing (ITE land use code 150) but does not include vehicle mix estimates. Therefore, this study augments the ITE trip generation data with data from the previous ITE trip generation manual to obtain vehicle mix percentages to estimate the number of trucks generated by the Project and for use in calculating passenger car equivalents (PCE) for the operational analyses.

The Project is estimated to generate 1,111 daily vehicle trips, 118 AM peak hour vehicle trips (94 inbound/24 outbound), and 122 PM peak hour vehicle trips (31 inbound/90 outbound). The vehicle mix breakdown is estimated to consist of approximately 69% auto trips and 31% truck trips. The truck trip percentage can be further broken down to 6.8% - 2-axle truck trips, 5.5% - 3-axle truck trips, and 18.7% - 4+-axle truck trips. The project truck trips are converted into PCEs for the capacity analysis. A PCE factor of 2 is applied to 2-axle trucks and 3-axle trucks and a factor of 3 is applied to 4+-axle trucks. The proposed Project is anticipated to generate 1,573 daily PCE trips, 164 AM peak hour PCE trips (129 inbound/35 outbound), and 170 PM peak hour PCE trips (45 inbound/125 outbound).

TABLE 5 TRIP GENERATION BASED ON INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) MANUAL

Land Use	ITE Land Use Code	Size (ksf)	Trip Generation							
			Daily Rate	Daily Trips	AM			PM		
					In	Out	Total	In	Out	Total
Proposed Project										
Office	710	16.8	10.84	182	22	3	26	4	20	24
Warehouse	150	543.24	1.71	929	71	21	92	27	70	98
Passenger Cars			*69.0%*	*641*	*49*	*15*	*64*	*19*	*49*	*67*
Truck: 2 Axle			*6.8%*	*63*	*5*	*1*	*6*	*2*	*5*	*7*
Truck: 3 Axle			*5.5%*	*51*	*4*	*1*	*5*	*2*	*4*	*5*
Truck: 4+ Axle			*18.7%*	*174*	*13*	*4*	*17*	*5*	*13*	*18*
TOTAL VEHICLE TRIPS				**1,111**	94	24	**118**	31	90	**122**
Passenger Car Equivalents										
			PCE Rate							
Passenger Cars			1	641	49	15	64	19	49	67
Truck: 2 Axle			2	126	10	3	13	4	10	13
Truck: 3 Axle			2	102	8	2	10	3	8	11
Truck: 4+ Axle			3	521	40	12	52	15	39	55
TOTAL PCE TRIPS				**1,573**	129	35	**164**	45	125	**170**

Source: *Fehr & Peers, 2023.*

The estimated trip generation is used to compare the proposed Project to the West Long Beach Business Parks Planned Development District (PD-26) land use assumptions. The PD-26 Plan contains trip generation estimates for each of the sub-areas within the plan area and specifies off-site improvements in which developments are required to contribute their fair share of funding. The PD-26 Plan has specific PM peak hour trip generation rates for Office, Business Park, Research and Development, Warehouse, and Hotel land use. Based on PD-26 trip generation rates and the same methodology of converting PCE trips,

the Project would generate 397 PM peak hour PCE trips. Since there is no specific AM peak hour trip generation rate, the number of AM peak hour trips is assumed to equal the PM peak hour trip generation. As summarized in **Table 6**, the Project would generate 1,573 daily PCE trips, 397 AM peak hour PCE trips (309 inbound/88 outbound), and 397 PM peak hour PCE trips (108 inbound/289 outbound). For the purposes of this transportation impact analysis study, the higher vehicle trip generation presented in **Table 6** is used to assess the potential for significant impacts.

TABLE 6 TRIP GENERATION BASED ON PD-26 LAND USE

Land Use	ITE Land Use Code	Size (ksf)	Trip Generation							
			Daily Rate	Daily Trips	AM			PM		
					In	Out	Total	In	Out	Total
Proposed Project										
Office	710	16.8	10.84	182	27	4	31	5	26	31
Warehouse	150	543.24	1.71	929	188	56	244	68	176	244
Passenger Cars			*69.0%*	*641*	*130*	*39*	*169*	*47*	*121*	*169*
Truck: 2 Axle			*6.8%*	*63*	*13*	*4*	*17*	*5*	*12*	*17*
Truck: 3 Axle			*5.5%*	*51*	*10*	*3*	*13*	*4*	*10*	*13*
Truck: 4+ Axle			*18.7%*	*174*	*35*	*11*	*46*	*13*	*33*	*46*
TOTAL VEHICLE TRIPS				**1,111**	215	60	**275**	74	202	**275**
Passenger Car Equivalents										
			PCE Rate							
Passenger Cars			1	641	130	39	169	47	121	169
Truck: 2 Axle			2	126	26	8	33	9	24	33
Truck: 3 Axle			2	102	21	6	27	8	19	27
Truck: 4+ Axle			3	521	106	32	137	38	99	137
TOTAL PCE TRIPS				**1,573**	309	88	**397**	108	289	**397**

Source: *Fehr & Peers, 2023*.

5.1.2 Project Trip Distribution and Assignment

The geographic distribution of trips generated by the proposed Project is dependent on characteristics of the street system serving the Project site, the level of accessibility of routes to and from the proposed Project site, and expected origins and destinations of vehicle trips The estimated distribution of Project trips is illustrated in **Figure 7**.

Based on City instruction, in instances when developments are not located immediately adjacent to a truck route, operators should take the most direct route between their trip origin/destination and the nearest truck route. Santa Fe Avenue south of Wardlow Road is not a truck route so for the medium and

heavy trucks to access I-710 southbound from the proposed Project site, they need to use the Wardlow Road and I-405 eastbound on-ramp and the I-405 and I-710 interchange to get assigned to south of proposed Project site.

The vehicles generated by the proposed Project were assigned to the street network using the distribution patterns illustrated in **Figure 7**. The road network assignment of Project traffic volumes considers the locations of the proposed Project driveways on Via Plata Street, Via Oro Avenue, and Carson Street, which are confined to the Via Oro Avenue driveway and Carson Street driveway. The east Via Alcalde Avenue driveway will be closed and accessed occasionally by City maintenance vehicles.

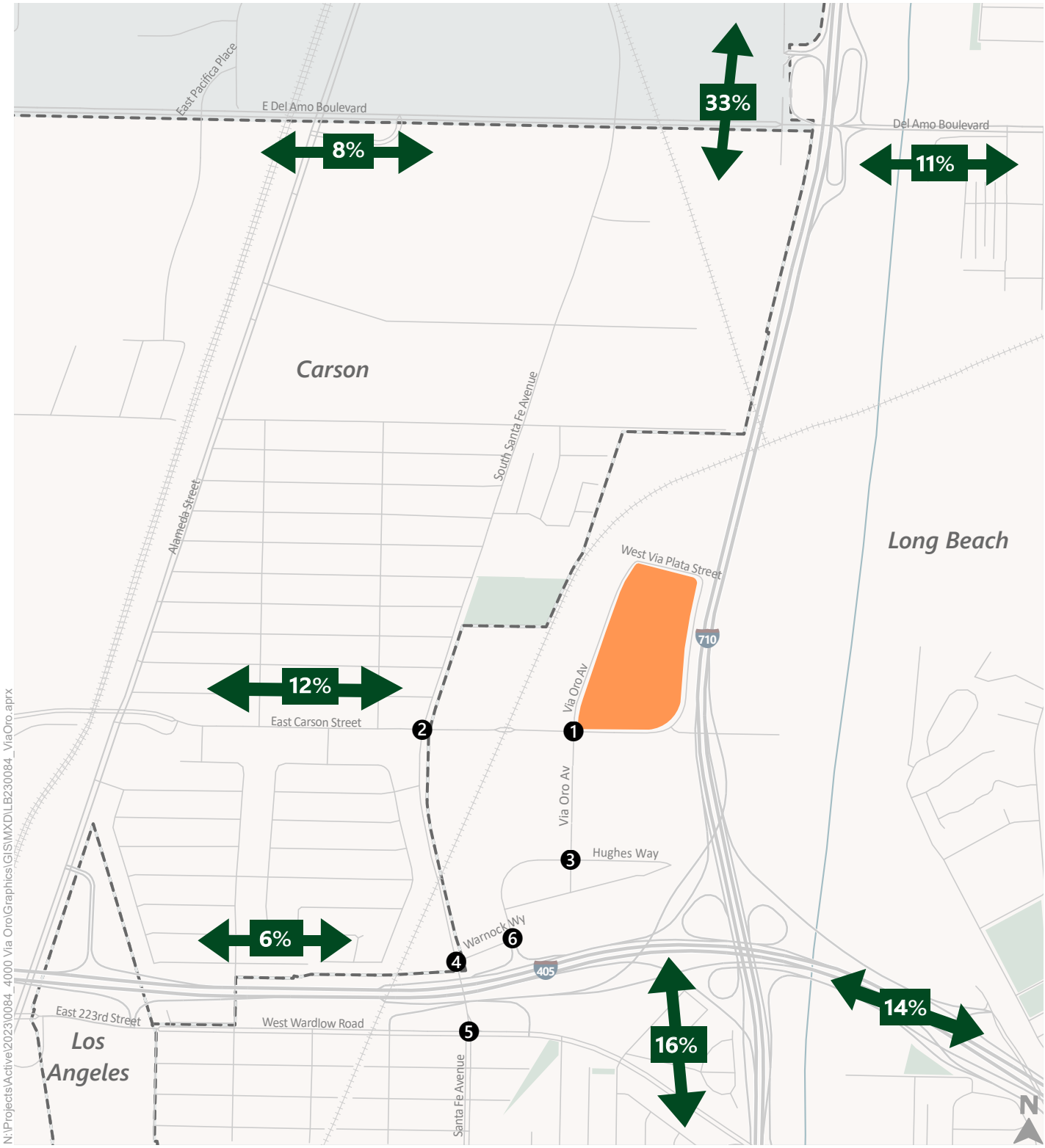


Figure 7

Trip Distribution

5.2 Traffic Analysis

5.2.1 Baseline (2023) Conditions

Traffic Volumes and Configurations

Per the City's TIA guidelines, the most recent available traffic conditions and physical geometry are used to determine existing conditions. Turning movement intersection counts for the AM and PM peak periods were collected at the 6 study intersections in May 2023. Baseline Conditions peak hour traffic volumes for the study intersections are shown on **Figure 5**. The traffic count sheets are provided in **Appendix A**.

Baseline Traffic Level of Service

Traffic volumes, existing lane configurations, and signal timings were used to evaluate operations at the study intersections for Baseline AM and PM peak hour conditions. The results are summarized in **Table 7**, showing LOS and average delay per vehicle at the study intersections. All intersections operate at LOS D or better, except for Santa Fe Avenue & West Wardlow Road in the AM peak hour (intersection #5). LOS calculation worksheets are provided in **Appendix B**.

TABLE 7 EXISTING BASELINE CONDITIONS INTERSECTION LEVELS OF SERVICE

No.	Study Intersection	Peak Hour	Existing Baseline (2023)	
			Delay[1]	LOS
1	Via Oro Avenue & West Carson Street	AM	14.1	B
		PM	14.0	B
2	Santa Fe Avenue & West Carson Street	AM	24.8	C
		PM	23.0	C
3	Via Oro Avenue & Hughes Way[2]	AM	8.1	A
		PM	11.8	B
4	Santa Fe Avenue & Warnock Way[2]	AM	23.6	C
		PM	30.4	C
5	Santa Fe Avenue & West Wardlow Road	AM	65.3	**E**
		PM	51.4	D
6	Hughes Way & Warnock Way[2]	AM	17.1	B
		PM	19.1	B

Notes: Intersection operations below LOS D are shown in **Bold**.
[1]Delay (second per vehicle) and LOS estimated using HCM 6th Edition.
[2]Intersections due to speed limit or signal phases cannot run HCM 6th Edition, use HCM 2000 results instead.
Source: *Fehr & Peers, 2023.*

According to the City's *Mobility Element 2035*, Santa Fe Avenue & West Wardlow Road (intersection #5) operates at LOS E during the PM peak hour. Moreover, the intersections specified in the City of Long Beach General Plan Mobility Element already operating at LOS E/F will be allowed to operate at existing levels.

5.2.2 Opening Year (2027) No Project Conditions

Opening Year Traffic Volumes

To evaluate the potential effects of the proposed Project on Opening Year (2027) conditions, it was necessary to develop estimates of future traffic conditions in the area both without and with Project traffic. First, estimates of traffic growth were developed for the study area to forecast future conditions without the Project. These forecasts included traffic increases as a result of both regional ambient traffic growth (0.4%) and traffic generated by specific developments in the vicinity of the Project (related projects).

These projected traffic volumes, identified herein as the Opening Year (2027) No Project conditions, represent the future baseline conditions without the proposed Project. The traffic generated by the proposed Project was then estimated and assigned to the surrounding street system. Vehicles generated by the Project were added to the Opening Year (2027) No Project conditions to form Opening Year (2027)

Plus Project conditions, which were analyzed to determine the incremental traffic effects attributable to the Project itself.

The assumptions and analysis methodology used to develop each of the future year scenarios discussed above are described in more detail in the following sections.

Background or Ambient Growth

Based on the direction of the City's TIA guidelines, an ambient growth factor of 0.4% per year was applied to adjust the baseline year traffic volumes to reflect the effects of regional growth and development. This adjustment was applied to the Baseline year (2023) traffic volume data to reflect the effect of ambient growth by the opening year 2027.

Related Project Trip Generation

Opening Year traffic forecasts include the effects of known specific projects, called related projects, expected to be implemented in the one-mile vicinity of the proposed Project site prior to the buildout date of the proposed Project. The following list of related projects was prepared based on data from the City.

- Three-story townhomes at 4800 Long Beach Boulevard.
- Three-story townhomes at 5100 Long Beach Boulevard.
- Commercial shell building at 425 Long Beach Boulevard.
- A housing project with affordable component at 712 Baker Street.
- A three-story office building with parking stalls at 3450 Long Beach Boulevard.
- A medical office at 3009 Long Beach Boulevard.
- A boutique hotel at 3061 Long Beach Boulevard.
- Self-storage/RV parking at 3701 Pacific Place.

Trip Distribution

The geographic distribution of the traffic generated by the related projects is dependent on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which employees and potential patrons of proposed commercial developments may be drawn, the locations of employment and commercial centers to which residents of residential projects may be drawn, and the location of the projects in relation to the surrounding street system.

The Project site is located in an industrial area and most related projects are located on the other side of the river; therefore, Wardlow Road and Santa Fe Avenue are expected to serve as the primary trip distribution routes within the Project study area.

Traffic Assignment

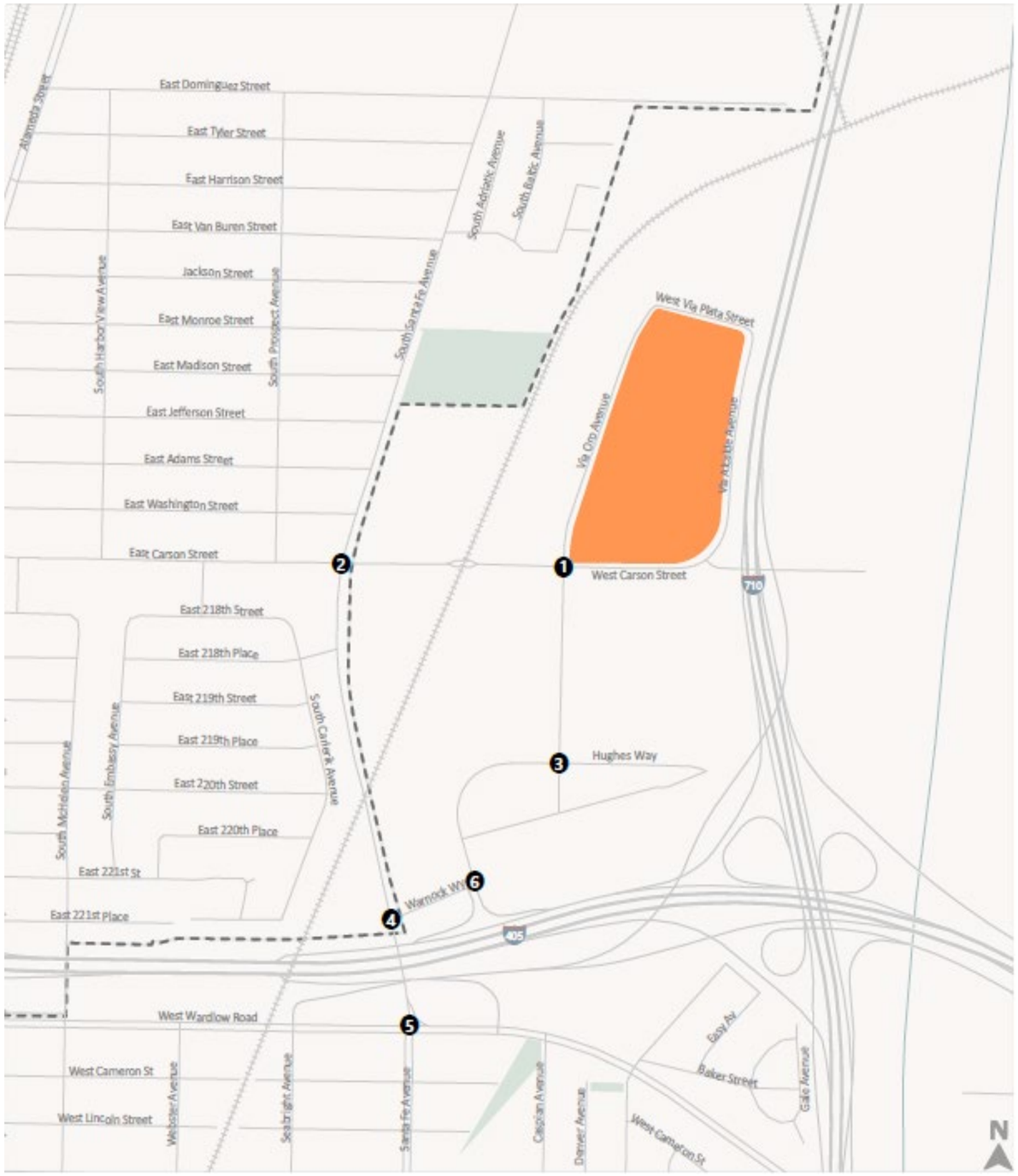
Using the estimated trip generation and trip distribution patterns described above, traffic generated by the related projects was assigned to the street network.

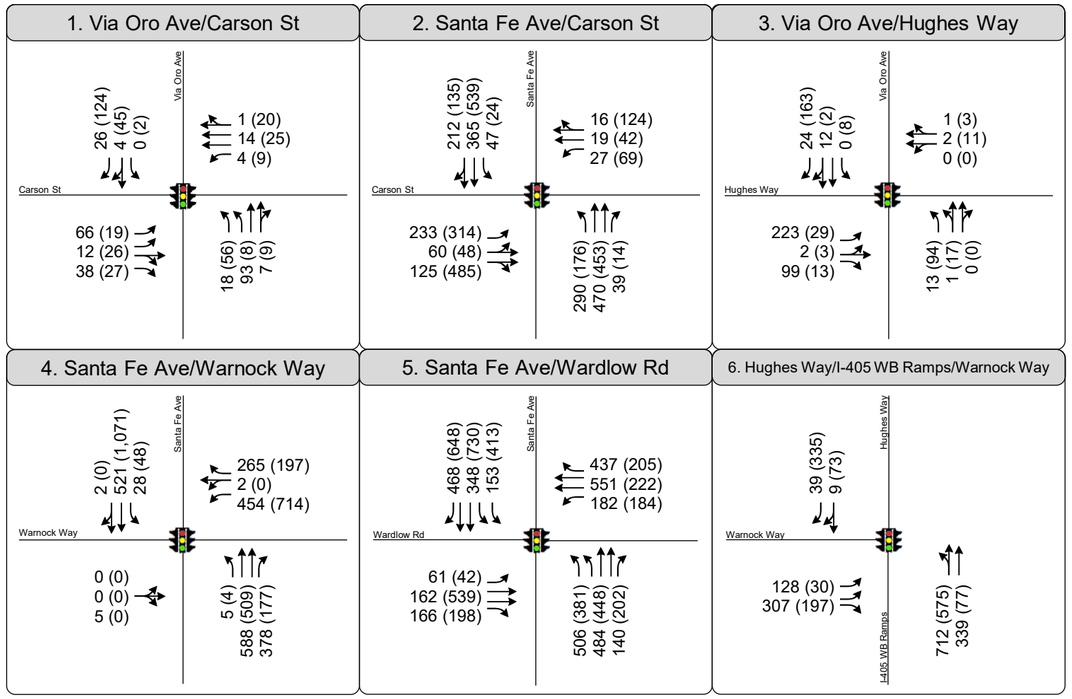
Opening Year (2027) No Project Traffic Volumes and Lane Configuration

Opening Year (2027) No Project weekday AM and PM peak hour traffic volumes and lane geometries for the analyzed intersections are provided in **Figure 8**. The Opening Year (2027) No Project traffic conditions represent an estimate of future conditions without the proposed Project inclusive of the ambient background growth and related projects traffic.

Reviewing the Long Beach *General Plan Mobility* 2035 and *Measure A Infrastructure Improvements*, no planned improvements will affect the Project study intersection lane configurations. The nearest street improvement project is the Santa Fe Avenue Project which will upgrade traffic signals and sharrow markings between Wardlow Road and Anaheim Street. Traffic signal improvements include larger signal indications, new protected left-turn arrows, pedestrian countdown signals, and upgraded signal integration with emergency vehicles. Since Santa Fe Avenue & West Wardlow Road (intersection #5) is already a protected left-turn intersection, the Santa Fe Avenue Project will not change intersection operations.

Two streets inside the Project study area will be upgraded as slurry seal streets without changing intersection geometry based on citywide *Measure A Infrastructure Investment Plan (Fiscal Year 2023 -Fiscal Year 2027):* Via Alcalde Avenue and Hughes Way. Since no geometries change, these upgrades will not affect the Project Opening Year (2027) lane configurations.





LEGEND

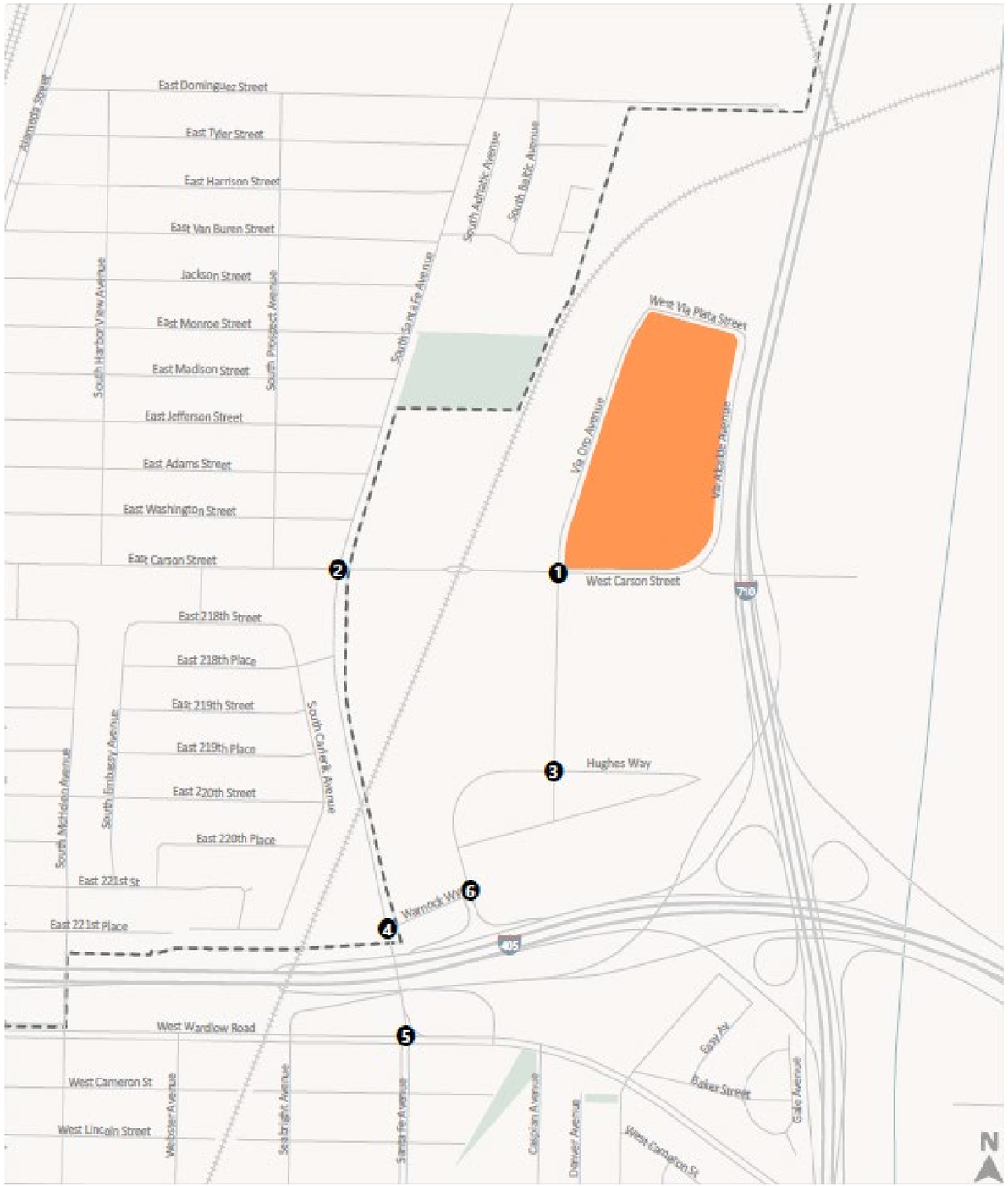
#	Study Intersection	AM (PM)	Peak Hour Traffic Volume
	Signalized		Lane Configuration

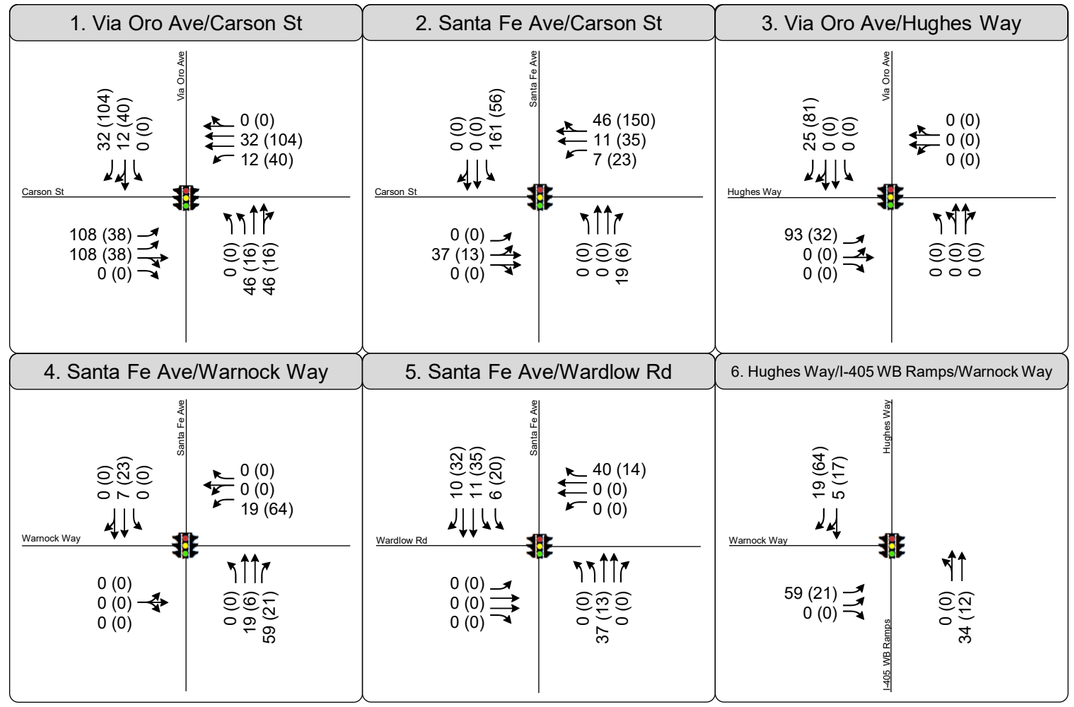
Figure 8
Peak Hour Traffic Volumes and Lane Configurations
Opening Year (2027) No Project Conditions

5.2.3 Opening Year Plus Project (2027) Conditions

Opening Year Plus Project Traffic Projections

The proposed Project traffic volumes were added to the Opening Year (2027) No Project traffic forecasts, resulting in Opening Year (2027) Plus Project AM and PM peak hour traffic volumes. As provided in **Figure 9** and **Figure 10**, the Opening Year (2027) Project Only traffic volume and lane configurations presents the Project trip distribution, and Opening Year (2027) Plus Project scenario presents future traffic conditions with the proposed Project.





