3.11 TRANSPORTATION

This section describes the existing transportation conditions within the Globemaster Corridor Specific Plan (GCSP; Proposed Project) area; identifies associated regulatory requirements; evaluates potential adverse impacts related to conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system; conflicts with an applicable congestion management program; conflicts with State CEQA Guidelines Section 15064.3, subdivision (b); and identifies mitigation measures related to implementation of the Proposed Project. The Traffic Impact Analysis (TIA), prepared by Linscott, Law & Greenspan Engineers (LLG) dated June 30, 2020 and the Vehicle Miles Traveled (VMT) Analysis prepared by LSA dated June 1, 2020, are included in Appendix D of this PEIR/PEIS.

The Initial Study (IS) and Notice of Preparation (NOP) are contained in Appendix A-1, Initial Study; and Appendix A-2, Notice of Preparation, respectively. Comments regarding transportation, received in response to the NOP (see Appendix A-3, Notice of Preparation Comment Letters), specifically related to congestion, walkability, and overall traffic circulation, and have been considered in the preparation of the analyses presented in this section.

The IS found that the Proposed Project would have a potentially significant impact as it relates to transportation (Appendix A-1). As such, all impacts will be addressed further in this Draft Program Environmental Impact Report (PEIR)/Draft Program Environmental Impact Statement (PEIS). As explained in the section, level of service (LOS) and vehicle delay are no longer considered an environmental impact under the California Environmental Quality Act (CEQA) as of July 1, 2020 under SB 743. At the time the Notice of Preparation (NOP) was published (September 12, 2018), LOS was the applicable metric for evaluating transportation and traffic impacts under CEQA. Therefore, the transportation analysis shown in this section presents the LOS metric and the Vehicle Miles Traveled (VMT) metric for assessing transportation impacts per the requirements under CEQA.

3.11.1 Regulatory Setting

Federal

There are no applicable federal regulations related to traffic that would apply to the Proposed Project.

State

SB-743 (Status and Application to this Analysis) On September 27, 2013, Governor Brown signed SB 743, which became effective on January 1, 2014. The purpose of SB 743 is to streamline the review under the CEQA process for several categories of development projects including the development of infill projects in transit priority areas and to balance the needs of congestion

management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions. SB 743 adds Chapter 2.7: Modernization of Transportation Analysis for Transit Oriented Infill Projects to the CEQA Statute (Public Resources Code Section 21099). Section 21099(d)(1) provides that aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment. In addition, SB 743 mandates that alternative metric(s) for determining impacts relative to transportation shall be developed to replace the use of LOS in CEQA documents.

In the past, environmental review of transportation impacts focused on the delay that vehicles experience at intersections and on roadway segments, which is often measured using LOS. Mitigation for impacts on vehicular delay often involves increasing capacity such as widening a roadway or the size of an intersection, which in turn encourages more vehicular travel and greater pollutant emissions. Additionally, improvements to increase vehicular capacity can often discourage alternative forms of transportation such as biking and walking. SB743 directed the Office of Planning and Research (OPR) to develop an alternative metric(s) for analyzing transportation impacts in CEQA document. The alternative shall promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of multimodal transportation system, and providing clean, efficient access to destinations. Under SB 743, it was anticipated that the focus of transportation analysis will shift from vehicle delay to vehicle miles traveled (VMT) within transit priority areas (i.e., areas well served by transit).

Pursuant to SB 743, OPR released the draft revised CEQA Guidelines in November 2017, recommending the use of VMT for analyzing transportation impacts. Additionally, OPR released Updates to Technical Advisory on Evaluating Transportation Impacts in CEQA, to provide guidance on VMT analysis. In this Technical Advisory, OPR provides its recommendations to assist lead agencies in screening out projects from VMT analysis and selecting a significance threshold that may be appropriate for their particular jurisdictions. While OPR's Technical Advisory is not binding on public agencies, CEQA allows lead agencies to "consider thresholds of significance... recommended by other public agencies, provided the decision to adopt those thresholds is supported by substantial evidence." (CEQA Guidelines, § 15064.7, subd. (c).)

In December 2018, the CEQA Guidelines were updated to add new Section 15064.3, "Determining the Significance of Transportation Impacts" that describes specific considerations for evaluating a project's transportation impacts using the VMT methodology. This new methodology is required to be used for projects beginning on July 1, 2020.

State CEQA Guidelines Section 15064.3, subdivision (b) is divided into four subdivisions as follows:

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project.

The City of Long Beach Planning Commission approved CEQA Transportation Thresholds of Significance for City of Long Beach and Draft Traffic Impact Analysis Guidelines to reflect the requirements per SB 743 on June 4, 2020. The County of Los Angeles has not adopted new traffic impact study guidelines in accordance with SB 743. Due to the timing of the NOP for this project in 2018, the existing and buildout LOS analysis is based on the City's traffic study guidelines as adopted at the time of the NOP, which use LOS and delay. The VMT analysis is

also provided and is based on the City CEQA guidelines as a measure for significant transportation impacts under CEQA.

State of California Department of Transportation (Caltrans)

Caltrans' Draft Transportation Impact Study Guide (TISG), February 2020, will replace the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002). Per the 2020 TISG, Caltrans' primary review focus is VMT, replacing LOS as the metric used in CEQA transportation analyses. Caltrans recommends use of OPR's recommended thresholds and guidance on methods of VMT assessment found in OPR's Technical Advisory (OPR 2018) for land use projects. In addition to VMT, the 2020 TISG states that it may request a targeted operational and safety analysis to address a specific geometric or operational issue related to the State Highway System and connections with the State Highway System. It is anticipated the TISG will be adopted in June/July 2020. The mainline and freeway ramp analysis provided in this section and included in Appendix D is consistent with this requirement and is based on Caltrans 2002 Guide.

Pursuant to the Caltrans *Guide for the Preparation of Traffic Impact Studies*, and based on recent coordination with Caltrans, analyses of State highway facilities should be conducted when and if a proposed project is expected to add 50 or more peak hour trips in either direction on a freeway mainline segment or 10 or more peak hour trips to a freeway off-ramp location. Although the Proposed Project at build-out is not expected to generate 50 or more vehicle trips, during either the AM or PM peak commute hours, at any of the freeway mainline locations, analysis was prepared for five mainline freeway segments in the Proposed Project vicinity pursuant to Caltrans analysis methodologies. The Proposed Project is expected to add 10 or more vehicle trips during the AM and/or PM commute peak hours to some of the adjacent freeway ramp locations. Therefore, intersection analyses were prepared for the four Caltrans ramp study intersections in the Proposed Project vicinity pursuant to Caltrans analysis methodologies.

Local

Los Angeles County Congestion Management Program

The City is subject to the Los Angeles County Congestion Management Plan (CMP). The Los Angeles County CMP was created statewide because of Proposition 111 in 1990 and was implemented locally by the Los Angeles County Metropolitan Transportation Authority (Metro). The CMP for Los Angeles County requires that the traffic impact to be analyzed for individual development projects that may have regional significance. A specific system of arterial roadways plus all freeways comprises the CMP system. A total of 164 intersections are identified for monitoring on the system in Los Angeles County.

CMP Transportation Impact Analysis (TIA) Guidelines are provided in the 2010 Congestion Management Plan for Los Angeles County. According to these guidelines, an analysis of the effects that a project may have on the CMP system is conducted in the following instances:

- The project is projected to add 50 or more vehicle trips during either AM or PM weekday peak hours to CMP arterial monitoring intersections, including freeway on-ramps or off-ramps.
- The project is projected to add 150 or more trips in either direction during either the AM or PM weekday peak hours at CMP mainline freeway monitoring locations.

The Proposed Project was reviewed for its potential to trigger the above thresholds, which would then require the Proposed Project to be further analyzed under the CMP. This review is included in Appendix D and is summarized in Section 3.11.4, Impact Analysis.

City of Long Beach General Plan

The Long Beach General Plan represents a comprehensive approach for managing the community's future. The Long Beach General Plan also reflects the City's long-term strategy for directing physical, economic, and cultural development.

Mobility Element (2013)

The General Plan Mobility Element 2035 was adopted in October 2013. The Mobility Element seeks to guide development and improvements to the existing circulation system. This element establishes several goals aimed at improving the existing transportation system so that it is responsive to all travel modes. The following transportation/traffic goals and policies in the City's Mobility Element are applicable to the Proposed Project.

Mobility of People (MOP) Policies:

MOP Policy 1-1: To improve the performance and visual appearance of Long Beach's streets, design streets holistically using the "complete streets approach" which considers walking, those with mobility constraints, bicyclists, public transit users, and various other modes of mobility in parallel.

MOP Policy 1-13: Increase multimodal access to major employers and educational institutions, including Long Beach City College.

MOP Policy 1-14: Use universal design techniques to accommodate pedestrians of all ages and abilities and ensure compliance with the Americans with Disabilities Act.

MOP Policy 1-17: Develop land use policies that focus development potential in locations best served by transit.

MOP Policy 1-18: Focus development densities for residential and nonresidential land uses around the eight Metro Blue Line stations within City boundaries.

MOP Policy 2-2: Design the character and scale of the street to support its street type and placetype designation and overlay networks (for example, create a bike boulevard or bicycle-friendly retail district, transit street, or green street).

MOP Policy 2-15: Ensure that all new development is consistent with the applicable provisions of the Bicycle Master Plan.

MOP Policy 5-2: Reduce vehicle miles traveled (VMT) and vehicle trips through the use of alternative modes of transportation and Transportation Demand Management (TDM).

Land Use Element (1989)

The City's General Plan Land Use Element (1989) was updated in 2019. At time the Notice of Preparation (NOP) for this PEIR/PEIS was published and circulated for review (September 12, 2018), the 1989 General Plan Land Use Element was in effect. Subsequent to the NOP, the 2019 General Plan Land Use Element was approved by City Council on December 3, 2019. The following is the specified goals and objectives from the 1989 Land Use Element that are related to transportation/traffic.

Facilities Maintenance: Long Beach will maintain physical facilities and public rights-of-way at a high level of functional and aesthetic quality, manifesting the pride of citizens of their City and ensuring that future generations need not bear the burden of deferred maintenance.

Functional Transportation: Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods.

Land Use Element (2019)

In 2019, the City is currently approved a new General Plan Land Use Element. The updated Land Use Element incudes strategies and policies to encourage the coordination of land use and transportation:

STRATEGY No. 1: Support sustainable urban development patterns.

LU Policy 1-1: Promote sustainable development patterns and development intensities that use land efficiently and accommodate and encourage walking.

LU Policy 7-6: Promote transit-oriented development around passenger rail stations and along major transit corridors.

LU Policy 7-11: Support infill and transit-oriented development projects by utilizing available tools, such as public-private partnerships and assistance with land assembly and consolidation.

City of Long Beach Zoning Regulations

Pursuant to Chapter 21.64 (Transportation Demand Management) of the LBMC, applicable projects subject to a Site Plan Review (SPR) entitlement are required to incorporate transportation demand and trip reduction measures. The project types and thresholds for compliance are summarized in Table 3.11-1, Transportation Demand Management Ordinance Requirements.

Table 3.11-1
Transportation Demand Management Ordinance Requirements

TDM Requirements	New Nonresidential Development		
	25,000+ Square Feet	50,000+ Square Feet	100,000+ Square Feet
Transportation information area	X	X	X
Preferential carpool/vanpool parking		X	X
Parking designed to admit vanpools		X	X
Bicycle parking		X	X
Carpool/vanpool loading zones			X
Efficient pedestrian access			X
Bus stop improvements			X
Safe bike access from street to bike parking			X
Transit review	For all residential and nonresidential projects subject to EIR		

Source: City of Long Beach 2004.

3.11.2 Existing Conditions

3.11.2.1 Existing Street System

Figure 3.11-1, Existing Year 2018 Roadway Conditions and Intersection Controls, illustrates the existing physical characteristics of the key intersections and streets, including intersection geometry and traffic control, number of travel lanes, median type, parking designations, and posted speed limits.

Figure 3.11-2, Existing Year 2018 Street Classifications, illustrates the existing street classifications for the existing street network within and around the Plan Area provided in the City of Long Beach General Plan Mobility Element.

The principal local network of streets serving the Proposed Project area includes Lakewood Boulevard, Willow Street, Cherry Avenue, Carson Street, Atlantic Avenue, Spring Street, Wardlow Road, Orange Avenue, Cover Street, Bixby Road, 32nd Street, 36th Street, and Walnut Avenue. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Lakewood Boulevard is generally an eight-lane roadway south of Conant Street and a six-lane roadway north of Conant Street oriented in the north–south direction and is located east of the project area and airport. On-street parking is not permitted on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. The posted speed limit on Lakewood Boulevard is 45 mph. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Lakewood Boulevard as a Regional Corridor.

Willow Street is generally a six-lane divided roadway oriented in the east-west direction and provides connectivity between Atlantic Avenue and Lakewood Boulevard within the vicinity of the project area. On-street parking is generally not permitted on either side of the roadway within the vicinity of the project. The posted speed limit on Willow Street is 40 mph. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Willow Street as a Boulevard.

Cherry Avenue is generally a four-lane divided roadway between Wardlow Road and Spring Street, a five-lane divided roadway north of Wardlow Road and a six-lane divided roadway south of Spring Street, oriented in the north–south direction that traverses through the middle of the project area. On-street parking is permitted on both sides of the street. Multiple driveways are located along Cherry Avenue, which provides full access to the existing businesses. The posted speed limit on Cherry Avenue is 40 mph north of Wardlow Road, 35 mph between Wardlow Road and Spring Street, and 40 mph south of Spring Street. Sidewalks are generally provided and are adequate north of Wardlow Road. However, south of Wardlow Road sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Cherry Avenue as a Major Avenue.

Carson Street is a four-lane divided roadway west of Cherry Avenue and a six-lane divided roadway east of Cherry Avenue. Carson Street is oriented in the east–west direction and provides connectivity from Atlantic Avenue to Lakewood Boulevard within the vicinity of the project area. On-street parking is not permitted on both sides of the street east of Cherry Avenue, but is permitted on both sides of the street west of Cherry Avenue within the vicinity of the project area. The posted speed limit on Carson Street is 40 miles per hour (mph). Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally

provided at all signalized intersections. The City's Mobility Element designates Cover Street as a Major Avenue.

Atlantic Avenue is a four-lane, divided roadway oriented in the north-south direction and provides connectivity west of the project area. The posted speed limit is 35 mph south of Spring Street and 30 mph north of Spring Street. Parking is generally not permitted on both sides of the roadway within the vicinity of the project. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Lakewood Boulevard as a Major Avenue.

Spring Street is generally a four-lane divided roadway west of Temple Avenue and a six-lane divided roadway east of Temple Avenue, oriented in the east-west direction and provides connectivity between Atlantic Avenue and Lakewood Boulevard within the vicinity of the project area. On-street parking is not permitted on either side of the roadway west of Orange Avenue, but is permitted on both sides of the roadway east of Orange Avenue until Junipero Avenue within the vicinity of the project. The posted speed limit on Spring Street is generally 40 mph. Sidewalks are generally provided and are adequate west of Cherry Avenue. However, east of Cherry Avenue sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Spring Street as a Major Avenue.

Wardlow Road is a four-lane undivided roadway west of Cherry Avenue and a four-lane divided roadway east of Cherry Avenue. Wardlow Road provides east–west connectivity between Cherry Avenue and Walnut Avenue. Wardlow Road also extends to the eastern portion of the project area and terminates at the airport. However, Wardlow Road continues just east of the Lakewood Boulevard. On-street parking is generally permitted on both sides of the street west of Cherry Avenue. The posted speed limit on Wardlow Road is 35 mph west of Cherry Avenue and 30 mph east of Cherry Avenue. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Wardlow Road as a Minor Avenue.

Orange Avenue is a two-lane, divided roadway oriented in the north-south direction that traverses through the south-western portion of the project area. The posted speed limit is 35 mph north of Spring Street and 40 mph south of Spring Street. On-street parking is generally not permitted on both sides of the roadway, except north of 32nd Street where parking is permitted within the vicinity of the project. Sidewalks are generally provided and are adequate north of Spring Street. However, south of Spring Street sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Orange Avenue as a Minor Avenue.

Cover Street is generally a four-lane divided roadway oriented in the east–west direction and provides connectivity between Cherry Avenue and Lakewood Boulevard. Cover Street is partially located in the City of Lakewood. On-street parking is not permitted on both sides of the street. The posted speed limit on Cover Street is 40 mph. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Cover Street as a Neighborhood Connector.

Bixby Road is generally a two-lane undivided roadway oriented in the east–west direction and provides connectivity between west of Cherry Avenue. On-street parking is permitted on both sides of the street. The posted speed limit on Bixby Road is 25 mph. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Cover Street as a Neighborhood Connector.

32nd Street is a two-lane undivided roadway oriented in the east–west direction. In direct proximity to the project area, 32nd Street consists of an alleyway that traverses the project area. Along this alleyway, multiple gated areas restrict through-traffic to some users. The posted speed limit on 32nd street is 25 mph. Sidewalks are generally provided and are adequate west of Orange Avenue. However, east of Orange Avenue sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates 32nd Street as a Local Street.