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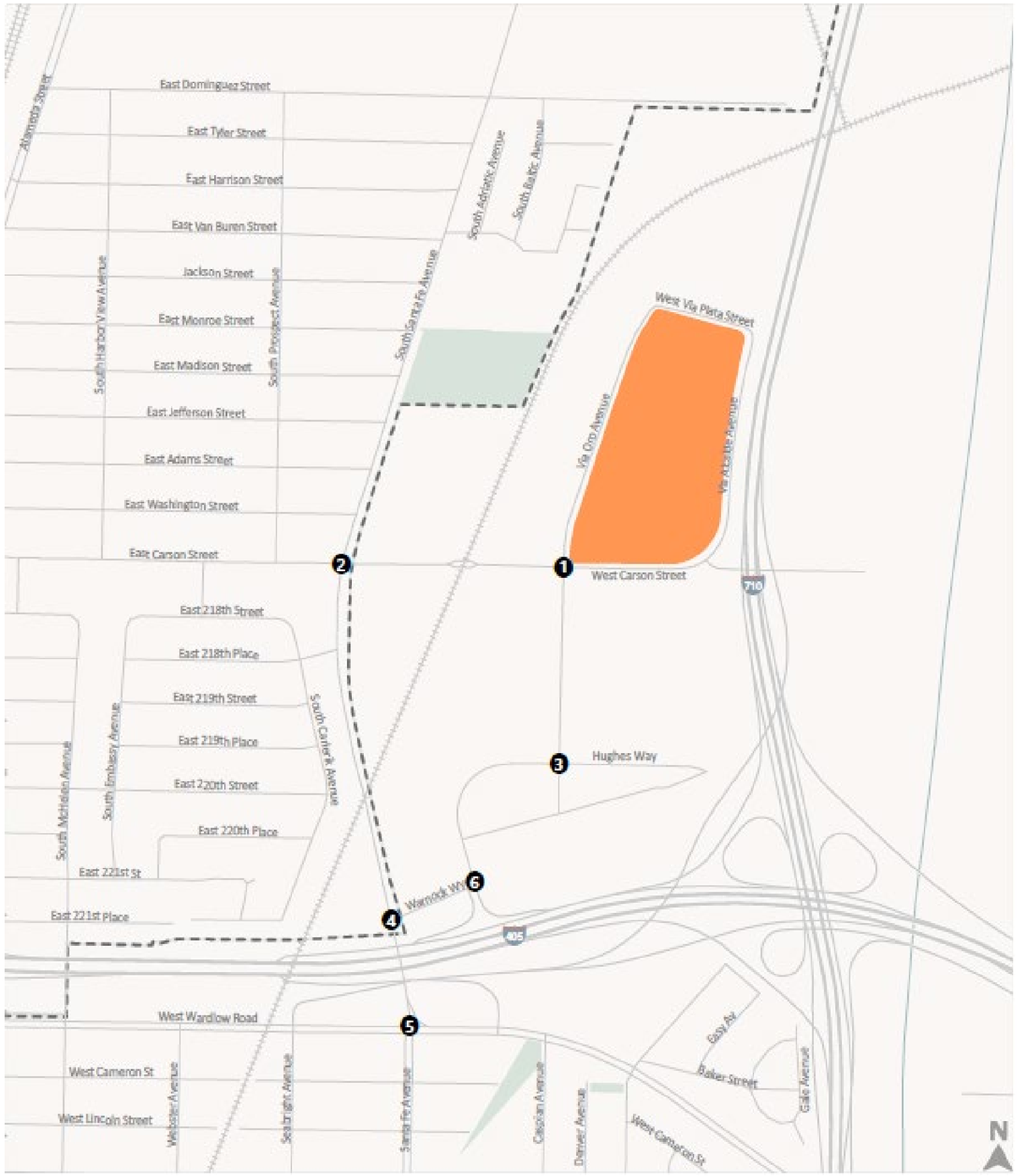
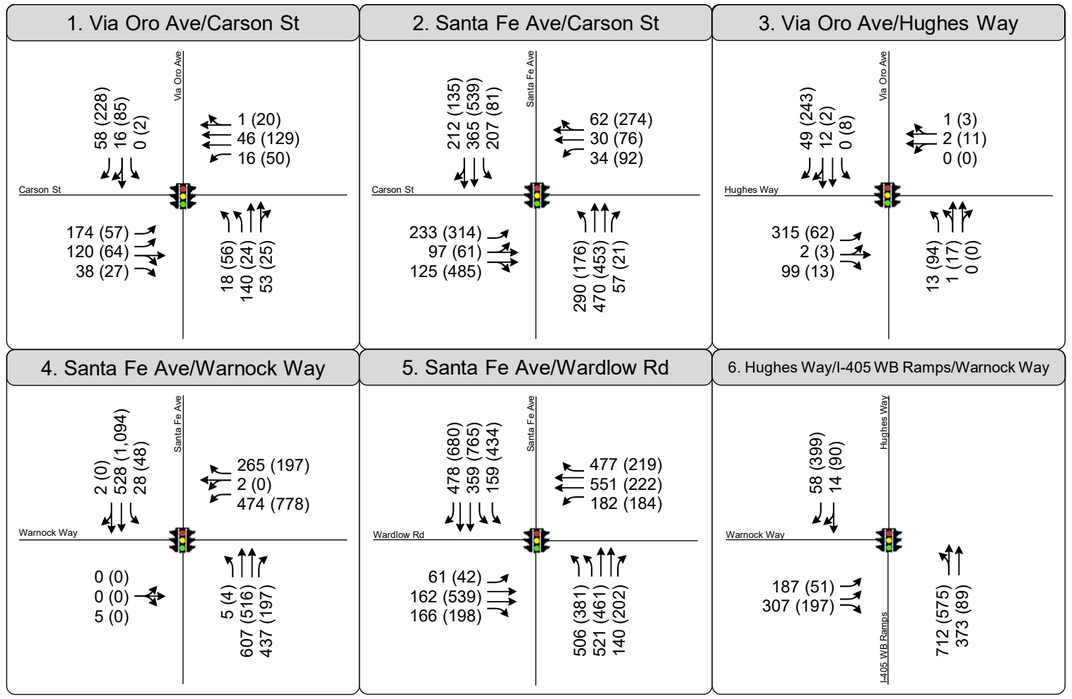
#	Study Intersection	AM (PM)	Peak Hour Traffic Volume
	Signalized		Lane Configuration

Figure 9
Peak Hour Traffic Volumes and Lane Configurations
Project Only Trips





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#	Study Intersection	AM (PM)	Peak Hour Traffic Volume
	Signalized		Lane Configuration

Figure 10
Peak Hour Traffic Volumes and Lane Configurations
Opening Year (2027) Plus Project Conditions

Opening Year Plus Project Traffic Analysis Criteria

Table 8 represents the intersection delay criteria and LOS, as defined in the *Highway Capacity Manual, 6th Edition*, for both signalized and unsignalized intersections.

TABLE 8 INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service (LOS)	Signalized Intersection Average Control Delay (sec/veh)	Unsignalized Intersection Average Control Delay (sec/veh)
A	≤ 10.0	≤ 10.0
B	> 10.1 to 20.0	> 10.1 to 15.0
C	> 20.1 to 35.0	> 15.1 to 25.0
D	> 35.1 to 55.0	> 25.1 to 35.0
E	> 55.1 to 80.0	> 35.1 to 50.0
F	≥ 80.0	> 50.0

Source: *Highway Capacity Manual, 6th Edition.* Transportation Research Board, 2016.

5.2.4 Performance Criteria for Intersection Operations

Though the Project is located in the city of Long Beach, the study intersections fall into two cities – intersections 1, 3, 5 and 6 are in the city of Long Beach; intersections 2 and 4 are in the city of Carson. Both City TIA guidelines were used to determine if the Project exceeds the criteria for traffic operations in the study area.

Per the City of Long Beach's TIA guidelines, LOS D and better are considered acceptable for operating conditions at intersections. The following criteria were used to determine if the addition of Project traffic would be responsible for LOS deficiencies and whether feasible roadway modifications should be identified to improve performance:

- A signalized intersection degrading from LOS D or better under baseline conditions to LOS E or LOS F with the addition of project trips in the opening year. On occasion, LOS E may be allowed for peak periods in very dense urban conditions (according to City guidelines). The intersections specified in the City of Long Beach General Plan Mobility Element as already operating at LOS E/F will be allowed to operate at existing levels, including intersection #5 - Santa Fe Avenue & West Wardlow Road.
- The average delay increasing by 2.5 seconds or more at a signalized intersection operating at LOS E or LOS F under baseline conditions.
- The 95th percentile queue length exceeding the available storage length at any turn bay.

5.2.5 Opening Year Operational Analysis

The Opening Year (2027) No Project and Plus Project peak hour traffic volumes were analyzed to determine the projected LOS and vehicle queue lengths for the turn pockets for each of the analyzed intersections. **Table 9** summarizes the projected Opening Year (2027) No Project and Plus Project LOS for the study intersections. **Table 10** summarizes the projected queue lengths for the turning movements at the study intersections.

Opening Year (2027) No Project Traffic Level of Service

Five of the six study intersections are projected to operate at LOS D or better during the morning and afternoon peak hours under Opening Year (2027) No Project conditions. The following signalized intersection is projected to operate at LOS E or F under Opening Year (2027) No Project conditions:

5. Santa Fe Avenue & West Wardlow Road – AM and PM peak hours

Opening Year (2027) Plus Project Traffic Analysis

Five of the six study intersections are projected to operate at LOS D or better during the morning and afternoon peak hours under Opening Year (2027) Plus Project conditions. The following signalized intersection is projected to operate at LOS E or F under Opening Year (2027) Plus Project conditions:

5. Santa Fe Avenue & West Wardlow Road – AM and PM peak hours

Detailed intersection LOS worksheets for the study intersections are presented in **Appendix B**.

TABLE 9 OPENING YEAR (2027) WITH AND WITHOUT PROJECT INTERSECTION LEVELS OF SERVICE

No.	Study Intersection	Peak Hour	Future Base (2027)		Future Base (2027) Plus Project		LOS Deficiency?
			Delay[1]	LOS	Delay[1]	LOS	(Yes/No)[2]
1	Via Oro Avenue & West Carson Street	AM	14.0	B	14.1	B	No
		PM	14.0	B	16.0	B	No
2	Santa Fe Avenue & West Carson Street	AM	25.3	C	28.4	C	No
		PM	23.7	C	27.2	C	No
3	Via Oro Avenue & Hughes Way[3]	AM	8.1	A	7.9	A	No
		PM	11.8	B	12.0	B	No
4	Santa Fe Avenue & Warnock Way[3]	AM	23.9	C	24.9	C	No
		PM	31.9	C	35.5	D	No
5	Santa Fe Avenue & West Wardlow Road	AM	69.1	**E**	68.4	**E**	No
		PM	58.0	**E**	64.4	**E**	Yes
6	Hughes Way & Warnock Way[3]	AM	17.3	B	18.1	B	No
		PM	19.3	B	21.5	C	No

Notes: Intersection operations below LOS D are shown in **bold.**
[1]Delay (seconds per vehicle) and LOS estimated using HCM 6th Edition.
[2]Per the City's TIA guidelines, an LOS deficiency arises when the change in average delay increases by 2.5 seconds or more at a signalized intersection operating at LOS E or LOS F under baseline conditions.
[3]Intersections due to speed limit or signal phases cannot run HCM 6th Edition, use HCM 2000 results instead.
Source: *Fehr & Peers, 2023.*

Per the City's intersection performance criteria and LOS thresholds, the addition of Project traffic would be responsible for LOS deficiencies if a signalized intersection would degrade from LOS D or better under baseline conditions to LOS E or LOS F with the addition of project trips in the opening year. As shown in Table 8, none of the study intersections are projected to degrade from LOS D or better with the addition of Project peak hour trips. At locations already operating with LOS E or LOS F under opening year baseline conditions, the average delay increases by more than 2.5 seconds with the addition of Project trips at the following intersection:

5. Santa Fe Avenue & West Wardlow Road – PM peak hour only

Table 10 summarizes the projected vehicle queue lengths for the turning movements at the study intersections for the Opening Year (2027) No Project and Plus Project scenarios. The estimated queue lengths are reported as the 95th percentile queue, rounded up to the nearest 25 feet (assuming an equivalent car storage length of 25 feet). Per the City's TIA guidelines, project traffic would be responsible for queuing deficiencies if, under project conditions, the 95th percentile queue length exceeds the available storage length at any turn bay.

TABLE 10 OPENING YEAR (2027) PLUS PROJECT INTERSECTION TURNING MOVEMENT QUEUING ANALYSIS

No.	Study Intersection	Movement	Turn Bay Storage Length	95th Percentile Queue				Movement Deficiency			
				Future Base (2027)		Future Base (2027) Plus Project		Future Base (2027)		Future Base (2027) Plus 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
1	Via Oro Avenue & West Carson Street	EBL	300	25	25	75	25	-	-	-	-
		EBT	-	25	25	100	75	-	-	-	-
		EBR	175	25	25	25	25	-	-	-	-
		WBL	-	25	25	25	50	-	-	-	-
		WBT	-	25	25	25	25	-	-	-	-
		NBL	250	25	25	25	25	-	-	-	-
		NBT	-	25	25	75	25	-	-	-	-
		SBL	185	0	25	0	25	-	-	-	-
		SBT	-	25	50	50	125	-	-	-	-
		SBR	-	0	25	25	25	-	-	-	-
2	Santa Fe Avenue & West Carson Street	EBL	150	250	525	275	525	Yes	Yes	Yes	Yes
		EBT	-	150	125	175	150	-	-	-	-
		WBL	190	50	150	75	200	-	-	-	Yes
		WBT	-	25	75	50	100	-	-	-	-
		NBL	275	550	400	575	400	Yes	Yes	Yes	Yes
		NBT	-	250	300	275	325	-	-	-	-
		NBR	250	25	0	50	0	-	-	-	-
		SBL	140	100	75	375	175	-	-	Yes	Yes
		SBT	-	350	525	350	525	-	-	-	-
3	Via Oro Avenue & Hughes Way	EBL	345	75	25	100	25	-	-	-	-
		EBT	-	75	25	100	25	-	-	-	-
		EBR	-	25	0	25	0	-	-	-	-
		WBT	-	25	25	25	25	-	-	-	-
		NBL	90	25	50	25	50	-	-	-	-
		NBT	-	25	25	25	25	-	-	-	-
		SBL	100	0	0	0	25				
		SBT	-	25	25	25	0	-	-	-	-
		SBR	325	25	0	25	0	-	-	-	-
4	Santa Fe Avenue & Warnock Way	WBL	-	275	400	275	475	-	-	-	-
		WBT	-	275	425	275	475	-	-	-	-
		WBR	-	50	50	50	50	-	-	-	-
		NBL	50	25	25	25	25	-	-	-	-
		NBT	-	275	200	275	200	-	-	-	-
		NBR	50	300	100	375	100	Yes	Yes	Yes	Yes
		SBL	115	50	75	50	75	-	-	-	-

No.	Study Intersection	Movement	Turn Bay Storage Length	95th Percentile Queue				Movement Deficiency			
				Future Base (2027)		Future Base (2027) Plus Project		Future Base (2027)		Future Base (2027) Plus 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
		SBT	-	225	550	250	550	-	-	-	-
5	Santa Fe Avenue & West Wardlow Road	EBL	150	75	50	75	50	-	-	-	-
		EBT	-	75	225	75	225	-	-	-	-
		EBR	145	50	50	50	50	-	-	-	-
		WBL	250	275	275	275	275	Yes	Yes	Yes	Yes
		WBT	-	275	100	275	100	-	-	-	-
		WBR	175	125	50	225	50	-	-	Yes	-
		NBL	225	325	225	325	225	Yes	-	Yes	-
		NBT	-	200	175	200	175	-	-	-	-
		NBR	100	25	50	25	50	-	-	-	-
		SBL	150	75	275	75	275	-	Yes	-	Yes
		SBT	-	125	325	150	350	-	-	-	-
		SBR	-	175	425	200	475	-	-	-	-
6	Hughes Way & Warnock Way	EBL	-	50	25	75	25	-	-	-	-
		EBR	-	50	50	50	50	-	-	-	-
		NBT	-	300	225	325	225	-	-	-	-
		SBL	-	25	125	25	175	-	-	-	-
		SBR	-	25	75	25	100	-	-	-	-

Source: *Fehr & Peers, 2023*.

As shown in Table 10, three of the six study locations are projected to experience at least one deficient queuing movement at the turn bays under Project conditions in the opening year per the City's performance criteria and all of them are located along Santa Fe Avenue corridor. Of the nine identified deficient turning movements under Project conditions, six are already deficient without the Project traffic. The other three turning movements become deficient in the future with the Project traffic: the southbound left-turn movement and westbound left-turn movement at Santa Fe Avenue & West Carson Street and westbound right-turn movement at Santa Fe Avenue & West Wardlow Road.

Two of the six study intersections experience at least one turning movement queue length increase of 25 feet in the Opening Year (2027) Plus Project conditions at turn bays already extending beyond the available storage. This occurs at the eastbound left-turning movement and northbound left-turning movement at Santa Fe Avenue & West Carson Street in the AM peak hour, as well as northbound right-turning movement at Santa Fe Avenue & Warnock Way in the AM peak hour.

5.2.6 Opening Year Project Effect

The Opening Year (2027) net Project effect on the study intersections is as follows:

- None of the study intersections are projected to degrade from LOS D or better with the addition of Project trips. However, Santa Fe Avenue & West Wardlow Road (intersection #5) is already operating with LOS E or LOS F under opening year baseline conditions and the average delay increases more than 2.5 seconds with the addition of Project trips during the PM peak hour. Therefore, the addition of Project traffic would be responsible for LOS deficiencies at Santa Fe Avenue & West Wardlow Road PM peak hour.
- Three of the six study intersections experience at least one turning movement with vehicles queues exceeding the turn bay storage available with the addition of Project vehicles. Two of the turning movements increase by more than 25 feet in the Opening Year (2027) Plus Project conditions at turn bays already extending beyond the available storage without the Project.

5.2.7 Opening Year (2027) Plus Project Traffic with Traffic Improvements Analysis

Operation Analysis

Per the City's TIA guidelines, the Project will result in LOS deficiencies at Santa Fe Avenue & West Wardlow Road in PM peak hour. Optimizing intersection signal timings was tested at this intersection and improves the intersection operations. The average delay decreases from 68.4 to 58.5 seconds in the AM peak hour and decreases from 64.4 to 56.1 seconds in the PM peak hour. The future baseline average delay at this intersection is 69.1 seconds in the AM peak and 58.0 seconds in the PM peak. Therefore, with the signal timing improvements, the addition of Project traffic would not be result in LOS deficiencies at any study intersections. LOS reports are presented in **Appendix B**.

Queuing Analysis

According to the City's guidelines, a deficient movement occurs if the 95th percentile queue length exceeds the available storage length at any turn bay with the Project. The following study intersections are projected to experience at least one deficient turning movement queue length (more than 25 feet) under Project conditions:

2. Santa Fe Avenue & West Carson Street – Eastbound left-turning movement and northbound left-turning movement in the AM peak, westbound left-turning movement in the PM peak, and southbound left-turning movement in AM and PM peak hours

4. Santa Fe Avenue & Warnock Way – Northbound right-turning movement in the AM peak hour

5. Santa Fe Avenue & West Wardlow Road – Westbound right-turning movement in the AM peak hour

The following identified deficient turning movements already exceed the storage length in the Opening Year (2027) No Project conditions, the Project traffic won't increase the 95th percentile queue length of these turning movements. Thus, these deficient movements occur at the study intersections irrespective of the Project traffic.

2. Santa Fe Avenue & West Carson Street – eastbound left-turning movement and northbound left-turning movement in the PM peak

4. Santa Fe Avenue & Warnock Way – northbound right-turning movement in the PM peak

5. Santa Fe Avenue & West Wardlow Road – westbound left-turning movement in the AM and PM peak hours, northbound left-turning movement in the AM peak, and southbound left-turning movement in PM peak.

A potential and feasible roadway improvement for Santa Fe Avenue & Warnock Way (intersection #4) would be to extend the northbound right-turn storage bays to equal the 95th percentile queue length. Since the Santa Fe & Wardlow northbound bus stop is approximately 300 feet away from this intersection, coordination with the transit agency is needed regarding lane geometry. Given this location has already experienced deficient turning movements in the Opening Year (2027) No Project, a fair share contribution to implement these roadway improvements should be applied. This improvement can also be applied to the eastbound and westbound left-turn storage bays at Santa Fe Avenue & West Carson Street (intersection #2).

Extending the northbound and southbound left-turn storage bay at Santa Fe Avenue & West Carson Street (intersection #2) and the westbound right-turn bay at Santa Fe Avenue & West Wardlow Road (intersection #5) is not feasible due to existing roadway geometrics. Per the City's guidelines, installing left-turn phasing and/or multiple turning lanes can be used to accommodate particularly heavy turning movements. However, right-of-way is not available to add additional left-turn or right-turn lanes at these two locations.

5.3 Freeway Analysis Screening Criteria

Per the City's TIA guidelines, the Project freeway screening analysis shall investigate whether the Project meets any of the following screening criteria:

- The Project's peak-hour trips would result in a 1% or more increase in trips based on the freeway mainline capacity of a freeway segment operating at LOS 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 2% or more increase in trips based on the freeway mainline capacity of a freeway segment operating at LOS D (based on an assumed capacity of 2,000 vehicles per hour per lane).

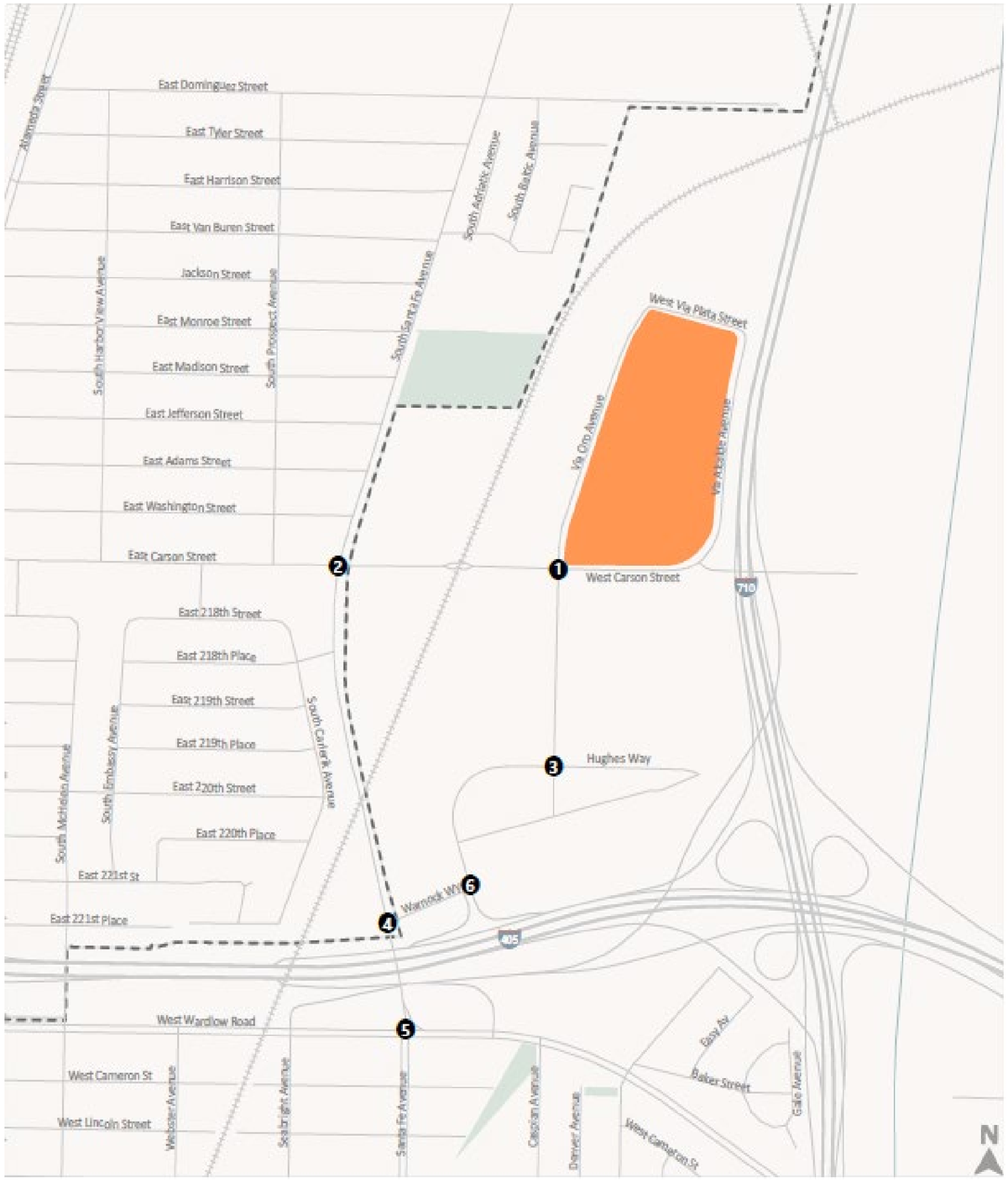
- The Project's peak-hour trips would result in a 1% or more increase in trips based on the capacity of a freeway off-ramp operating at LOS E or F (based on an assumed ramp capacity of 850 vehicles per hour per lane).
- The Project's peak-hour trips would result in a 2% or more increase in trips based on the capacity of a freeway off-ramp operating at LOS D (based on an assumed ramp capacity of 850 vehicles per hour per lane).