36th Street is a two-lane undivided roadway oriented in the east-west direction and provides connectivity between Cherry Avenue and Walnut Avenue. 36th Street also extends to the eastern portion of the project area and terminates at the airport. On-street parking is generally permitted on both sides of the street. The posted speed limit on 36th Street is 25 mph. Sidewalks are generally provided on both sides of the roadway within the project's vicinity. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates 36th Street as a Local Street.

Walnut Avenue is generally a two-lane undivided roadway oriented in the north–south direction and provides access to the project area via multiple full-access driveways. On-street parking is permitted on both sides of the street. The posted speed limit on Walnut Avenue is 30 mph north of Spring Street and 40 mph south of Spring Street. Sidewalks are generally provided and are adequate north of 33rd Street. However, south of 33rd Street sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City's Mobility Element designates Walnut Avenue as a Local Street.

Temple Avenue is oriented in the north-south direction beginning just south of the Long Beach Airport at Spring Street and continuing south towards Bluff Park at Ocean Boulevard. Temple

Avenue is a two-lane roadway that has discontinuous sidewalks on either side. There is only a sidewalk on the west side of Temple Avenue in the Plan Area. A portion of the Plan Area includes the I-405 freeway overpass at Temple Avenue, which connects the Long Beach Airport industrial areas with other industrial uses to the south of the I-405 freeway. The City's Mobility Element designates Temple Avenue as a Neighborhood Connector.

Redondo Avenue is oriented in the north-south direction beginning just south of the Long Beach Airport at Spring Street and continuing south towards Bluff Park at Ocean Boulevard. Redondo Avenue is a two-lane roadway that connects industrial portions of Long Beach near the I-405 freeway and the Plan Area with the residential portions moving towards the coast. Sidewalks are provided on both sides of the street in the Plan Area. The roadway borders the City of Signal Hill on its eastern boundary. The City's Mobility Element designates Redondo Avenue as a Major Avenue.

3.11.2.2 Existing Truck Routes

Figure 3.11-3, Existing Year 2018 Truck Routes, shows the designated truck routes in the City. Designated truck routes provide for the regulated movement of 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 where they would cause the least amount of neighborhood intrusion and where noise, vibration, and other factors would have the least impact. Primary truck routes in close proximity to the Plan Area are provided via Cherry Avenue, Lakewood Boulevard, Carson Street, and Spring Street. Regional freeway access is provided at the Cherry Avenue/I-405 interchange.

3.11.2.3 Existing Public Transit

Figure 3.11-4, Existing Year 2018 Public Transit, illustrates the transit routes of LBT within the vicinity of the Plan Area and identifies the location of the existing bus stops in close proximity to the Plan Area. Transit modes in the City consist of both light rail and bus routes. Within the City, the Los Angeles County Metropolitan Transportation Authority (Metro) operates the Metro Blue Line, a passenger light rail line, which provides connection between Downtown Long Beach and Downtown Los Angeles. There are no Metro Blue Line stations in the Plan Area, and the nearest station is the Willow Street Station (approximately 0.6-miles southwest from the Plan Area).

The bus lines servicing the City consist of Long Beach Transit (LB Transit), Los Angeles County Metro, and Orange County Transit Authority (OCTA). LB Transit provides service throughout Long Beach, Lakewood, and Signal Hill. Most LB Transit routes run seven days a week and all routes are wheelchair accessible. There are four routes that travel to and from the Long Beach Airport, providing connections with the Metro light rail service to Los Angeles, El Segundo, and Norwalk, as well as to all Long Beach neighboring cities: Carson, Compton, Paramount, Bellflower, Artesia, Cerritos, Hawaiian Gardens, and Norwalk.

The Plan Area is serviced via LB Transit Lines 21, 22, and 131, which travel along Cherry Avenue and have stops at Carson Street and Wardlow Road.

- **LBT Line 21/22** operates between the northern and southern limits of the City. A major destination includes downtown Long Beach. In general, travel times from the Plan Area to downtown Long Beach would take around 30 minutes. Headways between buses vary throughout the day, but they typically arrive on 30-minute intervals.
    - **Line 21** Service is provided Monday through Friday from approximately 5:00 AM to 12:35 AM and on Saturdays/Sundays from 5:25 AM to 12:35 AM.
    - **Line 22** Service is provided Monday through Friday from approximately 5:20 a.m. to 7:05 p.m. and on Saturdays/Sundays from 6:00 a.m. to 8:05 p.m.
- **LBT Line 131** operates between Redondo Beach and Seal Beach. Major destinations along Line 131 include the Wardlow Metro Blue Line Station, Belmont Shore, and Alamitos Bay. Service is provided Monday through Friday from approximately 6:39 a.m. to 9:06 p.m. and on Saturdays/ Sundays from 6:38 a.m. to 8:40 p.m. In general, travel times from the Plan Area to the Wardlow Metro Blue Line Station, Belmont Shore, and Alamitos Bay would take around 10 minutes, 15 minutes, and 50 minutes, respectively. Headways between buses vary throughout the day, but they typically arrive on 30-minute intervals.

3.11.2.4 Existing Bicycle Master Plan

The City of Long Beach promotes bicycling as a means of mobility and a way in which to improve the quality of life within its community. The Long Beach Bicycle Master Plan 2040 (December 2016) recognizes the needs of bicycle users and aims to create a complete and safe bicycle network throughout the City. The City of Long Beach Bicycle Facilities in the vicinity of the Proposed Project area (existing and proposed) is shown on Figure 3.11-5A, Existing Bicycle Routes, and Figure 3.11-5B, Existing and Proposed "8-80" Bicycle Facilities. Per the Long Beach Bicycle Master Plan (Year 2040), the following provides a brief description of each Bicycle facility type:

Class I (Shared-Use Paths) are "8-to-80" facilities that provide completely separated, exclusive right-of-way for bicycling, walking, and other non-motorized uses. These facilities can be considered the easiest to ride on, especially for the interested but concerned riders, as there are few potential conflicts between people riding and people driving. Long Beach currently has 34.7 miles of shared-use path (Class I) facilities.

Class II (Bicycle Lanes) are striped, preferential lanes on roadways for one-way bicycle travel. Some bike lanes include striped buffers that add a few feet of separation between the bicycle land and traffic lane or parking aisle. These facilities are also important for the overall bikeway

network Long Beach strives to achieve in that they provide a designated space for riders along a roadway. Long Beach currently has nearly 60 miles of road with bike lanes.

Class III-A (Bicycle Boulevards) are on-street "8-to-80" bicycle facilities along low-speed roadways. These routes have been optimized for bicycle travel through signage, shared-lane markings, and engineering tools to slow traffic, reduce cut-through vehicle trips, and assist bicyclists and pedestrians in crossing busier roadways. Long beach currently has a single, 1.5-mile bicycle lane along Vista Street.

Class IV (Separated Bikeways), also known as a cycle track or Class IV bikeway, is an on-street "8-to-80" facility that is physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, bollards, or vehicle parking aisle are signed routes where people riding bicycles share a travel lane with people driving motor vehicles. Long Beach currently has 4.4 miles of separated bikeway facilities.

Within close proximity to the Project area, a Class II bike lane is currently provided along Orange Avenue, north of Bixby Road, along Cover Street, west of Paramount Boulevard, along Bixby Road, west of Cherry Avenue, along Carson Street, west of Orange Avenue, along Wardlow Road, east of Lakewood Boulevard, and along Spring Street, between Long Beach Boulevard and California Avenue. A Class III-C bike route is currently provided along Orange Avenue, between Bixby Road and Wardlow Road. An "8-to-80" off-street bikeway is currently provided along Cover Street, east of Paramount Boulevard, and along Carson Street, east of Downey Avenue. Figure 3.11-5A, Existing Bicycle Routes, illustrates the existing City of Long Beach bicycle network map.

According to the City of Long Beach Public Works Department, a Class IV bikeway is proposed on Spring Street, converting the no. 3 lane on either side of the roadway into a dedicated bikeway.

The Long Beach Bicycle Master Plan (Year 2040) identifies Cherry Avenue, Orange Avenue, Lakewood Boulevard, Carson Street, Bixby Road, Wardlow Road, Spring Street and Willow Street as recommended "8-to-80" bikeways, meaning that it should be designed to comfortably and safely serve cyclists of all ages (City of Long Beach, 2016). Figure 3.11-5B, Existing and Proposed "8-to-80" Bicycle Facilities, illustrates the existing and proposed "8-to-80" bikeway facilities.

Within the western portion of the Plan Area, the Orange Avenue Backbone Project will include the implementation of innovative pedestrian and bicycle infrastructure throughout Orange Avenue (renamed Alamitos Avenue to the south). The corridor will add 2.4 miles of Class IV bike lanes that will close network gaps and improve existing infrastructure to form a continuous 8.6-mile bikeway, as well as improved lighting, six protected intersections, high-visibility crosswalks throughout the corridor, and bus islands/curb extensions at four intersections. The improvements

prioritize pedestrian and bicyclist safety while promoting multi-modal connectivity and encouraging mode shift, reducing vehicular traffic and pollution impacts.

3.11.2.5 Existing Volumes

Traffic counts were conducted at the 28 key intersections in the vicinity of the Plan Area during the weekday AM and PM peak period (7:00 to 9:00 AM, 4:00 to 6:00 PM) in May 2018 (while school was still in session). Traffic counts are provided in Appendix A (Existing Traffic Count Data) of the TIA (Appendix D).

Of the 28 study intersections, eight (8) study intersections are located in the City of Long Beach, four (4) study intersections are located in the City of Signal Hill, one (1) study intersection is located in the City of Lakewood, eight (8) study intersections are located at the boundary between the Cities of Long Beach and Signal Hill, three (3) study intersections are located at the boundary between the Cities of Long Beach and Lakewood, and four (4) study intersections are freeway ramp intersections under Caltrans' jurisdiction.

Approximately 1,409,441 square feet (SF) of existing vacant industrial uses (i.e., former Boeing site) in the GSCP area was not occupied on the dates that traffic counts were conducted. To provide a conservative assessment, existing trip credits were not accounted for in the 1,409,441 SF of existing vacant industrial uses in the Proposed Project's trip generation potential.

Figure 3.11-6, Existing (Year 2018) AM Peak Hour Traffic Volumes, and Figure 3.11-7, Existing (Year 2018) PM Peak Hour Traffic Volumes, illustrate the existing weekday AM and weekday PM peak hour traffic volumes at the 28 key intersections, respectively.

3.11.2.6 Methodology

Vehicle Miles Traveled

The Governor's Office of Planning and Research (OPR) has approved the addition of new Section 15064.3, "Determining the Significance of Transportation Impacts" to the State's CEQA Guidelines, compliance with which will be required beginning July 1, 2020. The Updated CEQA Guidelines state that "…*generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts…*" and define VMT as "…*the amount and distance of automobile travel attributable to a project…*". It should be noted that "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. OPR has clarified in the Technical Advisory and recent informational presentations that heavy-duty truck VMT is not required to be included in the estimation of a project's VMT Other relevant considerations may include the effects of the project on transit and non-motorized traveled.

The City of Long Beach CEQA Guidelines, dated June 2020 include methodologies to analyze VMT impacts for land use plans. Since the project is a specific plan, methodologies described in *Chapter 6: Significance Thresholds for Land Use Plans* were used for the analysis. The draft guidelines recommend the following methodology:

> *"Therefore, the recommended methodology for conducting VMT assessments for most land plans is to compare the existing VMT per household for the land plan area with the expected horizon year VMT per household. The recommended target is to achieve a lower VMT per household in the horizon year with the proposed land plan than occurs for the existing condition. If a land plan is composed of primarily employment uses (i.e., the land plan is for an employment center or has a focus on nonresidential uses), then VMT per employee would be an appropriate metric and the target is to achieve a lower VMT per employee in the horizon year with the proposed land plan than occurs for the existing condition."*

Since the Proposed Project is a land use plan primarily composed of non-residential uses, VMT per employee is the appropriate metric to compare project's VMT to that of the region.

Level of Service

Pursuant to the City of Long Beach Traffic Impact Guidelines (City of Long Beach, 2004), existing AM and PM peak hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology for signalized intersections and the Highway Capacity Manual (HCM) methodology for unsignalized intersections and Caltrans/CMP intersections.

Intersection Capacity Utilization (ICU) Method of Analysis

In conformance with City of Long Beach, City of Signal Hill, City of Lakewood, and LA County Public Works (PW) requirements, existing weekday peak hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of LOS have been defined along with the corresponding ICU value range, and are shown in Table 3.11-1 (Level of Service Criteria for Signalized Intersections). The ICU or V/C value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

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

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement.

The HCM control delay value translates to a LOS estimate, which is a relative measure of the intersection performance. The six qualitative categories of LOS have been defined along with the corresponding HCM control delay value range, as shown in Table 3.11-2 (Level of Service Criteria for Unsignalized Intersections - HCM).

3.11.2.7 Significance Criteria

Vehicles Miles Traveled

Since the Proposed Project includes only non-residential land uses, based on the draft CEQA transportation guidelines, the VMT per employee metric was analyzed. The VMT per employee for the Proposed Project was compared with the corresponding average for the region. The guidelines identify the entire Los Angeles County as the region. Additionally, based on the guidelines, the horizon year project average was compared with the existing regional average.

Level of Service

LOS was used as the measure of effectiveness for the performance of the circulation system by the local agencies with jurisdiction over the study area.

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

City of Long Beach

The City of Long Beach utilizes the LOS criteria for signalized and unsignalized intersections as shown in Table 3.11-2 (Level of Service Criteria for Signalized Intersections) and Table 3.11-3 (Level of Service Criteria for Unsignalized Intersections), respectively.

Table 3.11-2
Level of Service Criteria for Signalized Intersections

Level of Service (LOS)	Volume/Capacity (V/C)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.

Table 3.11-2
Level of Service Criteria for Signalized Intersections

Level of Service (LOS)	Volume/Capacity (V/C)	Level of Service Description
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

Source: City of Long Beach 2004.

Table 3.11-3
Level of Service Criteria for Unsignalized Intersections - HCM

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

Source: Highway Capacity Manual 6.

City of Lakewood

According to the City of Lakewood Circulation Element (1996), LOS D is the minimum acceptable condition that should be maintained during the peak hours for all roadway segments and intersections.

City of Signal Hill

According to the City of Signal Hill Circulation Element (2009), LOS D is the minimum acceptable condition that should be maintained during the peak hours.

3.11.2.8 Existing Level of Service

Table 3.11-4 (Existing (2018) Intersection Peak Hour Levels of Service) summarizes the existing peak hour service level calculations for the 28 key study intersections based on existing traffic volumes and current street geometrics. One key study intersection (Orange Avenue/I-405 SB Ramps) operates at unacceptable LOS F in the AM and PM peak hour under existing (2018) conditions. The remaining twenty-seven (27) key study intersections currently operate at LOS D or better during the weekday AM and PM peak hours.

Table 3.11-4
Existing (2018) Intersection Peak Hour Levels of Service

#	Key Intersection	Time Period	ICU	Delay (s/v)	LOS	Deficient LOS?
1	Cherry Avenue at	AM	0.706	--	C	No
	Carson Street (Long Beach)	PM	0.807	--	D	No
2	Shopping Center at	AM	0.401	--	A	No
	Carson Street (Long Beach)	PM	0.609	--	B	No
3	Cherry Avenue at	AM	0.544	--	A	No
	Cover Street (Long Beach/Lakewood)	PM	0.790	--	C	No
4	Cherry Avenue at	AM	0.602	--	B	No
	Bixby Road (Long Beach/Lakewood)	PM	0.625	--	B	No
5	Cherry Avenue at	AM	0.640	--	B	No
	36th Street (Long Beach/Lakewood)	PM	0.748	--	C	No
6	Industry Avenue at	AM	0.369	--	A	No
	36th Street (Lakewood)	PM	0.513	--	A	No
7	Cherry Avenue at	AM	0.766	--	C	No
	Wardlow Road (Long Beach)	PM	0.857	--	D	No
8	Boeing at	AM	0.117	--	A	No
	Wardlow Road (Long Beach)	PM	0.114	--	A	No
9	Orange Avenue at	AM	0.719	--	C	No
	32nd Street (Signal Hill)	PM	0.856	--	D	No
10	I-405 Northbound Ramps at	AM	--	11.2	B	No
	32nd Street (Signal Hill/Caltrans)	PM	--	19.7	C	No
11	**Orange Avenue at**	AM	--	**94.9**	**F**	**Yes**
	I-405 Southbound Ramps (Long Beach/Caltrans)	PM	--	**188.0**	**F**	**Yes**
12	Atlantic Avenue at	AM	0.732	--	C	No
	Spring Street (Signal Hill/Long Beach)	PM	0.828	--	D	No
13	Olive Avenue at	AM	0.454	--	A	No
	Spring Street (Signal Hill)	PM	0.519	--	A	No
14	California Avenue at	AM	0.590	--	A	No
	Spring Street (Signal Hill/Long Beach)	PM	0.714	--	C	No
15	Orange Avenue at	AM	0.826	--	D	No
	Spring Street (Signal Hill/Long Beach)	PM	0.833	--	D	No
16	Walnut Avenue at	AM	0.584	--	A	No
	Spring Street (Signal Hill/Long Beach)	PM	0.717	--	C	No
17	Cherry Avenue at	AM	0.690	--	B	No
	Spring Street (Signal Hill/Long Beach)	PM	0.738	--	C	No
18	I-405 Southbound Off-Ramp at	AM	0.732	--	C	No
	Spring Street (Signal Hill/Long Beach/Caltrans)	PM	0.719	--	C	No
19	Temple Avenue at	AM	0.644	--	B	No
	Spring Street (Long Beach)	PM	0.668	--	B	No

Table 3.11-4
Existing (2018) Intersection Peak Hour Levels of Service

#	Key Intersection	Time Period	ICU	Delay (s/v)	LOS	Deficient LOS?
20	Temple Avenue at	AM	0.375	--	A	No
	I-405 Northbound Off-Ramp (Long Beach/Caltrans)	PM	0.458	--	A	No
21	Redondo Avenue at	AM	0.631	--	B	No
	Spring Street (Long Beach)	PM	0.720	--	C	No
22	Kilroy Airport Way at	AM	0.612	--	B	No
	Spring Street (Long Beach)	PM	0.815	--	D	No
23	Lakewood Boulevard at	AM	0.818	--	D	No
	Spring Street (Long Beach)	PM	0.849	--	D	No
24	Orange Avenue at	AM	--	14.5	B	No
	29th Street (Signal Hill/Long Beach)	PM	--	14.9	B	No
25	California Avenue at	AM	0.613	--	B	No
	Willow Street (Signal Hill/Long Beach)	PM	0.593	--	A	No
26	Orange Avenue at	AM	0.736	--	C	No
	Willow Street (Signal Hill/Long Beach)	PM	0.845	--	D	No
27	Walnut Avenue at	AM	0.510	--	A	No
	Willow Street (Signal Hill)	PM	0.617	--	B	No
28	Cherry Avenue at	AM	0.687	--	B	No
	Willow Street (Signal Hill)	PM	0.818	--	D	No

Notes:

LOS = Level of Service, please refer to *Tables 1* and *2* for the LOS definitions

ICU = Intersection Capacity Utilization

s/v = seconds per vehicle (delay)

= Deficient LOS based on City's LOS standards.

3.11.2.9 Year 2040 Baseline Traffic Forecasts

The Year 2040 Baseline traffic projections account for an increase in the existing traffic volumes due to overall regional growth, based on the historical rates identified in the most current *2010 Congestion Management Program (CMP) for Los Angeles County.* In addition, planned improvements identified by the City of Long Beach was described under Year 2040 Planned Improvements.

Ambient Growth

The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area from existing (Year 2018) to anticipated future Project Buildout in Year 2040. The ambient traffic growth was applied to existing (Year 2018) traffic conditions based on a two-step process. First, based on the ambient growth rates contained in the 2010 CMP for Los Angeles County for the City of Long Beach between Year 2015 and Year 2020, the ambient growth factor of 1.52% per year was applied to Year 2018 to develop Year 2020 baseline traffic volumes.

Second, based on the ambient growth rates contained in the 2010 CMP for Los Angeles County for the City of Long Beach between Year 2020 and Year 2040, the ambient growth rate of 0.17% per year was applied to the Year 2020 baseline traffic volumes to develop the Year 2040 Baseline traffic volumes.

Figure 3.11-8, Year 2040 Baseline AM Peak Hour Traffic Volumes, and Figure 3.11-9, Year 2040 Baseline PM Peak Hour Traffic Volumes, present the Year 2040 Baseline traffic volumes at the 28 key intersections during the weekday AM and PM peak hours, respectively.

3.11.2.10 Year 2040 Planned Improvements

Based on direction from City staff, the City of Long Beach has planned improvements which include a signalized intersection at Orange Avenue/I-405 Southbound Ramps and protected bikeway facilities along Orange Avenue and Spring Street, which reduces intersection capacity at the intersections of Atlantic Avenue/Spring Street, California Avenue/Spring Street, Orange Avenue/Spring Street, Temple Avenue/Spring Street, Redondo Avenue/Spring Street and Orange Avenue/Willow Street. These planned improvements have been assumed under Year 2040 Baseline and Year 2040 Plus Project traffic conditions, and include the following[1]:

1. **Intersection 11 – Orange Avenue at I-405 SB Ramps (Long Beach/Caltrans):** Install a three-phase traffic signal. These improvements are subject to the approval of Caltrans.

[1] The Plan Area includes public right-of-way subject to three jurisdictions: City of Long Beach, City of Signal Hill, and City of Lakewood. Each jurisdiction retains their approval authority for mobility improvements subject to the

2. **Intersection 12 – Atlantic Avenue at Spring Street (Signal Hill/Long Beach):** Modify and restripe the eastbound and westbound approaches to include a left-turn lane, a through lane, and shared through-right turn lane. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Spring Street Class IV Bikeway, this study intersection would be designed to include protected bike lanes (i.e., on-street bike lanes and a median buffer to separate bicycle traffic from vehicular traffic), which requires the removal of the existing exclusive westbound right-turn lane and eastbound right-turn lane.
3. **Intersection 14 – California Avenue at Spring Street (Signal Hill/Long Beach):** Modify and restripe the eastbound and westbound approaches to include a left-turn lane, a through lane, and shared through-right turn lane. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Spring Street Class IV Bikeway, this study intersection would be designed to include protected bike lanes (i.e., on-street bike lanes and a median buffer to separate bicycle traffic from vehicular traffic), which requires the removal of the existing exclusive westbound right-turn lane and eastbound right-turn lane.
4. **Intersection 15 – Orange Avenue at Spring Street (Signal Hill/Long Beach):** Modify and restripe the northbound approach to include a left-turn lane, a through lane, and right turn lane. Modify the existing traffic signal accordingly. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Orange Avenue Class IV Bikeway, this study intersection would be designed to include protected bike lanes (i.e., on-street bike lanes and a median buffer to separate bicycle traffic from vehicular traffic), which requires the removal of one existing northbound through lane.
5. **Intersection 19 – Temple Avenue at Spring Street (Long Beach):** Modify and restripe the eastbound and westbound approaches to include a left-turn lane, a through lane, and shared through-right turn lane. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Spring Street Class IV Bikeway, this study intersection would be designed to include protected bike lanes (i.e., on-street bike lanes and a median buffer to separate bicycle traffic from vehicular traffic), which requires the removal of one existing eastbound through lane and one existing westbound through lane.
6. **Intersection 21 – Redondo Avenue at Spring Street (Long Beach):** Modify and restripe the eastbound and westbound approaches to include a left-turn lane, a through lane, and shared through-right turn lane. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Spring Street Class IV Bikeway, this

design standards established by each jurisdiction's General Plan and Public Works Department. The City of Long Beach will conduct ongoing coordination and consultation with the City of Lakewood and Signal Hill, as applicable. Because other jurisdictions may have differing design standards compared to the City of Long Beach, future street improvements may not exactly match what is described here due to future design constraints.

study intersection would be designed to include protected bike lanes (i.e., on-street bike lanes and a median buffer to separate bicycle traffic from vehicular traffic), which requires the removal of one existing eastbound through lane, one existing westbound through lane and one existing westbound left-turn lane.

7. **Intersection 26 – Orange Avenue at Willow Street (Signal Hill/Long Beach):** Restripe the southbound approach to include a left-turn lane and a shared through-right turn lane. Modify the existing traffic signal accordingly. With implementation of improvements associated with the Orange Avenue Class IV Bikeway, the existing southbound right-turn lane would be removed to allow for the installation of on-street bike lanes and a buffer to separate bicycle traffic from vehicular traffic.

3.11.3 Thresholds of Significance

3.11.3.1 Significance Criteria

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. Based on these thresholds, implementation of the Proposed Project would have a significant adverse impact related to transportation and traffic if it would:

A. Conflict with an applicable plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

B. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

C. Substantially increase hazards due to a geometric design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment).

D. Result in inadequate emergency access.

The IS found that the Proposed Project would have less than significant impact as it relates to changes in air traffic patterns, increase in hazards due to a design feature, inadequate emergency access, and conflicts with adopted plans/policies regarding to public transit, bicycle, or pedestrian facilities (Appendix A-1). As such, these impacts will not be addressed further in this Draft PEIR/PEIS.

3.11.3.2 Approach and Methodology

Vehicles Miles Traveled for CEQA Analysis

All land development projects that are not presumed to have a less than significant transportation impact related to State CEQA Guidelines Section 15064.3, subdivision (b), according to the screening criteria provided above must conduct an analysis of the project's VMT. The VMT analysis will

determine the appropriate VMT metric, identify the appropriate threshold of significance, calculate project VMT, identify the impact significance, and recommend appropriate mitigation.

For large land use plan/ projects such as the Proposed Project, model-based approach (tour- or trip-based travel demand models) offer the best methods for assessing VMT and for comparing those assessments to VMT thresholds.

The VMT analysis in this section incorporates the data and conclusions prepared by LSA Associates, Inc (LSA), included as Appendix D of this Draft PEIR/PEIS. Based on discussion with the City staff, LSA utilized 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Travel Demand Model using the City of Long Beach General Plan updated land use information, to estimate the Proposed Project's VMT.

Accordingly, the thresholds of significance for VMT impacts are the same as for office projects (i.e., 15 percent below the existing regional average VMT per employee).

Level of Service for General Plan Consistency

The traffic impact analysis in this section incorporates the data and conclusions of the TIA prepared by LLG, included as Appendix D of this PEIR/PEIS. The traffic impact analysis evaluates potential Proposed Project-related impacts at 28 key intersections in the vicinity of the Proposed Project area. Generally, the studied intersections were selected based on the following criteria:

a. Being located immediately adjacent or in close proximity to the Plan Area;
b. Being located in the vicinity of the Plan Area that are documented to have current or projected future adverse operational issues; and
c. Being located in the vicinity of the Plan Area that are forecast to experience a relatively greater percentage of Proposed Project-related vehicular turning movements (e.g., at freeway ramp intersections).

Based on the above studied intersection criteria, the traffic impact analysis evaluates potential traffic impacts associated with the Proposed Project at study intersections per City of Long Beach, City of Signal Hill and City of Lakewood criteria.

City of Long Beach, City of Signal Hill and City of Lakewood

According to the City of Long Beach (Traffic Impact Study Guidelines 2004) and City of Signal Hill (General Plan Circulation Element Updated December 2009), LOS D is considered an acceptable level of service. The City of Lakewood utilizes LA County PW guidelines and criteria to assess traffic impacts.

Operational affects to local and regional transportation systems are considered unacceptable if:

Signalized Intersections:

- The project causes a study intersection to deteriorate from LOS D to LOS E or F. The cities of Long Beach, Signal Hill and Lakewood consider LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections; or
- The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901) when an intersection is operating at LOS E or F in the baseline condition.

Unsignalized Intersections:

For unsignalized intersections, an operational affect is defined to be unacceptable if:

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

Los Angeles County Public Works Guidelines

The Los Angeles County PW (formerly the County of Los Angeles Department of Public Works) uses LOS to assess the congestion of roadways in the transportation system. As identified in the County's Traffic Impact Analysis Report Guidelines (County of Los Angeles Department of Public Works 2013), a project would normally have a significant impact on signalized intersection capacity if the project-related increase in the volume to capacity (v/c) ratio equals or exceeds the thresholds shown in Table 3.11-5 (County of Los Angeles Traffic Impact Guidelines Significant Impact Criteria for Intersections).

Table 3.11-5
County of Los Angeles Traffic Impact Guidelines Significant Impact Criteria for Intersections

Intersections		
Intersection Conditions without Project Traffic		
LOS	*V/C*	*Project-Related Increase in V/C Ratio*
C	0.71–0.80	≥0.04
D	0.81–0.90	≥0.02
E, F	>0.91	≥0.01

Source: County of Los Angeles 2013.
Notes: LOS = level of service; V/C = volume to capacity.

The County does not have specific criteria for assessing unsignalized intersections for traffic impacts. Similar to City of Long Beach, unsignalized intersections would be assessed by analyzing these locations for the need for traffic signals.

Caltrans Intersections

Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not require that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For this analysis, LOS D is the target level of service standard and will be utilized to assess the project impacts at the state-controlled study intersections.

The Caltrans Guide for the *Preparation of Traffic Impact Studies*, dated December 2002 states that if an existing State-owned facility operates at less than the target LOS (i.e., LOS D); the existing service level should be maintained. Based on Caltrans Criteria, a project's impact is considered significant if the project causes the LOS to change from an acceptable LOS (i.e., LOS D or better) to a deficient LOS (i.e., LOS E or F).

Los Angeles County Congestion Management Plan

As required by the 2010 Congestion Management Program, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program*, Los Angeles County Metropolitan Transportation Authority (Metro), October 2010.

According to Section D.9.1 (Appendix D, Guidelines for CMP Transportation Impact Analysis, page D-6) of the 2010 CMP manual, the criteria for determining a significant transportation impact is listed below:

> "A significant transportation impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C $\geq$ 0.02), causing or worsening LOS F (V/C > 1.00); if the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C $\geq$ 0.02)."

3.11.4 Impacts Analysis

a) Would the project conflict with an applicable plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Proposed Project Traffic

In order to determine potential traffic impacts of the Proposed Project, the traffic study uses a multi-step process. The first step is estimating traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is estimated by applying the appropriate vehicle trip generation equations or rates to the Proposed Project development tabulation with applicable trip adjustments/credits to account for the existing land uses on site, internal capture, and/or alternative modes of transportation.

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

The third step is assigning traffic, which involves the allocation of Proposed Project traffic to study area streets and intersections.

With the forecasting process complete and Proposed Project traffic assignments developed, the impact of the Proposed Project is isolated by comparing levels of service at selected key intersections using expected future traffic volumes with and without Proposed Project-generated traffic.

To facilitate traffic forecasting for the Proposed Project, 17 Traffic Analysis Zones (TAZs) were developed by LLG. The TAZs divide the Proposed Project into zones that show existing square footage for each TAZ, existing land use types by TAZ, and future land use designations for each TAZ as contemplated in the GCSP. TAZs developed for this study due to the Proposed Project's land use designations across approximately 437 acres were used to facilitate assigning net Proposed Project-related trips to the key study intersections analyzed. Figure 3.11-10, Globemaster Corridor Specific Plan TAZ Map, illustrates the resulting TAZ map, showing the 17 TAZs that have been identified within the Plan Area.

Trip Generation

The trip generation rates for the various land use categories specified within the Plan Area were applied to the existing and future (Proposed Project) square footage for each land use by TAZ. Ttrip generation rates from the 10th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) were applied to the existing and future (Proposed Project) square footage for each land use by TAZ.

To account for the "internal" trip-making characteristics among the various land uses within the City an overall, area-wide trip reduction factor of 20% was applied to gross Proposed Project-generated trips to account for internal trip, transit, and TDM trip-making characteristics inherent to the City. Additionally, because of the retail and restaurant zones, "pass-by" reductions were applied to the adjusted Proposed Project-generated trips (after application of the 20% internal/transit/TDM trip reduction factor) for corresponding uses.

For the industrial zones, the vehicle mix and enter/exit splits are based on the *City of Fontana Truck Trip Generation Study* for Manufacturing land uses and South Coast Air Quality Management for Warehousing land uses. A Passenger Car Equivalent (PCE) factor of 2.0 was then applied to the resultant truck trips, which is consistent with the information provided within the *City of Long Beach Draft Traffic Impact Analysis Guidelines*, dated June 2020.

Table 3.11-6 (Existing (2018) Project Trip Generation) summarizes a summary of the existing net trip generation estimates for the Plan Area, corresponding to 18,138 daily trips on a typical weekday, 1,462 AM peak hour trips, and 1,903 PM peak hour trips.

Table 3.11-7 (Proposed Project Trip Generation) summarizes Proposed Project "gross" trip generation, totaling 59,437 daily trips on a typical weekday, 4,023 AM peak hour trips, and 4,975 PM peak hour trips. It also indicates that, based on a comparison of Proposed Project "gross" trips against the existing trips, the "net" increase in trips attributable to the Proposed Project corresponds to 41,299 daily trips on a typical weekday, 2,561 AM peak hour trips, and 3,072 PM peak hour trips. These incremental trips were assigned to the surrounding street system and evaluated for potential operational affects during the AM and PM peak hours.

Table 3.11-6
Existing (2018) Project Trip Generation

Traffic Analysis Zones[a, b, c]	Daily (2-Way)	AM Peak Hour			PM Peak Hour		
		In	*Out*	*Total*	*In*	*Out*	*Total*
TAZ 1	2,867	109	77	186	121	147	268
TAZ 2	6,515	199	108	307	240	294	534
TAZ 3	581	38	17	55	29	40	69
TAZ 4	701	71	27	98	32	74	106
TAZ 5	255	25	11	36	12	27	39
TAZ 6	360	22	16	38	14	15	29
TAZ 7	875	27	9	36	41	60	101
TAZ 8	88	11	3	14	4	12	16
TAZ 9[d]	0	0	0	0	0	0	0
TAZ 10	0	0	0	0	0	0	0
TAZ 11	0	0	0	0	0	0	0
TAZ 12	0	0	0	0	0	0	0

Table 3.11-6
Existing (2018) Project Trip Generation

Traffic Analysis Zones[a, b, c]	Daily (2-Way)	AM Peak Hour			PM Peak Hour		
		In	*Out*	*Total*	*In*	*Out*	*Total*
TAZ 13	2,873	255	107	362	109	289	398
TAZ 14	192	6	2	8	6	16	22
TAZ 15	401	37	11	48	13	42	55
TAZ 16	973	85	41	126	46	92	138
TAZ 17	1,457	96	52	148	54	74	128
Existing Total	**18,138**	**981**	**481**	**1,462**	**721**	**1,182**	**1,903**

Notes:

[a] An internal trip reduction of 20% was applied to account for internal trips, transit use, and TDM strategies.