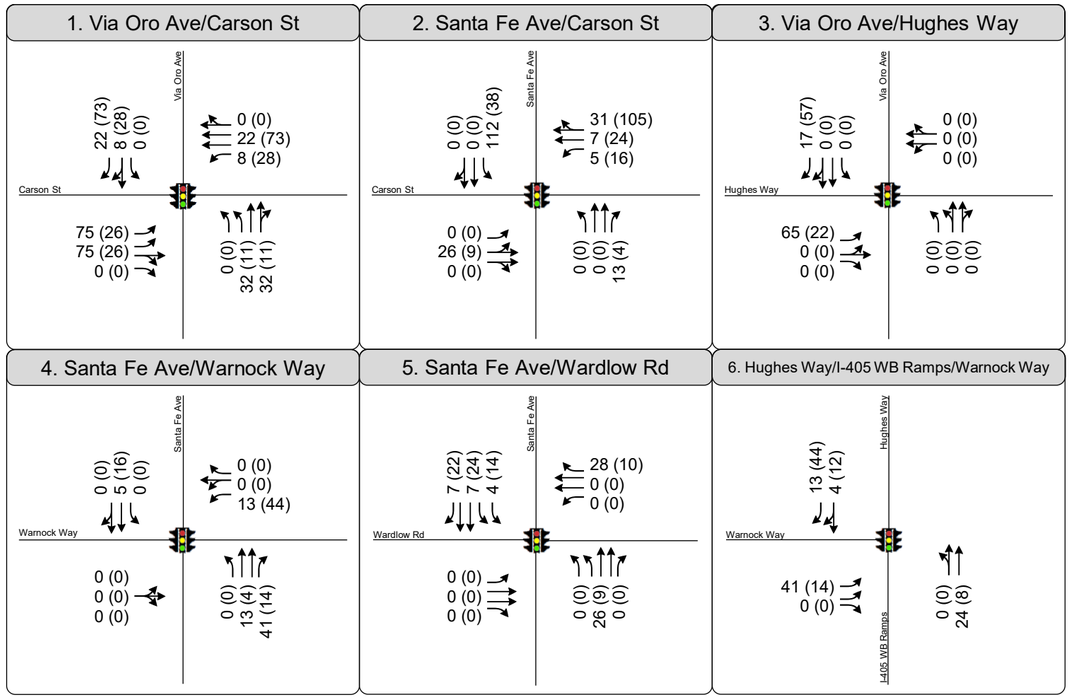
If the Project meets any of the screening criteria, then the Caltrans Intergovernmental Review (IGR) will be consulted for a determination on the need for analysis and the methodology to be utilized for a freeway impact analysis.

Project Freeway Impact Analysis

Given the study intersection Hughes Way & Warnock Way access is designed for in and out movements of westbound I-405, the I-405 westbound on-ramp/off-ramp was analyzed for potential freeway impacts. Based on the trip distribution described in section 5.2, vehicle trips are assigned to the network and Project vehicle trips turning movements are shown in Figure 11.

The intersection of Hughes Way & Warnock Way/I-405 westbound on/off ramp has been identified as the primary location affecting freeway ramp traffic volumes. The I-405 westbound off-ramp, equipped with two lanes and a total capacity of 1,700 vehicles, currently operates at LOS D. According to projections, the proposed Project is projected to add 12 trips during the PM peak hour on the I-405 on-ramp and 24 trips during the AM peak hour on the I-405 off-ramp. Consequently, the proposed Project results in a less than 2% increase in trips based on the capacity of a freeway off-ramp in both the AM and PM peak hours on the I-405 westbound off-ramp. Additionally, I-405 has five lanes each direction with 10,000 vehicle capacity at peak hours and I-710 has four lanes each direction with 8,000 vehicle capacity at peak hours. The Project is projected to add fewer than 70 vehicle trips based on the freeway mainline capacity. Therefore, this location was screened from further freeway impact analysis per the City's criteria.





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#	Study Intersection	AM (PM)	Peak Hour Traffic Volume
	Signalized		Lane Configuration

Figure 11
Peak Hour Traffic Volumes and Lane Configurations
Project Only Vehicle Trips

5.4 Other Modes Analysis – Transit, Bicycle, and Pedestrian Facilities

This section analyzes potential Project effects to other transportation modes infrastructure, including transit, bicycle, and pedestrian modes, within the study area. The analysis includes an assessment of potential degradation of other modes facilities in the project vicinity, such as transit stops, bicycle facilities, and pedestrian facilities, and if applicable, identifies any quantifiable degradation to these facilities that can be attributed to the Project. The analysis also addresses potential Project effects and benefits of site development and associated roadway improvements on bicycle/pedestrian infrastructure, circulation, and conformance to existing plans and policies.

Transit

LBT and LA Metro provide public transit services in the vicinity of the proposed Project site. The nearest bus stop can be found east of the Project site at southwest Via Oro Avenue and Carson Street, where LBT Route 192 operates.

The LA Metro A (Blue) Rail line provides a connection between downtown Long Beach and downtown Los Angeles. The Del Amo and Wardlow A (Blue) line stations are approximately one mile east of the Project site. The Project is not expected to negatively affect or degrade transit modes or facilities within the study area, including the existing transit stops on Santa Fe Avenue and Carson Street, and the Del Amo and Wardlow Metro A (Blue) Line stations. The Project related traffic is not expected to add substantial automobile delay to these intersections in the AM and PM peak hours.

Bicycle

Within a half-mile radius of the Project site, there are currently no existing bicycle facilities. The nearest bicycle facilities are bike sharrows on Santa Fe Avenue, south of Wardlow Road. There also exists a City Bike Share program, with the nearest stations located just over one mile south of the Project site on Santa Fe Avenue. The bike share stations are located at the following intersections:

- Santa Fe Avenue and Lincoln Street
- Santa Fe Avenue and 34th Street
- Pacific Avenue and Wardlow Road

The Project is not expected to negatively affect or degrade bicycle modes or facilities within the study area, including the existing bicycle lane facilities on Santa Fe Avenue south of Wardlow Road. The Project related traffic is not expected to add substantial automobile delay to the nearby intersections in the AM and PM peak hours. Additionally, the Santa Fe Avenue Project completed traffic signal improvements and bike sharrow markings south of Wardlow Road in early 2023.

Pedestrian

Pedestrian facilities in the study area include sidewalks, crosswalks, and pedestrian signals. The major streets that provide access to the Project include Carson Street, Via Oro Avenue, and Santa Fe Avenue. These roadways have well-connected and maintained sidewalk networks near the Project site. Sidewalks are provided on both sides of these streets, except for portions of Carson Street (north side, west of Via Oro Avenue) and portions of Via Oro Avenue (east side, north of Carson Street). At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided.

The Project is not expected to negatively affect or degrade pedestrian modes or facilities within the study area. The Via Alcalde Avenue driveway would be closed/gated and used for truck and trailer parking/staging and a sidewalk would be constructed connecting Via Plata Steet and Carson Street for pedestrian use adjacent to the freeway right-of-way in a landscaped buffer area outside the truck court security walls.

5.5 Site Circulation Analysis

This section addresses the adequacy of the proposed site circulation, including on-site parking. Five driveways are proposed to provide access to the project site. Truck and passenger car access would be provided from Carson Street and Via Plata Street at 40-foot driveways located at the southeast and northeast corners of the Project site, respectively. The two 40-foot driveways lead to gated access of the loading area and 174 truck trailer parking spaces east of the proposed building and provide ungated access to the 570 passenger car parking spaces on site. Three 28-foot driveways are proposed along the Project frontage on Carson Street and Via Oro Avenue to provide a total of five passenger car access points to the Project site.

Pedestrian access would be provided with the proposed curb-adjacent sidewalk along the entire project frontage along Carson Street, Via Oro Avenue, and Via Plata Street. A pedestrian path from Via Oro Avenue would be provided between the south driveway and Carson Street to connect to the southwest corner of the proposed building where the office use is located.

Vacating Via Alcalde Avenue between Carson Street and Via Plata Street is proposed as part of the Project. This improved roadway between the I-710 and existing Project site currently terminates into the east end of Via Plata Street at the north and intersects with Carson Street at the south, providing circulation between the two parallel local streets (Via Alcalde and Via Oro) but no driveway access to any developments. Vehicle trips utilizing this roadway currently would be redirected to Via Oro Avenue.

6. Conclusion and Recommendations

The Intex Southbay Logistics Center Project (Project) in the City of Long Beach, California, consists of the following:

- The construction of a new 60-foot-tall, 543,239-sq. ft. combination warehouse and distribution center with 16,800 sq. ft. of accessory offices.
- An open surface parking field with 570 parking stalls and 174 loading/trailer parking spaces.

6.1 CEQA Project VMT

The Project is an industrial land use project. It will generate more than 500 average daily vehicle trips and is located outside Transit Priority Areas. Therefore, the Project does not meet the screening criteria in the City guidelines. A Project-level assessment was performed using SCAG adopted 2020 RTP/SCS Traved Demand Model. The Project home-based VMT per employee metric is estimated to be 18.8 VMT per employee in Project Opening Year (2027), which is below the County's baseline VMT of 20.2. Project VMT would also be lower under cumulative conditions. Therefore, the Project is presumed to result in a less than significant VMT impact.

Given that the Project is expected to have a less than significant VMT impact, VMT mitigation is not required.

Other CEQA Project Findings

The Project features, location, and design generally support multimodal transportation options and would be consistent with policies, plans, and programs that support alternative transportation, including the *Southern California Association of Governments (SCAG) Regional Transportation Plan, Mobility Element 2035, Long Beach Bicycle Master Plan,* and *the Safe Streets Action Plan*. Additionally, the Project would not substantially increase hazards or conflicts, and would contribute to walkability through enhancements to the Project site. Finally, the proposed Project would not result in inadequate emergency access. All access driveways will be designed according to City standards.

6.2 Non-CEQA Traffic Analysis

The Project is estimated to generate 1,573 daily passenger car equivalents (PCE) trips, 397 AM peak hour PCE trips (309 inbound/88 outbound), and 397 PM peak hour PCE trips (108 inbound/289 outbound). These trips were evaluated to assess network capacity and LOS for informational (non-CEQA) purposes only. Under Existing Baseline (2023) Conditions, all study intersections operate at LOS D or better, except for Santa Fe Avenue & West Wardlow Road in the AM peak hour.

Opening Year (2027) Traffic Operations

Five of the six study intersections are projected to operate at LOS D or better during the morning and afternoon peak hours under Opening Year (2027) No Project and Opening Year Plus Project conditions. The following signalized intersection is projected to operate at LOS E or F under both scenarios:

5. Santa Fe Avenue & West Wardlow Road – AM peak hour and PM peak hour

Per the City's intersection performance criteria, the addition of Project traffic would be responsible for LOS deficiencies if a signalized intersection would degrade from LOS D or better under baseline conditions to LOS E or LOS F with the addition of project trips. Furthermore, at locations already operating with LOS E or LOS F without the Project, an increase in average delay by more than 2.5 seconds with the addition of Project trips would result in a deficiency. Using the analysis methodology in the City's guidelines, the following intersection is expected to have LOS deficiencies caused by Project related traffic:

5. Santa Fe Avenue & West Wardlow Road – PM peak hour only

Consistent with the City's TIA guidelines, optimizing intersection signal timing as a potential traffic operation improvement can be feasibly implemented and address this LOS deficiency.

Additionally, three study locations are projected to experience at least one turning movement with insufficient queuing storage per the City's performance criteria. The majority of the deficient queueing locations are projected to occur in the Opening Year (2027) No Project. Potential roadway improvements were identified for three study locations by extending the turn bays storage length to accommodate the projected 95th percentile queue length under Project conditions. Given that other turning movements already experience deficiencies in the Opening Year (2027) No Project conditions, a fair share contribution to implement these roadway improvements should be applied.

APPENDIX A – EXISTING (2023) TRAFFIC COUNTS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-001
Date: 5/17/2023

Data - Total

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	94	66	1	4	84	0	0	0	0	9	0	122	1	48	0	432
7:15 AM	0	107	96	0	4	94	2	0	0	0	0	0	114	0	63	0	480
7:30 AM	0	137	108	1	9	100	0	0	0	0	3	0	104	0	51	0	513
7:45 AM	0	186	100	2	9	134	0	0	0	0	0	0	125	1	79	0	636
8:00 AM	0	126	90	1	8	135	1	0	0	0	1	0	125	1	74	0	562
8:15 AM	0	123	74	1	2	139	1	0	0	0	1	0	93	0	57	0	491
8:30 AM	0	96	65	4	2	109	0	1	0	0	0	0	122	0	46	0	445
8:45 AM	0	117	53	0	10	104	1	1	0	0	0	0	111	1	38	0	436
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	986	652	10	48	899	5	2	0	0	14	0	916	4	456	0	3995
APPROACH %'s :	0.18%	59.72%	39.49%	0.61%	5.03%	94.23%	0.52%	0.21%	0.00%	0.00%	100.00%	0.00%	66.57%	0.29%	33.14%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	572	372	5	28	508	2	0	0	0	5	0	447	2	261	0	2202
PEAK HR FACTOR :	0.000	0.769	0.861	0.625	0.778	0.914	0.500	0.000	0.000	0.000	0.417	0.000	0.894	0.500	0.826	0.000	0.866
		0.824				0.934				0.417				0.866			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	87	41	1	10	236	0	1	0	0	0	0	175	0	47	0	598
4:15 PM	0	110	40	1	9	219	0	0	0	0	0	0	144	0	50	0	573
4:30 PM	0	101	47	0	11	263	0	0	0	0	0	0	183	0	53	0	658
4:45 PM	0	142	43	2	14	256	0	0	0	0	0	0	192	0	46	0	695
5:00 PM	0	146	44	1	13	255	0	0	0	0	0	0	160	0	45	0	664
5:15 PM	0	105	40	1	9	272	0	0	0	0	0	0	168	0	50	0	645
5:30 PM	0	103	42	1	9	229	0	0	0	0	0	0	156	0	48	0	588
5:45 PM	0	96	35	0	14	226	0	0	0	0	0	0	159	0	38	0	568
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	890	332	7	89	1956	0	1	0	0	0	0	1337	0	377	0	4989
APPROACH %'s :	0.00%	72.42%	27.01%	0.57%	4.35%	95.60%	0.00%	0.05%					78.00%	0.00%	22.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	494	174	4	47	1046	0	0	0	0	0	0	703	0	194	0	2662
PEAK HR FACTOR :	0.000	0.846	0.926	0.500	0.839	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.915	0.000	0.915	0.000	0.958
		0.880				0.972								0.942			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-001
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	93	64	1	4	74	0	0	0	0	4	0	117	1	45	0	405
7:15 AM	0	107	95	0	4	90	2	0	0	0	0	0	104	0	60	0	462
7:30 AM	0	134	105	1	9	95	0	0	0	0	1	0	96	0	48	0	489
7:45 AM	0	183	100	2	8	125	0	0	0	0	0	0	118	0	73	0	609
8:00 AM	0	124	88	1	7	129	1	0	0	0	0	0	115	0	70	0	535
8:15 AM	0	119	72	1	2	129	1	0	0	0	0	0	87	0	52	0	463
8:30 AM	0	95	63	4	2	96	0	1	0	0	0	0	108	0	38	0	407
8:45 AM	0	110	50	0	9	101	1	1	0	0	0	0	103	1	32	0	408
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	965	637	10	45	839	5	2	0	0	5	0	848	2	418	0	3778
APPROACH %'s :	0.12%	59.79%	39.47%	0.62%	5.05%	94.16%	0.56%	0.22%	0.00%	0.00%	100.00%	0.00%	66.88%	0.16%	32.97%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	560	365	5	26	478	2	0	0	0	1	0	416	0	243	0	2096
PEAK HR FACTOR :	0.000	0.765	0.869	0.625	0.722	0.926	0.500	0.000	0.000	0.000	0.250	0.000	0.881	0.000	0.832	0.000	0.860
		0.816				0.923				0.250				0.863			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	86	39	1	10	228	0	1	0	0	0	0	167	0	41	0	573
4:15 PM	0	105	40	1	8	213	0	0	0	0	0	0	138	0	45	0	550
4:30 PM	0	97	46	0	11	254	0	0	0	0	0	0	179	0	46	0	633
4:45 PM	0	141	43	2	13	244	0	0	0	0	0	0	183	0	45	0	671
5:00 PM	0	143	42	1	10	248	0	0	0	0	0	0	154	0	41	0	639
5:15 PM	0	105	40	1	7	265	0	0	0	0	0	0	166	0	46	0	630
5:30 PM	0	102	41	1	7	226	0	0	0	0	0	0	154	0	46	0	577
5:45 PM	0	95	35	0	13	224	0	0	0	0	0	0	153	0	38	0	558
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	874	326	7	79	1902	0	1	0	0	0	0	1294	0	348	0	4831
APPROACH %'s :	0.00%	72.41%	27.01%	0.58%	3.99%	95.96%	0.00%	0.05%					78.81%	0.00%	21.19%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	486	171	4	41	1011	0	0	0	0	0	0	682	0	178	0	2573
PEAK HR FACTOR :	0.000	0.850	0.929	0.500	0.788	0.954	0.000	0.000	0.000	0.000	0.000	0.000	0.932	0.000	0.967	0.000	0.959
		0.888				0.967								0.943			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-001
Date: 5/17/2023

Data - HT

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	2	0	0	10	0	0	0	0	5	0	5	0	3	0	27
7:15 AM	0	0	1	0	0	4	0	0	0	0	0	0	10	0	3	0	18
7:30 AM	0	3	3	0	0	5	0	0	0	0	2	0	8	0	3	0	24
7:45 AM	0	3	0	0	1	9	0	0	0	0	0	0	7	1	6	0	27
8:00 AM	0	2	2	0	1	6	0	0	0	0	1	0	10	1	4	0	27
8:15 AM	0	4	2	0	0	10	0	0	0	0	1	0	6	0	5	0	28
8:30 AM	0	1	2	0	0	13	0	0	0	0	0	0	14	0	8	0	38
8:45 AM	0	7	3	0	1	3	0	0	0	0	0	0	8	0	6	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	21	15	0	3	60	0	0	0	0	9	0	68	2	38	0	217
APPROACH %'s :	2.70%	56.76%	40.54%	0.00%	4.76%	95.24%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	62.96%	1.85%	35.19%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	12	7	0	2	30	0	0	0	0	4	0	31	2	18	0	106
PEAK HR FACTOR :	0.000	0.750	0.583	0.000	0.500	0.750	0.000	0.000	0.000	0.000	0.500	0.000	0.775	0.500	0.750	0.000	0.946
		0.792				0.800				0.500				0.850			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	2	0	0	8	0	0	0	0	0	0	8	0	6	0	25
4:15 PM	0	5	0	0	1	6	0	0	0	0	0	0	6	0	5	0	23
4:30 PM	0	4	1	0	0	9	0	0	0	0	0	0	4	0	7	0	25
4:45 PM	0	1	0	0	1	12	0	0	0	0	0	0	9	0	1	0	24
5:00 PM	0	3	2	0	3	7	0	0	0	0	0	0	6	0	4	0	25
5:15 PM	0	0	0	0	2	7	0	0	0	0	0	0	2	0	4	0	15
5:30 PM	0	1	1	0	2	3	0	0	0	0	0	0	2	0	2	0	11
5:45 PM	0	1	0	0	1	2	0	0	0	0	0	0	6	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	16	6	0	10	54	0	0	0	0	0	0	43	0	29	0	158
APPROACH %'s :	0.00%	72.73%	27.27%	0.00%	15.63%	84.38%	0.00%	0.00%					59.72%	0.00%	40.28%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	8	3	0	6	35	0	0	0	0	0	0	21	0	16	0	89
PEAK HR FACTOR :	0.000	0.500	0.375	0.000	0.500	0.729	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.571	0.000	0.890
		0.550				0.788								0.841			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-001
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333
		0.250				0.375											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	0	1	0	0	1.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
		0.250															

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & Warnock Way
City: Long Beach

Project ID: 23-020198-001
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Santa Fe Ave		Santa Fe Ave		Warnock Way		Warnock Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	1
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	2	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	2	0	0	2
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Santa Fe Ave & Warnock Way

Peak Hour Turning Movement Count

ID: 23-020198-001
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS

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

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Santa Fe Ave)

AM	2	508	28	0	833	AM
NOON	0	0	0	0	0	NOON
PM	0	1046	47	0	688	PM
	0	2	1	0		

EASTBOUND (Warnock Way)

AM	NOON	PM		
4	0	0		
0	0	0	0	
0	0	0	0	
0	0	0	1	
5	0	0	0	
AM	NOON	PM		

WESTBOUND (Warnock Way)

	PM	NOON	AM
1	194	0	261
0.5	0	0	2
1.5	703	0	447
0	0	0	0
	221	0	400
	PM	NOON	AM

NORTHBOUND (Santa Fe Ave)

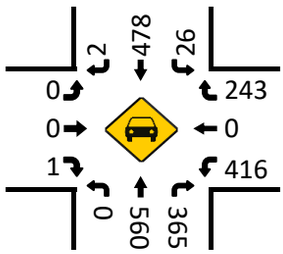
PM	1753	4	0	494	174	PM
NOON	0	0	0	0	0	NOON
AM	965	5	0	572	372	AM
		0	1	2	1	

CONTROL

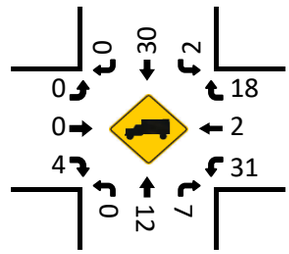
Signalized

TEV	2202	0	2662
	AM	NOON	PM
PHF	0.87		0.96

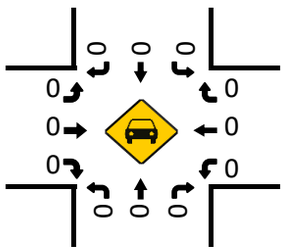
Cars (AM)



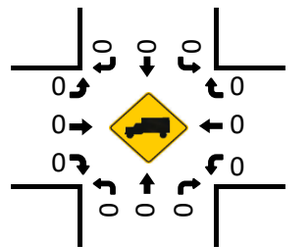
HT (AM)



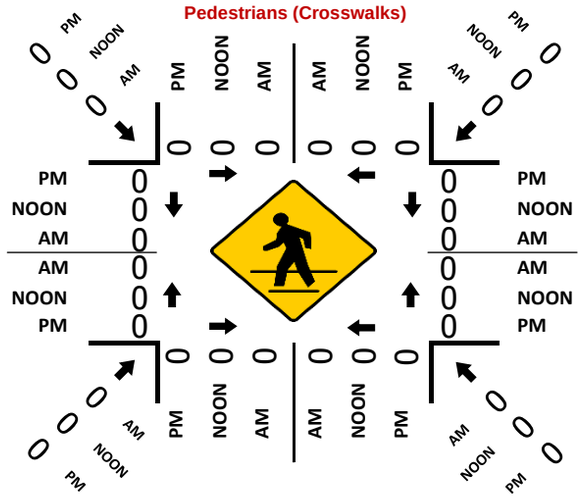
Cars (NOON)



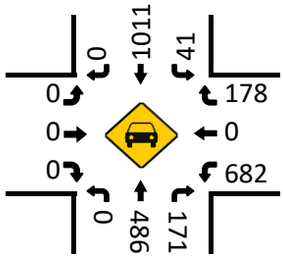
HT (NOON)



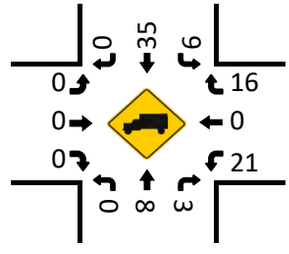
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Wardlow Rd
City: Long Beach
Control: Signalized

Project ID: 23-020198-002
Date: 5/17/2023

Data - Total

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Wardlow Rd				W Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	101	98	18	0	25	65	118	0	10	26	24	1	23	85	51	0	645
7:15 AM	121	108	25	0	25	63	123	0	15	32	19	0	31	130	84	1	777
7:30 AM	148	123	37	0	23	69	114	0	17	30	46	0	29	159	103	0	898
7:45 AM	118	138	40	0	38	89	131	0	17	47	40	0	50	151	141	0	1000
8:00 AM	119	108	35	0	50	97	121	0	12	43	34	0	49	113	99	0	880
8:15 AM	108	106	26	0	37	85	95	0	14	36	43	0	47	112	81	0	790
8:30 AM	97	105	27	0	33	114	104	0	16	55	54	1	49	88	49	0	792
8:45 AM	96	102	29	0	36	97	76	0	16	43	60	0	39	73	60	0	727
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	908	888	237	0	267	679	882	0	117	312	320	2	317	911	668	1	6509
APPROACH %'s :	44.66%	43.68%	11.66%	0.00%	14.61%	37.14%	48.25%	0.00%	15.58%	41.54%	42.61%	0.27%	16.71%	48.02%	35.21%	0.05%	
PEAK HR :	07:30 am - 08:30 am																TOTAL
PEAK HR VOL :	493	475	138	0	148	340	461	0	60	156	163	0	175	535	424	0	3568
PEAK HR FACTOR :	0.833	0.861	0.863	0.000	0.740	0.876	0.880	0.000	0.882	0.830	0.886	0.000	0.875	0.841	0.752	0.000	0.892
	0.898				0.885				0.911				0.829				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	84	90	45	0	73	158	170	0	11	101	35	1	34	45	36	0	883
4:15 PM	80	101	38	0	87	157	147	0	11	112	40	0	33	57	38	0	901
4:30 PM	96	99	42	0	89	163	173	0	8	92	43	2	53	54	44	0	958
4:45 PM	91	123	52	0	107	188	165	0	12	127	55	0	39	51	51	0	1061
5:00 PM	94	117	53	1	102	166	161	0	11	150	46	1	35	50	54	1	1042
5:15 PM	87	99	52	0	103	200	139	0	7	154	51	0	41	58	48	0	1039
5:30 PM	71	89	33	0	95	199	125	0	10	128	52	1	31	70	40	0	944
5:45 PM	61	89	39	0	92	179	119	0	6	105	59	0	38	42	30	1	860
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	664	807	354	1	748	1410	1199	0	76	969	381	5	304	427	341	2	7688
APPROACH %'s :	36.36%	44.19%	19.39%	0.05%	22.28%	42.00%	35.72%	0.00%	5.31%	67.71%	26.62%	0.35%	28.31%	39.76%	31.75%	0.19%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	368	438	199	1	401	717	638	0	38	523	195	3	168	213	197	1	4100
PEAK HR FACTOR :	0.958	0.890	0.939	0.250	0.937	0.896	0.922	0.000	0.792	0.849	0.886	0.375	0.792	0.918	0.912	0.250	0.966
	0.945				0.954				0.895				0.959				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Wardlow Rd
City: Long Beach
Control: Signalized

Project ID: 23-020198-002
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Wardlow Rd				W Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	100	97	18	0	25	60	106	0	10	24	23	1	21	83	49	0	617
7:15 AM	119	108	25	0	24	59	111	0	15	32	18	0	30	128	83	1	753
7:30 AM	145	120	37	0	22	67	102	0	17	27	45	0	29	156	100	0	867
7:45 AM	114	136	38	0	38	86	118	0	16	46	38	0	49	147	141	0	967
8:00 AM	118	106	33	0	48	92	111	0	12	42	33	0	46	110	97	0	848
8:15 AM	104	101	26	0	37	85	79	0	14	35	41	0	46	109	79	0	756
8:30 AM	95	104	26	0	30	106	87	0	15	55	52	1	46	86	49	0	752
8:45 AM	89	95	26	0	36	93	67	0	15	39	58	0	38	70	58	0	684
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	884	867	229	0	260	648	781	0	114	300	308	2	305	889	656	1	6244
APPROACH %'s :	44.65%	43.79%	11.57%	0.00%	15.39%	38.37%	46.24%	0.00%	15.75%	41.44%	42.54%	0.28%	16.48%	48.03%	35.44%	0.05%	
PEAK HR :	07:30 am - 08:30 am																TOTAL
PEAK HR VOL :	481	463	134	0	145	330	410	0	59	150	157	0	170	522	417	0	3438
PEAK HR FACTOR :	0.829	0.851	0.882	0.000	0.755	0.897	0.869	0.000	0.868	0.815	0.872	0.000	0.867	0.837	0.739	0.000	0.889
	0.892				0.881				0.915				0.823				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	82	88	44	0	71	155	160	0	10	100	34	1	34	44	36	0	859
4:15 PM	79	97	38	0	86	154	139	0	10	109	37	0	33	57	38	0	877
4:30 PM	95	97	42	0	89	162	161	0	7	90	43	2	53	53	42	0	936
4:45 PM	89	123	52	0	105	188	147	0	11	126	53	0	38	50	51	0	1033
5:00 PM	94	114	53	1	101	163	153	0	11	144	45	1	34	50	52	1	1017
5:15 PM	85	98	52	0	103	198	131	0	7	154	49	0	41	57	48	0	1023
5:30 PM	71	89	33	0	94	197	122	0	10	127	52	1	31	69	39	0	935
5:45 PM	59	89	39	0	92	176	115	0	6	103	58	0	37	42	29	1	846
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	654	795	353	1	741	1393	1128	0	72	953	371	5	301	422	335	2	7526
APPROACH %'s :	36.27%	44.09%	19.58%	0.06%	22.72%	42.70%	34.58%	0.00%	5.14%	68.02%	26.48%	0.36%	28.40%	39.81%	31.60%	0.19%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	363	432	199	1	398	711	592	0	36	514	190	3	166	210	193	1	4009
PEAK HR FACTOR :	0.955	0.878	0.939	0.250	0.948	0.898	0.919	0.000	0.818	0.834	0.896	0.375	0.783	0.921	0.928	0.250	0.970
	0.942				0.966				0.885				0.963				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Wardlow Rd
City: Long Beach
Control: Signalized