[b] Of the total trip generation for Manufacturing and Warehousing/Mini-warehousing, the Daily, total AM peak hour, and total PM peak hour rates are from ITE Trip Generation, 10th Edition . The vehicle mx and enter/exit splits are based on the City of Fontana Truck Trip Generation Study for Manufacturing land uses and South Coast Air Quality Management for Warehousing land uses. A Passenger Car Equivalent (PCE) factor of 2.0 was applied to truck trips.

[c] Retail Pass-by trips consist of 10%, 10%, and 34% for Daily, AM peak hour, and PM peak hour, respectively. High-turnover (Sit-down) Restaurant Pass-by trips consist of 10%, 10%, and 43% for Daily, AM peak hour, and PM peak hour, respectively. Drive-in Bank Pass-by trips consist of 10%, 29%, and 35% for Daily,AM peak hour, and PM peak hour, respectively.

[d] Existing Boeing site.

Table 3.11-7
Proposed Project Trip Generation

Traffic Analysis Zones[a,b,c]	Daily (2-Way)	AM Peak Hour			PM Peak Hour		
		In	*Out*	*Total*	*In*	*Out*	*Total*
TAZ 1							
PROJECT TAZ 1 Total:	2,692	53	36	89	77	73	150
EXISTINGTAZ 1 Total:	2,867	109	77	186	121	147	268
PROJECT Minus Existing:	(175)	(56)	(41)	(97)	(44)	(74)	(118)
TAZ 2							
PROJECT TAZ 2 Total:	6,946	215	112	327	206	270	476
EXISTINGTAZ 2 Total:	6,515	199	108	307	240	294	534
PROJECT Minus Existing:	431	16	4	20	(34)	(24)	(58)
TAZ 3							
PROJECT TAZ 3 Total:	2,748	90	63	153	75	68	143
EXISTINGTAZ 3 Total:	581	38	17	55	29	40	69
PROJECT Minus Existing:	2,167	52	46	98	46	28	74
TAZ 4							
PROJECT TAZ 4 Total:	4,033	98	58	156	99	128	227
EXISTINGTAZ 4 Total:	701	71	27	98	32	74	106
PROJECT Minus Existing:	3,332	27	31	58	67	54	121
TAZ 5							
PROJECT TAZ 5 Total:	845	32	18	50	31	49	80
EXISTINGTAZ 5 Total:	255	25	11	36	12	27	39
PROJECT Minus Existing:	590	7	7	14	19	22	41

Table 3.11-7
Proposed Project Trip Generation

Traffic Analysis Zones[a,b,c]	Daily (2-Way)	AM Peak Hour			PM Peak Hour		
		In	*Out*	*Total*	*In*	*Out*	*Total*
TAZ 6							
PROJECT TAZ 6 Total:	895	46	10	56	31	48	79
EXISTINGTAZ 6 Total:	360	22	16	38	14	15	29
PROJECT Minus Existing:	535	24	(6)	18	17	33	50
TAZ 7							
PROJECT TAZ 7 Total:	3,133	254	62	316	69	271	340
EXISTINGTAZ 7 Total:	875	27	9	36	41	60	101
PROJECT Minus Existing:	2,258	227	53	280	28	211	239
TAZ 8							
PROJECT TAZ 8 Total:	2,629	173	53	226	72	196	268
EXISTINGTAZ 8 Total:	88	11	3	14	4	12	16
PROJECT Minus Existing:	2,541	162	50	212	68	184	252
TAZ 9							
PROJECT TAZ 9 Total:	16,037	1,138	272	1,410	304	1,232	1,536
EXISTINGTAZ 9 Total:	0	0	0	0	0	0	0
PROJECT Minus Existing:	16,037	1,138	272	1,410	304	1,232	1,536
TAZ 10							
PROJECT TAZ 10 Total:	3,414	114	77	191	124	187	311
EXISTINGTAZ 10 Total:	0	0	0	0	0	0	0
PROJECT Minus Existing:	3,414	114	77	191	124	187	311
TAZ 11							
PROJECT TAZ 11 Total:	1,522	43	28	71	45	66	111
EXISTINGTAZ 11 Total:	0	0	0	0	0	0	0
PROJECT Minus Existing:	1,522	43	28	71	45	66	111
TAZ 12							
PROJECT TAZ 12 Total:	4,292	199	135	334	153	253	406
EXISTINGTAZ 12 Total:	0	0	0	0	0	0	0
PROJECT Minus Existing:	4,292	199	135	334	153	253	406
TAZ 13							
PROJECT TAZ 13 Total:	2,768	151	85	236	96	168	264
EXISTINGTAZ 13 Total:	2,873	255	107	362	109	289	398
PROJECT Minus Existing:	(105)	(104)	(22)	(126)	(13)	(121)	(134)
TAZ 14							
PROJECT TAZ 14 Total:	1,663	66	38	104	63	100	163
EXISTINGTAZ 14 Total:	192	6	2	8	6	16	22
PROJECT Minus Existing:	1,471	60	36	96	57	84	141
TAZ 15							
PROJECT TAZ 15 Total:	2,182	97	50	147	84	139	223
EXISTINGTAZ 15 Total:	401	37	11	48	13	42	55

Table 3.11-7
Proposed Project Trip Generation

Traffic Analysis Zones[a,b,c]	Daily (2-Way)	AM Peak Hour			PM Peak Hour		
		In	*Out*	*Total*	*In*	*Out*	*Total*
PROJECT Minus Existing:	1,781	60	39	99	71	97	168
TAZ 16							
PROJECT TAZ 16 Total:	2,249	66	46	112	62	75	137
EXISTINGTAZ 16 Total:	973	85	41	126	46	92	138
PROJECT Minus Existing:	1,276	(19)	5	(14)	16	(17)	(1)
TAZ 17							
PROJECT TAZ 17 Total:	1,389	28	17	45	28	33	61
EXISTINGTAZ 17 Total:	1,457	96	52	148	54	74	128
PROJECT Minus Existing:	(68)	(68)	(35)	(103)	(26)	(41)	(67)
PROJECT TOTAL (7,011,195 SF)	***59,437***	***2,863***	***1,160***	***4,023***	***1,619***	***3,356***	***4,975***
EXISTING TOTAL (2,094,175 SF)[d]	***18,138***	***981***	***481***	***1,462***	***721***	***1,182***	***1,903***
PROJECT TOTAL MINUS EXISTING TOTAL (4,107,020 SF NET INCREASE)	*41,299*	*1,882*	*679*	*2,561*	*898*	*2,174*	*3,072*

Notes:

[a] An internal trip reduction of 20% was applied to account for internal trips, transit use, and TDM strategies.

[b] Of the total trip generation for Manufacturing and Warehousing/Mini-warehousing, the Daily, total AM peak hour, and total PM peak hour rates are from ITE Trip Generation, 10th Edition . The vehicle mx and enter/exit splits are based on the City of Fontana Truck Trip Generation Study for Manufacturing land uses and South Coast Air Quality Management for Warehousing land uses. A Passenger Car Equivalent (PCE) factor of 2.0 was applied to truck trips.

[c] Retail Pass-by trips consist of 10%, 10%, and 34% for Daily, AM peak hour, and PM peak hour, respectively.
High-turnover (Sit-down) Restaurant Pass-by trips consist of 10%, 10%, and 43% for Daily, AM peak hour, and PM peak hour, respectively.
Fast Casual and Fast-Food Restaurant with Drive-through window Pass-by trips consist of 25%, 49%, and 50% for Daily, AM peak hour, and PM peak hour, respectively. Quality Restaurant Pass-by trips consist of 10%, 10%, and 44% for Daily, AM peak hour, and PM peak hour, respectively.

[d] Existing square footage total reported excludes 1,409,441 SF of existing vacant industrial uses located within TAZ 9 (Boeing Site).

Trip Distribution and Assignment

The geographic distribution of traffic generated by developments is dependent upon the project's market/service area, location of site access points in relation to the surrounding street system, location of parking areas, and ingress/egress availability at the parking areas, the site's proximity to major traffic carriers and regional access routes, and physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns presence of traffic congestion in the surrounding vicinity.

Select zone assignments from the Year 2040 SCAG traffic model, provided by LSA Associates, was used as a starting point, and further refined to reflect the factors listed above. Based on these considerations, two overall traffic distribution patterns, one for passenger cars and one for trucks, were developed for this study. Figure 3.11-11A, Project Trip Distribution Pattern (Passenger Cars), illustrates the overall passenger car traffic distribution pattern developed for the Proposed Project.

Figure 3.11-11B, Project Trip Distribution Pattern (Trucks), illustrates the overall truck traffic distribution pattern developed for the Proposed Project.

The traffic expected to be generated by the Proposed Project was assigned to the local street network using the net trip generation estimates summarized in Table 3.11-5 and the area-wide distribution pattern illustrated in Figure 3.11-11A and Figure 3.11-11B. Figure 3.11-12, AM Peak Hour Project Only Traffic Volumes, and Figure 3.11-13, PM Peak Hour Project Only Traffic Volumes, illustrates the anticipated AM and PM peak hour traffic volumes associated with the Proposed Project, respectively.

Existing Plus Project

The Existing (2018) Plus Project analysis adds Proposed Project-generated forecasts to existing conditions. Figure 3.11-14, Existing (Year 2018) Plus Project AM Peak Hour Traffic Volumes, and Figure 3.11-15, Existing (Year 2018) Plus Project PM Peak Hour Traffic Volumes, present the Existing (2018) Plus Project traffic volumes at the 28 key intersections for the weekday AM and PM peak hours, respectively.

Table 3.11-8 (Existing (2018) Plus Project Intersection Peak Hour Levels of Service) summarizes the peak hour Level of Service results at the 28 key study intersections for Existing (2018) Plus Project traffic conditions. As shown in Table 3.11-8, six (6) of the key study intersections are forecast to operate adversely with the addition of Proposed Project traffic.

As Table 3.11-8 indicates, based on the applicable criteria for determining operational affects, at full buildout under Existing (2018) conditions, the Proposed Project is anticipated to result in an operational deficiency at the following study signalized intersections:

1 Cherry Avenue at Carson Street (Long Beach): LOS D degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

3 Cherry Avenue at Cover Street (Long Beach/Lakewood): LOS C degrades to LOS F in PM peak hour and the project causes a ≥0.02 V/C increase at LOS F in PM peak hour

5 Cherry Avenue at 36th Street (Long Beach/Lakewood): LOS C degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

7 Cherry Avenue at Wardlow Road (Long Beach): LOS C and D in AM and PM peak hour degrades to LOS F and the project causes a ≥0.02 V/C increase at LOS F in AM and PM peak hour

9 Orange Avenue at 32nd Street (Signal Hill): LOS D degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

11 Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans): Operates at LOS F in AM and PM peak hour with and without project. This is an unsignalized intersection and

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

As mentioned above, five (5) of the intersections operating adversely are considered unacceptable when compared to the LOS standards. Figure 3.11-16, Existing (2018) Deficient LOS Summary, and Figure 3.11-17, Existing (2018) + Project Deficient LOS Summary, illustrates the deficient location under Existing (2018) conditions and the deficient locations under Existing (2018) Plus Project traffic conditions, respectively. Table 3.11-8 (Existing (2018) Plus Project Intersection Peak Hour Levels of Service) indicates that the implementation of potential mitigation measures at the intersections will improve the LOS to acceptable conditions. Mitigation measures (**MM-TRAF-1** to **MM-TRAF-5**) are described in Section 3.11.6.

Although the intersection of Orange Avenue/I-405 southbound ramps is forecast to operate at unacceptable LOS F in the AM and PM peak hour, the intersection is not considered affected when compared to the LOS standards utilized by City of Long Beach, which specifies that an unsignalized intersection impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F. Also, preliminary review of the existing volumes indicate that the intersection satisfies the criteria for the installation of a traffic signal. Should Caltrans or the City of Long Beach desire to install a traffic signal at this location, the Proposed Project may be expected to pay a fair-share of the total cost.

Year 2040 Baseline Plus Project

The Year 2040 Baseline Plus Project analysis adds project-generated forecasts to Year 2040 Baseline conditions. Figure 3.11-18, Year 2040 Plus Project AM Peak Hour Traffic Volumes, and Figure 3.11-19, Year 2040 Baseline Plus Project PM Peak Hour Traffic Volumes, present the Year 2040 Baseline Plus Project traffic volumes at the 28 key intersections for the weekday AM and PM peak hours, respectively.

Table 3.11-9 (Year 2040 Plus Project Intersection Peak Hour Levels of Service) summarizes the peak hour Level of Service results at the 28 key study intersections for the Year 2040 Baseline Plus Project traffic conditions. As shown in Table 3.11-9, ten (10) of the key study intersections are forecast to operate adversely with the addition of Project traffic.

As Table 3.11-9 indicates, based on the applicable criteria for determining traffic affects, at full buildout under Year 2040 Baseline conditions, the Proposed Project is anticipated to result in an operational deficiency at the following study signalized intersections:

1 Cherry Avenue at Carson Street (Long Beach): LOS D degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

3 Cherry Avenue at Cover Street (Long Beach/Lakewood): LOS D degrades to LOS F in PM peak hour and the project causes a ≥0.02 V/C increase at LOS F in PM peak hour

5 Cherry Avenue at 36th Street (Long Beach/Lakewood): LOS C degrades to LOS F in PM peak hour and the project causes a ≥0.02 V/C increase at LOS F in PM peak hour

7 Cherry Avenue at Wardlow Road (Long Beach): LOS C and D degrades to LOS F and the project causes a ≥0.02 V/C increase at LOS F in AM and PM peak hour

9 Orange Avenue at 32nd Street (Signal Hill): LOS D degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

12 Atlantic Avenue at Spring Street (Signal Hill/Long Beach): LOS D degrades to LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in AM and PM peak hour

15 Orange Avenue at Spring Street (Signal Hill/Long Beach): LOS D and E degrades to LOS E and the project causes a ≥0.02 V/C increase at LOS E in AM and PM peak hours.

19 Temple Avenue at Spring Street (Long Beach): LOS D degrades to LOS E in AM and PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in AM and PM peak hour

21 Redondo Avenue at Spring Street (Long Beach): LOS E degrades to LOS F in PM peak hour and the project causes a ≥0.02 V/C increase at LOS F in PM peak hour

26 Orange Avenue at Willow Street (Signal Hill/Long Beach): continues to operate at LOS E in PM peak hour and the project causes a ≥0.02 V/C increase at LOS E in PM peak hour

All ten (10) of the intersections operating adversely are considered affected when compared to the LOS standards utilized by City of Long Beach. Figure 3.11-20, Year 2040 Deficient LOS Summary, and Figure 3.11-21, Year 2040 + Project Deficient LOS Summary, illustrate the deficient location under Year 2040 Baseline conditions and the deficient locations under Year 2040 Plus Project traffic conditions, respectively. Table 3.11-9 (Year 2040 Plus Project Intersection Peak Hour Levels of Service) shows that the implementation of recommended mitigations at the deficient intersections will completely offset the Proposed Project's affect and improve the LOS to acceptable conditions. Mitigation measures **(MM-TRAF-5** to **MM-TRAF-13)** are described in Section 3.11.6.

Although the intersection of Orange Avenue/I-405 southbound ramps is forecast to operate at unacceptable LOS F in the AM and PM peak hour, the intersection is not considered affected when compared to the LOS standards utilized by City of Long Beach, which specifies that an operational deficiency occurs if the project causes an intersection at LOS D or better to degrade to LOS E or F. Since the study intersection currently operates at an adverse LOS under existing traffic conditions, the Proposed Project's affect is not considered to be adverse or unacceptable. Although this intersection is not considered significantly impacted, it does operate adversely under existing traffic conditions. Also, preliminary review of the existing volumes indicate that the intersection satisfies the criteria for the installation of a traffic signal. Should Caltrans or the City of Long Beach desire to install a traffic signal at this location, future development under the Proposed Project may be expected to pay a fair-share of the total cost.

Table 3.11-8
Existing (2018) Plus Project Intersection Peak Hour Levels of Service

#	Key Intersection	Time Period	(1) Existing (Year 2018)				(2) Existing plus Project (Year 2018)					(3) Existing plus Project (Year 2018) With Potential Improvement Measures			
			ICU	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (2) - (1)*	*Significant Impact?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*
1	**Cherry Avenue at Carson Street (Long Beach)**	AM	0.706	--	C	No	0.852	--	D	0.146	No	0.852	--	D	0.000
		PM	0.807	--	D	No	**0.958**	--	**E**	**0.151**	**Yes**	0.900	--	D	-0.058
2	Shopping Center at Carson Street (Long Beach)	AM	0.401	--	A	No	0.401	--	A	0.000	No	--	--	--	--
		PM	0.609	--	B	No	0.600	--	B	-0.009	No	--	--	--	--
3	**Cherry Avenue at Cover Street (Long Beach/Lakewood)**	AM	0.544	--	A	No	0.693	--	B	0.149	No	0.693	--	B	0.000
		PM	0.790	--	C	No	**1.040**	--	**F**	**0.250**	**Yes**	0.893	--	D	-0.147
4	Cherry Avenue at Bixby Road (Long Beach/Lakewood)	AM	0.602	--	B	No	0.752	--	C	0.150	No	--	--	--	--
		PM	0.625	--	B	No	0.791	--	C	0.166	No	--	--	--	--
5	**Cherry Avenue at 36th Street (Long Beach/Lakewood)**	AM	0.640	--	B	No	0.766	--	C	0.126	No	0.750	--	C	-0.016
		PM	0.748	--	C	No	**0.983**	--	**E**	**0.235**	**Yes**	0.881	--	D	-0.102
6	Industry Avenue at 36th Street (Lakewood)	AM	0.369	--	A	No	0.516	--	A	0.147	No	--	--	--	--
		PM	0.513	--	A	No	0.741	--	C	0.228	No	--	--	--	--
7	**Cherry Avenue at Wardlow Road (Long Beach)**	AM	0.766	--	C	No	**1.116**	--	**F**	**0.350**	**Yes**	0.832	--	D	-0.284
		PM	0.857	--	D	No	**1.294**	--	**F**	**0.437**	**Yes**	0.854	--	D	-0.440
8	Boeing at Wardlow Road (Long Beach)	AM	0.117	--	A	No	0.495	--	A	0.378	No	--	--	--	--
		PM	0.114	--	A	No	0.500	--	A	0.386	No	--	--	--	--
9	**Orange Avenue at 32nd Street (Signal Hill)**	AM	0.719	--	C	No	0.754	--	C	0.035	No	0.657	--	B	-0.097
		PM	0.856	--	D	No	**0.925**	--	**E**	**0.069**	**Yes**	0.724	--	C	-0.201
10	I-405 Northbound Ramps at 32nd Street (Signal Hill/Caltrans)	AM	--	11.2	B	No	--	11.6	B	0.4	No	--	--	--	--
		PM	--	19.7	C	No	--	24.7	C	5.0	No	--	--	--	--
11	**Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans)**	AM	--	**94.9**	**F**	**Yes**	--	**126.8**	**F**	**31.9**	No [a]	--	--	--	--
		PM	--	**188.0**	**F**	**Yes**	--	**321.5**	**F**	**133.5**	No [a]	--	--	--	--
12	Atlantic Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.732	--	C	No	0.818	--	D	0.086	No	--	--	--	--
		PM	0.828	--	D	No	0.854	--	D	0.026	No	--	--	--	--
13	Olive Avenue at Spring Street (Signal Hill)	AM	0.454	--	A	No	0.459	--	A	0.005	No	--	--	--	--
		PM	0.519	--	A	No	0.532	--	A	0.013	No	--	--	--	--
14	California Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.590	--	A	No	0.595	--	A	0.005	No	--	--	--	--
		PM	0.714	--	C	No	0.722	--	C	0.008	No	--	--	--	--
15	Orange Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.826	--	D	No	0.860	--	D	0.034	No	--	--	--	--
		PM	0.833	--	D	No	0.876	--	D	0.043	No	--	--	--	--
16	Walnut Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.584	--	A	No	0.596	--	A	0.012	No	--	--	--	--
		PM	0.717	--	C	No	0.736	--	C	0.019	No	--	--	--	--
17	Cherry Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.690	--	B	No	0.797	--	C	0.107	No	--	--	--	--
		PM	0.738	--	C	No	0.806	--	D	0.068	No	--	--	--	--
18	I-405 Southbound Off-Ramp at Spring Street (Signal Hill/Long Beach/Caltrans)	AM	0.732	--	C	No	0.765	--	C	0.033	No	--	--	--	--
		PM	0.719	--	C	No	0.764	--	C	0.045	No	--	--	--	--

Table 3.11-8
Existing (2018) Plus Project Intersection Peak Hour Levels of Service

#	Key Intersection	Time Period	(1) Existing (Year 2018)				(2) Existing plus Project (Year 2018)					(3) Existing plus Project (Year 2018) With Potential Improvement Measures			
			ICU	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (2) - (1)*	*Significant Impact?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*
19	Temple Avenue at Spring Street (Long Beach)	AM	0.644	--	B	No	0.704	--	C	0.060	No	--	--	--	--
		PM	0.668	--	B	No	0.729	--	C	0.061	No	--	--	--	--
20	Temple Avenue at I-405 Northbound Off-Ramp (Long Beach/Caltrans)	AM	0.375	--	A	No	0.389	--	A	0.014	No	--	--	--	--
		PM	0.458	--	A	No	0.468	--	A	0.010	No	--	--	--	--
21	Redondo Avenue at Spring Street (Long Beach)	AM	0.631	--	B	No	0.657	--	B	0.026	No	--	--	--	--
		PM	0.720	--	C	No	0.765	--	C	0.045	No	--	--	--	--
22	Kilroy Airport Way at Spring Street (Long Beach)	AM	0.612	--	B	No	0.637	--	B	0.025	No	--	--	--	--
		PM	0.815	--	D	No	0.847	--	D	0.032	No	--	--	--	--
23	Lakewood Boulevard at Spring Street (Long Beach)	AM	0.818	--	D	No	0.838	--	D	0.020	No	--	--	--	--
		PM	0.849	--	D	No	0.857	--	D	0.008	No	--	--	--	--
24	Orange Avenue at 29th Street (Signal Hill/Long Beach)	AM	--	14.5	B	No	--	14.9	B	0.4	No	--	--	--	--
		PM	--	14.9	B	No	--	15.4	C	0.5	No	--	--	--	--
25	California Avenue at Willow Street (Signal Hill/Long Beach)	AM	0.613	--	B	No	0.621	--	B	0.008	No	--	--	--	--
		PM	0.593	--	A	No	0.604	--	B	0.011	No	--	--	--	--
26	Orange Avenue at Willow Street (Signal Hill/Long Beach)	AM	0.736	--	C	No	0.756	--	C	0.020	No	--	--	--	--
		PM	0.845	--	D	No	0.866	--	D	0.021	No	--	--	--	--
27	Walnut Avenue at Willow Street (Signal Hill)	AM	0.510	--	A	No	0.521	--	A	0.011	No	--	--	--	--
		PM	0.617	--	B	No	0.629	--	B	0.012	No	--	--	--	--
28	Cherry Avenue at Willow Street (Signal Hill)	AM	0.687	--	B	No	0.758	--	C	0.071	No	--	--	--	--
		PM	0.818	--	D	No	0.868	--	D	0.050	No	--	--	--	--

Notes:
LOS= Level of Service, please refer to *Tables 1* and *2* for the LOS definitions
ICU= Intersection Capacity Utilization
s/v= seconds per vehicle (delay)
= Deficient LOS based on City's LOS standards.
= Deficient LOS and Significant Impact based on City's LOS standards.
[a] An unsignalized intersection impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.

Table 3.11-9
Year 2040 Plus Project Intersection Peak Hour Levels Of Service

#	Key Intersection	Time Period	(1) Existing (Year 2018)				(2) Year 2040 Baseline				(3) Year 2040 plus Project					(4) Year 2040 plus Project With Potential Improvement Measures			
			ICU	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*	*Significant Impact?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (4) - (3)*
1	**Cherry Avenue at Carson Street (Long Beach)**	AM	0.706	--	C	No	0.731	--	C	No	0.877	--	D	0.146	No	0.839	--	D	-0.038
		PM	0.807	--	D	No	0.837	--	D	No	**0.988**	--	**E**	**0.151**	**Yes**	0.863	--	D	-0.125
2	Shopping Center at Carson Street (Long Beach)	AM	0.401	--	A	No	0.417	--	A	No	0.418	--	A	0.001	No	--	--	--	--
		PM	0.609	--	B	No	0.630	--	B	No	0.621	--	B	-0.009	No	--	--	--	--
3	**Cherry Avenue at Cover Street (Long Beach/Lakewood)**	AM	0.544	--	A	No	0.566	--	A	No	0.715	--	C	0.149	No	0.715	--	C	0.000
		PM	0.790	--	C	No	0.822	--	D	No	**1.072**	--	**F**	**0.250**	**Yes**	0.815	--	D	-0.257
4	Cherry Avenue at Bixby Road (Long Beach/Lakewood)	AM	0.602	--	B	No	0.628	--	B	No	0.778	--	C	0.150	No	--	--	--	--
		PM	0.625	--	B	No	0.651	--	B	No	0.818	--	D	0.167	No	--	--	--	--
5	**Cherry Avenue at 36th Street (Long Beach/Lakewood)**	AM	0.640	--	B	No	0.666	--	B	No	0.792	--	C	0.126	No	0.776	--	C	-0.016
		PM	0.748	--	C	No	0.774	--	C	No	**1.009**	--	**F**	**0.235**	**Yes**	0.889	--	D	-0.120
6	Industry Avenue at 36th Street (Lakewood)	AM	0.369	--	A	No	0.369	--	A	No	0.516	--	A	0.147	No	--	--	--	--
		PM	0.513	--	A	No	0.513	--	A	No	0.741	--	C	0.228	No	--	--	--	--
7	**Cherry Avenue at Wardlow Road (Long Beach)**	AM	0.766	--	C	No	0.792	--	C	No	**1.141**	--	**F**	**0.349**	**Yes**	0.845	--	D	-0.296
		PM	0.857	--	D	No	0.891	--	D	No	**1.329**	--	**F**	**0.438**	**Yes**	0.871	--	D	-0.458
8	Boeing at Wardlow Road (Long Beach)	AM	0.117	--	A	No	0.117	--	A	No	0.495	--	A	0.378	No	--	--	--	--
		PM	0.114	--	A	No	0.114	--	A	No	0.500	--	A	0.386	No	--	--	--	--
9	**Orange Avenue at 32nd Street (Signal Hill)**	AM	0.719	--	C	No	0.735	--	C	No	0.770	--	C	0.035	No	0.685	--	B	-0.085
		PM	0.856	--	D	No	0.879	--	D	No	**0.949**	--	**E**	**0.070**	**Yes**	0.748	--	C	-0.201
10	I-405 Northbound Ramps at 32nd Street (Signal Hill/Caltrans)	AM	--	11.2	B	No	--	11.5	B	No	--	11.9	B	0.4	No	--	--	--	--
		PM	--	19.7	C	No	--	22.6	C	No	--	29.9	D	7.3	No	--	--	--	--
11	**Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans) [a]**	AM	--	**94.9**	**F**	**Yes**	0.644	**--**	B	No	0.681	**--**	B	0.037	No	--	--	--	--
		PM	--	**188.0**	**F**	**Yes**	0.556	**--**	A	No	0.601	**--**	B	0.045	No	--	--	--	--
12	**Atlantic Avenue at Spring Street (Signal Hill/Long Beach) [a]**	AM	0.732	--	C	No	0.799	--	C	No	0.883	--	D	0.084	No	0.801	--	D	-0.082
		PM	0.828	--	D	No	0.872	--	D	No	**0.910**	--	**E**	**0.038**	**Yes**	0.826	--	D	-0.084
13	Olive Avenue at Spring Street (Signal Hill)	AM	0.454	--	A	No	0.473	--	A	No	0.478	--	A	0.005	No	--	--	--	--
		PM	0.519	--	A	No	0.535	--	A	No	0.547	--	A	0.012	No	--	--	--	--
14	California Avenue at Spring Street (Signal Hill/Long Beach) [a]	AM	0.590	--	A	No	0.637	--	B	No	0.642	--	B	0.005	No	--	--	--	--
		PM	0.714	--	C	No	0.746	--	C	No	0.753	--	C	0.007	No	--	--	--	--
15	**Orange Avenue at Spring Street (Signal Hill/Long Beach) [a]**	AM	0.826	--	D	No	0.891	--	D	No	**0.912**	--	**E**	**0.021**	**Yes**	0.747	--	C	-0.165
		PM	0.833	--	D	No	**0.936**	--	**E**	**Yes**	**0.977**	--	**E**	**0.041**	**Yes**	0.789	--	C	-0.188
16	Walnut Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.584	--	A	No	0.603	--	B	No	0.615	--	B	0.012	No	--	--	--	--
		PM	0.717	--	C	No	0.737	--	C	No	0.756	--	C	0.019	No	--	--	--	--
17	Cherry Avenue at Spring Street (Signal Hill/Long Beach)	AM	0.690	--	B	No	0.719	--	C	No	0.823	--	D	0.104	No	--	--	--	--
		PM	0.738	--	C	No	0.769	--	C	No	0.836	--	D	0.067	No	--	--	--	--
18	I-405 Southbound Off-Ramp at Spring Street (Signal Hill/Long Beach/Caltrans)	AM	0.732	--	C	No	0.773	--	C	No	0.806	--	D	0.033	No	--	--	--	--
		PM	0.719	--	C	No	0.759	--	C	No	0.804	--	D	0.045	No	--	--	--	--

Table 3.11-9
Year 2040 Plus Project Intersection Peak Hour Levels Of Service

#	Key Intersection	Time Period	(1) Existing (Year 2018)				(2) Year 2040 Baseline				(3) Year 2040 plus Project					(4) Year 2040 plus Project With Potential Improvement Measures			
			ICU	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*Deficient?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*	*Significant Impact?*	*ICU*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (4) - (3)*
19	**Temple Avenue at Spring Street (Long Beach) [a]**	AM	0.644	--	B	No	0.869	--	D	No	**0.940**	--	**E**	**0.071**	**Yes**	0.729	--	C	-0.211
		PM	0.668	--	B	No	0.874	--	D	No	**0.947**	--	**E**	**0.073**	**Yes**	0.873	--	D	-0.074
20	Temple Avenue at I-405 Northbound Off-Ramp (Long Beach/Caltrans)	AM	0.375	--	A	No	0.393	--	A	No	0.407	--	A	0.014	No	--	--	--	--
		PM	0.458	--	A	No	0.481	--	A	No	0.491	--	A	0.010	No	--	--	--	--
21	**Redondo Avenue at Spring Street (Long Beach) [a]**	AM	0.631	--	B	No	0.833	--	D	No	0.862	--	D	0.029	No	0.826	--	D	-0.036
		PM	0.720	--	C	No	**0.979**	--	**E**	**Yes**	**1.033**	--	**F**	**0.054**	**Yes**	0.848	--	D	-0.185
22	Kilroy Airport Way at Spring Street (Long Beach)	AM	0.612	--	B	No	0.645	--	B	No	0.670	--	B	0.025	No	--	--	--	--
		PM	0.815	--	D	No	0.849	--	D	No	0.881	--	D	0.032	No	--	--	--	--
23	Lakewood Boulevard at Spring Street (Long Beach)	AM	0.818	--	D	No	0.855	--	D	No	0.875	--	D	0.020	No	--	--	--	--
		PM	0.849	--	D	No	0.875	--	D	No	0.896	--	D	0.021	No	--	--	--	--
24	Orange Avenue at 29th Street (Signal Hill/Long Beach)	AM	--	14.5	B	No	--	15.3	C	No	--	15.7	C	0.4	No	--	--	--	--
		PM	--	14.9	B	No	--	15.7	C	No	--	16.2	C	0.5	No	--	--	--	--
25	California Avenue at Willow Street (Signal Hill/Long Beach)	AM	0.613	--	B	No	0.630	--	B	No	0.639	--	B	0.009	No	--	--	--	--
		PM	0.593	--	A	No	0.613	--	B	No	0.624	--	B	0.011	No	--	--	--	--
26	**Orange Avenue at Willow Street (Signal Hill/Long Beach) [a]**	AM	0.736	--	C	No	0.820	--	D	No	0.844	--	D	0.024	No	0.661	--	B	-0.183
		PM	0.845	--	D	No	**0.928**	--	**E**	**Yes**	**0.958**	--	**E**	**0.030**	**Yes**	0.751	--	C	-0.207
27	Walnut Avenue at Willow Street (Signal Hill)	AM	0.510	--	A	No	0.526	--	A	No	0.537	--	A	0.011	No	--	--	--	--
		PM	0.617	--	B	No	0.636	--	B	No	0.648	--	B	0.012	No	--	--	--	--
28	Cherry Avenue at Willow Street (Signal Hill)	AM	0.687	--	B	No	0.717	--	C	No	0.788	--	C	0.071	No	--	--	--	--
		PM	0.818	--	D	No	0.849	--	D	No	0.899	--	D	0.050	No	--	--	--	--

Notes:
LOS= Level of Service, please refer to *Tables 1* and *2* for the LOS definitions
ICU= Intersection Capacity Utilization
s/v= seconds per vehicle (delay)
= Deficient LOS based on City's LOS standards.
= Deficient LOS and Significant Impact based on City's LOS standards.
[a] Based on direction from City staff, the City of Long Beach has planned improvements which include a signalized intersection at Orange Avenue/I-405 Southbound Ramps and protected bikeway facilities along Orange Avenue and Spring Street, which reduces intersection capacity at the intersections of Atlantic Ave/Spring St, California Ave/Spring St, Orange Ave/Spring St, Temple Ave/Spring St, Redondo Ave/Spring St and Orange Ave/Willow St. These planned improvements have been assumed under Year 2040 Baseline and Year 2040 Plus Project traffic conditions.