Project ID: 23-020198-002
Date: 5/17/2023

Data - HT

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Wardlow Rd				W Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	1	1	0	0	0	5	12	0	0	2	1	0	2	2	2	0	28
7:15 AM	2	0	0	0	1	4	12	0	0	0	1	0	1	2	1	0	24
7:30 AM	3	3	0	0	1	2	12	0	0	3	1	0	0	3	3	0	31
7:45 AM	4	2	2	0	0	3	13	0	1	1	2	0	1	4	0	0	33
8:00 AM	1	2	2	0	2	5	10	0	0	1	1	0	3	3	2	0	32
8:15 AM	4	5	0	0	0	0	16	0	0	1	2	0	1	3	2	0	34
8:30 AM	2	1	1	0	3	8	17	0	1	0	2	0	3	2	0	0	40
8:45 AM	7	7	3	0	0	4	9	0	1	4	2	0	1	3	2	0	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	21	8	0	7	31	101	0	3	12	12	0	12	22	12	0	265
APPROACH %'s :	45.28%	39.62%	15.09%	0.00%	5.04%	22.30%	72.66%	0.00%	11.11%	44.44%	44.44%	0.00%	26.09%	47.83%	26.09%	0.00%	
PEAK HR :	07:30 am - 08:30 am																TOTAL
PEAK HR VOL :	12	12	4	0	3	10	51	0	1	6	6	0	5	13	7	0	130
PEAK HR FACTOR :	0.750	0.600	0.500	0.000	0.375	0.500	0.797	0.000	0.250	0.500	0.750	0.000	0.417	0.813	0.583	0.000	0.956
	0.778				0.941				0.813				0.781				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	2	2	1	0	2	3	10	0	1	1	1	0	0	1	0	0	24
4:15 PM	1	4	0	0	1	3	8	0	1	3	3	0	0	0	0	0	24
4:30 PM	1	2	0	0	0	1	12	0	1	2	0	0	0	1	2	0	22
4:45 PM	2	0	0	0	2	0	18	0	1	1	2	0	1	1	0	0	28
5:00 PM	0	3	0	0	1	3	8	0	0	6	1	0	1	0	2	0	25
5:15 PM	2	1	0	0	0	2	8	0	0	0	2	0	0	1	0	0	16
5:30 PM	0	0	0	0	1	2	3	0	0	1	0	0	0	1	1	0	9
5:45 PM	2	0	0	0	0	3	4	0	0	2	1	0	1	0	1	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	12	1	0	7	17	71	0	4	16	10	0	3	5	6	0	162
APPROACH %'s :	43.48%	52.17%	4.35%	0.00%	7.37%	17.89%	74.74%	0.00%	13.33%	53.33%	33.33%	0.00%	21.43%	35.71%	42.86%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	5	6	0	0	3	6	46	0	2	9	5	0	2	3	4	0	91
PEAK HR FACTOR :	0.625	0.500	0.000	0.000	0.375	0.500	0.639	0.000	0.500	0.375	0.625	0.000	0.500	0.750	0.500	0.000	0.813
	0.917				0.688				0.571				0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Wardlow Rd
City: Long Beach
Control: Signalized

Project ID: 23-020198-002
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Wardlow Rd				W Wardlow Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	2	0	0	0	1	1	0	0	0	2	0	0	0	0	1	0	7
8:00 AM	0	0	0	0	1	0	0	0	0	0	1	0	1	2	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	1	0	3	1	0	0	0	3	1	0	1	5	1	0	18
APPROACH %'s :	66.67%	0.00%	33.33%	0.00%	75.00%	25.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	14.29%	71.43%	14.29%	0.00%	
PEAK HR :	07:30 am - 08:30 am																TOTAL
PEAK HR VOL :	2	0	0	0	2	1	0	0	0	2	1	0	1	3	1	0	13
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.250	0.375	0.250	0.000	0.464
	0.250				0.375				0.375				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
5:00 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	1	0	0	0	0	0	0	2	0	0	3	2	0	0	10
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%					0.00%	100.00%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	5
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.625
	0.250								0.250				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Wardlow Rd
City: Long Beach

Project ID: 23-020198-002
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Santa Fe Ave		Santa Fe Ave		W Wardlow Rd		W Wardlow Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	1	0	0	1	1	0	3
7:15 AM	0	1	0	0	0	0	3	0	4
7:30 AM	1	0	0	1	0	0	2	0	4
7:45 AM	1	0	0	2	0	0	0	0	3
8:00 AM	0	0	1	1	0	0	0	0	2
8:15 AM	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	1	2	5	0	1	6	1	18
APPROACH %'s :	66.67%	33.33%	28.57%	71.43%	0.00%	100.00%	85.71%	14.29%	
PEAK HR :	07:30 am - 08:30 am								TOTAL
PEAK HR VOL :	2	0	1	5	0	0	2	0	10
PEAK HR FACTOR :	0.500		0.250	0.625			0.250		0.625
	0.500		0.750				0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	1
4:15 PM	0	1	2	1	0	0	0	0	4
4:30 PM	0	1	0	0	1	0	0	0	2
4:45 PM	0	0	0	1	1	0	0	2	4
5:00 PM	0	1	0	0	0	2	1	0	4
5:15 PM	0	0	5	1	0	0	0	1	7
5:30 PM	0	0	0	0	1	0	1	1	3
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	3	7	3	3	2	3	4	25
APPROACH %'s :	0.00%	100.00%	70.00%	30.00%	60.00%	40.00%	42.86%	57.14%	
PEAK HR :	04:30 pm - 05:30 pm								TOTAL
PEAK HR VOL :	0	2	5	2	2	2	1	3	17
PEAK HR FACTOR :		0.500	0.250	0.500	0.500	0.250	0.250	0.375	0.607
	0.500		0.292		0.500		0.500		

Prepared by National Data & Surveying Services

Santa Fe Ave & W Wardlow Rd

Peak Hour Turning Movement Count

ID: 23-020198-002
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS

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

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Santa Fe Ave)

AM	461	340	148	0	959	AM
NOON	0	0	0	0	0	NOON
PM	638	717	401	0	673	PM
	1	2	2	0		

EASTBOUND (W Wardlow Rd)

AM	NOON	PM		
1489	0	1222		
0	0	3	0	
60	0	38	1	
156	0	523	2	
163	0	195	1	
AM	NOON	PM		

WESTBOUND (W Wardlow Rd)

	PM	NOON	AM
1	197	0	424
2	213	0	535
1	168	0	175
0	1	0	0
	1124	0	442
	PM	NOON	AM

CONTROL

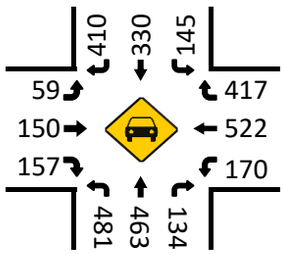
Signalized

TEV	3568 AM	0 NOON	4100 PM
PHF	0.89		0.97

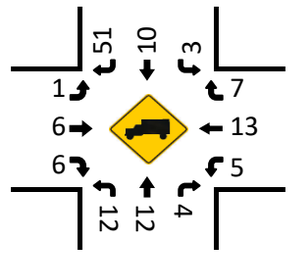
NORTHBOUND (Santa Fe Ave)

PM	1081	1	368	438	199	PM
NOON	0	0	0	0	0	NOON
AM	678	0	493	475	138	AM
		0	2	2	1	

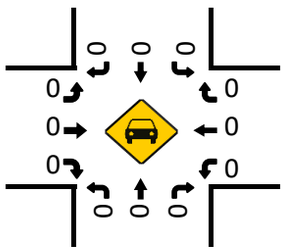
Cars (AM)



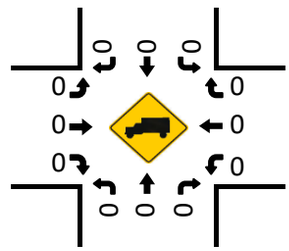
HT (AM)



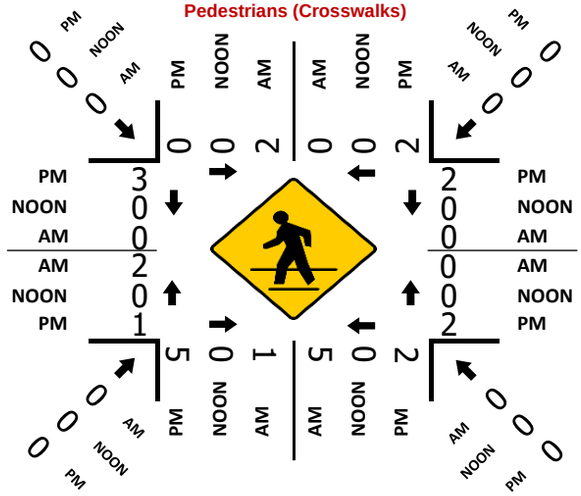
Cars (NOON)



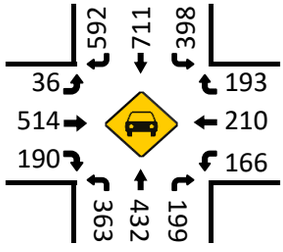
HT (NOON)



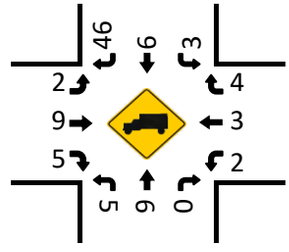
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hughes Way & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-003
Date: 5/17/2023

Data - Total

NS/EW Streets:	Hughes Way				Hughes Way				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	158	42	0	0	0	2	10	0	10	0	56	0	0	0	0	0	278
7:15 AM	173	54	0	1	0	2	7	0	18	0	86	0	0	0	0	0	341
7:30 AM	142	56	0	0	0	2	11	0	34	0	81	0	0	0	0	0	326
7:45 AM	212	119	0	0	0	4	9	0	43	0	68	0	0	0	0	0	455
8:00 AM	173	105	0	0	0	1	11	0	31	0	67	0	0	0	0	0	388
8:15 AM	141	82	0	0	0	2	8	0	22	0	54	0	0	0	0	0	309
8:30 AM	156	50	0	0	0	0	16	0	16	0	49	0	0	0	0	0	287
8:45 AM	141	45	0	0	0	4	5	0	19	0	45	0	0	0	0	0	259
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1296	553	0	1	0	17	77	0	193	0	506	0	0	0	0	0	2643
APPROACH %'s :	70.05%	29.89%	0.00%	0.05%	0.00%	18.09%	81.91%	0.00%	27.61%	0.00%	72.39%	0.00%					
PEAK HR :	07:15 am - 08:15 am																TOTAL
PEAK HR VOL :	700	334	0	1	0	9	38	0	126	0	302	0	0	0	0	0	1510
PEAK HR FACTOR :	0.825	0.702	0.000	0.250	0.000	0.563	0.864	0.000	0.733	0.000	0.878	0.000	0.000	0.000	0.000	0.000	0.830
	0.782				0.904				0.930								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	150	11	0	0	0	14	77	0	6	0	51	0	0	0	0	0	309
4:15 PM	150	20	0	0	0	16	39	0	7	0	39	0	0	0	0	0	271
4:30 PM	127	27	0	0	0	28	112	0	8	0	52	0	0	0	0	0	354
4:45 PM	153	22	0	0	0	12	81	0	11	0	47	0	0	0	0	0	326
5:00 PM	129	17	0	0	0	21	83	0	6	0	49	0	0	0	0	0	305
5:15 PM	157	10	0	0	0	11	54	0	5	0	46	0	0	0	0	0	283
5:30 PM	156	6	0	0	0	11	49	0	8	0	41	0	0	0	0	0	271
5:45 PM	154	6	0	0	0	5	48	0	3	0	48	0	0	0	0	0	264
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1176	119	0	0	0	118	543	0	54	0	373	0	0	0	0	0	2383
APPROACH %'s :	90.81%	9.19%	0.00%	0.00%	0.00%	17.85%	82.15%	0.00%	12.65%	0.00%	87.35%	0.00%					
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	566	76	0	0	0	72	330	0	30	0	194	0	0	0	0	0	1268
PEAK HR FACTOR :	0.901	0.704	0.000	0.000	0.000	0.643	0.737	0.000	0.682	0.000	0.933	0.000	0.000	0.000	0.000	0.000	0.895
	0.917				0.718				0.933								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hughes Way & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-003
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Hughes Way				Hughes Way				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	151	39	0	0	0	2	9	0	9	0	55	0	0	0	0	0	265
7:15 AM	158	53	0	1	0	2	7	0	17	0	86	0	0	0	0	0	324
7:30 AM	135	54	0	0	0	2	8	0	34	0	78	0	0	0	0	0	311
7:45 AM	200	115	0	0	0	4	8	0	43	0	67	0	0	0	0	0	437
8:00 AM	160	104	0	0	0	1	9	0	30	0	65	0	0	0	0	0	369
8:15 AM	130	78	0	0	0	2	8	0	21	0	53	0	0	0	0	0	292
8:30 AM	136	48	0	0	0	0	12	0	14	0	49	0	0	0	0	0	259
8:45 AM	130	44	0	0	0	4	4	0	18	0	43	0	0	0	0	0	243
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1200	535	0	1	0	17	65	0	186	0	496	0	0	0	0	0	2500
APPROACH %'s :	69.12%	30.82%	0.00%	0.06%	0.00%	20.73%	79.27%	0.00%	27.27%	0.00%	72.73%	0.00%					
PEAK HR :	07:15 am - 08:15 am																TOTAL
PEAK HR VOL :	653	326	0	1	0	9	32	0	124	0	296	0	0	0	0	0	1441
PEAK HR FACTOR :	0.816	0.709	0.000	0.250	0.000	0.563	0.889	0.000	0.721	0.000	0.860	0.000	0.000	0.000	0.000	0.000	0.824
			0.778				0.854				0.938						

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	142	11	0	0	0	14	72	0	5	0	50	0	0	0	0	0	294
4:15 PM	140	17	0	0	0	16	37	0	7	0	38	0	0	0	0	0	255
4:30 PM	118	26	0	0	0	27	111	0	7	0	52	0	0	0	0	0	341
4:45 PM	143	22	0	0	0	12	81	0	11	0	46	0	0	0	0	0	315
5:00 PM	119	17	0	0	0	21	83	0	5	0	45	0	0	0	0	0	290
5:15 PM	152	9	0	0	0	10	53	0	5	0	44	0	0	0	0	0	273
5:30 PM	152	6	0	0	0	11	48	0	7	0	39	0	0	0	0	0	263
5:45 PM	150	6	0	0	0	5	47	0	3	0	47	0	0	0	0	0	258
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1116	114	0	0	0	116	532	0	50	0	361	0	0	0	0	0	2289
APPROACH %'s :	90.73%	9.27%	0.00%	0.00%	0.00%	17.90%	82.10%	0.00%	12.17%	0.00%	87.83%	0.00%					
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	532	74	0	0	0	70	328	0	28	0	187	0	0	0	0	0	1219
PEAK HR FACTOR :	0.875	0.712	0.000	0.000	0.000	0.648	0.739	0.000	0.636	0.000	0.899	0.000	0.000	0.000	0.000	0.000	0.894
			0.918				0.721				0.911						

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hughes Way & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-003
Date: 5/17/2023

Data - HT

NS/EW Streets:	Hughes Way				Hughes Way				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	3	0	0	0	0	1	0	1	0	1	0	0	0	0	0	13
7:15 AM	15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	17
7:30 AM	7	2	0	0	0	0	3	0	0	0	3	0	0	0	0	0	15
7:45 AM	12	4	0	0	0	0	1	0	0	0	1	0	0	0	0	0	18
8:00 AM	13	1	0	0	0	0	2	0	1	0	2	0	0	0	0	0	19
8:15 AM	11	4	0	0	0	0	0	0	1	0	1	0	0	0	0	0	17
8:30 AM	20	2	0	0	0	0	4	0	2	0	0	0	0	0	0	0	28
8:45 AM	11	1	0	0	0	0	1	0	1	0	2	0	0	0	0	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	18	0	0	0	0	12	0	7	0	10	0	0	0	0	0	143
APPROACH %'s :	84.21%	15.79%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	41.18%	0.00%	58.82%	0.00%					
PEAK HR :	07:15 am - 08:15 am																TOTAL
PEAK HR VOL :	47	8	0	0	0	0	6	0	2	0	6	0	0	0	0	0	69
PEAK HR FACTOR :	0.783	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.908
	0.859				0.500				0.667								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	0	0	0	0	0	5	0	1	0	1	0	0	0	0	0	15
4:15 PM	10	3	0	0	0	0	2	0	0	0	1	0	0	0	0	0	16
4:30 PM	9	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	13
4:45 PM	10	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	11
5:00 PM	10	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	15
5:15 PM	5	1	0	0	0	1	1	0	0	0	2	0	0	0	0	0	10
5:30 PM	4	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	8
5:45 PM	4	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	60	5	0	0	0	2	11	0	4	0	12	0	0	0	0	0	94
APPROACH %'s :	92.31%	7.69%	0.00%	0.00%	0.00%	15.38%	84.62%	0.00%	25.00%	0.00%	75.00%	0.00%					
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	34	2	0	0	0	2	2	0	2	0	7	0	0	0	0	0	49
PEAK HR FACTOR :	0.850	0.500	0.000	0.000	0.000	0.500	0.500	0.000	0.500	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.817
	0.900				0.500				0.450								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hughes Way & Warnock Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-003
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Hughes Way				Hughes Way				Warnock Way				Warnock Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 am - 08:15 am																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hughes Way & Warnock Way
City: Long Beach

Project ID: 23-020198-003
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Hughes Way		Hughes Way		Warnock Way		Warnock Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:15 am - 08:15 am**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:30 pm - 05:30 pm**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Hughes Way & Warnock Way

Peak Hour Turning Movement Count

ID: 23-020198-003
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS

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

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Hughes Way)

AM	38	9	0	0	460	AM
NOON	0	0	0	0	0	NOON
PM	330	72	0	0	106	PM
	1	0.5	0.5	0		

EASTBOUND (Warnock Way)

AM	NOON	PM	
738	0	896	
0	0	0	0
126	0	30	2
0	0	0	0
302	0	194	1
AM	NOON	PM	

WESTBOUND (Warnock Way)

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

NORTHBOUND (Hughes Way)

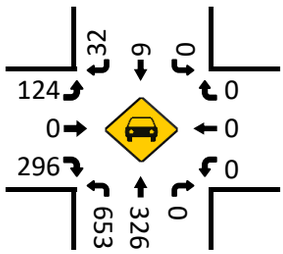
PM	266	0	566	76	0	PM
NOON	0	0	0	0	0	NOON
AM	312	1	700	334	0	AM
	0	0.5	0.5	1		

CONTROL

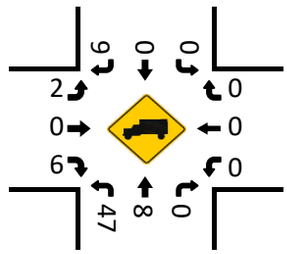
Signalized

TEV	1510 AM	0 NOON	1268 PM
PHF	0.83		0.90

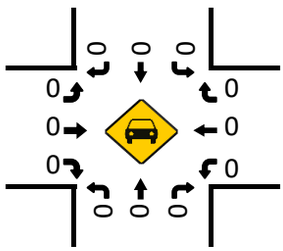
Cars (AM)



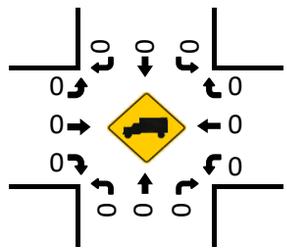
HT (AM)



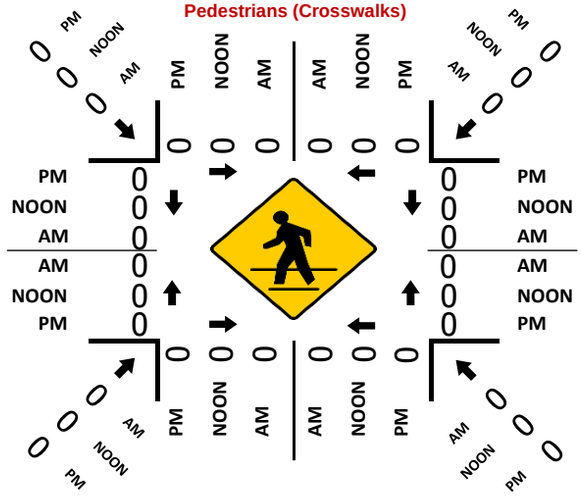
Cars (NOON)



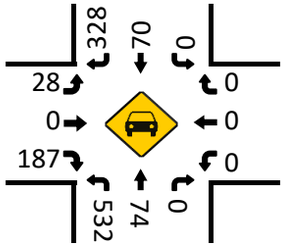
HT (NOON)



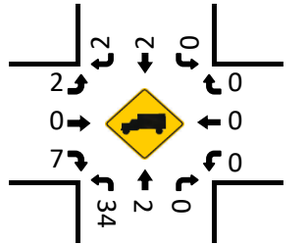
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-004
Date: 5/17/2023

Data - Total

NS/EW Streets:	Via Oro Ave				Via Oro Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	11	1	0	0	4	6	0	7	4	7	0	1	3	0	0	46
7:15 AM	2	8	2	0	0	0	4	0	2	4	6	0	1	2	1	0	32
7:30 AM	5	14	1	0	0	2	5	0	5	1	10	0	1	5	0	0	49
7:45 AM	6	19	4	0	0	1	5	0	14	3	9	0	0	2	1	0	64
8:00 AM	4	22	1	0	0	1	4	0	13	3	7	0	2	5	0	0	62
8:15 AM	5	31	1	0	0	1	9	0	25	2	9	0	0	6	0	0	89
8:30 AM	3	20	1	0	0	1	8	0	13	4	12	0	2	1	0	0	65
8:45 AM	2	16	3	0	0	2	4	0	6	2	6	0	0	2	0	0	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	29	141	14	0	0	12	45	0	85	23	66	0	7	26	2	0	450
APPROACH %'s :	15.76%	76.63%	7.61%	0.00%	0.00%	21.05%	78.95%	0.00%	48.85%	13.22%	37.93%	0.00%	20.00%	74.29%	5.71%	0.00%	
PEAK HR :	07:45 am - 08:45 am																TOTAL
PEAK HR VOL :	18	92	7	0	0	4	26	0	65	12	37	0	4	14	1	0	280
PEAK HR FACTOR :	0.750	0.742	0.438	0.000	0.000	1.000	0.722	0.000	0.650	0.750	0.771	0.000	0.500	0.583	0.250	0.000	0.787
	0.791				0.750				0.792				0.679				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	10	2	1	0	1	14	25	0	5	5	11	0	3	4	2	0	83
4:15 PM	8	0	3	0	0	7	11	0	5	6	6	0	4	7	3	0	60
4:30 PM	24	3	2	0	0	10	28	0	4	9	7	0	3	6	1	0	97
4:45 PM	9	4	3	0	1	7	17	0	4	5	11	0	1	4	6	0	72
5:00 PM	17	0	2	0	0	20	48	0	1	5	4	0	2	10	5	0	114
5:15 PM	5	1	2	0	1	7	29	0	10	7	5	0	3	5	8	0	83
5:30 PM	8	4	0	0	0	9	15	0	3	5	1	0	3	5	2	0	55
5:45 PM	3	4	3	0	2	2	10	0	2	2	6	0	4	5	4	0	47
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	84	18	16	0	5	76	183	0	34	44	51	0	23	46	31	0	611
APPROACH %'s :	71.19%	15.25%	13.56%	0.00%	1.89%	28.79%	69.32%	0.00%	26.36%	34.11%	39.53%	0.00%	23.00%	46.00%	31.00%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	55	8	9	0	2	44	122	0	19	26	27	0	9	25	20	0	366
PEAK HR FACTOR :	0.573	0.500	0.750	0.000	0.500	0.550	0.635	0.000	0.475	0.722	0.614	0.000	0.750	0.625	0.625	0.000	0.803
	0.621				0.618				0.818				0.794				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-004
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Via Oro Ave				Via Oro Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	8	1	0	0	4	4	0	7	4	6	0	1	3	0	0	39
7:15 AM	2	8	1	0	0	0	2	0	2	3	6	0	1	0	1	0	26
7:30 AM	4	11	1	0	0	2	3	0	5	1	7	0	1	4	0	0	39
7:45 AM	6	18	3	0	0	1	4	0	13	3	8	0	0	1	1	0	58
8:00 AM	1	22	1	0	0	1	4	0	13	3	6	0	2	4	0	0	57
8:15 AM	4	29	1	0	0	1	7	0	25	1	9	0	0	3	0	0	80
8:30 AM	2	17	0	0	0	1	6	0	13	3	10	0	1	1	0	0	54
8:45 AM	2	16	3	0	0	1	1	0	6	2	5	0	0	2	0	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	129	11	0	0	11	31	0	84	20	57	0	6	18	2	0	391
APPROACH %'s :	13.58%	79.63%	6.79%	0.00%	0.00%	26.19%	73.81%	0.00%	52.17%	12.42%	35.40%	0.00%	23.08%	69.23%	7.69%	0.00%	
PEAK HR :	07:45 am - 08:45 am																TOTAL
PEAK HR VOL :	13	86	5	0	0	4	21	0	64	10	33	0	3	9	1	0	249
PEAK HR FACTOR :	0.542	0.741	0.417	0.000	0.000	1.000	0.750	0.000	0.640	0.833	0.825	0.000	0.375	0.563	0.250	0.000	0.778
		0.765				0.781				0.764				0.542			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	1	0	0	0	12	22	0	3	4	8	0	3	4	2	0	67
4:15 PM	8	0	0	0	0	6	10	0	5	4	6	0	4	5	3	0	51
4:30 PM	23	2	2	0	0	10	27	0	3	7	6	0	2	6	1	0	89
4:45 PM	9	4	3	0	1	7	16	0	4	2	11	0	1	3	6	0	67
5:00 PM	16	0	2	0	0	20	47	0	1	4	4	0	2	8	5	0	109
5:15 PM	5	1	2	0	1	7	29	0	9	6	3	0	2	5	8	0	78
5:30 PM	7	3	0	0	0	9	15	0	3	4	1	0	3	5	2	0	52
5:45 PM	3	4	3	0	2	2	9	0	2	1	5	0	3	3	4	0	41
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	79	15	12	0	4	73	175	0	30	32	44	0	20	39	31	0	554
APPROACH %'s :	74.53%	14.15%	11.32%	0.00%	1.59%	28.97%	69.44%	0.00%	28.30%	30.19%	41.51%	0.00%	22.22%	43.33%	34.44%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	53	7	9	0	2	44	119	0	17	19	24	0	7	22	20	0	343
PEAK HR FACTOR :	0.576	0.438	0.750	0.000	0.500	0.550	0.633	0.000	0.472	0.679	0.545	0.000	0.875	0.688	0.625	0.000	0.787
		0.639				0.616				0.833				0.817			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-004
Date: 5/17/2023