CEQA Impact Determination

With the implementation of mitigation measures **MM-TRAF-1** through **MM-TRAF-13,** the impacts identified in the 2018 and 2040 conditions would be reduced to less than significant. These mitigation measures are described in detail in Section 3.11.6 and include a range of improvements that directly target improving LOS. A number of these improvements include the acquisition of additional public right-of-way and/or improvements under a separate jurisdiction's authority. As discussed further in Section 3.11.6, the identified mitigation would not be feasible and the identified impacts at the 5 key intersections under the 2018 condition and 10 key intersections under the 2040 condition would be **significant and unavoidable** under CEQA.

NEPA Impact Determination

With the implementation of mitigation measures **MM-TRAF-1** through **MM-TRAF-13,** the impacts identified in the 2018 and 2040 conditions would be reduced. These mitigation measures are described in detail in Section 3.11.6 and include a range of improvements that directly target improving LOS. A number of these improvements include the acquisition of additional public right-of-way and/or improvements under a separate jurisdiction's authority. As discussed further in Section 3.11.6, the identified mitigation would not be feasible and the identified impacts at the 5 key intersections under the 2018 condition and 10 key intersections under the 2040 condition would result in an **adverse effect** under NEPA.

Caltrans Facility Analysis

In conformance with the current Caltrans *Guide for the Preparation of Traffic Impact Studies, dated December 2002*, existing and projected peak hour operating conditions at the four (4) state-controlled study intersections within the study area have been evaluated using the *Highway Capacity Manual* operations method of analysis. These state-controlled locations include the following study intersections:

10 I-405 Northbound Ramps at 32nd Street

11 Orange Avenue at I-405 Southbound Ramps

18 I-405 Southbound Off-Ramp at Spring Street

20 Temple Avenue at I-405 Northbound Off-Ramp

Based on Caltrans Criteria, a project's effect is considered unacceptable if the project causes the LOS to change from an acceptable LOS (i.e., LOS D or better) to a deficient LOS (i.e., LOS E or F).

Existing Plus Project

Table 3.11-10 (Existing (2018) Plus Project Intersection Peak Hour Levels of Service - Caltrans) summarizes the peak hour LOS results at the four (4) state-controlled study intersections for Existing Plus Project traffic conditions. The intersection of Orange Avenue/I-405 southbound ramps currently operates at unacceptable LOS F in the AM and PM peak hour.

As Table 3.11-10 indicates, based on the applicable criteria for determining traffic affects, at full buildout under Existing 2018 conditions, the Proposed Project is anticipated to operate at unacceptable LOS at the following study signalized intersection:

11 Orange Avenue/I-405 southbound ramps intersection - Operates at LOS F in the AM and PM peak hour;

Although the intersection of Orange Avenue/I-405 southbound ramps is forecast to operate at unacceptable LOS F in the AM and PM peak hours, the intersection is not considered affected when compared to the LOS standards and criteria of the City of Long Beach, which specifies that an unsignalized intersection impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F. Although this intersection is not considered affected, it does operate adversely under existing traffic conditions. Also, preliminary review of the existing volumes indicate that the intersection satisfies the criteria for the installation of a traffic signal. Should Caltrans or the City of Long Beach desire to install a traffic signal at this location, future development under the Proposed Project may be expected to pay a fair-share of the total cost.

CEQA Impact Determination

With the implementation of mitigation measure **MM-TRAF-9,** the impact at the I-405 freeway southbound off-ramp/Spring Street intersection would be **less than significant** under CEQA.

NEPA Impact Determination

With the implementation of mitigation measure **MM-TRAF-14,** I-405 freeway southbound off-ramp/Spring Street intersection would result in **no adverse effect** under NEPA.

Year 2040 Plus Project

Table 3.11-11 (Year 2040 Plus Project Intersection Peak Hour Levels of Service - Caltrans) summarizes the peak hour LOS results at the four (4) state-controlled study intersections for Year 2040 Plus Project traffic conditions. The intersection of Orange Avenue/I-405 southbound ramps operates at unacceptable LOS F in the AM and PM peak hour under Year 2040 Baseline conditions. As Table 3.11-11 indicates, based on the applicable criteria for determining significant

traffic impacts, at full buildout under Year 2040 conditions, the Proposed Project is anticipated to result in a significant impact without improvement measures at the following study signalized intersection:

18 I-405 southbound off-ramp/ Spring Street - Operates at LOS E in the AM peak hour

The implementation of recommended mitigation measures **MM-TRAF-9** and **MM-TRAF-14** (described under Section 3.11.6) at this location will completely offset the Proposed Project's impact and improve the LOS to acceptable conditions

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Table 3.11-10
Existing (2018) Plus Project Intersection Peak Hour Levels of Service - Caltrans

#	Key Intersection	Time Period	(1) Existing (Year 2018)			(2) Existing plus Project (Year 2018)				(3) Existing plus Project (Year 2018) With Potential Improvement Measures		
			Delay (s/v)	*LOS*	*Deficient?*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (2) - (1)*	*Significant Impact?*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*
10	I-405 Northbound Ramps at 32nd Street (Signal Hill/Caltrans)	AM	11.2	B	No	11.6	B	0.4	No	--	--	--
		PM	19.7	C	No	24.7	C	5.0	No	--	--	--
11	**Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans)**	AM	**94.9**	**F**	**Yes**	**126.8**	**F**	**31.9**	No [a]	--	--	--
		PM	**188.0**	**F**	**Yes**	**321.5**	**F**	**133.5**	No [a]	--	--	--
18	I-405 Southbound Off-Ramp at Spring Street (Signal Hill/Long Beach/Caltrans)	AM	34.3	C	No	48.4	D	14.1	No	--	--	--
		PM	24.9	C	No	23.9	C	-1.0	No	--	--	--
20	Temple Avenue at I-405 Northbound Off-Ramp (Long Beach/Caltrans)	AM	13.4	B	No	12.8	B	-0.6	No	--	--	--
		PM	15.9	B	No	15.1	B	-0.8	No	--	--	--

Notes:
LOS= Level of Service, please refer to *Tables 2* and *9* for the LOS definitions
ICU= Intersection Capacity Utilization
s/v= seconds per vehicle (delay)
= Deficient LOS based on City's LOS standards.
= Deficient LOS and Significant Impact based on Caltrans LOS standards.
[a] An unsignalized intersection impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F.

Table 3.11-11
Year 2040 Plus Project Intersection Peak Hour Levels of Service - Caltrans

#	Key Intersection	Time Period	(1) Existing (Year 2018)			(2) Year 2040 Baseline			(3) Year 2040 plus Project				(4) Year 2040 Baseline plus Project With Potential Improvement Measures		
			Delay (s/v)	*LOS*	*Deficient?*	*Delay (s/v)*	*LOS*	*Deficient?*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (3) - (2)*	*Significant Impact?*	*Delay (s/v)*	*LOS*	*ICU or Delay Change (4) - (3)*
10	I-405 Northbound Ramps at 32nd Street (Signal Hill/Caltrans)	AM	11.2	B	No	11.5	B	No	11.9	B	0.4	No	--	--	--
		PM	19.7	C	No	22.6	C	No	29.9	D	7.3	No	--	--	--
11	**Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans) [a]**	AM	**94.9**	**F**	**Yes**	18.9	B	No	19.7	B	0.8	No	--	--	--
		PM	**188.0**	**F**	**Yes**	13.3	B	No	14.6	B	1.3	No	--	--	--
18	**I-405 Southbound Off-Ramp at Spring Street (Signal Hill/Long Beach/Caltrans)**	AM	34.3	C	No	46.1	D	No	**61.0**	**E**	**14.9**	**Yes**	25.4	C	-35.6
		PM	24.9	C	No	24.4	C	No	23.9	C	-0.5	No	22.8	C	-1.1
20	Temple Avenue at I-405 Northbound Off-Ramp (Long Beach/Caltrans)	AM	13.4	B	No	13.5	B	No	12.9	B	-0.6	No	--	--	--
		PM	15.9	B	No	16.0	B	No	15.3	B	-0.7	No	--	--	--

Notes:
LOS= Level of Service, please refer to *Tables 2* and *9* for the LOS definitions
ICU= Intersection Capacity Utilization
s/v= seconds per vehicle (delay)
= Deficient LOS based on City's LOS standards.
= Deficient LOS and Significant Impact based on Caltrans LOS standards.
[a] Based on direction from City staff, the City of Long Beach has planned improvements which include a signalized intersection at Orange Avenue/I-405 Southbound Ramps. These planned improvements have been assumed under Year 2040 Baseline and Year 2040 Plus Project traffic conditions.

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Congestion Management Plan (CMP) Analysis

CMP Intersections

Review of the CMP highway and roadway system indicates that none of the key study intersections are CMP arterial monitoring intersections. The nearest CMP arterial monitoring intersections near the Proposed Project area are:

CMP ID	Intersection (Jurisdiction)
34	Lakewood Boulevard/Carson Street (Long Beach)
35	Lakewood Boulevard/Willow Street (Long Beach)

CEQA Impact Determination

Proposed Project impacts to CMP arterial monitoring intersections would be **less than significant** under CEQA.

NEPA Impact Determination

Proposed Project impacts to CMP arterial monitoring intersections would have **no adverse effect** under NEPA.

The following four (4) key study intersections are freeway on/off-ramp intersections where the project will add 50 or more trips during either the AM or PM weekday peak hours:

10. I-405 Northbound Ramps at 32nd Street (Signal Hill/Caltrans)
11. Orange Avenue at I-405 Southbound Ramps (Long Beach/Caltrans)
18. I-405 Southbound Off-Ramp at Spring Street (Signal Hill/Long Beach/Caltrans)
20. Temple Avenue at I-405 Northbound Off-Ramp (Long Beach/Caltrans)

Based on results of the detailed impact analysis summarized in Tables 3.11-10 and 3.11-11, the Proposed Project will not significantly impact the intersections of the Orange Avenue at I-405 northbound ramps and the I-405 freeway southbound off-ramp at Spring Street.

CEQA Impact Determination

With the implementation of potential mitigation measures at these locations, the impact of the Proposed Project would be **less than significant** under CEQA.

NEPA Impact Determination

With the implementation of potential mitigation measures at these locations, the Proposed Project would have **no adverse effect** under NEPA.

CMP Freeway Mainline Segments

The Proposed Project will add 150 or more trips, in either direction, during the AM or PM weekday peak hours to the following five (5) CMP freeway monitoring locations in the Proposed Project vicinity:

CMP Station	Intersection/Jurisdiction
No. 1033	SR-91, east of Alameda Street/Santa Fe Avenue
No. 1034	SR-91, east of Cherry Avenue
No. 1035	SR-91, between Norwalk Boulevard and Pioneer Boulevard
No. 1066	I-405, at Santa Fe Avenue
No. 1067	I-405, south of I-110 Freeway at Carson Scales

Table 3.11-12 (CMP Freeway Mainline Segment Peak Hour Levels of Service Existing (2018)+Project Conditions) and Table 3.11-13 (CMP Freeway Mainline Segment Peak Hour Levels of Service Year 2040+ Project Conditions) present the results of the CMP freeway mainline analysis under Existing (2018) Plus Project and Year 2040 Plus Project conditions, respectively.

Based upon the application of the significance criteria, the Proposed Project is not expected to cause significant traffic impacts any of the CMP freeway mainline segments under Existing (2018) Plus Project or Year 2040 Plus Project conditions.

Table 3.11-12
CMP Freeway Mainline Segment Peak Hour Levels of Service Existing (2018)+Project Conditions

CMP Station #	Location	Peak Hour	Freeway Capacity (vph) [a]		Existing (Year 2018) [b]						Freeway Capacity (vph) [a]		Existing (Year 2018) Plus Project								
					NB/EB			SB/WB					NB/EB					SB/WB				
			NB/EB	SB/WB	Existing Demand	Demand / Cap	LOS [c]	Existing Demand	Demand / Cap	LOS [c]	NB/EB	SB/WB	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?
1033	SR-91, east of	AM	12,000	12,000	6,019	0.502	A	9,646	0.804	D	12,000	12,000	6,194	0.516	A	0.014	No	9,706	0.809	D	0.005	No
	Alameda St/Santa Fe Ave	PM	12,000	12,000	8,714	0.726	C	7,177	0.598	A	12,000	12,000	8,798	0.733	C	0.007	No	7,372	0.614	B	0.016	No
1034	**SR-91, east of**	AM	10,000	12,000	**10,292**	**1.029**	**F0**	7,604	0.634	B	10,000	12,000	**10,344**	**1.034**	**F0**	**0.005**	**No**	7,760	0.647	B	0.013	No
	Cherry Avenue	PM	10,000	12,000	**10,230**	**1.023**	**F0**	6,068	0.506	A	10,000	12,000	**10,409**	**1.041**	**F0**	**0.018**	**No**	6,147	0.512	A	0.006	No
1035	**SR-91, between**	AM	10,000	10,000	6,817	0.682	B	**13,766**	**1.377**	**F2**	10,000	10,000	6,869	0.687	B	0.005	No	**13,922**	**1.392**	**F2**	**0.015**	**No**
	Norwalk Blvd and Pioneer Blvd	PM	10,000	10,000	7,160	0.716	C	**13,481**	**1.348**	**F1**	10,000	10,000	7,339	0.734	C	0.018	No	**13,560**	**1.356**	**F2**	**0.008**	**No**
1066	**I-405, at**	AM	10,000	10,000	**10,719**	**1.072**	**F0**	**12,502**	**1.250**	**F1**	10,000	10,000	**10,780**	**1.078**	**F0**	**0.006**	**No**	**12,655**	**1.266**	**F1**	**0.016**	**No**
	Santa Fe Avenue	PM	10,000	10,000	9,631	0.963	E	**15,588**	**1.559**	**F3**	10,000	10,000	9,817	0.982	E	0.019	No	**15,686**	**1.569**	**F3**	**0.010**	**No**
1067	I-405, south of	AM	12,000	12,000	9,668	0.806	D	7,933	0.661	B	12,000	12,000	9,722	0.810	D	0.004	No	8,067	0.672	B	0.011	No
	I-110 Fwy at Carson Scales	PM	12,000	12,000	8,799	0.733	C	10,035	0.836	D	12,000	12,000	8,963	0.747	C	0.014	No	10,121	0.843	D	0.007	No

Notes:

[a] The capacities and LOS criteria are based upon the 2010 Los Angeles County CMP Traffic Impact Study Guidelines. Freeway capacity is 2,000 vehicles per hour (vph) per lane.

[b] The Year 2016 traffic volumes were adjusted by 3.04% to reflect Year 2018 conditions (assumes 1.52% annual growth rate, consistent with 2010 LA CMP).

[c] The LOS is based on the following D/C ratios:

LOS	D/C Ratio	LOS	D/C Ratio	LOS	D/C Ratio
A	0-0.60	D	>0.80-0.90	F1	>1.25-1.35
B	>0.60-0.70	E	>0.90-1.00	F2	>1.35-1.45
C	>0.70-0.80	F0	>1.00-1.25	F3	>1.45

Deficient LOS under Existing (2018).

Deficient LOS under Existing Plus Project.

Deficient LOS under Existing Plus Project.

Table 3.11-13
CMP Freeway Mainline Segment Peak Hour Levels of Service Year 2040+Project Conditions

CMP Station #	Location	Peak Hour	Freeway Capacity (vph) [a]		Year 2040 Baseline [b]						Year 2040 Plus Project									
					NB/EB			SB/WB			NB/EB					SB/WB				
			NB/EB	SB/WB	Future Demand	Demand / Cap	LOS [c]	Future Demand	Demand / Cap	LOS [c]	NB/EB	SB/WB	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?
1033	SR-91, east of	AM	12,000	12,000	6,413	0.534	A	10,277	0.856	D	12,000	12,000	6,588	0.549	A	0.015	No	10,337	0.861	D	0.005	No
	Alameda St/Santa Fe Ave	PM	12,000	12,000	9,284	0.774	C	7,646	0.637	B	12,000	12,000	9,368	0.781	C	0.007	No	7,841	0.653	B	0.016	No
1034	**SR-91, east of**	AM	10,000	12,000	**10,966**	**1.097**	**F0**	8,101	0.675	B	10,000	12,000	**11,018**	**1.102**	**F0**	**0.005**	**No**	8,257	0.688	B	0.013	No
	Cherry Avenue	PM	10,000	12,000	**10,899**	**1.090**	**F0**	6,465	0.539	A	10,000	12,000	**11,078**	**1.108**	**F0**	**0.018**	**No**	6,544	0.545	A	0.006	No
1035	**SR-91, between**	AM	10,000	10,000	7,263	0.726	C	**14,666**	**1.467**	**F3**	10,000	10,000	7,315	0.732	C	0.006	No	**14,822**	**1.482**	**F3**	**0.015**	**No**
	Norwalk Blvd and Pioneer Blvd	PM	10,000	10,000	7,629	0.763	C	**14,363**	**1.436**	**F2**	10,000	10,000	7,808	0.781	C	0.018	No	**14,442**	**1.444**	**F2**	**0.008**	**No**
1066	**I-405, at**	AM	10,000	10,000	**11,421**	**1.142**	**F0**	**13,320**	**1.332**	**F1**	10,000	10,000	**11,482**	**1.148**	**F0**	**0.006**	**No**	**13,473**	**1.347**	**F1**	**0.015**	**No**
	Santa Fe Avenue	PM	10,000	10,000	**10,261**	**1.026**	**F0**	**16,608**	**1.661**	**F3**	10,000	10,000	**10,447**	**1.045**	**F0**	**0.019**	**No**	**16,706**	**1.671**	**F3**	**0.010**	**No**
1067	I-405, south of	AM	12,000	12,000	10,301	0.858	D	8,452	0.704	C	12,000	12,000	10,355	0.863	D	0.005	No	8,586	0.716	C	0.012	No
	I-110 Fwy at Carson Scales	PM	12,000	12,000	9,374	0.781	C	10,692	0.891	D	12,000	12,000	9,538	0.795	C	0.014	No	10,778	0.898	D	0.007	No

Notes:

[a] The capacities and LOS criteria are based upon the 2010 Los Angeles County CMP Traffic Impact Study Guidelines. Freeway capacity is 2,000 vehicles per hour (vph) per lane.

[b] The Year 2016 traffic volumes were adjusted by 1.52% per year to Year 2020 future conditions, then adjusted by 0.17% per year to reflect Year 2040 Baseline future conditions (consistent with 2010 LA CMP).

[c] The LOS is based on the following D/C ratios:

LOS	D/C Ratio	LOS	D/C Ratio	LOS	D/C Ratio
A	0-0.60	D	>0.80-0.90	F1	>1.25-1.35
B	>0.60-0.70	E	>0.90-1.00	F2	>1.35-1.45
C	>0.70-0.80	F0	>1.00-1.25	F3	>1.45

Deficient LOS under Year 2040 Baseline.

Deficient LOS under Year 2040 Plus Project.

Deficient LOS under Year 2040 Plus Project.

CMP Station #	Location	Peak Hour	Freeway Capacity (vph) [a]		Year 2040 Baseline [b]						Freeway Capacity (vph) [a]		Year 2040 Plus Project								
					NB/EB			SB/WB					NB/EB					SB/WB				
			NB/EB	SB/WB	Future Demand	Demand / Cap	LOS [c]	Future Demand	Demand / Cap	LOS [c]	NB/EB	SB/WB	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?	Future Demand	Demand / Cap	LOS [c]	D/C Change	Significant Impact?
1033	SR-91, east of	AM	12,000	12,000	6,413	0.534	A	10,277	0.856	D	12,000	12,000	6,711	0.559	A	0.025	No	10,347	0.862	D	0.006	No
	Alameda St/Santa Fe Ave	PM	12,000	12,000	9,284	0.774	C	7,646	0.637	B	12,000	12,000	9,386	0.782	C	0.008	No	7,960	0.663	B	0.026	No
1034	**SR-91, east of**	AM	10,000	12,000	**10,966**	**1.097**	**F0**	8,101	0.675	B	10,000	12,000	**11,046**	**1.105**	**F0**	**0.008**	**No**	8,441	0.703	C	0.028	No
	Cherry Avenue	PM	10,000	12,000	**10,899**	**1.090**	**F0**	6,465	0.539	A	10,000	12,000	**11,258**	**1.126**	**F0**	**0.036**	**Yes**	6,581	0.548	A	0.009	No
1035	**SR-91, between**	AM	10,000	10,000	7,263	0.726	C	**14,666**	**1.467**	**F3**	10,000	10,000	7,343	0.734	C	0.008	No	**15,006**	**1.501**	**F3**	**0.034**	**Yes**
	Norwalk Blvd and Pioneer Blvd	PM	10,000	10,000	7,629	0.763	C	**14,363**	**1.436**	**F2**	10,000	10,000	7,988	0.799	C	0.036	No	**14,479**	**1.448**	**F2**	**0.012**	**No**
1065	**I-405, north of**	AM	10,000	10,000	**10,024**	**1.002**	**F0**	9,019	0.902	E	10,000	10,000	**10,237**	**1.024**	**F0**	**0.022**	**Yes**	9,069	0.907	E	0.005	No
	SR-22 Freeway	PM	10,000	10,000	8,823	0.882	D	**11,030**	**1.103**	**F0**	10,000	10,000	8,896	0.890	D	0.008	No	**11,255**	**1.126**	**F0**	**0.023**	**Yes**
1066	**I-405, at**	AM	10,000	10,000	**11,421**	**1.142**	**F0**	**13,320**	**1.332**	**F1**	10,000	10,000	**11,521**	**1.152**	**F0**	**0.010**	**No**	**13,745**	**1.375**	**F2**	**0.043**	**Yes**
	Santa Fe Avenue	PM	10,000	10,000	**10,261**	**1.026**	**F0**	**16,608**	**1.661**	**F3**	10,000	10,000	**10,710**	**1.071**	**F0**	**0.045**	**Yes**	**16,754**	**1.675**	**F3**	**0.014**	**No**
1067	I-405, south of	AM	12,000	12,000	10,301	0.858	D	8,452	0.704	C	12,000	12,000	10,391	0.866	D	0.008	No	8,835	0.736	C	0.032	No
	I-110 Fwy at Carson Scales	PM	12,000	12,000	9,374	0.781	C	10,692	0.891	D	12,000	12,000	9,778	0.815	D	0.034	No	10,823	0.902	E	0.011	No
1068	**I-405, north of**	AM	10,000	10,000	**10,336**	**1.034**	**F0**	8,951	0.895	D	10,000	10,000	**10,386**	**1.039**	**F0**	0.005	No	9,164	0.916	E	0.021	No
	Inglewood Ave at Compton Blvd	PM	10,000	10,000	**10,567**	**1.057**	**F0**	9,991	0.999	E	10,000	10,000	**10,792**	**1.079**	**F0**	**0.022**	**Yes**	**10,064**	**1.006**	**F0**	**0.007**	**No**
1069	**I-405, north of**	AM	10,000	10,000	**10,770**	**1.077**	**F0**	7,310	0.731	C	10,000	10,000	**10,810**	**1.081**	**F0**	**0.004**	**No**	7,480	0.748	C	0.017	No
	La Tijera Boulevard	PM	10,000	10,000	**10,479**	**1.048**	**F0**	9,366	0.937	E	10,000	10,000	**10,659**	**1.066**	**F0**	**0.018**	**No**	9,424	0.942	E	0.005	No
1070	I-405, north of	AM	12,000	12,000	11,536	0.961	E	7,830	0.653	B	12,000	12,000	11,576	0.965	E	0.004	No	8,000	0.667	B	0.014	No
	Venice Boulevard	PM	12,000	12,000	11,224	0.935	E	10,034	0.836	D	12,000	12,000	11,404	0.950	E	0.015	No	10,092	0.841	D	0.005	No
1073	**I-605, north of**	AM	10,000	10,000	8,381	0.838	D	8,237	0.824	D	10,000	10,000	8,461	0.846	D	0.008	No	8,577	0.858	D	0.034	No
	Carson Street	PM	10,000	10,000	9,711	0.971	E	7,129	0.713	C	10,000	10,000	**10,070**	**1.007**	**F0**	**0.036**	**Yes**	7,245	0.725	C	0.012	No
1074	**I-605, north of**	AM	12,000	12,000	10,029	0.836	D	11,681	0.973	E	12,000	12,000	10,089	0.841	D	0.005	No	11,936	0.995	E	0.022	No
	SR-91 Fwy & south of Alondra Blvd	PM	12,000	12,000	11,591	0.966	E	**12,102**	**1.009**	**F0**	12,000	12,000	11,861	0.988	E	0.022	No	**12,189**	**1.016**	**F0**	**0.007**	**No**
1078	**I-710, north of**	AM	6,000	6,000	4,908	0.818	D	**6,244**	**1.041**	**F0**	6,000	6,000	5,121	0.854	D	0.036	No	**6,294**	**1.049**	**F0**	**0.008**	**No**
	Pacific Coast Highway	PM	6,000	6,000	5,123	0.854	D	5,627	0.938	E	6,000	6,000	5,196	0.866	D	0.012	No	5,852	0.975	E	0.037	No
1079	**I-710, north of**	AM	8,000	8,000	7,204	0.901	E	**8,050**	**1.006**	**F0**	8,000	8,000	7,254	0.907	E	0.006	No	**8,263**	**1.033**	**F0**	**0.027**	**Yes**
	I-405 Freeway	PM	8,000	8,000	7,451	0.931	E	7,047	0.881	D	8,000	8,000	7,676	0.960	E	0.029	No	7,120	0.890	D	0.009	No

Notes:

[a] The capacities and LOS criteria are based upon the 2010 Los Angeles County CMP Traffic Impact Study Guidelines. Freeway capacity is 2,000 vehicles per hour (vph) per lane.

[b] The Year 2016 traffic volumes were adjusted by 1.52% per year to Year 2020 future conditions, then adjusted by 0.17% per year to reflect Year 2040 Baseline future conditions (consistent with 2010 LA CMP).

[c] The LOS is based on the following D/C ratios:

LOS	D/C Ratio	LOS	D/C Ratio	LOS	D/C Ratio
A	0-0.60	D	>0.80-0.90	F1	>1.25-1.35
B	>0.60-0.70	E	>0.90-1.00	F2	>1.35-1.45
C	>0.70-0.80	F0	>1.00-1.25	F3	>1.45

Deficient LOS under Year 2040 Baseline.

Deficient LOS under Year 2040 Plus Project.

Deficient LOS and Significant Impact under Year 2040 Plus Project.

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b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

State CEQA Guidelines Section 15064.3, subdivision (b), focuses on newly adopted criteria (vehicle miles traveled [VMT]) adopted pursuant to SB 743 for determining the significance of transportation impacts.

The first step in VMT analysis was to calculate the existing regional VMT that was compared with horizon year (2040) project VMT to determine project impact. The existing regional VMT per employee estimate was obtained from the draft guidelines of Long Beach. As shown in Table 3.11-14 (Existing Regional and Horizon Year (2040) Project VMT Comparison), the existing regional VMT per employee for LA County is 18.5. The Proposed Project's VMT was estimated using the SCAG RTP/SCS model.

Project Traffic Analysis Zone Update and Model Run for VMT Analysis

The SCAG RTP/SCS model uses a two tier TAZ system – Tier 1 zones and Tier 2 zones. Two or more Tier 2 zones make up a Tier 1 zone. The model utilizes Tier 2 zone system for modeling steps such as trip generation, trip distribution, and mode choice while it uses Tier 1 zone system for assignment purposes. The Plan Area is contained inside three Tier 1 zones and ten Tier 2 zones. Given the inability/complexity of performing zone splits in the SCAG RTP/SCS model, LSA used the existing zone system and modified the socioeconomic data of those Tier 1 and Tier 2 zones to isolate the Proposed Project from all other uses into both Tier 1 zones and their corresponding Tier 2 zones.

LSA converted the Proposed Project's land uses into the model's socioeconomic categories. The socioeconomic data for both Tier 1 and Tier 2 zones in the 2040 model scenario was updated with Proposed Project information. Upon completion of the socioeconomic data update, LSA conducted the model run for the 2040 scenario and estimated project VMT.

VMT Analysis

VMT is simply the product of trips and their trip lengths. This calculation can be conducted using output traffic volumes from the model and length of roadway links. However, based on OPR guidance VMT should be estimated based on trip purpose depending on the type of land use being evaluated. The travel model doesn't retain trip purposes after the final step (traffic assignment) of the model that produces traffic volumes. In order to estimate VMT by trip purpose, outputs from mode choice step were used as trips and the trip lengths were derived from the skimming step. Also as mentioned above, traffic assignment in the SCAG model is conducted at Tier1 zone system whereas mode choice outputs are available at a more disaggregate Tier2 zone system. Mode choice outputs include person trips by trip purpose and mode. Only auto modes were considered for VMT estimation purposes. The person trip tables were appropriately converted to vehicle trips by using

average auto occupancy factors from the model. The trip length or distance side of the equation was obtained using the model outputs from the "Skimming" step. The model skim outputs include peak and off peak skim matrices by mode, similar to trip outputs from the model. Different trips purposes in the model are used in the estimation of different VMT metrics. For example, VMT per capita estimates include all home based trip purposes, VMT per employee includes only home based work trips whereas for VMT per service population estimates include all trip purposes. The GCSP includes only non-residential land uses. Therefore, VMT per employee was used as the appropriate metric of comparison consistent with the City's draft VMT guidelines. VMT per employee for the Proposed Project was estimated using the Tier2 zone system. Homebased work VMT for all the Tier2 project zones was aggregated and was divided by total Proposed Project employment to derive the VMT per employee for the project. Horizon year (2040) VMT per employee for the Proposed Project was compared with the existing regional VMT per employee. Table 3.11-14 shows the project VMT per employee estimate under the horizon year (2040), and corresponding values for the region under existing conditions. As shown in Table 3.11-14, the Proposed Project's horizon year VMT per employee is 24.8% lower than existing regional average.

Table 3.11-14
Existing Regional and Horizon Year (2040) Project VMT Comparison

Metric	Existing Regional Average	Horizon Year (2040) Project Average	Percentage Difference
VMT per Employee	18.5	13.9	-24.8%

Source: Appendix D.

Therefore, based on the City's draft VMT guidelines and project VMT analysis, the Proposed Project would not exceed the existing regional average VMT. Therefore, the Proposed Project would not conflict with State CEQA Guidelines section 15064.3, subdivision (b) and impacts would be **less than significant**.

3.11.5 Cumulative Impacts

Because of the cumulative nature of transportation impacts, cumulative impacts to the study area's transportation network (study area intersections and freeway mainline segments) are addressed in Section 3.11.4, Impacts Analysis, under impact thresholds a) and b).

3.11.6 Mitigation Measures

For those intersections where projected traffic volumes are expected to result in deficient operating conditions, roadway improvements were identified that are expected to:

- Improve the effect of existing traffic, Proposed Project traffic, and future non-Proposed Project (ambient growth) traffic; and,

- Improve LOS to an acceptable range and/or to pre-Proposed Project conditions.

The following six (6) key study intersections were estimated to operate at deficient LOS under Existing (2018) plus Project conditions:

- Intersection 1 – Cherry Avenue/Carson Street
- Intersection 3 – Cherry Avenue/Cover Street
- Intersection 5 – Cherry Avenue/36th Street
- Intersection 7 – Cherry Avenue/Wardlow Road
- Intersection 9 – Orange Avenue/32nd Street
- Intersection 11 – Orange Avenue at I-405 SB Ramps

Although the intersection of Orange Avenue/I-405 SB Ramps (Intersection 11) is forecast to operate at unacceptable LOS F in the AM and PM peak hour, the intersection is not considered significantly impacted when compared to the LOS standards and significant impact criteria specified in the TIA. Therefore, 5 of the 6 key intersections above are significant impacts based on established criteria. The following ten (10) key intersections were estimated to operate at deficient LOS during Year 2040 plus Project conditions:

- Intersection 1 – Cherry Avenue/Carson Street:
- Intersection 3 – Cherry Avenue/Cover Street:
- Intersection 5 – Cherry Avenue/36th Street:
- Intersection 7 – Cherry Avenue/Wardlow Road:
- Intersection 9 – Orange Avenue/32nd Street
- Intersection 12 – Atlantic Avenue/Spring Street:
- Intersection 15 – Orange Avenue/Spring Street:
- Intersection 19 – Temple Avenue/Spring Street:
- Intersection 21 – Redondo Avenue at Spring Street:
- Intersection 26 – Orange Avenue/Willow Street

Implementation of mitigation measures that would alleviate significant traffic impacts attributable to the Proposed Project, address future deficiencies, and achieve satisfactory levels based on the thresholds of significance and performance standards per the City of Long Beach, City of Signal Hill, City of Lakewood, LA County PW, and Caltrans, will have to be identified by conducting focused traffic impact studies for specific development projects within the Plan Area as they

materialize in the future. As the GCSP is implemented, and new development occurs over time, the City will need to undertake targeted physical improvements to maintain desired levels of service. It will be necessary to develop a prioritization and phasing program for new and improved roadway facilities.