Data - HT

NS/EW Streets:	Via Oro Ave				Via Oro Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	3	0	0	0	0	2	0	0	0	1	0	0	0	0	0	7
7:15 AM	0	0	1	0	0	0	2	0	0	1	0	0	0	2	0	0	6
7:30 AM	1	3	0	0	0	0	2	0	0	0	3	0	0	1	0	0	10
7:45 AM	0	1	1	0	0	0	1	0	1	0	1	0	0	1	0	0	6
8:00 AM	3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	5
8:15 AM	1	2	0	0	0	0	2	0	0	1	0	0	0	3	0	0	9
8:30 AM	1	3	1	0	0	0	2	0	0	1	2	0	1	0	0	0	11
8:45 AM	0	0	0	0	0	1	3	0	0	0	1	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	12	3	0	0	1	14	0	1	3	9	0	1	8	0	0	59
APPROACH %'s :	31.82%	54.55%	13.64%	0.00%	0.00%	6.67%	93.33%	0.00%	7.69%	23.08%	69.23%	0.00%	11.11%	88.89%	0.00%	0.00%	
PEAK HR :	07:45 am - 08:45 am																TOTAL
PEAK HR VOL :	5	6	2	0	0	0	5	0	1	2	4	0	1	5	0	0	31
PEAK HR FACTOR :	0.417	0.500	0.500	0.000	0.000	0.000	0.625	0.000	0.250	0.500	0.500	0.000	0.250	0.417	0.000	0.000	0.705
		0.650				0.625				0.583				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	1	1	0	1	2	3	0	2	1	3	0	0	0	0	0	16
4:15 PM	0	0	3	0	0	1	1	0	0	2	0	0	0	2	0	0	9
4:30 PM	1	1	0	0	0	0	1	0	1	2	1	0	1	0	0	0	8
4:45 PM	0	0	0	0	0	0	1	0	0	3	0	0	0	1	0	0	5
5:00 PM	1	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	5
5:30 PM	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	1	2	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	3	4	0	1	3	8	0	4	12	7	0	3	7	0	0	57
APPROACH %'s :	41.67%	25.00%	33.33%	0.00%	8.33%	25.00%	66.67%	0.00%	17.39%	52.17%	30.43%	0.00%	30.00%	70.00%	0.00%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	2	1	0	0	0	0	3	0	2	7	3	0	2	3	0	0	23
PEAK HR FACTOR :	0.500	0.250	0.000	0.000	0.000	0.000	0.750	0.000	0.500	0.583	0.375	0.000	0.500	0.375	0.000	0.000	0.719
		0.375				0.750				0.750				0.625			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-004
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Via Oro Ave				Via Oro Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
APPROACH %'s :									100.00%	0.00%	0.00%	0.00%					
PEAK HR :	07:45 am - 08:45 am																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
											0.250						

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1.5	0.5	1	0	2	0.5	1.5	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
APPROACH %'s :									100.00%	0.00%	0.00%	0.00%					
PEAK HR :	04:30 pm - 05:30 pm																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & W Carson St
City: Long Beach

Project ID: 23-020198-004
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Via Oro Ave		Via Oro Ave		W Carson St		W Carson St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	0	1
7:45 AM	1	0	0	1	0	1	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	1	1	1	0	1	0	0	5
APPROACH %'s :	50.00%	50.00%	50.00%	50.00%	0.00%	100.00%			
PEAK HR :	07:45 am - 08:45 am								TOTAL
PEAK HR VOL :	1	0	0	1	0	1	0	0	3
PEAK HR FACTOR :	0.250			0.250		0.250			0.250
	0.250		0.250		0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	0	0	1	0	0	0	0	2
4:15 PM	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	1	1	0	0	1	0	3
4:45 PM	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	1	4	0	1	1	0	8
APPROACH %'s :	100.00%	0.00%	20.00%	80.00%	0.00%	100.00%	100.00%	0.00%	
PEAK HR :	04:30 pm - 05:30 pm								TOTAL
PEAK HR VOL :	0	0	1	1	0	1	1	0	4
PEAK HR FACTOR :			0.250	0.250		0.250	0.250		0.333
			0.250		0.250		0.250		

Prepared by National Data & Surveying Services

Via Oro Ave & W Carson St

Peak Hour Turning Movement Count

ID: 23-020198-004
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS	COUNT PERIODS
07:45 am - 08:45 am	7:00 AM - 09:00 AM
NONE	NONE
04:30 pm - 05:30 pm	4:00 PM - 06:00 PM

SOUTHBOUND (Via Oro Ave)

AM	26	4	0	0	158	AM
NOON	0	0	0	0	0	NOON
PM	122	44	2	0	47	PM
	1	0.5	1.5	0		

EASTBOUND (W Carson St)

AM	NOON	PM	
58	0	202	
0	0	0	0
65	0	19	2
12	0	26	0.5
37	0	27	1.5

WESTBOUND (W Carson St)

PM	NOON	AM	
20	0	1	0
25	0	14	3
9	0	4	1
0	0	0	0
37	0	19	

NORTHBOUND (Via Oro Ave)

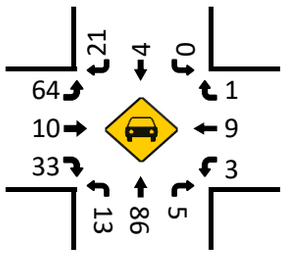
PM	80	0	55	8	9	PM
NOON	0	0	0	0	0	NOON
AM	45	0	18	92	7	AM
		0	2	2	0	

CONTROL

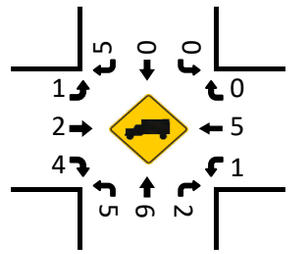
Signalized

TEV	280 AM	0 NOON	366 PM
PHF	0.79		0.80

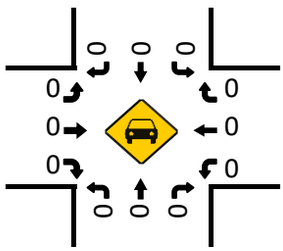
Cars (AM)



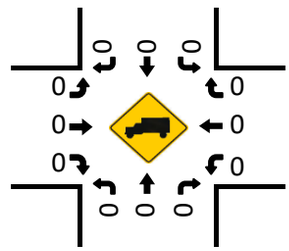
HT (AM)



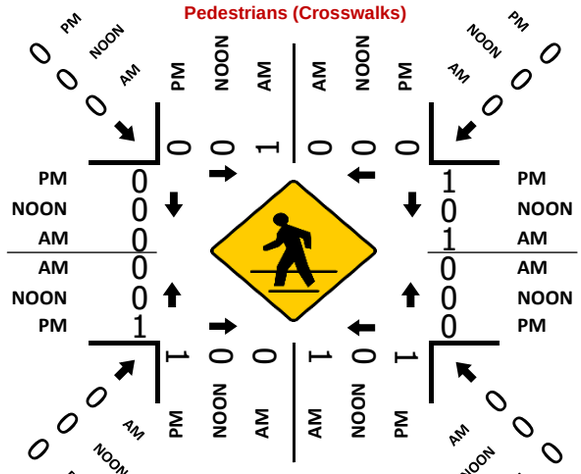
Cars (NOON)



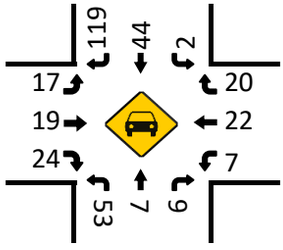
HT (NOON)



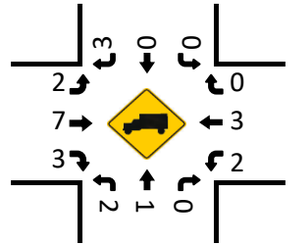
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-005
Date: 5/17/2023

Data - Total

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	53	72	7	1	6	48	31	0	18	7	29	0	6	2	4	0	284
7:15 AM	76	83	3	0	8	55	27	0	18	2	28	0	4	1	2	0	307
7:30 AM	76	101	2	0	11	66	35	1	32	3	29	0	2	5	8	0	371
7:45 AM	82	151	7	0	12	95	55	0	74	12	27	0	5	8	3	0	531
8:00 AM	87	117	7	1	10	100	65	1	53	15	40	0	5	4	3	0	508
8:15 AM	64	103	14	1	13	86	45	0	64	16	28	1	7	4	4	1	451
8:30 AM	48	85	10	2	10	73	44	0	36	16	28	1	9	3	6	0	371
8:45 AM	60	85	3	1	3	59	24	1	23	9	36	1	2	1	4	0	312
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	546	797	53	6	73	582	326	3	318	80	245	3	40	28	34	1	3135
APPROACH %'s :	38.94%	56.85%	3.78%	0.43%	7.42%	59.15%	33.13%	0.30%	49.23%	12.38%	37.93%	0.46%	38.83%	27.18%	33.01%	0.97%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	281	456	38	4	45	354	209	1	227	59	123	2	26	19	16	1	1861
PEAK HR FACTOR :	0.807	0.755	0.679	0.500	0.865	0.885	0.804	0.250	0.767	0.922	0.769	0.500	0.722	0.594	0.667	0.250	0.876
	0.811				0.865				0.909				0.861				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	25	73	9	2	2	112	24	0	58	14	105	0	20	8	21	0	473
4:15 PM	43	109	4	0	4	110	32	0	75	10	117	0	7	5	12	0	528
4:30 PM	27	112	3	4	3	142	34	0	63	12	109	0	20	11	34	0	574
4:45 PM	54	106	4	0	6	127	27	1	81	10	120	0	9	8	21	0	574
5:00 PM	51	106	3	0	5	136	39	1	89	9	119	0	20	19	44	0	641
5:15 PM	36	115	4	1	8	118	33	0	76	16	129	0	19	3	23	0	581
5:30 PM	39	83	0	2	2	115	24	0	69	6	104	0	13	4	15	0	476
5:45 PM	45	78	1	1	4	112	32	0	48	5	113	0	10	2	8	0	459
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	320	782	28	10	34	972	245	2	559	82	916	0	118	60	178	0	4306
APPROACH %'s :	28.07%	68.60%	2.46%	0.88%	2.71%	77.57%	19.55%	0.16%	35.90%	5.27%	58.83%	0.00%	33.15%	16.85%	50.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	168	439	14	5	22	523	133	2	309	47	477	0	68	41	122	0	2370
PEAK HR FACTOR :	0.778	0.954	0.875	0.313	0.688	0.921	0.853	0.500	0.868	0.734	0.924	0.000	0.850	0.539	0.693	0.000	0.924
	0.954				0.939				0.942				0.696				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-005
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	51	71	7	1	5	43	29	0	15	7	27	0	5	2	3	0	266
7:15 AM	73	83	2	0	7	51	25	0	15	2	27	0	2	1	0	0	288
7:30 AM	74	97	2	0	9	63	32	1	27	3	24	0	1	4	6	0	343
7:45 AM	78	148	6	0	11	91	54	0	67	12	27	0	4	8	2	0	508
8:00 AM	85	113	7	1	9	95	62	1	51	15	39	0	5	4	1	0	488
8:15 AM	62	97	13	1	13	81	43	0	61	16	28	1	4	4	2	1	427
8:30 AM	46	82	8	1	8	65	43	0	33	16	28	1	6	3	4	0	344
8:45 AM	58	73	2	1	2	58	21	1	19	9	36	1	2	1	2	0	286
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	527	764	47	5	64	547	309	3	288	80	236	3	29	27	20	1	2950
APPROACH %'s :	39.24%	56.89%	3.50%	0.37%	6.93%	59.26%	33.48%	0.33%	47.45%	13.18%	38.88%	0.49%	37.66%	35.06%	25.97%	1.30%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	271	440	34	3	41	332	202	1	212	59	122	2	19	19	9	1	1767
PEAK HR FACTOR :	0.797	0.743	0.654	0.750	0.788	0.874	0.815	0.250	0.791	0.922	0.782	0.500	0.792	0.594	0.563	0.250	0.870
		0.806				0.862				0.932				0.857			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	23	69	7	2	1	109	19	0	55	11	102	0	19	7	18	0	442
4:15 PM	42	103	3	0	2	109	29	0	72	9	112	0	6	5	10	0	502
4:30 PM	25	101	3	4	1	136	34	0	61	12	107	0	20	11	32	0	547
4:45 PM	52	106	4	0	3	117	25	1	78	10	118	0	9	8	19	0	550
5:00 PM	49	103	3	0	4	132	39	1	89	9	119	0	18	19	42	0	627
5:15 PM	35	111	4	1	4	113	30	0	74	16	129	0	19	3	23	0	562
5:30 PM	37	82	0	2	1	113	23	0	65	6	102	0	13	4	14	0	462
5:45 PM	43	77	1	1	2	109	29	0	45	5	113	0	10	2	5	0	442
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	306	752	25	10	18	938	228	2	539	78	902	0	114	59	163	0	4134
APPROACH %'s :	28.00%	68.80%	2.29%	0.91%	1.52%	79.09%	19.22%	0.17%	35.48%	5.13%	59.38%	0.00%	33.93%	17.56%	48.51%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	161	421	14	5	12	498	128	2	302	47	473	0	66	41	116	0	2286
PEAK HR FACTOR :	0.774	0.948	0.875	0.313	0.750	0.915	0.821	0.500	0.848	0.734	0.917	0.000	0.825	0.539	0.690	0.000	0.911
		0.927				0.909				0.938				0.706			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-005
Date: 5/17/2023

Data - HT

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	1	0	0	1	5	2	0	3	0	2	0	1	0	1	0	18
7:15 AM	3	0	1	0	1	4	2	0	3	0	1	0	2	0	2	0	19
7:30 AM	2	4	0	0	2	3	3	0	5	0	5	0	1	1	2	0	28
7:45 AM	4	3	1	0	1	4	1	0	7	0	0	0	1	0	1	0	23
8:00 AM	2	4	0	0	1	5	3	0	2	0	1	0	0	0	2	0	20
8:15 AM	2	6	1	0	0	5	2	0	3	0	0	0	3	0	2	0	24
8:30 AM	2	3	2	1	2	8	1	0	3	0	0	0	3	0	2	0	27
8:45 AM	2	12	1	0	1	1	3	0	4	0	0	0	0	0	2	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	33	6	1	9	35	17	0	30	0	9	0	11	1	14	0	185
APPROACH %'s :	32.20%	55.93%	10.17%	1.69%	14.75%	57.38%	27.87%	0.00%	76.92%	0.00%	23.08%	0.00%	42.31%	3.85%	53.85%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	10	16	4	1	4	22	7	0	15	0	1	0	7	0	7	0	94
PEAK HR FACTOR :	0.625	0.667	0.500	0.250	0.500	0.688	0.583	0.000	0.536	0.000	0.250	0.000	0.583	0.000	0.875	0.000	0.870
		0.861				0.750				0.571				0.700			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	4	2	0	1	3	5	0	3	3	3	0	1	1	3	0	31
4:15 PM	1	6	1	0	2	1	3	0	3	1	5	0	1	0	2	0	26
4:30 PM	2	11	0	0	2	6	0	0	2	0	2	0	0	0	2	0	27
4:45 PM	2	0	0	0	3	10	2	0	3	0	2	0	0	0	2	0	24
5:00 PM	2	3	0	0	1	4	0	0	0	0	0	0	2	0	2	0	14
5:15 PM	1	4	0	0	4	5	3	0	2	0	0	0	0	0	0	0	19
5:30 PM	2	1	0	0	1	2	1	0	4	0	2	0	0	0	1	0	14
5:45 PM	2	1	0	0	2	3	3	0	3	0	0	0	0	0	3	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	30	3	0	16	34	17	0	20	4	14	0	4	1	15	0	172
APPROACH %'s :	29.79%	63.83%	6.38%	0.00%	23.88%	50.75%	25.37%	0.00%	52.63%	10.53%	36.84%	0.00%	20.00%	5.00%	75.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	7	18	0	0	10	25	5	0	7	0	4	0	2	0	6	0	84
PEAK HR FACTOR :	0.875	0.409	0.000	0.000	0.625	0.625	0.417	0.000	0.583	0.000	0.500	0.000	0.250	0.000	0.750	0.000	0.778
		0.481				0.667				0.550				0.500			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Carson St
City: Long Beach
Control: Signalized

Project ID: 23-020198-005
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Santa Fe Ave				Santa Fe Ave				W Carson St				W Carson St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
APPROACH %'s :									0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1.5	1.5	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	3
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	4
APPROACH %'s :					0.00%	50.00%	50.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

National Data & Surveying Services

Intersection Turning Movement Count

Location: Santa Fe Ave & W Carson St
City: Long Beach

Project ID: 23-020198-005
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Santa Fe Ave		Santa Fe Ave		W Carson St		W Carson St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	0	1
7:45 AM	3	1	0	0	0	0	1	0	5
8:00 AM	8	1	0	0	0	0	4	1	14
8:15 AM	3	0	0	0	0	0	9	0	12
8:30 AM	3	0	1	0	1	0	4	0	9
8:45 AM	2	0	1	0	1	0	1	0	5
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	20	3	2	0	2	0	19	1	47
APPROACH %'s :	86.96%	13.04%	100.00%	0.00%	100.00%	0.00%	95.00%	5.00%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	17	2	1	0	1	0	18	1	40
PEAK HR FACTOR :	0.531	0.500	0.250		0.250		0.500	0.250	0.714
	0.528		0.250		0.250		0.528		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	3	0	0	0	0	1	0	4
4:15 PM	0	2	0	0	0	0	0	1	3
4:30 PM	0	1	0	0	0	0	0	0	1
4:45 PM	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	5	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	1	0	1	2	4
5:45 PM	0	0	0	1	0	1	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	11	0	1	1	1	2	3	20
APPROACH %'s :	8.33%	91.67%	0.00%	100.00%	50.00%	50.00%	40.00%	60.00%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	1	6	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.250	0.300							0.350
	0.350								

Prepared by National Data & Surveying Services

Santa Fe Ave & W Carson St

Peak Hour Turning Movement Count

ID: 23-020198-005
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS

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

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Santa Fe Ave)

AM	209	354	45	1	700	AM
NOON	0	0	0	0	0	NOON
PM	133	523	22	2	872	PM
	0	2	1	0		

EASTBOUND (W Carson St)

AM	NOON	PM	
511	0	342	
2	0	0	0
227	0	309	1.5
59	0	47	1.5
123	0	477	0

WESTBOUND (W Carson St)

PM	NOON	AM	
122	0	16	0
41	0	19	2
68	0	26	1
0	0	1	0
83	0	143	

CONTROL

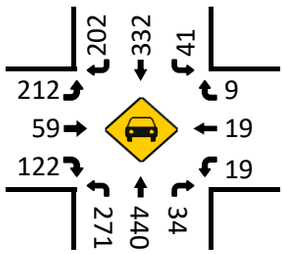
Signalized

TEV	1861	0	2370
	AM	NOON	PM
PHF	0.88		0.92

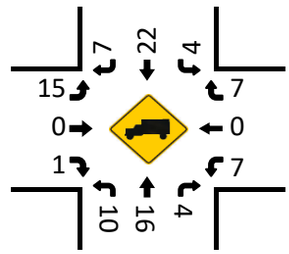
NORTHBOUND (Santa Fe Ave)

	0	1	2	1		
PM	1073	5	168	439	14	PM
NOON	0	0	0	0	0	NOON
AM	507	4	281	456	38	AM

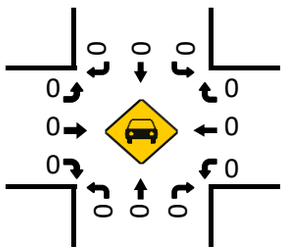
Cars (AM)



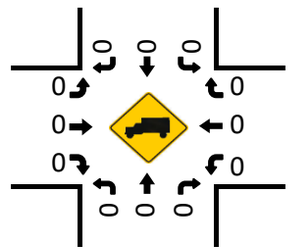
HT (AM)



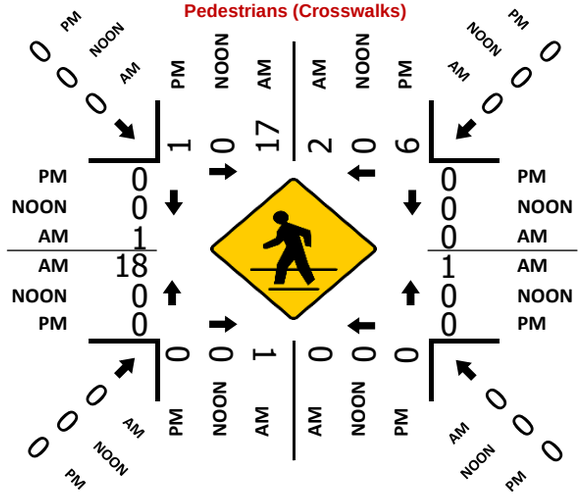
Cars (NOON)



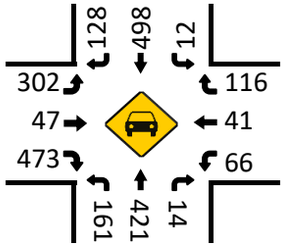
HT (NOON)



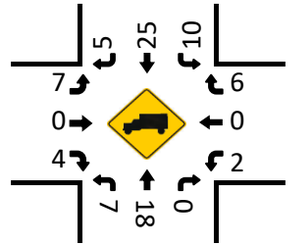
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & Hughes Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-006
Date: 5/17/2023

Data - Total

NS/EW Streets:	Via Oro Ave				Via Oro Ave				Hughes Way				Hughes Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	2	10	0	25	0	13	0	0	0	0	0	50
7:15 AM	1	0	0	0	0	2	5	0	28	0	30	0	0	0	0	0	66
7:30 AM	3	0	0	0	0	3	9	0	34	1	19	0	0	0	1	0	70
7:45 AM	5	0	0	0	0	2	3	0	47	1	33	0	0	0	0	0	91
8:00 AM	3	0	0	0	0	3	7	0	61	0	30	0	0	1	0	0	105
8:15 AM	3	1	0	0	0	5	5	0	71	0	18	0	0	0	0	0	103
8:30 AM	2	0	0	0	0	2	9	0	40	1	16	0	0	1	1	0	72
8:45 AM	6	0	0	0	0	3	2	0	35	0	21	0	0	1	0	0	68
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	23	1	0	0	0	22	50	0	341	3	180	0	0	3	2	0	625
APPROACH %'s :	95.83%	4.17%	0.00%	0.00%	0.00%	30.56%	69.44%	0.00%	65.08%	0.57%	34.35%	0.00%	0.00%	60.00%	40.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	13	1	0	0	0	12	24	0	219	2	97	0	0	2	1	0	371
PEAK HR FACTOR :	0.650	0.250	0.000	0.000	0.000	0.600	0.667	0.000	0.771	0.500	0.735	0.000	0.000	0.500	0.250	0.000	0.883
	0.700				0.818				0.874				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	3	0	0	3	0	48	0	9	1	1	0	0	2	1	0	83
4:15 PM	20	4	0	0	2	1	26	0	3	0	5	0	0	4	0	0	65
4:30 PM	28	7	0	0	3	0	42	0	12	1	3	0	0	3	1	0	100
4:45 PM	18	1	0	0	2	1	29	0	8	2	0	0	0	4	1	0	66
5:00 PM	27	5	0	0	1	0	63	0	6	0	5	0	0	0	1	0	108
5:15 PM	15	1	0	0	1	0	34	0	4	0	2	0	0	1	0	0	58
5:30 PM	16	2	0	0	2	0	31	0	9	2	3	0	0	1	1	0	67
5:45 PM	2	2	0	0	0	0	23	0	8	0	0	0	0	0	1	0	36
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	141	25	0	0	14	2	296	0	59	6	19	0	0	15	6	0	583
APPROACH %'s :	84.94%	15.06%	0.00%	0.00%	4.49%	0.64%	94.87%	0.00%	70.24%	7.14%	22.62%	0.00%	0.00%	71.43%	28.57%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	93	17	0	0	8	2	160	0	29	3	13	0	0	11	3	0	339
PEAK HR FACTOR :	0.830	0.607	0.000	0.000	0.667	0.500	0.635	0.000	0.604	0.375	0.650	0.000	0.000	0.688	0.750	0.000	0.785
	0.786				0.664				0.703				0.700				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & Hughes Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-006
Date: 5/17/2023

Data - Cars

NS/EW Streets:	Via Oro Ave				Via Oro Ave				Hughes Way				Hughes Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	2	9	0	21	0	13	0	0	0	0	0	45
7:15 AM	1	0	0	0	0	2	5	0	27	0	29	0	0	0	0	0	64
7:30 AM	3	0	0	0	0	3	7	0	31	1	19	0	0	0	1	0	65
7:45 AM	5	0	0	0	0	2	2	0	44	1	33	0	0	0	0	0	87
8:00 AM	2	0	0	0	0	3	6	0	59	0	30	0	0	1	0	0	101
8:15 AM	3	1	0	0	0	5	5	0	67	0	18	0	0	0	0	0	99
8:30 AM	2	0	0	0	0	2	5	0	35	1	16	0	0	1	1	0	63
8:45 AM	6	0	0	0	0	2	1	0	34	0	20	0	0	1	0	0	64
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	1	0	0	0	21	40	0	318	3	178	0	0	3	2	0	588
APPROACH %'s :	95.65%	4.35%	0.00%	0.00%	0.00%	34.43%	65.57%	0.00%	63.73%	0.60%	35.67%	0.00%	0.00%	60.00%	40.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	12	1	0	0	0	12	18	0	205	2	97	0	0	2	1	0	350
PEAK HR FACTOR :	0.600	0.250	0.000	0.000	0.000	0.600	0.750	0.000	0.765	0.500	0.735	0.000	0.000	0.500	0.250	0.000	0.866
	0.650				0.750				0.854				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	3	0	0	3	0	43	0	6	1	1	0	0	2	1	0	75
4:15 PM	20	4	0	0	2	1	25	0	0	0	5	0	0	3	0	0	60
4:30 PM	28	7	0	0	3	0	40	0	10	1	3	0	0	3	1	0	96
4:45 PM	18	1	0	0	2	1	29	0	8	2	0	0	0	4	1	0	66
5:00 PM	27	5	0	0	1	0	63	0	5	0	5	0	0	0	1	0	107
5:15 PM	15	1	0	0	1	0	31	0	3	0	2	0	0	1	0	0	54
5:30 PM	16	2	0	0	2	0	31	0	8	2	3	0	0	1	1	0	66
5:45 PM	2	2	0	0	0	0	22	0	8	0	0	0	0	0	1	0	35
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	141	25	0	0	14	2	284	0	48	6	19	0	0	14	6	0	559
APPROACH %'s :	84.94%	15.06%	0.00%	0.00%	4.67%	0.67%	94.67%	0.00%	65.75%	8.22%	26.03%	0.00%	0.00%	70.00%	30.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	93	17	0	0	8	2	157	0	23	3	13	0	0	10	3	0	329
PEAK HR FACTOR :	0.830	0.607	0.000	0.000	0.667	0.500	0.623	0.000	0.575	0.375	0.650	0.000	0.000	0.625	0.750	0.000	0.769
	0.786				0.652				0.696				0.650				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & Hughes Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-006
Date: 5/17/2023

Data - HT

NS/EW Streets:	Via Oro Ave				Via Oro Ave				Hughes Way				Hughes Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	5
7:45 AM	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	4
8:00 AM	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	4	0	5	0	0	0	0	0	0	0	9
8:45 AM	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	1	10	0	23	0	2	0	0	0	0	0	37
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	9.09%	90.91%	0.00%	92.00%	0.00%	8.00%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	6	0	14	0	0	0	0	0	0	0	21
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583
	0.250				0.375				0.700								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	5	0	3	0	0	0	0	0	0	0	8
4:15 PM	0	0	0	0	0	0	1	0	3	0	0	0	0	1	0	0	5
4:30 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	12	0	11	0	0	0	0	1	0	0	24
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	3	0	6	0	0	0	0	1	0	0	10
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500
					0.375				0.500					0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & Hughes Way
City: Long Beach
Control: Signalized

Project ID: 23-020198-006
Date: 5/17/2023

Data - Bikes

NS/EW Streets:	Via Oro Ave				Via Oro Ave				Hughes Way				Hughes Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	1.5	0	0	1	1.5	1.5	0	1.5	0.5	1	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Oro Ave & Hughes Way
City: Long Beach

Project ID: 23-020198-006
Date: 5/17/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Via Oro Ave		Via Oro Ave		Hughes Way		Hughes Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	1	1	0	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	1	0	0	5
APPROACH %'s :	25.00%	75.00%			0.00%	100.00%			
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	1	2	0	0	0	1	0	0	4
PEAK HR FACTOR :	0.250	0.500				0.250			0.333
	0.375				0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	4	0	1	4	0	1	0	10
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	1	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	4	0	1	5	1	1	0	13
APPROACH %'s :	20.00%	80.00%	0.00%	100.00%	83.33%	16.67%	100.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM								TOTAL
PEAK HR VOL :	1	0	0	0	1	1	0	0	3
PEAK HR FACTOR :	0.250				0.250	0.250			0.375
	0.250				0.500				

Prepared by National Data & Surveying Services

Via Oro Ave & Hughes Way

Peak Hour Turning Movement Count

ID: 23-020198-006
City: Long Beach

Day: Wednesday
Date: 5/17/2023

PEAK HOURS

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

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Via Oro Ave)

AM	24	12	0	0	221	AM
NOON	0	0	0	0	0	NOON
PM	160	2	8	0	49	PM
	1.5	1.5	1	0		

EASTBOUND (Hughes Way)

AM	NOON	PM	
39	0	264	
0	0	0	0
219	0	29	1.5
2	0	3	0.5
97	0	13	1

WESTBOUND (Hughes Way)

PM	NOON	AM	
3	0	1	0.5
11	0	2	1
0	0	0	0.5
0	0	0	0
11	0	2	

NORTHBOUND (Via Oro Ave)

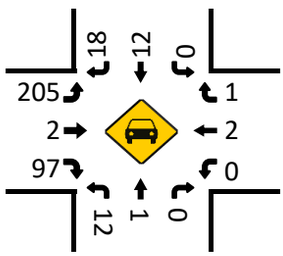
	0	1.5	1.5	0		
PM	15	0	93	17	0	PM
NOON	0	0	0	0	0	NOON
AM	109	0	13	1	0	AM

CONTROL

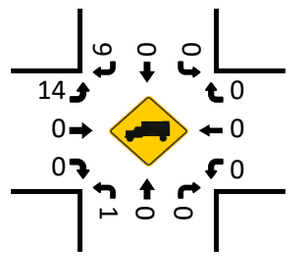
Signalized

TEV	371	0	339
	AM	NOON	PM
PHF	0.88		0.78

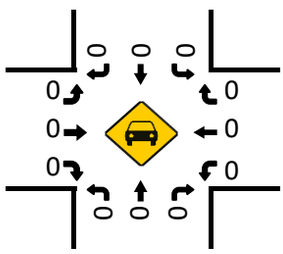
Cars (AM)



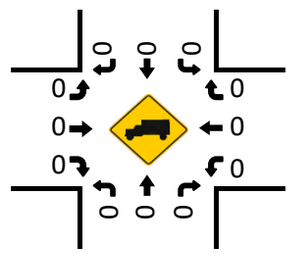
HT (AM)



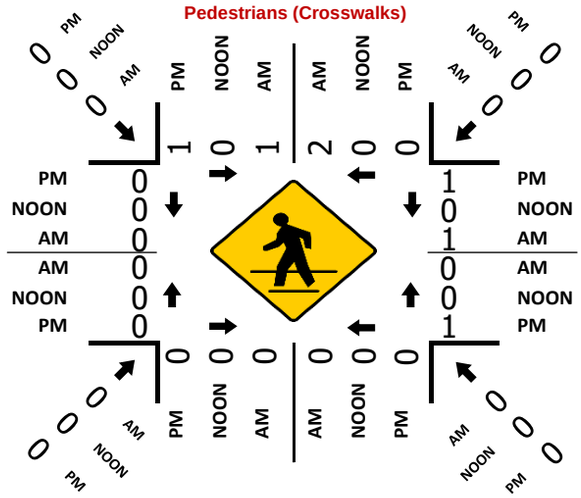
Cars (NOON)



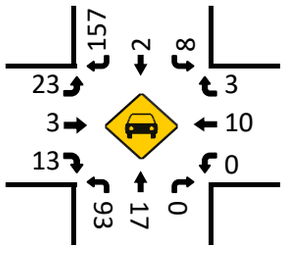
HT (NOON)



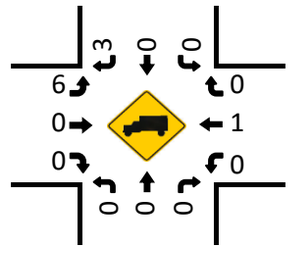
Pedestrians (Crosswalks)



Cars (PM)



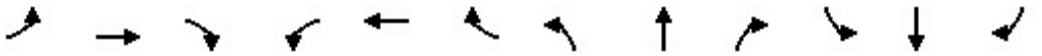
HT (PM)



APPENDIX B – LEVEL OF SERVICE REPORTS

HCM 6th Signalized Intersection Summary
1: Via Oro Ave & Carson St

07/25/2023



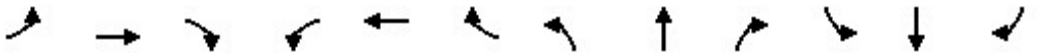
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	12	38	4	14	1	18	93	7	0	4	26
Future Volume (veh/h)	66	12	38	4	14	1	18	93	7	0	4	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	913	952	952	1710	1781	1781	1870	1870	1870	1796	1796	1796
Adj Flow Rate, veh/h	84	15	0	5	18	0	23	118	4	0	5	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	64	64	64	8	8	8	2	2	2	7	7	7
Cap, veh/h	101	99	84	8	245	0	476	483	16	9	10	8
Arrive On Green	0.06	0.10	0.00	0.00	0.05	0.00	0.14	0.14	0.14	0.00	0.01	0.00
Sat Flow, veh/h	1740	952	806	1629	5024	0	3456	3507	118	1711	1796	1522
Grp Volume(v), veh/h	84	15	0	5	18	0	23	60	62	0	5	0
Grp Sat Flow(s),veh/h/ln	870	952	806	1629	1621	0	1728	1777	1849	1711	1796	1522
Q Serve(g_s), s	1.0	0.3	0.0	0.1	0.1	0.0	0.1	0.6	0.6	0.0	0.1	0.0
Cycle Q Clear(g_c), s	1.0	0.3	0.0	0.1	0.1	0.0	0.1	0.6	0.6	0.0	0.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	101	99	84	8	245	0	476	245	255	9	10	8
V/C Ratio(X)	0.83	0.15	0.00	0.66	0.07	0.00	0.05	0.24	0.25	0.00	0.51	0.00
Avail Cap(c_a), veh/h	1708	2002	1697	1599	10232	0	5655	2908	3025	2719	2855	2420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.0	8.7	0.0	10.6	9.7	0.0	8.0	8.2	8.2	0.0	10.6	0.0
Incr Delay (d2), s/veh	10.1	1.0	0.0	46.0	0.2	0.0	0.0	0.6	0.6	0.0	41.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.1	0.0	0.2	0.0	0.0	0.0	0.3	0.3	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	9.7	0.0	56.6	9.9	0.0	8.1	8.8	8.8	0.0	52.2	0.0
LnGrp LOS	C	A	A	E	A	A	A	A	A	A	D	A
Approach Vol, veh/h		99			23			145			5	
Approach Delay, s/veh		18.5			20.0			8.7			52.2	
Approach LOS		B			C			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.1	6.2		4.1	5.2	5.1		6.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	21.0	45.0		34.0	21.0	45.0		35.0				
Max Q Clear Time (g_c+I1), s	2.1	2.3		2.1	3.0	2.1		2.6				
Green Ext Time (p_c), s	0.0	0.1		0.0	0.1	0.1		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		14.0	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.



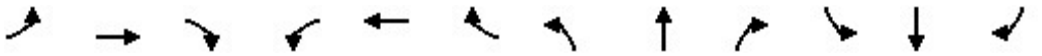
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	60	125	27	19	16	290	470	39	47	365	212
Future Volume (veh/h)	233	60	125	27	19	16	290	470	39	47	365	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1796	1796	1796
Adj Flow Rate, veh/h	265	68	56	31	22	0	330	534	18	53	415	200
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	7	7	7
Cap, veh/h	486	129	107	194	388	0	373	1534	684	92	619	295
Arrive On Green	0.14	0.14	0.14	0.11	0.11	0.00	0.21	0.44	0.44	0.05	0.28	0.28
Sat Flow, veh/h	3534	940	774	1767	3618	0	1767	3526	1571	1711	2226	1059
Grp Volume(v), veh/h	265	0	124	31	22	0	330	534	18	53	317	298
Grp Sat Flow(s),veh/h/ln	1767	0	1714	1767	1763	0	1767	1763	1571	1711	1706	1579
Q Serve(g_s), s	5.2	0.0	5.0	1.2	0.4	0.0	13.4	7.5	0.5	2.2	12.2	12.4
Cycle Q Clear(g_c), s	5.2	0.0	5.0	1.2	0.4	0.0	13.4	7.5	0.5	2.2	12.2	12.4
Prop In Lane	1.00		0.45	1.00		0.00	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	486	0	236	194	388	0	373	1534	684	92	474	439
V/C Ratio(X)	0.54	0.00	0.53	0.16	0.06	0.00	0.89	0.35	0.03	0.58	0.67	0.68
Avail Cap(c_a), veh/h	2865	0	1390	1337	2668	0	621	2858	1274	601	1383	1280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	29.7	29.8	29.5	0.0	28.3	13.9	11.9	34.2	23.7	23.8
Incr Delay (d2), s/veh	0.7	0.0	1.3	0.3	0.0	0.0	4.7	0.2	0.0	5.6	2.3	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	0.0	3.7	0.9	0.3	0.0	9.6	4.8	0.3	1.8	8.4	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	0.0	31.0	30.1	29.5	0.0	33.0	14.1	12.0	39.8	26.0	26.4
LnGrp LOS	C	A	C	C	C	A	C	B	B	D	C	C
Approach Vol, veh/h		389			53			882			668	
Approach Delay, s/veh		30.6			29.9			21.1			27.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	37.7		15.2	19.6	26.1		13.1				
Change Period (Y+Rc), s	4.0	5.5		5.0	4.0	5.5		5.0				
Max Green Setting (Gmax), s	26.0	60.0		60.0	26.0	60.0		56.0				
Max Q Clear Time (g_c+I1), s	4.2	9.5		7.2	15.4	14.4		3.2				
Green Ext Time (p_c), s	0.1	5.7		1.3	0.2	6.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		25.3	
HCM 6th LOS		C	

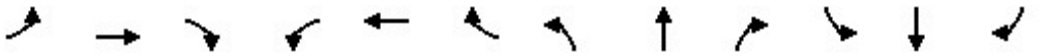
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	2	99	0	2	1	13	1	0	0	12	24
Future Volume (vph)	223	2	99	0	2	1	13	1	0	0	12	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	11	12	11	11	11	10	10	11
Total Lost time (s)	4.2	4.2	4.2		4.2		4.2	4.2			4.2	4.2
Lane Util. Factor	0.95	0.95	1.00		0.95		0.91	0.91			0.91	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00			0.93	0.85
Flt Protected	0.95	0.95	1.00		1.00		0.95	0.96			1.00	1.00
Satd. Flow (prot)	1609	1615	1516		3301		1484	2991			2642	1257
Flt Permitted	0.95	0.95	1.00		1.00		0.95	0.96			1.00	1.00
Satd. Flow (perm)	1609	1615	1516		3301		1484	2991			2642	1257
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	253	2	112	0	2	1	15	1	0	0	14	27
RTOR Reduction (vph)	0	0	73	0	1	0	0	0	0	0	13	6
Lane Group Flow (vph)	126	129	40	0	2	0	7	9	0	0	15	7
Confl. Peds. (#/hr)						3			1			
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	7%	7%	7%	13%	13%	13%
Turn Type	Split	NA	Perm		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	1		3	3		2	2		4	4	4 1
Permitted Phases			1									
Actuated Green, G (s)	11.5	11.5	11.5		0.8		0.8	0.8			2.3	18.0
Effective Green, g (s)	11.5	11.5	11.5		0.8		0.8	0.8			2.3	18.0
Actuated g/C Ratio	0.36	0.36	0.36		0.02		0.02	0.02			0.07	0.56
Clearance Time (s)	4.2	4.2	4.2		4.2		4.2	4.2			4.2	
Vehicle Extension (s)	4.0	4.0	4.0		4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	574	576	541		82		36	74			188	702
v/s Ratio Prot	0.08	c0.08			c0.00		c0.00	0.00			c0.01	0.01
v/s Ratio Perm			0.03									
v/c Ratio	0.22	0.22	0.07		0.02		0.19	0.12			0.08	0.01
Uniform Delay, d1	7.2	7.2	6.8		15.3		15.4	15.4			14.0	3.1
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.3	0.3	0.1		0.2		3.6	1.0			0.2	0.0
Delay (s)	7.5	7.5	6.9		15.5		19.0	16.4			14.2	3.2
Level of Service	A	A	A		B		B	B			B	A
Approach Delay (s)		7.3			15.5			17.5			10.7	
Approach LOS		A			B			B			B	

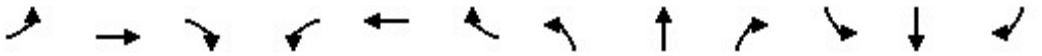
Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	16.8
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	454	2	265	5	588	378	28	521	2
Future Volume (vph)	0	0	5	454	2	265	5	588	378	28	521	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	12	11	14	10	13	12
Total Lost time (s)		5.1		5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.88		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1373		1383	1341	1242	1583	3061	1492	1337	2959	
Flt Permitted		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1373		1383	1341	1242	1583	3061	1492	1337	2959	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	0	6	522	2	305	6	676	434	32	599	2
RTOR Reduction (vph)	0	6	0	0	0	203	0	0	89	0	0	0
Lane Group Flow (vph)	0	0	0	261	263	102	6	676	345	32	601	0
Confl. Peds. (#/hr)			6			2						2
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	14%	14%	14%	26%	26%	26%
Turn Type		NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)		1.4		29.3	29.3	29.3	1.4	31.8	31.8	5.0	35.4	
Effective Green, g (s)		1.4		29.3	29.3	29.3	1.4	31.8	31.8	5.0	35.4	
Actuated g/C Ratio		0.02		0.33	0.33	0.33	0.02	0.36	0.36	0.06	0.40	
Clearance Time (s)		5.1		5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	2.5	4.0	4.0	2.5	4.0	
Lane Grp Cap (vph)		21		461	447	414	25	1108	540	76	1193	
v/s Ratio Prot		c0.00		0.19	c0.20		0.00	0.22		c0.02	c0.20	
v/s Ratio Perm						0.08			c0.23			
v/c Ratio		0.00		0.57	0.59	0.25	0.24	0.61	0.64	0.42	0.50	
Uniform Delay, d1		42.5		24.0	24.3	21.2	42.7	22.9	23.2	40.0	19.6	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1		1.6	2.0	0.3	3.6	1.1	2.8	2.7	0.5	
Delay (s)		42.6		25.6	26.2	21.5	46.3	24.1	26.0	42.7	20.1	
Level of Service		D		C	C	C	D	C	C	D	C	
Approach Delay (s)		42.6			24.3			24.9			21.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	20.3
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	162	166	182	551	437	506	484	140	153	348	468
Future Volume (veh/h)	61	162	166	182	551	437	506	484	140	153	348	468
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1515	1515	1515	1841	1841	1767	1724	1796	1796
Adj Flow Rate, veh/h	69	182	30	204	619	0	569	544	32	172	391	448
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	26	26	26	4	4	4	7	7	7
Cap, veh/h	88	575	250	192	692		416	1014	428	639	1291	645
Arrive On Green	0.05	0.17	0.17	0.13	0.24	0.00	0.12	0.29	0.29	0.20	0.38	0.38
Sat Flow, veh/h	1711	3413	1482	1443	2878	1284	3401	3497	1477	3186	3413	1499
Grp Volume(v), veh/h	69	182	30	204	619	0	569	544	32	172	391	448
Grp Sat Flow(s),veh/h/ln	1711	1706	1482	1443	1439	1284	1700	1749	1477	1593	1706	1499
Q Serve(g_s), s	3.6	4.2	1.5	12.0	18.7	0.0	11.0	11.8	1.0	4.1	7.2	13.0
Cycle Q Clear(g_c), s	3.6	4.2	1.5	12.0	18.7	0.0	11.0	11.8	1.0	4.1	7.2	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	575	250	192	692		416	1014	428	639	1291	645
V/C Ratio(X)	0.79	0.32	0.12	1.06	0.89		1.37	0.54	0.07	0.27	0.30	0.69
Avail Cap(c_a), veh/h	230	872	379	192	732		416	1014	428	639	1291	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	42.2	32.9	31.8	39.0	33.1	0.0	39.5	26.9	10.5	30.4	19.6	11.0
Incr Delay (d2), s/veh	5.7	0.3	0.2	81.8	13.1	0.0	180.7	2.0	0.3	0.1	0.5	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	3.1	1.0	13.6	12.0	0.0	23.8	8.6	0.9	2.8	5.1	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	33.2	32.0	120.8	46.2	0.0	220.2	28.9	10.8	30.5	20.2	16.3
LnGrp LOS	D	C	C	F	D		F	C	B	C	C	B
Approach Vol, veh/h		281			823			1145			1011	
Approach Delay, s/veh		36.7			64.7			123.5			20.2	
Approach LOS		D			E			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	26.5	15.0	38.9	16.0	20.1	22.9	31.0
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9
Max Green Setting (Gmax), s	12.1	* 23	11.0	26.2	12.0	23.0	11.1	* 26
Max Q Clear Time (g_c+I1), s	5.6	20.7	13.0	15.0	14.0	6.2	6.1	13.8
Green Ext Time (p_c), s	0.0	0.9	0.0	3.3	0.0	1.0	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	69.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

User approved changes to right turn type.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	128	307	712	339	9	39
Future Volume (vph)	128	307	712	339	9	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	13	12	11
Total Lost time (s)	5.1	5.1		5.4	5.1	5.1
Lane Util. Factor	0.97	1.00		0.95	0.95	0.95
Frt	1.00	0.85		1.00	0.91	0.85
Flt Protected	0.95	1.00		0.97	1.00	1.00
Satd. Flow (prot)	3303	1524		3469	1420	1290
Flt Permitted	0.95	1.00		0.97	1.00	1.00
Satd. Flow (perm)	3303	1524		3469	1420	1290
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	154	370	858	408	11	47
RTOR Reduction (vph)	0	304	0	0	17	18
Lane Group Flow (vph)	154	66	0	1266	13	10
Heavy Vehicles (%)	6%	6%	4%	4%	15%	15%
Turn Type	Prot	Prot	Split	NA	NA	pt+ov
Protected Phases	8	8	2	2	1	1 8
Permitted Phases						
Actuated Green, G (s)	11.2	11.2		30.6	5.4	21.7
Effective Green, g (s)	11.2	11.2		30.6	5.4	21.7
Actuated g/C Ratio	0.18	0.18		0.49	0.09	0.35
Clearance Time (s)	5.1	5.1		5.4	5.1	
Vehicle Extension (s)	3.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	589	271		1690	122	445
v/s Ratio Prot	c0.05	0.04		c0.36	c0.01	0.01
v/s Ratio Perm						
v/c Ratio	0.26	0.24		0.95dl	0.10	0.02
Uniform Delay, d1	22.2	22.2		13.0	26.5	13.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5		2.0	0.4	0.0
Delay (s)	22.5	22.6		15.0	26.8	13.6
Level of Service	C	C		B	C	B
Approach Delay (s)	22.6			15.0	20.4	
Approach LOS	C			B	C	

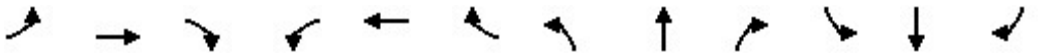
Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	15.6
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Via Oro Ave & Carson St

07/25/2023



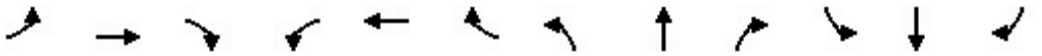
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	26	27	9	25	20	56	8	9	2	45	124
Future Volume (veh/h)	19	26	27	9	25	20	56	8	9	2	45	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	913	952	952	1710	1781	1781	1870	1870	1870	1796	1796	1796
Adj Flow Rate, veh/h	24	33	0	11	32	0	71	10	0	3	57	29
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	64	64	64	8	8	8	2	2	2	7	7	7
Cap, veh/h	32	89	75	14	407	0	317	326	0	131	137	116
Arrive On Green	0.02	0.09	0.00	0.01	0.08	0.00	0.09	0.09	0.00	0.08	0.08	0.08
Sat Flow, veh/h	1740	952	806	1629	5024	0	3456	3647	0	1711	1796	1520
Grp Volume(v), veh/h	24	33	0	11	32	0	71	10	0	3	57	29
Grp Sat Flow(s),veh/h/ln	870	952	806	1629	1621	0	1728	1777	0	1711	1796	1520
Q Serve(g_s), s	0.3	0.7	0.0	0.1	0.1	0.0	0.4	0.1	0.0	0.0	0.7	0.4
Cycle Q Clear(g_c), s	0.3	0.7	0.0	0.1	0.1	0.0	0.4	0.1	0.0	0.0	0.7	0.4
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	89	75	14	407	0	317	326	0	131	137	116
V/C Ratio(X)	0.74	0.37	0.00	0.76	0.08	0.00	0.22	0.03	0.00	0.02	0.42	0.25
Avail Cap(c_a), veh/h	1666	1953	1655	1560	9980	0	5516	5672	0	2653	2785	2356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	9.3	0.0	10.8	9.3	0.0	9.2	9.1	0.0	9.4	9.7	9.5
Incr Delay (d2), s/veh	18.2	3.6	0.0	38.6	0.1	0.0	0.4	0.0	0.0	0.1	2.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.3	0.0	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	13.0	0.0	49.5	9.4	0.0	9.7	9.1	0.0	9.5	12.1	10.9
LnGrp LOS	C	B	A	D	A	A	A	A	A	A	B	B
Approach Vol, veh/h		57			43			81			89	
Approach Delay, s/veh		19.7			19.6			9.6			11.6	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	6.0		5.7	4.4	5.8		6.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	21.0	45.0		34.0	21.0	45.0		35.0				
Max Q Clear Time (g_c+I1), s	2.1	2.7		2.7	2.3	2.1		2.4				
Green Ext Time (p_c), s	0.0	0.2		0.4	0.0	0.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		14.0	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.



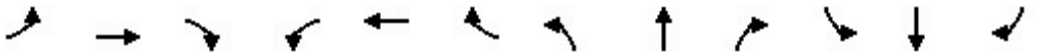
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	314	48	485	69	42	124	176	453	14	24	539	135
Future Volume (veh/h)	314	48	485	69	42	124	176	453	14	24	539	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1796	1796	1796
Adj Flow Rate, veh/h	357	55	128	78	48	0	200	515	7	27	612	143
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	7	7	7
Cap, veh/h	565	79	184	173	345	0	243	1526	681	60	907	212
Arrive On Green	0.16	0.16	0.16	0.10	0.10	0.00	0.14	0.43	0.43	0.03	0.33	0.33
Sat Flow, veh/h	3534	495	1153	1767	3618	0	1767	3526	1572	1711	2747	641
Grp Volume(v), veh/h	357	0	183	78	48	0	200	515	7	27	380	375
Grp Sat Flow(s),veh/h/ln	1767	0	1648	1767	1763	0	1767	1763	1572	1711	1706	1681
Q Serve(g_s), s	6.7	0.0	7.5	3.0	0.9	0.0	7.8	6.9	0.2	1.1	13.6	13.7
Cycle Q Clear(g_c), s	6.7	0.0	7.5	3.0	0.9	0.0	7.8	6.9	0.2	1.1	13.6	13.7
Prop In Lane	1.00		0.70	1.00		0.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	565	0	264	173	345	0	243	1526	681	60	564	555
V/C Ratio(X)	0.63	0.00	0.69	0.45	0.14	0.00	0.82	0.34	0.01	0.45	0.67	0.68
Avail Cap(c_a), veh/h	2983	0	1391	1392	2777	0	646	2976	1327	626	1440	1419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	0.0	28.2	30.3	29.3	0.0	29.8	13.4	11.5	33.6	20.5	20.5
Incr Delay (d2), s/veh	0.9	0.0	2.4	1.4	0.1	0.0	2.7	0.2	0.0	5.3	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	0.0	5.3	2.3	0.7	0.0	5.9	4.3	0.1	0.9	8.9	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	30.7	31.6	29.5	0.0	32.5	13.6	11.5	38.9	22.5	22.6
LnGrp LOS	C	A	C	C	C	A	C	B	B	D	C	C
Approach Vol, veh/h		540			126			722			782	
Approach Delay, s/veh		29.4			30.8			18.8			23.1	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	36.3		16.4	13.8	29.0		12.0				
Change Period (Y+Rc), s	4.0	5.5		5.0	4.0	5.5		5.0				
Max Green Setting (Gmax), s	26.0	60.0		60.0	26.0	60.0		56.0				
Max Q Clear Time (g_c+I1), s	3.1	8.9		9.5	9.8	15.7		5.0				
Green Ext Time (p_c), s	0.0	5.4		1.9	0.1	7.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		23.7	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	3	13	0	11	3	94	17	0	8	2	163
Future Volume (vph)	29	3	13	0	11	3	94	17	0	8	2	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	11	12	11	11	11	10	10	11
Total Lost time (s)	4.2	4.2	4.2		4.2		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	0.95	0.95	1.00		0.95		0.91	0.91		1.00	0.91	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00		1.00	0.85	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	0.96		0.95	1.00	1.00
Satd. Flow (prot)	1609	1607	1516		3384		1484	3013		1491	2437	1257
Flt Permitted	0.95	0.96	1.00		1.00		0.95	0.96		0.95	1.00	1.00
Satd. Flow (perm)	1609	1607	1516		3384		1484	3013		1491	2437	1257
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	33	3	15	0	12	3	107	19	0	9	2	185
RTOR Reduction (vph)	0	0	13	0	3	0	0	0	0	0	75	48
Lane Group Flow (vph)	18	18	2	0	13	0	53	73	0	9	20	44
Confl. Peds. (#/hr)						1			2			
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	7%	7%	7%	13%	13%	13%
Bus Blockages (#/hr)	0	3	0	0	0	0	0	0	0	0	0	0
Turn Type	Split	NA	Perm		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	1		3	3		2	2		4	4	4 1
Permitted Phases			1									
Actuated Green, G (s)	6.1	6.1	6.1		1.2		6.5	6.5		8.3	8.3	18.6
Effective Green, g (s)	6.1	6.1	6.1		1.2		6.5	6.5		8.3	8.3	18.6
Actuated g/C Ratio	0.16	0.16	0.16		0.03		0.17	0.17		0.21	0.21	0.48
Clearance Time (s)	4.2	4.2	4.2		4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	252	251	237		104		247	503		318	519	601
v/s Ratio Prot	0.01	0.01			c0.00		c0.04	0.02		0.01	0.01	c0.03
v/s Ratio Perm			0.00									
v/c Ratio	0.07	0.07	0.01		0.13		0.21	0.15		0.03	0.04	0.07
Uniform Delay, d1	14.0	14.0	13.8		18.3		14.0	13.8		12.1	12.1	5.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.0		0.7		0.6	0.2		0.0	0.0	0.1
Delay (s)	14.1	14.2	13.9		19.1		14.6	14.0		12.2	12.2	5.6
Level of Service	B	B	B		B		B	B		B	B	A
Approach Delay (s)		14.1			19.1			14.3			9.1	
Approach LOS		B			B			B			A	

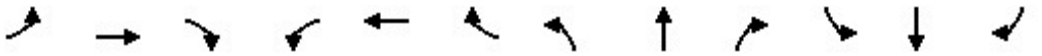
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	38.9	Sum of lost time (s)	16.8
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	714	0	197	4	509	177	48	1071	0
Future Volume (vph)	0	0	0	714	0	197	4	509	177	48	1071	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	12	11	14	10	13	12
Total Lost time (s)				5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1383	1337	1242	1583	3061	1487	1337	2961	
Flt Permitted				0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1383	1337	1242	1583	3061	1487	1337	2961	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	0	0	821	0	226	5	585	203	55	1231	0
RTOR Reduction (vph)	0	0	0	0	0	136	0	0	61	0	0	0
Lane Group Flow (vph)	0	0	0	410	411	90	5	585	142	55	1231	0
Confl. Peds. (#/hr)			6			2			4			2
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	14%	14%	14%	26%	26%	26%
Turn Type				Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)				34.1	34.1	34.1	1.8	34.0	34.0	8.5	40.7	
Effective Green, g (s)				34.1	34.1	34.1	1.8	34.0	34.0	8.5	40.7	
Actuated g/C Ratio				0.37	0.37	0.37	0.02	0.37	0.37	0.09	0.44	
Clearance Time (s)				5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Vehicle Extension (s)				3.0	3.0	3.0	2.5	4.0	4.0	2.5	4.0	
Lane Grp Cap (vph)				513	496	461	31	1133	550	123	1312	
v/s Ratio Prot				0.30	c0.31		0.00	0.19		c0.04	c0.42	
v/s Ratio Perm						0.07			0.10			
v/c Ratio				0.80	0.83	0.19	0.16	0.52	0.26	0.45	0.94	
Uniform Delay, d1				25.8	26.2	19.5	44.3	22.5	20.1	39.4	24.4	
Progression Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2				8.5	10.9	0.2	1.8	0.5	0.3	1.9	12.9	
Delay (s)				34.3	37.1	19.8	46.0	23.0	20.5	41.3	37.2	
Level of Service				C	D	B	D	C	C	D	D	
Approach Delay (s)		0.0			32.3			22.5			37.4	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	20.3
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	539	198	184	222	205	381	448	202	413	730	648
Future Volume (veh/h)	42	539	198	184	222	205	381	448	202	413	730	648
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1515	1515	1515	1841	1841	1767	1724	1796	1796
Adj Flow Rate, veh/h	47	606	32	207	249	0	428	503	49	464	820	608
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	26	26	26	4	4	4	7	7	7
Cap, veh/h	59	738	322	194	939		416	1014	428	451	1090	531
Arrive On Green	0.03	0.22	0.22	0.13	0.33	0.00	0.12	0.29	0.29	0.14	0.32	0.32
Sat Flow, veh/h	1711	3413	1487	1443	2878	1284	3401	3497	1477	3186	3413	1498
Grp Volume(v), veh/h	47	606	32	207	249	0	428	503	49	464	820	608
Grp Sat Flow(s),veh/h/ln	1711	1706	1487	1443	1439	1284	1700	1749	1477	1593	1706	1498
Q Serve(g_s), s	2.5	15.2	1.1	12.1	5.7	0.0	11.0	10.7	2.2	12.7	19.4	28.7
Cycle Q Clear(g_c), s	2.5	15.2	1.1	12.1	5.7	0.0	11.0	10.7	2.2	12.7	19.4	28.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	738	322	194	939		416	1014	428	451	1090	531
V/C Ratio(X)	0.80	0.82	0.10	1.07	0.27		1.03	0.50	0.11	1.03	0.75	1.15
Avail Cap(c_a), veh/h	228	868	378	194	939		416	1014	428	451	1090	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.38	0.38	0.38
Uniform Delay (d), s/veh	43.1	33.6	14.6	39.0	22.4	0.0	39.5	26.5	23.5	38.6	27.4	29.1
Incr Delay (d2), s/veh	8.9	5.5	0.1	83.6	0.1	0.0	52.0	1.7	0.5	33.9	1.9	74.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	10.9	1.0	13.9	3.4	0.0	12.0	7.9	1.4	9.7	10.6	28.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	39.1	14.7	122.6	22.5	0.0	91.5	28.2	24.0	72.6	29.3	103.7
LnGrp LOS	D	D	B	F	C		F	C	C	F	C	F
Approach Vol, veh/h		685			456			980			1892	
Approach Delay, s/veh		38.9			67.9			55.6			63.8	
Approach LOS		D			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	24.4	15.0	33.6	7.1	34.3	17.6	31.0
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9
Max Green Setting (Gmax), s	12.1	* 23	11.0	26.2	12.0	23.0	11.1	* 26
Max Q Clear Time (g_c+I1), s	14.1	17.2	13.0	30.7	4.5	7.7	14.7	12.7
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.0	1.3	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	197	575	77	73	335
Future Volume (vph)	30	197	575	77	73	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	13	12	11
Total Lost time (s)	5.1	5.1		5.4	5.1	5.1
Lane Util. Factor	0.97	1.00		0.95	0.95	0.95
Frt	1.00	0.85		1.00	0.90	0.85
Flt Protected	0.95	1.00		0.96	1.00	1.00
Satd. Flow (prot)	3303	1524		3435	1416	1290
Flt Permitted	0.95	1.00		0.96	1.00	1.00
Satd. Flow (perm)	3303	1524		3435	1416	1290
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	36	237	693	93	88	404
RTOR Reduction (vph)	0	191	0	0	81	40
Lane Group Flow (vph)	36	46	0	786	173	198
Heavy Vehicles (%)	6%	6%	4%	4%	15%	15%
Turn Type	Prot	Prot	Split	NA	NA	pt+ov
Protected Phases	8	8	2	2	1	1 8
Permitted Phases						
Actuated Green, G (s)	12.5	12.5		22.7	14.2	31.8
Effective Green, g (s)	12.5	12.5		22.7	14.2	31.8
Actuated g/C Ratio	0.19	0.19		0.35	0.22	0.49
Clearance Time (s)	5.1	5.1		5.4	5.1	
Vehicle Extension (s)	3.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	635	293		1199	309	631
v/s Ratio Prot	0.01	0.03		c0.23	c0.12	c0.15
v/s Ratio Perm						
v/c Ratio	0.06	0.16		1.12dl	0.56	0.31
Uniform Delay, d1	21.4	21.9		17.9	22.6	10.0
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	0.2		1.4	2.2	0.3
Delay (s)	21.5	22.1		19.3	24.8	10.3
Level of Service	C	C		B	C	B
Approach Delay (s)	22.0			19.3	17.8	
Approach LOS	C			B	B	

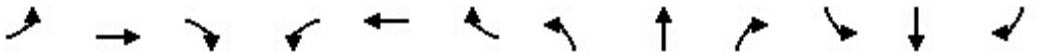
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Via Oro Ave & Carson St

07/31/2023



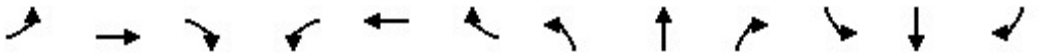
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	120	38	16	46	1	18	140	53	0	16	58
Future Volume (veh/h)	174	120	38	16	46	1	18	140	53	0	16	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	913	952	952	1710	1781	1781	1870	1870	1870	1796	1796	1796
Adj Flow Rate, veh/h	220	152	11	20	58	0	23	177	34	0	20	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	64	64	64	8	8	8	2	2	2	7	7	7
Cap, veh/h	296	271	227	25	633	0	520	449	84	35	37	31
Arrive On Green	0.17	0.28	0.28	0.02	0.13	0.00	0.15	0.15	0.15	0.00	0.02	0.00
Sat Flow, veh/h	1740	952	795	1629	5024	0	3456	2983	561	1711	1796	1522
Grp Volume(v), veh/h	220	152	11	20	58	0	23	104	107	0	20	0
Grp Sat Flow(s),veh/h/ln	870	952	795	1629	1621	0	1728	1777	1767	1711	1796	1522
Q Serve(g_s), s	3.6	4.1	0.3	0.4	0.3	0.0	0.2	1.6	1.7	0.0	0.3	0.0
Cycle Q Clear(g_c), s	3.6	4.1	0.3	0.4	0.3	0.0	0.2	1.6	1.7	0.0	0.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	296	271	227	25	633	0	520	267	266	35	37	31
V/C Ratio(X)	0.74	0.56	0.05	0.80	0.09	0.00	0.04	0.39	0.40	0.00	0.54	0.00
Avail Cap(c_a), veh/h	1208	1416	1183	1131	7235	0	3999	2056	2045	1923	2019	1711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.9	9.2	7.8	14.8	11.6	0.0	11.0	11.6	11.6	0.0	14.7	0.0
Incr Delay (d2), s/veh	2.3	2.6	0.1	28.8	0.1	0.0	0.0	1.1	1.2	0.0	14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	1.3	0.1	0.5	0.2	0.0	0.1	0.9	1.0	0.0	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	11.8	8.0	43.7	11.7	0.0	11.0	12.7	12.8	0.0	28.9	0.0
LnGrp LOS	B	B	A	D	B	A	B	B	B	A	C	A
Approach Vol, veh/h		383			78			234			20	
Approach Delay, s/veh		13.1			19.9			12.6			28.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	12.6		4.6	9.1	7.9		8.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	21.0	45.0		34.0	21.0	45.0		35.0				
Max Q Clear Time (g_c+I1), s	2.4	6.1		2.3	5.6	2.3		3.7				
Green Ext Time (p_c), s	0.0	1.4		0.1	0.5	0.5		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



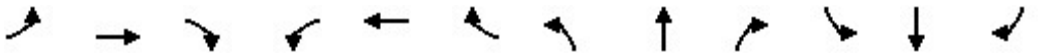
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	97	125	34	30	62	290	470	57	207	365	212
Future Volume (veh/h)	233	97	125	34	30	62	290	470	57	207	365	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1796	1796	1796
Adj Flow Rate, veh/h	289	77	76	39	34	0	330	534	20	235	415	199
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	7	7	7
Cap, veh/h	480	116	115	207	412	0	372	1133	505	283	616	292
Arrive On Green	0.14	0.14	0.14	0.12	0.12	0.00	0.21	0.32	0.32	0.17	0.28	0.28
Sat Flow, veh/h	3534	856	845	1767	3618	0	1767	3526	1571	1711	2230	1056
Grp Volume(v), veh/h	289	0	153	39	34	0	330	534	20	235	316	298
Grp Sat Flow(s),veh/h/ln	1767	0	1701	1767	1763	0	1767	1763	1571	1711	1706	1580
Q Serve(g_s), s	5.8	0.0	6.4	1.5	0.6	0.0	13.6	9.1	0.7	10.0	12.3	12.6
Cycle Q Clear(g_c), s	5.8	0.0	6.4	1.5	0.6	0.0	13.6	9.1	0.7	10.0	12.3	12.6
Prop In Lane	1.00		0.50	1.00		0.00	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	480	0	231	207	412	0	372	1133	505	283	472	437
V/C Ratio(X)	0.60	0.00	0.66	0.19	0.08	0.00	0.89	0.47	0.04	0.83	0.67	0.68
Avail Cap(c_a), veh/h	2829	0	1362	1320	2634	0	613	2822	1257	593	1366	1265
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	30.8	29.9	29.5	0.0	28.7	20.3	17.5	30.3	24.1	24.2
Incr Delay (d2), s/veh	0.9	0.0	2.4	0.3	0.1	0.0	5.2	0.4	0.0	6.2	2.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	0.0	4.8	1.1	0.5	0.0	9.8	6.2	0.4	7.7	8.5	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	33.2	30.2	29.6	0.0	33.9	20.8	17.5	36.5	26.4	26.9
LnGrp LOS	C	A	C	C	C	A	C	C	B	D	C	C
Approach Vol, veh/h		442			73			884			849	
Approach Delay, s/veh		32.0			29.9			25.6			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.4	29.6		15.2	19.8	26.2		13.8				
Change Period (Y+Rc), s	4.0	5.5		5.0	4.0	5.5		5.0				
Max Green Setting (Gmax), s	26.0	60.0		60.0	26.0	60.0		56.0				
Max Q Clear Time (g_c+I1), s	12.0	11.1		8.4	15.6	14.6		3.5				
Green Ext Time (p_c), s	0.5	5.7		1.5	0.2	6.1		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		28.4
HCM 6th LOS		C

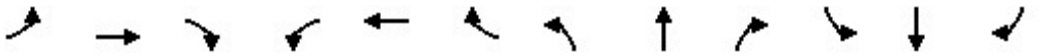
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	2	99	0	2	1	13	1	0	0	12	49
Future Volume (vph)	315	2	99	0	2	1	13	1	0	0	12	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	11	12	11	11	11	10	10	11
Total Lost time (s)	4.2	4.2	4.2		4.2		4.2	4.2			4.2	4.2
Lane Util. Factor	0.95	0.95	1.00		0.95		0.91	0.91			0.91	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00			0.90	0.85
Flt Protected	0.95	0.95	1.00		1.00		0.95	0.96			1.00	1.00
Satd. Flow (prot)	1609	1614	1516		3300		1484	2991			2571	1257
Flt Permitted	0.95	0.95	1.00		1.00		0.95	0.96			1.00	1.00
Satd. Flow (perm)	1609	1614	1516		3300		1484	2991			2571	1257
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	358	2	112	0	2	1	15	1	0	0	14	56
RTOR Reduction (vph)	0	0	68	0	1	0	0	0	0	0	26	12
Lane Group Flow (vph)	179	181	45	0	2	0	7	9	0	0	16	16
Confl. Peds. (#/hr)						3			1			
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	7%	7%	7%	13%	13%	13%
Turn Type	Split	NA	Perm		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	1		3	3		2	2		4	4	4 1
Permitted Phases			1									
Actuated Green, G (s)	13.5	13.5	13.5		0.7		0.7	0.7			2.2	19.9
Effective Green, g (s)	13.5	13.5	13.5		0.7		0.7	0.7			2.2	19.9
Actuated g/C Ratio	0.40	0.40	0.40		0.02		0.02	0.02			0.06	0.59
Clearance Time (s)	4.2	4.2	4.2		4.2		4.2	4.2			4.2	
Vehicle Extension (s)	4.0	4.0	4.0		4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	640	642	603		68		30	61			166	737
v/s Ratio Prot	0.11	c0.11			c0.00		c0.00	0.00			c0.01	0.01
v/s Ratio Perm			0.03									
v/c Ratio	0.28	0.28	0.07		0.03		0.23	0.15			0.10	0.02
Uniform Delay, d1	6.9	6.9	6.3		16.3		16.3	16.3			14.9	2.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.3	0.3	0.1		0.2		5.4	1.5			0.3	0.0
Delay (s)	7.2	7.2	6.4		16.5		21.7	17.8			15.3	2.9
Level of Service	A	A	A		B		C	B			B	A
Approach Delay (s)		7.0			16.5			19.5			10.3	
Approach LOS		A			B			B			B	

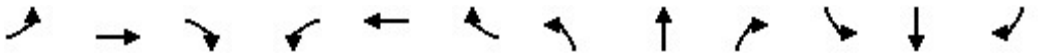
Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	33.9	Sum of lost time (s)	16.8
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	474	2	265	5	607	437	28	528	2
Future Volume (vph)	0	0	5	474	2	265	5	607	437	28	528	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	12	11	14	10	13	12
Total Lost time (s)		5.1		5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.88		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1375		1383	1341	1242	1583	3061	1492	1337	2959	
Flt Permitted		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1375		1383	1341	1242	1583	3061	1492	1337	2959	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	0	6	545	2	305	6	698	502	32	607	2
RTOR Reduction (vph)	0	6	0	0	0	208	0	0	95	0	0	0
Lane Group Flow (vph)	0	0	0	272	275	97	6	698	407	32	609	0
Confl. Peds. (#/hr)			6			2						2
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	14%	14%	14%	26%	26%	26%
Turn Type		NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)		1.5		29.7	29.7	29.7	1.5	36.5	36.5	5.1	40.1	
Effective Green, g (s)		1.5		29.7	29.7	29.7	1.5	36.5	36.5	5.1	40.1	
Actuated g/C Ratio		0.02		0.32	0.32	0.32	0.02	0.39	0.39	0.05	0.43	
Clearance Time (s)		5.1		5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	2.5	4.0	4.0	2.5	4.0	
Lane Grp Cap (vph)		22		441	427	396	25	1200	584	73	1274	
v/s Ratio Prot		c0.00		0.20	c0.21		0.00	0.23		c0.02	c0.21	
v/s Ratio Perm						0.08			c0.27			
v/c Ratio		0.00		0.62	0.64	0.25	0.24	0.58	0.70	0.44	0.48	
Uniform Delay, d1		45.1		26.9	27.2	23.4	45.2	22.3	23.7	42.6	19.0	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1		2.6	3.3	0.3	3.6	0.9	3.9	3.0	0.4	
Delay (s)		45.1		29.4	30.5	23.7	48.8	23.1	27.5	45.7	19.4	
Level of Service		D		C	C	C	D	C	C	D	B	
Approach Delay (s)		45.1			27.7			25.1			20.7	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	20.3
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	162	166	182	551	477	506	521	140	159	359	478
Future Volume (veh/h)	61	162	166	182	551	477	506	521	140	159	359	478
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1515	1515	1515	1841	1841	1767	1724	1796	1796
Adj Flow Rate, veh/h	69	182	30	204	619	0	569	585	32	179	403	459
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	26	26	26	4	4	4	7	7	7
Cap, veh/h	88	575	250	192	692		416	1014	428	639	1291	645
Arrive On Green	0.05	0.17	0.17	0.13	0.24	0.00	0.12	0.29	0.29	0.20	0.38	0.38
Sat Flow, veh/h	1711	3413	1482	1443	2878	1284	3401	3497	1477	3186	3413	1499
Grp Volume(v), veh/h	69	182	30	204	619	0	569	585	32	179	403	459
Grp Sat Flow(s),veh/h/ln	1711	1706	1482	1443	1439	1284	1700	1749	1477	1593	1706	1499
Q Serve(g_s), s	3.6	4.2	1.5	12.0	18.7	0.0	11.0	12.8	1.0	4.3	7.5	13.6
Cycle Q Clear(g_c), s	3.6	4.2	1.5	12.0	18.7	0.0	11.0	12.8	1.0	4.3	7.5	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	575	250	192	692		416	1014	428	639	1291	645
V/C Ratio(X)	0.79	0.32	0.12	1.06	0.89		1.37	0.58	0.07	0.28	0.31	0.71
Avail Cap(c_a), veh/h	230	872	379	192	732		416	1014	428	639	1291	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	42.2	32.9	31.8	39.0	33.1	0.0	39.5	27.2	10.5	30.5	19.7	11.2
Incr Delay (d2), s/veh	5.7	0.3	0.2	81.8	13.1	0.0	180.7	2.4	0.3	0.1	0.5	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	3.1	1.0	13.6	12.0	0.0	23.8	9.2	0.9	2.9	5.3	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	33.2	32.0	120.8	46.2	0.0	220.2	29.6	10.8	30.6	20.3	17.0
LnGrp LOS	D	C	C	F	D		F	C	B	C	C	B
Approach Vol, veh/h		281			823			1186			1041	
Approach Delay, s/veh		36.7			64.7			120.6			20.6	
Approach LOS		D			E			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	26.5	15.0	38.9	16.0	20.1	22.9	31.0
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9
Max Green Setting (Gmax), s	12.1	* 23	11.0	26.2	12.0	23.0	11.1	* 26
Max Q Clear Time (g_c+I1), s	5.6	20.7	13.0	15.6	14.0	6.2	6.3	14.8
Green Ext Time (p_c), s	0.0	0.9	0.0	3.3	0.0	1.0	0.1	2.9

Intersection Summary	
HCM 6th Ctrl Delay	68.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	187	307	712	373	14	58
Future Volume (vph)	187	307	712	373	14	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	13	12	11
Total Lost time (s)	5.1	5.1		5.4	5.1	5.1
Lane Util. Factor	0.97	1.00		0.95	0.95	0.95
Frt	1.00	0.85		1.00	0.91	0.85
Flt Protected	0.95	1.00		0.97	1.00	1.00
Satd. Flow (prot)	3303	1524		3473	1423	1290
Flt Permitted	0.95	1.00		0.97	1.00	1.00
Satd. Flow (perm)	3303	1524		3473	1423	1290
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	225	370	858	449	17	70
RTOR Reduction (vph)	0	303	0	0	26	26
Lane Group Flow (vph)	225	67	0	1307	19	16
Heavy Vehicles (%)	6%	6%	4%	4%	15%	15%
Turn Type	Prot	Prot	Split	NA	NA	pt+ov
Protected Phases	8	8	2	2	1	1 8
Permitted Phases						
Actuated Green, G (s)	11.5	11.5		30.7	5.4	22.0
Effective Green, g (s)	11.5	11.5		30.7	5.4	22.0
Actuated g/C Ratio	0.18	0.18		0.49	0.09	0.35
Clearance Time (s)	5.1	5.1		5.4	5.1	
Vehicle Extension (s)	3.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	601	277		1687	121	449
v/s Ratio Prot	c0.07	0.04		c0.38	c0.01	0.01
v/s Ratio Perm						
v/c Ratio	0.37	0.24		0.95dl	0.16	0.04
Uniform Delay, d1	22.7	22.1		13.4	26.8	13.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.5		2.4	0.6	0.0
Delay (s)	23.1	22.6		15.8	27.4	13.6
Level of Service	C	C		B	C	B
Approach Delay (s)	22.8			15.8	20.8	
Approach LOS	C			B	C	

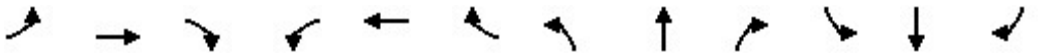
Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	63.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Via Oro Ave & Carson St

07/31/2023



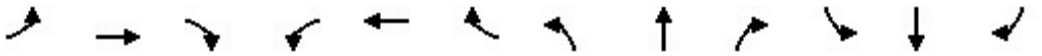
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	64	27	50	129	20	56	24	25	2	85	228
Future Volume (veh/h)	57	64	27	50	129	20	56	24	25	2	85	228
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	913	952	952	1710	1781	1781	1870	1870	1870	1796	1796	1796
Adj Flow Rate, veh/h	72	81	5	63	163	7	71	30	0	3	108	83
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	64	64	64	8	8	8	2	2	2	7	7	7
Cap, veh/h	88	237	198	72	1159	49	327	336	0	212	222	188
Arrive On Green	0.05	0.25	0.25	0.04	0.24	0.24	0.09	0.09	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1740	952	795	1629	4784	203	3456	3647	0	1711	1796	1519
Grp Volume(v), veh/h	72	81	5	63	110	60	71	30	0	3	108	83
Grp Sat Flow(s),veh/h/ln	870	952	795	1629	1621	1745	1728	1777	0	1711	1796	1519
Q Serve(g_s), s	1.3	2.3	0.2	1.3	0.9	0.9	0.6	0.3	0.0	0.1	1.8	1.7
Cycle Q Clear(g_c), s	1.3	2.3	0.2	1.3	0.9	0.9	0.6	0.3	0.0	0.1	1.8	1.7
Prop In Lane	1.00		1.00	1.00		0.12	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	237	198	72	786	423	327	336	0	212	222	188
V/C Ratio(X)	0.82	0.34	0.03	0.87	0.14	0.14	0.22	0.09	0.00	0.01	0.49	0.44
Avail Cap(c_a), veh/h	1116	1308	1092	1045	4456	2398	3694	3798	0	1776	1865	1577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	10.1	9.3	15.6	9.7	9.7	13.7	13.5	0.0	12.6	13.4	13.3
Incr Delay (d2), s/veh	10.5	1.2	0.1	17.3	0.1	0.2	0.4	0.1	0.0	0.0	2.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.7	0.0	1.3	0.4	0.5	0.4	0.2	0.0	0.0	1.2	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	11.3	9.4	32.9	9.8	10.0	14.1	13.7	0.0	12.6	15.4	15.3
LnGrp LOS	C	B	A	C	A	A	B	B	A	B	B	B
Approach Vol, veh/h		158			233			101			194	
Approach Delay, s/veh		17.9			16.1			14.0			15.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	12.1		8.1	5.7	11.9		7.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	21.0	45.0		34.0	21.0	45.0		35.0				
Max Q Clear Time (g_c+I1), s	3.3	4.3		3.8	3.3	2.9		2.6				
Green Ext Time (p_c), s	0.1	0.7		1.1	0.1	1.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		16.0	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.



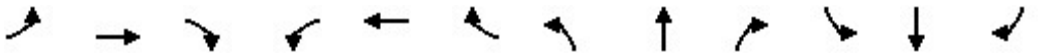
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	314	61	485	92	76	274	176	453	21	81	539	135
Future Volume (veh/h)	314	61	485	92	76	274	176	453	21	81	539	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1796	1796	1796
Adj Flow Rate, veh/h	357	69	159	105	86	0	200	515	7	92	612	142
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	7	7	7
Cap, veh/h	652	92	212	191	381	0	240	1363	608	120	882	204
Arrive On Green	0.18	0.18	0.18	0.11	0.11	0.00	0.14	0.39	0.39	0.07	0.32	0.32
Sat Flow, veh/h	3534	499	1150	1767	3618	0	1767	3526	1572	1711	2751	637
Grp Volume(v), veh/h	357	0	228	105	86	0	200	515	7	92	379	375
Grp Sat Flow(s),veh/h/ln	1767	0	1649	1767	1763	0	1767	1763	1572	1711	1706	1682
Q Serve(g_s), s	7.1	0.0	10.2	4.4	1.7	0.0	8.6	8.2	0.2	4.1	15.1	15.1
Cycle Q Clear(g_c), s	7.1	0.0	10.2	4.4	1.7	0.0	8.6	8.2	0.2	4.1	15.1	15.1
Prop In Lane	1.00		0.70	1.00		0.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	652	0	304	191	381	0	240	1363	608	120	547	539
V/C Ratio(X)	0.55	0.00	0.75	0.55	0.23	0.00	0.83	0.38	0.01	0.77	0.69	0.70
Avail Cap(c_a), veh/h	2730	0	1274	1274	2542	0	592	2723	1215	573	1318	1299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	30.0	32.9	31.7	0.0	32.7	17.1	14.7	35.5	23.1	23.1
Incr Delay (d2), s/veh	0.5	0.0	2.8	1.8	0.2	0.0	2.9	0.2	0.0	9.9	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.3	0.0	7.3	3.4	1.3	0.0	6.6	5.5	0.1	3.5	9.8	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	32.7	34.7	31.9	0.0	35.6	17.4	14.7	45.4	25.3	25.4
LnGrp LOS	C	A	C	C	C	A	D	B	B	D	C	C
Approach Vol, veh/h		585			191			722			846	
Approach Delay, s/veh		30.6			33.4			22.4			27.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	35.5		19.3	14.6	30.4		13.4				
Change Period (Y+Rc), s	4.0	5.5		5.0	4.0	5.5		5.0				
Max Green Setting (Gmax), s	26.0	60.0		60.0	26.0	60.0		56.0				
Max Q Clear Time (g_c+I1), s	6.1	10.2		12.2	10.6	17.1		6.4				
Green Ext Time (p_c), s	0.2	5.4		2.2	0.1	7.8		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		27.2	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	3	13	0	11	3	94	17	0	8	2	243
Future Volume (vph)	62	3	13	0	11	3	94	17	0	8	2	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	11	12	11	11	11	10	10	11
Total Lost time (s)	4.2	4.2	4.2		4.2		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	0.95	0.95	1.00		0.95		0.91	0.91		1.00	0.91	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00		1.00	0.85	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	0.96		0.95	1.00	1.00
Satd. Flow (prot)	1609	1600	1516		3384		1484	3013		1491	2434	1257
Flt Permitted	0.95	0.96	1.00		1.00		0.95	0.96		0.95	1.00	1.00
Satd. Flow (perm)	1609	1600	1516		3384		1484	3013		1491	2434	1257
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	70	3	15	0	12	3	107	19	0	9	2	276
RTOR Reduction (vph)	0	0	12	0	3	0	0	0	0	0	112	68
Lane Group Flow (vph)	36	37	3	0	13	0	53	73	0	9	28	70
Confl. Peds. (#/hr)						1			2			
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	7%	7%	7%	13%	13%	13%
Bus Blockages (#/hr)	0	3	0	0	0	0	0	0	0	0	0	0
Turn Type	Split	NA	Perm		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	1		3	3		2	2		4	4	4 1
Permitted Phases			1									
Actuated Green, G (s)	8.4	8.4	8.4		1.2		6.7	6.7		8.3	8.3	20.9
Effective Green, g (s)	8.4	8.4	8.4		1.2		6.7	6.7		8.3	8.3	20.9
Actuated g/C Ratio	0.20	0.20	0.20		0.03		0.16	0.16		0.20	0.20	0.50
Clearance Time (s)	4.2	4.2	4.2		4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	4.0	4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	326	324	307		98		240	487		298	487	634
v/s Ratio Prot	0.02	0.02			c0.00		c0.04	0.02		0.01	0.01	c0.06
v/s Ratio Perm			0.00									
v/c Ratio	0.11	0.11	0.01		0.13		0.22	0.15		0.03	0.06	0.11
Uniform Delay, d1	13.5	13.5	13.2		19.6		15.1	14.9		13.3	13.4	5.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.0		0.8		0.6	0.2		0.1	0.1	0.1
Delay (s)	13.7	13.7	13.2		20.4		15.7	15.1		13.4	13.5	5.5
Level of Service	B	B	B		C		B	B		B	B	A
Approach Delay (s)		13.6			20.4			15.4			9.6	
Approach LOS		B			C			B			A	

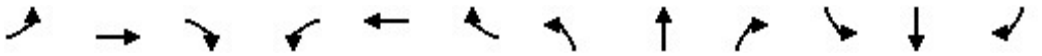
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	16.8
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	778	0	197	4	516	197	48	1094	0
Future Volume (vph)	0	0	0	778	0	197	4	516	197	48	1094	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	11	12	11	14	10	13	12
Total Lost time (s)				5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1383	1337	1242	1583	3061	1487	1337	2961	
Flt Permitted				0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1383	1337	1242	1583	3061	1487	1337	2961	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	0	0	894	0	226	5	593	226	55	1257	0
RTOR Reduction (vph)	0	0	0	0	0	126	0	0	61	0	0	0
Lane Group Flow (vph)	0	0	0	447	447	100	5	593	165	55	1257	0
Confl. Peds. (#/hr)			6			2			4			2
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	14%	14%	14%	26%	26%	26%
Turn Type				Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)				34.1	34.1	34.1	1.8	34.2	34.2	8.5	40.9	
Effective Green, g (s)				34.1	34.1	34.1	1.8	34.2	34.2	8.5	40.9	
Actuated g/C Ratio				0.37	0.37	0.37	0.02	0.37	0.37	0.09	0.44	
Clearance Time (s)				5.1	5.1	5.1	4.7	5.4	5.4	4.7	5.4	
Vehicle Extension (s)				3.0	3.0	3.0	2.5	4.0	4.0	2.5	4.0	
Lane Grp Cap (vph)				512	495	460	30	1137	552	123	1316	
v/s Ratio Prot				0.32	c0.33		0.00	0.19		c0.04	c0.42	
v/s Ratio Perm						0.08			0.11			
v/c Ratio				0.87	0.90	0.22	0.17	0.52	0.30	0.45	0.96	
Uniform Delay, d1				26.9	27.4	19.8	44.4	22.5	20.4	39.5	24.7	
Progression Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2				15.1	19.6	0.2	1.9	0.6	0.4	1.9	15.4	
Delay (s)				42.1	47.0	20.1	46.3	23.1	20.8	41.4	40.0	
Level of Service				D	D	C	D	C	C	D	D	
Approach Delay (s)		0.0			39.6			22.6			40.1	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	539	198	184	222	219	381	461	202	434	765	680
Future Volume (veh/h)	42	539	198	184	222	219	381	461	202	434	765	680
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1515	1515	1515	1841	1841	1767	1724	1796	1796
Adj Flow Rate, veh/h	47	606	32	207	249	0	428	518	49	488	860	644
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	26	26	26	4	4	4	7	7	7
Cap, veh/h	59	738	322	194	939		416	1014	428	451	1090	531
Arrive On Green	0.03	0.22	0.22	0.13	0.33	0.00	0.12	0.29	0.29	0.14	0.32	0.32
Sat Flow, veh/h	1711	3413	1487	1443	2878	1284	3401	3497	1477	3186	3413	1498
Grp Volume(v), veh/h	47	606	32	207	249	0	428	518	49	488	860	644
Grp Sat Flow(s),veh/h/ln	1711	1706	1487	1443	1439	1284	1700	1749	1477	1593	1706	1498
Q Serve(g_s), s	2.5	15.2	1.1	12.1	5.7	0.0	11.0	11.1	2.2	12.7	20.6	28.7
Cycle Q Clear(g_c), s	2.5	15.2	1.1	12.1	5.7	0.0	11.0	11.1	2.2	12.7	20.6	28.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	738	322	194	939		416	1014	428	451	1090	531
V/C Ratio(X)	0.80	0.82	0.10	1.07	0.27		1.03	0.51	0.11	1.08	0.79	1.21
Avail Cap(c_a), veh/h	228	868	378	194	939		416	1014	428	451	1090	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.32	0.32	0.32
Uniform Delay (d), s/veh	43.1	33.6	14.6	39.0	22.4	0.0	39.5	26.6	23.5	38.6	27.9	29.1
Incr Delay (d2), s/veh	8.9	5.5	0.1	83.6	0.1	0.0	52.0	1.8	0.5	49.7	1.9	102.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	10.9	1.0	13.9	3.4	0.0	12.0	8.2	1.4	11.0	11.0	34.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	39.1	14.7	122.6	22.5	0.0	91.5	28.5	24.0	88.4	29.8	131.2
LnGrp LOS	D	D	B	F	C		F	C	C	F	C	F
Approach Vol, veh/h		685			456			995			1992	
Approach Delay, s/veh		38.9			67.9			55.3			76.9	
Approach LOS		D			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	24.4	15.0	33.6	7.1	34.3	17.6	31.0
Change Period (Y+Rc), s	4.9	* 4.9	4.0	4.9	4.0	4.9	4.9	* 4.9
Max Green Setting (Gmax), s	12.1	* 23	11.0	26.2	12.0	23.0	11.1	* 26
Max Q Clear Time (g_c+I1), s	14.1	17.2	13.0	30.7	4.5	7.7	14.7	13.1
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.0	1.3	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	64.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

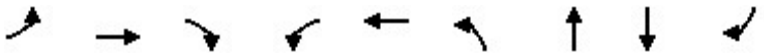
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	197	575	89	90	399
Future Volume (vph)	51	197	575	89	90	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	13	12	11
Total Lost time (s)	5.1	5.1		5.4	5.1	5.1
Lane Util. Factor	0.97	1.00		0.95	0.95	0.95
Frt	1.00	0.85		1.00	0.90	0.85
Flt Protected	0.95	1.00		0.96	1.00	1.00
Satd. Flow (prot)	3303	1524		3438	1419	1290
Flt Permitted	0.95	1.00		0.96	1.00	1.00
Satd. Flow (perm)	3303	1524		3438	1419	1290
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	61	237	693	107	108	481
RTOR Reduction (vph)	0	190	0	0	75	39
Lane Group Flow (vph)	61	47	0	800	225	250
Heavy Vehicles (%)	6%	6%	4%	4%	15%	15%
Turn Type	Prot	Prot	Split	NA	NA	pt+ov
Protected Phases	8	8	2	2	1	1 8
Permitted Phases						
Actuated Green, G (s)	14.0	14.0		24.1	16.3	35.4
Effective Green, g (s)	14.0	14.0		24.1	16.3	35.4
Actuated g/C Ratio	0.20	0.20		0.34	0.23	0.51
Clearance Time (s)	5.1	5.1		5.4	5.1	
Vehicle Extension (s)	3.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	660	304		1183	330	652
v/s Ratio Prot	0.02	0.03		c0.23	c0.16	c0.19
v/s Ratio Perm						
v/c Ratio	0.09	0.16		1.13dl	0.68	0.38
Uniform Delay, d1	22.8	23.1		19.6	24.5	10.6
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		1.7	5.7	0.4
Delay (s)	22.9	23.4		21.3	30.2	11.0
Level of Service	C	C		C	C	B
Approach Delay (s)	23.3			21.3	20.8	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



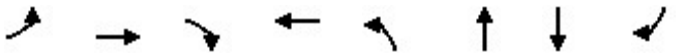
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	84	33	30	5	19	23	127	20	18
v/c Ratio	0.14	0.06	0.06	0.01	0.01	0.02	0.10	0.05	0.04
Control Delay	17.3	9.5	1.5	23.8	13.5	14.1	12.0	15.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	9.5	1.5	23.8	13.5	14.1	12.0	15.2	0.1
Queue Length 50th (ft)	1	1	0	0	0	0	1	0	0
Queue Length 95th (ft)	36	21	2	11	6	10	37	20	0
Internal Link Dist (ft)		312			617		1040	1510	
Turn Bay Length (ft)	300		175			250			
Base Capacity (vph)	1474	886	819	1153	4058	2814	2968	1218	1256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.04	0.04	0.00	0.00	0.01	0.04	0.02	0.01

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	162	313	31	40	330	534	44	53	656
v/c Ratio	0.58	0.50	0.20	0.13	0.75	0.33	0.06	0.36	0.74
Control Delay	52.2	31.7	52.9	32.7	53.4	22.0	5.2	60.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	31.7	52.9	32.7	53.4	22.0	5.2	60.2	38.1
Queue Length 50th (ft)	108	70	20	7	200	114	0	33	184
Queue Length 95th (ft)	240	152	57	27	#559	246	19	95	338
Internal Link Dist (ft)		1347		858		2000			758
Turn Bay Length (ft)	150		190		275		250	140	
Base Capacity (vph)	889	1804	912	1723	438	1954	944	407	1748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.17	0.03	0.02	0.75	0.27	0.05	0.13	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

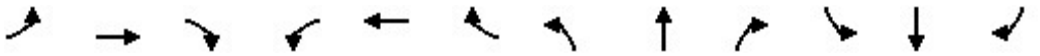


Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	126	129	113	3	7	9	28	13
v/c Ratio	0.18	0.19	0.16	0.00	0.01	0.01	0.03	0.01
Control Delay	9.5	9.6	4.1	13.3	14.0	13.6	10.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	9.6	4.1	13.3	14.0	13.6	10.4	1.2
Queue Length 50th (ft)	0	0	0	0	0	0	0	0
Queue Length 95th (ft)	72	73	29	3	12	7	11	3
Internal Link Dist (ft)		1125		747		198	1040	
Turn Bay Length (ft)	345				90			325
Base Capacity (vph)	1508	1513	1428	3088	1391	2802	2477	1234
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.09	0.08	0.00	0.01	0.00	0.01	0.01

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	261	263	305	6	676	434	32	601
v/c Ratio	0.01	0.52	0.54	0.47	0.03	0.59	0.67	0.17	0.46
Control Delay	0.0	29.9	30.6	6.2	44.2	25.5	22.7	44.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	29.9	30.6	6.2	44.2	25.5	22.7	44.8	19.2
Queue Length 50th (ft)	0	118	121	0	3	168	145	17	106
Queue Length 95th (ft)	0	264	268	59	18	272	298	53	237
Internal Link Dist (ft)	81		463			583			2000
Turn Bay Length (ft)					50		50	115	
Base Capacity (vph)	637	662	641	753	445	1723	901	376	1789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.39	0.41	0.41	0.01	0.39	0.48	0.09	0.34

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	69	182	187	204	619	491	569	544	157	172	391	526
v/c Ratio	0.34	0.23	0.38	1.15	0.91	0.75	1.48	0.57	0.29	0.47	0.41	0.73
Control Delay	40.4	27.6	6.8	150.2	52.7	13.0	261.5	29.9	3.7	41.5	27.1	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	27.6	6.8	150.2	52.7	13.0	261.5	29.9	3.7	41.5	27.1	17.2
Queue Length 50th (ft)	36	43	0	~137	180	19	~232	138	0	47	93	104
Queue Length 95th (ft)	75	70	49	#269	#277	132	#329	189	27	78	134	183
Internal Link Dist (ft)		592			1339			514			583	
Turn Bay Length (ft)	150		145	250		175	225		100	150		
Base Capacity (vph)	211	804	491	178	680	653	384	954	540	363	964	724
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.23	0.38	1.15	0.91	0.75	1.48	0.57	0.29	0.47	0.41	0.73

Intersection Summary

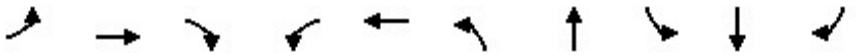
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	154	370	1266	30	28
v/c Ratio	0.25	0.64	0.95dl	0.12	0.05
Control Delay	24.1	8.7	17.3	17.2	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	8.7	17.3	17.2	5.5
Queue Length 50th (ft)	28	0	215	4	0
Queue Length 95th (ft)	47	47	302	25	12
Internal Link Dist (ft)	463		89	1125	
Turn Bay Length (ft)					
Base Capacity (vph)	1111	758	1749	490	790
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.49	0.72	0.06	0.04

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	24	36	31	11	57	71	21	3	112	102
v/c Ratio	0.06	0.08	0.08	0.04	0.03	0.09	0.03	0.01	0.25	0.21
Control Delay	21.3	12.9	2.0	21.8	9.0	18.0	14.8	17.0	14.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	12.9	2.0	21.8	9.0	18.0	14.8	17.0	14.5	6.5
Queue Length 50th (ft)	2	5	0	2	1	6	1	1	14	0
Queue Length 95th (ft)	12	25	3	15	9	26	9	6	62	27
Internal Link Dist (ft)		312			617		1040		1510	
Turn Bay Length (ft)	300		175			250		185		
Base Capacity (vph)	1310	981	836	1025	3894	2786	2709	1444	1244	1226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.04	0.04	0.01	0.01	0.03	0.01	0.00	0.09	0.08

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	321	642	78	189	200	515	16	27	766
v/c Ratio	0.78	0.56	0.51	0.47	0.67	0.33	0.02	0.30	0.78
Control Delay	66.0	11.5	81.0	24.1	73.7	29.3	0.1	86.0	53.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	11.5	81.0	24.1	73.7	29.3	0.1	86.0	53.4
Queue Length 50th (ft)	317	52	74	23	185	171	0	26	345
Queue Length 95th (ft)	517	121	149	67	#394	298	0	70	532
Internal Link Dist (ft)		1347		858		2000			758
Turn Bay Length (ft)	150		190		275		250	140	
Base Capacity (vph)	615	1465	631	1222	303	1549	771	282	1270
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.44	0.12	0.15	0.66	0.33	0.02	0.10	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

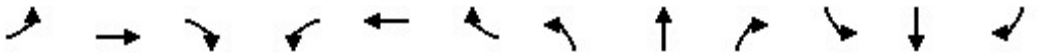
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	18	18	15	16	53	73	9	95	92
v/c Ratio	0.05	0.05	0.04	0.02	0.15	0.10	0.03	0.08	0.09
Control Delay	15.6	15.6	0.2	14.0	15.5	14.3	15.5	0.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	15.6	0.2	14.0	15.5	14.3	15.5	0.1	0.2
Queue Length 50th (ft)	3	3	0	1	9	6	1	0	0
Queue Length 95th (ft)	18	18	0	8	39	23	12	0	0
Internal Link Dist (ft)		1125		747		198		1040	
Turn Bay Length (ft)	345				90		100		325
Base Capacity (vph)	1529	1527	1444	3216	1410	2863	1417	2360	1256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.00	0.04	0.03	0.01	0.04	0.07

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	410	411	226	5	585	203	55	1231
v/c Ratio	0.76	0.79	0.37	0.03	0.54	0.35	0.34	0.90
Control Delay	35.9	38.2	5.5	38.0	25.9	13.6	43.2	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	38.2	5.5	38.0	25.9	13.6	43.2	33.1
Queue Length 50th (ft)	189	192	3	2	140	42	27	296
Queue Length 95th (ft)	#410	#422	49	14	191	93	68	#541
Internal Link Dist (ft)		463			583			2000
Turn Bay Length (ft)				50		50	115	
Base Capacity (vph)	536	518	614	361	1397	730	305	1368
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.79	0.37	0.01	0.42	0.28	0.18	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	606	222	207	249	230	428	503	227	464	820	728
v/c Ratio	0.22	0.80	0.44	1.16	0.39	0.48	1.11	0.51	0.39	1.28	0.82	0.94
Control Delay	38.0	41.0	7.0	153.4	30.2	7.6	119.0	28.4	5.8	179.6	37.9	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	41.0	7.0	153.4	30.2	7.6	119.0	28.4	5.8	179.6	37.9	38.4
Queue Length 50th (ft)	24	167	0	~140	61	0	~145	125	0	~174	231	280
Queue Length 95th (ft)	56	226	53	#273	95	54	#234	173	50	#264	#327	#432
Internal Link Dist (ft)		592			1339			514			583	
Turn Bay Length (ft)	150		145	250		175	225		100	150		
Base Capacity (vph)	209	801	516	179	683	492	384	985	577	363	995	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.76	0.43	1.16	0.36	0.47	1.11	0.51	0.39	1.28	0.82	0.94

Intersection Summary

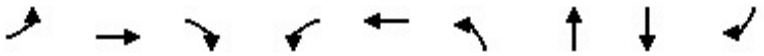
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	36	237	786	254	238
v/c Ratio	0.06	0.49	1.12dl	0.65	0.36
Control Delay	25.1	8.1	22.0	24.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	8.1	22.0	24.0	9.1
Queue Length 50th (ft)	6	0	125	52	35
Queue Length 95th (ft)	18	43	217	135	82
Internal Link Dist (ft)	463		89	1125	
Turn Bay Length (ft)					
Base Capacity (vph)	1044	643	1629	518	778
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.37	0.48	0.49	0.31

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	220	157	43	20	59	23	244	48	45
v/c Ratio	0.44	0.36	0.11	0.10	0.05	0.03	0.31	0.19	0.16
Control Delay	25.1	16.8	3.3	32.8	22.2	22.8	19.6	20.2	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	16.8	3.3	32.8	22.2	22.8	19.6	20.2	7.4
Queue Length 50th (ft)	32	30	0	6	5	3	32	6	0
Queue Length 95th (ft)	81	107	8	29	17	12	71	38	13
Internal Link Dist (ft)		312			617		1040	1510	
Turn Bay Length (ft)	300		175			250			
Base Capacity (vph)	945	858	734	739	3621	2257	2306	999	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.18	0.06	0.03	0.02	0.01	0.11	0.05	0.04

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	178	339	39	104	330	534	65	235	656
v/c Ratio	0.63	0.54	0.25	0.31	0.81	0.56	0.13	0.62	0.75
Control Delay	54.4	36.5	55.0	22.8	59.4	37.1	11.3	50.6	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	36.5	55.0	22.8	59.4	37.1	11.3	50.6	39.8
Queue Length 50th (ft)	121	89	25	11	208	157	4	140	191
Queue Length 95th (ft)	264	181	69	42	#574	283	41	#380	344
Internal Link Dist (ft)		1347		858		2000			758
Turn Bay Length (ft)	150		190		275		250	140	
Base Capacity (vph)	829	1695	851	1556	409	1823	886	380	1634
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.20	0.05	0.07	0.81	0.29	0.07	0.62	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
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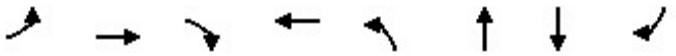
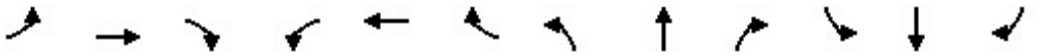


Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	179	181	113	3	7	9	42	28
v/c Ratio	0.20	0.20	0.12	0.00	0.01	0.01	0.04	0.02
Control Delay	8.5	8.5	3.6	14.7	15.3	14.9	9.4	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	8.5	3.6	14.7	15.3	14.9	9.4	2.0
Queue Length 50th (ft)	0	0	0	0	0	0	0	0
Queue Length 95th (ft)	96	98	28	3	13	7	14	8
Internal Link Dist (ft)		1125		747		198	1040	
Turn Bay Length (ft)	345				90			325
Base Capacity (vph)	1495	1499	1416	3061	1379	2778	2390	1221
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.08	0.00	0.01	0.00	0.02	0.02

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	272	275	305	6	698	502	32	609
v/c Ratio	0.01	0.57	0.59	0.49	0.03	0.56	0.72	0.18	0.44
Control Delay	0.0	32.7	33.7	6.4	45.2	24.5	24.1	46.5	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	32.7	33.7	6.4	45.2	24.5	24.1	46.5	18.6
Queue Length 50th (ft)	0	146	149	0	4	175	182	19	107
Queue Length 95th (ft)	0	276	282	59	18	282	365	53	240
Internal Link Dist (ft)	81		463			583			2000
Turn Bay Length (ft)					50		50	115	
Base Capacity (vph)	603	604	586	714	407	1574	843	344	1702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.47	0.43	0.01	0.44	0.60	0.09	0.36

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	69	182	187	204	619	536	569	585	157	179	403	537
v/c Ratio	0.33	0.23	0.38	1.15	0.91	0.83	1.48	0.62	0.29	0.49	0.42	0.75
Control Delay	40.3	27.5	6.8	150.2	52.7	19.4	261.5	30.8	3.7	42.0	27.3	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	27.5	6.8	150.2	52.7	19.4	261.5	30.8	3.7	42.0	27.3	18.1
Queue Length 50th (ft)	36	43	0	~137	180	45	~232	151	0	50	97	108
Queue Length 95th (ft)	75	70	49	#269	#277	#237	#329	204	27	81	138	193
Internal Link Dist (ft)		592			1339			514			583	
Turn Bay Length (ft)	150		145	250		175	225		100	150		
Base Capacity (vph)	211	804	491	178	680	647	384	951	539	363	961	723
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.23	0.38	1.15	0.91	0.83	1.48	0.62	0.29	0.49	0.42	0.74

Intersection Summary

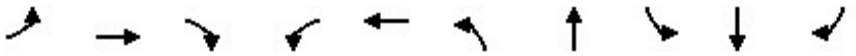
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	225	370	1307	45	42
v/c Ratio	0.36	0.63	0.95dl	0.17	0.07
Control Delay	24.8	8.5	18.3	16.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	8.5	18.3	16.9	5.1
Queue Length 50th (ft)	42	0	226	6	1
Queue Length 95th (ft)	65	47	316	31	15
Internal Link Dist (ft)	463		89	1125	
Turn Bay Length (ft)					
Base Capacity (vph)	1106	756	1743	495	797
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.49	0.75	0.09	0.05

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	72	84	31	63	188	71	62	3	206	191
v/c Ratio	0.26	0.27	0.10	0.28	0.16	0.15	0.12	0.01	0.51	0.37
Control Delay	29.8	23.7	2.4	30.5	18.4	27.9	17.8	20.0	23.4	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	23.7	2.4	30.5	18.4	27.9	17.8	20.0	23.4	6.3
Queue Length 50th (ft)	11	25	0	20	17	11	4	1	54	0
Queue Length 95th (ft)	32	66	3	58	35	31	21	6	124	32
Internal Link Dist (ft)		312			617		1040		1510	
Turn Bay Length (ft)	300		175			250		185		
Base Capacity (vph)	836	832	713	654	3454	2103	2059	1085	944	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.10	0.04	0.10	0.05	0.03	0.03	0.00	0.22	0.20

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	321	656	105	397	200	515	24	92	766
v/c Ratio	0.79	0.59	0.60	0.67	0.68	0.40	0.04	0.59	0.79
Control Delay	68.3	15.0	84.0	22.5	76.7	38.2	0.1	87.4	55.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	15.0	84.0	22.5	76.7	38.2	0.1	87.4	55.2
Queue Length 50th (ft)	330	80	103	43	193	195	0	90	360
Queue Length 95th (ft)	517	156	192	106	#394	326	0	177	532
Internal Link Dist (ft)		1347		858		2000			758
Turn Bay Length (ft)	150		190		275		250	140	
Base Capacity (vph)	598	1421	614	1290	295	1353	680	274	1237
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.46	0.17	0.31	0.68	0.38	0.04	0.34	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

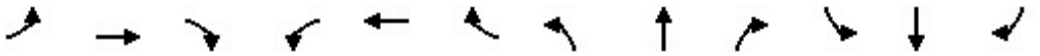
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	36	37	15	16	53	73	9	140	138
v/c Ratio	0.10	0.11	0.04	0.02	0.16	0.11	0.03	0.11	0.13
Control Delay	15.8	15.9	0.2	14.4	15.9	14.6	15.8	0.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	15.9	0.2	14.4	15.9	14.6	15.8	0.2	0.3
Queue Length 50th (ft)	6	6	0	1	9	6	1	0	0
Queue Length 95th (ft)	30	30	0	8	40	24	12	0	0
Internal Link Dist (ft)		1125		747		198		1040	
Turn Bay Length (ft)	345				90		100		325
Base Capacity (vph)	1521	1513	1437	3199	1403	2848	1410	2349	1254
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.01	0.01	0.04	0.03	0.01	0.06	0.11

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	447	447	226	5	593	226	55	1257
v/c Ratio	0.84	0.86	0.38	0.03	0.55	0.38	0.34	0.92
Control Delay	41.5	45.0	6.5	38.2	26.0	14.9	43.4	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	45.0	6.5	38.2	26.0	14.9	43.4	34.7
Queue Length 50th (ft)	214	218	8	2	143	52	27	307
Queue Length 95th (ft)	#466	#477	59	14	194	109	68	#558
Internal Link Dist (ft)		463			583			2000
Turn Bay Length (ft)				50		50	115	
Base Capacity (vph)	535	517	602	360	1393	728	304	1373
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.86	0.38	0.01	0.43	0.31	0.18	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	606	222	207	249	246	428	518	227	488	860	764
v/c Ratio	0.22	0.80	0.44	1.16	0.39	0.50	1.11	0.53	0.39	1.34	0.86	0.99
Control Delay	38.0	41.0	7.0	153.4	30.2	7.7	119.0	28.7	5.8	205.9	40.7	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	41.0	7.0	153.4	30.2	7.7	119.0	28.7	5.8	205.9	40.7	48.2
Queue Length 50th (ft)	24	167	0	~140	61	0	~145	130	0	~188	246	~323
Queue Length 95th (ft)	56	226	53	#273	95	56	#234	179	50	#281	#353	#478
Internal Link Dist (ft)		592			1339			514			583	
Turn Bay Length (ft)	150		145	250		175	225		100	150		
Base Capacity (vph)	209	801	516	179	683	504	384	985	577	363	995	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.76	0.43	1.16	0.36	0.49	1.11	0.53	0.39	1.34	0.86	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	61	237	800	300	289
v/c Ratio	0.09	0.48	1.13dl	0.75	0.42
Control Delay	25.8	7.7	24.2	31.2	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	7.7	24.2	31.2	10.5
Queue Length 50th (ft)	12	0	159	86	56
Queue Length 95th (ft)	26	42	226	178	108
Internal Link Dist (ft)	463		89	1125	
Turn Bay Length (ft)					
Base Capacity (vph)	973	616	1519	487	758
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.38	0.53	0.62	0.38

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.