The timing of necessary improvements is difficult to predict for the buildout of GCSP that may take 21 years or more to fully materialize. Most cities with a formalized Trip Fee Program identify the timing for constructing programmed area-wide improvements based on the following:

1. **Looking to the Past:** A city implements an improvement based on "known" or past deficiencies, which may have been identified based on prior General Plan studies, accident history, and previously completed traffic studies.
2. **Looking to the Present:** A city requires the preparation of a traffic study for each development project that is inconsistent with its General Plan Land Use Element and/or add 50 peak hour trips to one intersection. The projects that are commonly subjected to the requirement includes proposed developments with 100 or more residential dwelling units, 25,000 SF or more of office, 1,000 SF or more of retail, or 100,000 SF or more of industrial. The traffic study would be the basis for identifying potential operational effects/ deficiencies that could then trigger the implementation of intersection or roadway improvements specified in the General Plan. Therefore, the mitigation measures are appropriately phased to respond to anticipated operational effects as they arise.
3. **Looking to the Future:** A city employs an incremental approach by conducting a phased analysis of traffic affects in the future. For example, detailed level of service and analyses could be conducted for a series of horizon years, such as in 5-year increments. The anticipated growth is distributed proportionately to each phase of the study. The mitigation measures are then targeted for implementation according to which future year the deficiencies are projected to occur in and warrant the improvement. In other words, mitigation measures are staged to reduce operational affects at the time they are anticipated to become unacceptable. Establishing a mitigation monitoring program that would be conducted in timely increments could supplement and validate the results of the phased analyses.
4. **Specific Development Project Triggers:** There are also cases wherein a specific development project would drive the construction of an improvement, whether it be a project-specific mitigation measure or a city's programmed/background improvement.
5. **Combination of the Above Triggers:** It may be that an improvement is put on the fast track for completion based on any combination of the above factors, and because of available funding, and/or it may be very desirable to the city based on social and economic factors that go beyond traffic operational benefits.

These intersection improvements are ultimately subject to the review, approval, rejection, modification, and implementation of the City of Long Beach and any other respective jurisdiction (if applicable, to maintain design consistency across jurisdictional boundaries). Due to differing right-of-way design standards between jurisdictions, the City of Long Beach will conduct ongoing coordination and consultation with the City of Lakewood and Signal Hill, as applicable, for projects that cross jurisdictional lines. As such, future street improvements may not exactly match what is described here due to future design constraints.

While the City has complete authority to determine the desirability and of its transportation system and road network, implementation of these potential mitigation measures may impact adjoining land use, require costly right-of-way acquisition, compromise accessibility to fronting land use, result in conflicts between different modes of travel, require the removal of on-street parking and bus stops, etc. The City may find the proposed improvements are infeasible or cause one or more significant effects in addition to those that would be caused by the Project as proposed, and choose not to implement them and/or implement alternate measures. It should be recognized that further environmental review may be required on a project-specific basis.

All future projects would be subject to a project-specific traffic impact analysis at the time of application. All viable mitigation measures will be reviewed and considered for implementation. If the project-specific traffic impact analysis results in an impact, the buildout of said project would be required to follow the identified mitigation, as determined feasible.

Furthermore, all future projects under the GCSP that are subject to Site Plan Review (SPR) entitlements are required to demonstrate consistency with Chapter 21.64 of the LBMC, which addresses transportation demand and trip reduction measures for large projects over 25,000 square feet in size. Therefore, the above-mentioned impacts would potentially be further reduced with the incorporation of referenced measures that include, but are not limited to, transportation information areas, preferential carpool/vanpool parking, bicycle parking and amenities, and bus stop improvements.

Intersections

Existing Plus Project Conditions

Figure 3.11-22A, Existing (2018) + Project Potential Mitigation Measures (Intersections 1-12), Figure 3.11-22B, Existing (2018) + Project Potential Mitigation Measures (Intersections 13-24), and Figure 3.11-22C, Existing (2018) + Project Potential Mitigation Measures (Intersections 25-28), illustrate the potential mitigation measures for Existing (Year 2018) Plus Project traffic conditions.

A Traffic Impact Analysis (TIA) shall be prepared during the entitlement process for future subsequent projects under the GCSP. The project-specific TIA shall identify potential operational impacts under

the methodology established by the Department of Public Works. If VMT or level of service inconsistencies are identified, the Project Applicant shall be responsible for implementing the following mitigation measures, as feasible. All applicable improvement measures shall have a nexus and proportionality to the operational impacts identified at the project-level.

Intersection 1 – Cherry Avenue/Carson Street (Long Beach):

MM-TRAF-1 Prior to receiving a Certificate of Occupancy, the Project Applicant shall be responsible for the construction of the following improvements at Cherry Avenue/Carson Street:

Widen and/or restripe the existing exclusive northbound right-turn lane to a shared through-right turn lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-1** would require additional right-of-way acquisition since the City of Long Beach identified that Cherry Avenue would implement planned improvements consisting of proposed bicycle facilities. Additional right-of-way acquisition or roadway widening would result in a loss of sidewalks and a loss of developable areas and related jobs. The objectives of the specific plan include the introduction of land uses to stimulate economic development and job growth and to increase mobility choices throughout the Plan Area. Therefore, the loss of developable areas and mobility connections to implement this mitigation to restore LOS would be in conflict with the intent of the specific plan. Therefore, this mitigation measure would potentially conflict with adopted mobility plans and require additional right-of-way that is not consistent with planning documents, including the GCSP. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 3 – Cherry Avenue/Cover Street (Long Beach/Lakewood):

MM-TRAF-2 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue/Cover Street**:**

Widen or restripe the existing exclusive northbound right-turn lane to a shared through-right turn lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-2** would require additional right-of-way acquisition since the City of Long Beach identified that Cherry Avenue would implement planned improvements consisting of proposed bicycle facilities. Due to the nature of these improvements, right-of-way acquisition from the City of Lakewood would not be required. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition or roadway widening would result in a loss of sidewalks and a

loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 5 – Cherry Avenue/36th Street (Long Beach/Lakewood):

MM-TRAF-3 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue/36th Street**:**

Restripe the eastbound approach to provide an exclusive left-turn lane. Construct an exclusive northbound right-turn lane. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-3** would require additional right-of-way acquisition from only the City of Lakewood (due to the nature of these improvements, right-of-way acquisition from the City of Long Beach would not be required). Additionally, the City of Long Beach has identified potential planned improvements consisting of proposed bicycle facilities, which would require additional right-of-way acquisition from both the City of Long Beach and City of Lakewood. Implementation of this mitigation measure would require acquisition of land in another jurisdiction (City of Lakewood). Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 7 – Cherry Avenue/Wardlow Road (Long Beach):

MM-TRAF-4 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue/ Wardlow Road**:**

Construct two additional northbound through lanes and an exclusive northbound right-turn lane. Construct two additional southbound through lanes. Restripe the existing eastbound shared through-left turn lane to an exclusive left-turn lane and construct an additional eastbound through lane. Restripe the existing westbound shared through-left turn lane to an exclusive left-turn lane. Construct two westbound through lanes. Restripe the westbound shared through-right turn lane to an exclusive westbound right-turn lane. These improvements are subject to the approval of the City of Long Beach

Mitigation measure **MM-TRAF-4** would require additional right-of-way acquisition inclusive of proposed bicycle facilities identified by City of Long Beach. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 9 – Orange Avenue/32nd Street (Signal Hill):

MM-TRAF-5 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Orange Avenue/ 32nd Street**:**

Restripe the northbound approach to provide an exclusive right-turn lane. These improvements are subject to the approval of the City of Signal Hill.

Since the improvements under mitigation measure **MM-TRAF-5** fall under the jurisdiction of another public agency (City of Signal Hill) and not the lead agency (City of Long Beach), the improvements cannot be guaranteed. Therefore, without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Year 2040 Plus Project Conditions

Figure 3.11-23A, Year 2040 +Project Potential Mitigation Measures (Intersections 1-12), Figure 3.11-23B, Year 2040 +Project Potential Mitigation Measures (Intersections 13-24), and Figure 3.11-23C, Year 2040 +Project Potential Mitigation Measures (Intersections 25-28), illustrate the potential mitigation measures for Year 2040 Plus Project traffic conditions. Despite implementing mitigation measures **MM-TRAF-1** through **MM-TRAF-5**, the following intersections would operate under unacceptable LOS and would require additional mitigation measures.

Intersection 1 – Cherry Avenue/Carson Street (Long Beach):

MM-TRAF-6 In addition to mitigation measure **MM-TRAF-1**, prior to receiving a Certificate of Occupancy, the Project Applicant shall be responsible for the construction of the following improvements at Cherry Avenue/Carson Street:

Widen the eastbound approach to construct a 4th through lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-6** would require additional right-of-way acquisition since the City of Long Beach identified that Cherry Avenue would implement planned improvements consisting of proposed bicycle facilities. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 3 – Cherry Avenue/Cover Street (Long Beach/Lakewood):

MM-TRAF-7 In addition to mitigation measure **MM-TRAF-2**, prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue/Cover Street**:**

Widen the northbound approach to provide an exclusive right-turn lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-7** would require additional right-of-way acquisition since the City of Long Beach identified that Cherry Avenue would implement planned improvements consisting of proposed bicycle facilities. These improvements would require right-of-way acquisition from both the City of Long Beach and City of Lakewood. Implementation of this mitigation measure would require acquisition of land in another jurisdiction (City of Lakewood). Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 5 – Cherry Avenue/36th Street (Long Beach/Lakewood):

MM-TRAF-8 In addition to mitigation measure **MM-TRAF-3**, prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue/36th Street**:**

Modify the traffic signal to provide for an 8-phase traffic signal. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-8** would require additional right-of-way acquisition since the City of Long Beach identified that Cherry Avenue would implement planned improvements consisting

of proposed bicycle facilities. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 12 – Atlantic Avenue/Spring Street (Signal Hill/Long Beach):

MM-TRAF-9 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Atlantic Avenue/ Spring Street**:**

Construct an additional eastbound through lane and an additional westbound through lane. Restripe the existing exclusive westbound right-turn lane to a shared through-right turn lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-9** would require additional right-of-way acquisition from both the City of Long Beach and City of Signal Hill. Additionally, the City of Long Beach has identified proposed bicycle facilities, which would require additional right-of-way acquisition from both the City of Long Beach and City of Signal Hill. Implementation of this mitigation measure would require acquisition of land in another jurisdiction (City of Signal Hill). Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 15 – Orange Avenue/Spring Street (Signal Hill/Long Beach):

MM-TRAF-10 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Orange Avenue/ Spring Street**:**

Widen and/or restripe the northbound approach to provide a shared through/right-turn lane. Convert the southbound right-turn lane into a shared through/right-turn lane. Widen along the Proposed Project frontage to accommodate two south bound through lanes. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-10** would require additional right-of-way acquisition from the City of Long Beach and City of Signal Hill. Additionally, the City of Long Beach has identified

potential planned improvements consisting of proposed bicycle facilities, which would require additional right-of-way acquisition from both the City of Long Beach and City of Signal Hill. Implementation of this mitigation measure would require acquisition of land in another jurisdiction (City of Signal Hill). Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 19 – Temple Avenue/Spring Street (Long Beach):

MM-TRAF-11 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Temple Avenue/ Spring Street**:**

Widen the eastbound approach to provide an exclusive right-turn lane. Widen the westbound approach to provide an additional through lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-11** would also require additional right-of-way acquisition inclusive of proposed bicycle facilities identified by the City of Long Beach. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 21 – Redondo Avenue/Spring Street (Long Beach):

MM-TRAF-12 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Redondo Avenue/ Spring Street**:**

Widen the eastbound approach to provide an additional through lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Long Beach.

Mitigation measure **MM-TRAF-12** would require additional right-of-way acquisition inclusive of proposed bicycle facilities identified by the City of Long Beach. Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible

mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Intersection 26 – Orange Avenue/Willow Street (Signal Hill/Long Beach):

MM-TRAF-13 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at Cherry Avenue at Willow Street**:**

Construct an additional northbound through lane. Construct an additional southbound through lane. Modify the existing traffic signal as necessary. These improvements are subject to the approval of the City of Signal Hill.

Mitigation measure **MM-TRAF-13** would fall under the jurisdiction of another public agency (City of Signal Hill) and are not guaranteed. These improvements would require right-of-way acquisition from both the City of Long Beach and City of Signal Hill. Implementation of this mitigation measure would require acquisition of land in another jurisdiction (City of Signal Hill). Similar to mitigation measure **MM-TRAF-1**, additional right-of-way acquisition is required and would result in a loss of sidewalks and a loss of developable areas and related jobs, which would conflict with key GCSP objectives. This identified improvement is considered infeasible. Without incorporation of feasible mitigation measures, the operation of this intersection would continue to be at an unacceptable level. This impact is considered significant and unavoidable.

Project-Related Fair Share Contribution

Table 3.11-15 (Year 2040 Project Fair Share Contribution) provides the Proposed Project's fair share contribution based on the AM and/or PM peak hour percentage of net operational affect at the study intersections by the Proposed Project for Year 2040 traffic conditions, as well as the intersection of Orange Avenue/I-405 southbound ramps. Although this intersection is not considered affected, it does operate adversely under existing traffic conditions. Also, preliminary review of the existing volumes indicate that the intersection satisfies the criteria for the installation of a traffic signal. Should Caltrans or the City of Long Beach desire to install a traffic signal at this location, the Proposed Project may be expected to pay a fair-share of the total cost.

Table 3.11-15
Year 2040 Project Fair Share Contribution

#	Key Intersection	Impacted Time Period	(1) Existing Traffic	(2) Project Only Traffic	(3) Year 2040 Plus Project Traffic	(4) Net Project Percent Increast
1	Cherry Avenue at	AM	--	--	--	--
	Carson Street (Long Beach)	PM	5,245	1,040	6,519	**81.63%**
3	Cherry Avenue at	AM	--	--	--	--
	Cover Street (Long Beach/Lakewood)	PM	3,815	1,074	5,064	**85.99%**
5	Cherry Avenue at	AM	--	--	--	--
	36th Street (Long Beach/Lakewood)	PM	4,249	1,289	5,762	**85.19%**
7	Cherry Avenue at	AM	4,080	1,670	5,951	89.26%
	Wardlow Road (Long Beach)	PM	4,518	1,943	6,672	**90.20%**
9	Orange Avenue at	AM	--	--	--	--
	32nd Street (Signal Hill)	PM	2,013	157	2,244	**67.97%**
11	Orange Avenue at	AM	1,897	119	2,139	49.17%
	I-405 Southbound Ramps (Long Beach/Caltrans)	PM	2,001	200	2,331	**60.61%**
12	Atlantic Avenue at	AM	--	--	--	--
	Spring Street (Signal Hill/Long Beach)	PM	4,015	407	4,619	**67.38%**
15	Orange Avenue at	AM	3,151	120	3,432	42.70%
	Spring Street (Signal Hill/Long Beach)	PM	3,613	181	3,976	**49.86%**
18	I-405 Southbound Off-Ramp at	AM	3,040	290	3,525	**59.79%**
	Spring Street (Signal Hill/Long Beach/Caltrans)	PM	--	--	--	--
19	Temple Avenue at	AM	3,754	282	4,223	60.13%
	Spring Street (Long Beach)	PM	3,810	386	4,383	**67.36%**
21	Redondo Avenue at	AM	--	--	--	--
	Spring Street (Long Beach)	PM	3,721	244	4,101	**64.21%**
26	Orange Avenue at	AM	--	--	--	--
	Willow Street (Signal Hill/Long Beach)	PM	4,214	192	4,637	**45.39%**

Notes:

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

Caltrans Facilities

Intersections

The Proposed Project will cause an operational deficiency at the I-405 Southbound Off-Ramp/Spring Street intersection under the Buildout Year 2040 Plus Project conditions. Mitigation measure **MM-TRAF-14**, discussed below, provides the recommended improvements for this intersection.

Intersection 18 – I-405 Southbound Off-Ramp/Spring Street:

MM-TRAF-14 Prior to receiving a Certificate of Occupancy, the Proposed Project shall construct the following improvements at I-405 Southbound Off-Ramp/Spring Street**:**

Restripe the westbound approach to provide an additional through lane. These improvements are subject to the approval of the City of Long Beach and/or Caltrans.

Since the improvements under mitigation measure **MM-TRAF-14** fall under the jurisdiction of another public agency (Caltrans) and not the lead agency (City), the improvements cannot be guaranteed at this time. Without feasible mitigation, the impact is considered significant and unavoidable.

Freeway Segments

The Proposed Project would not impact any freeway segments, as such no improvements would be required.

3.11.7 Significance After Mitigation Measures

The following section discuss the levels of significance of Proposed Project impacts after the prescribed mitigation measures have been implemented. Section 15126.4 of the State CEQA Guidelines address the consideration and discussion of mitigation measures. Under CEQA, an EIR shall describe feasible measures which could minimize significant adverse effects.

As shown in the analysis, the Proposed Project would require mitigation measures. Mitigation measures described under Section 3.11.6, Mitigation Measures, identify when the proposed improvements would fall under the authority of another jurisdiction or require additional right-of-way acquisition causing operational deficiencies or conflicts with the intent of the specific plan. All identified mitigation measures were determined to be infeasible, therefore, all impacts related to consistency with established LOS metrics are considered significant and unavoidable.

3.12.8 References

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County of Los Angeles. 2010. *2010 Congestion Management Program*. Los Angeles County Metropolitan Transportation Authority. Accessed December 2018. http://media.metro.net/docs/cmp_final_2010.pdf.

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ITE (Institute of Transportation Engineers). 2017. *Trip Generation Manual*. 10th ed. Washington, DC: Institute of Transportation Engineers.

Transportation Research Board. 2016. Highway Capacity Manual, 6th Edition. Published 2016.

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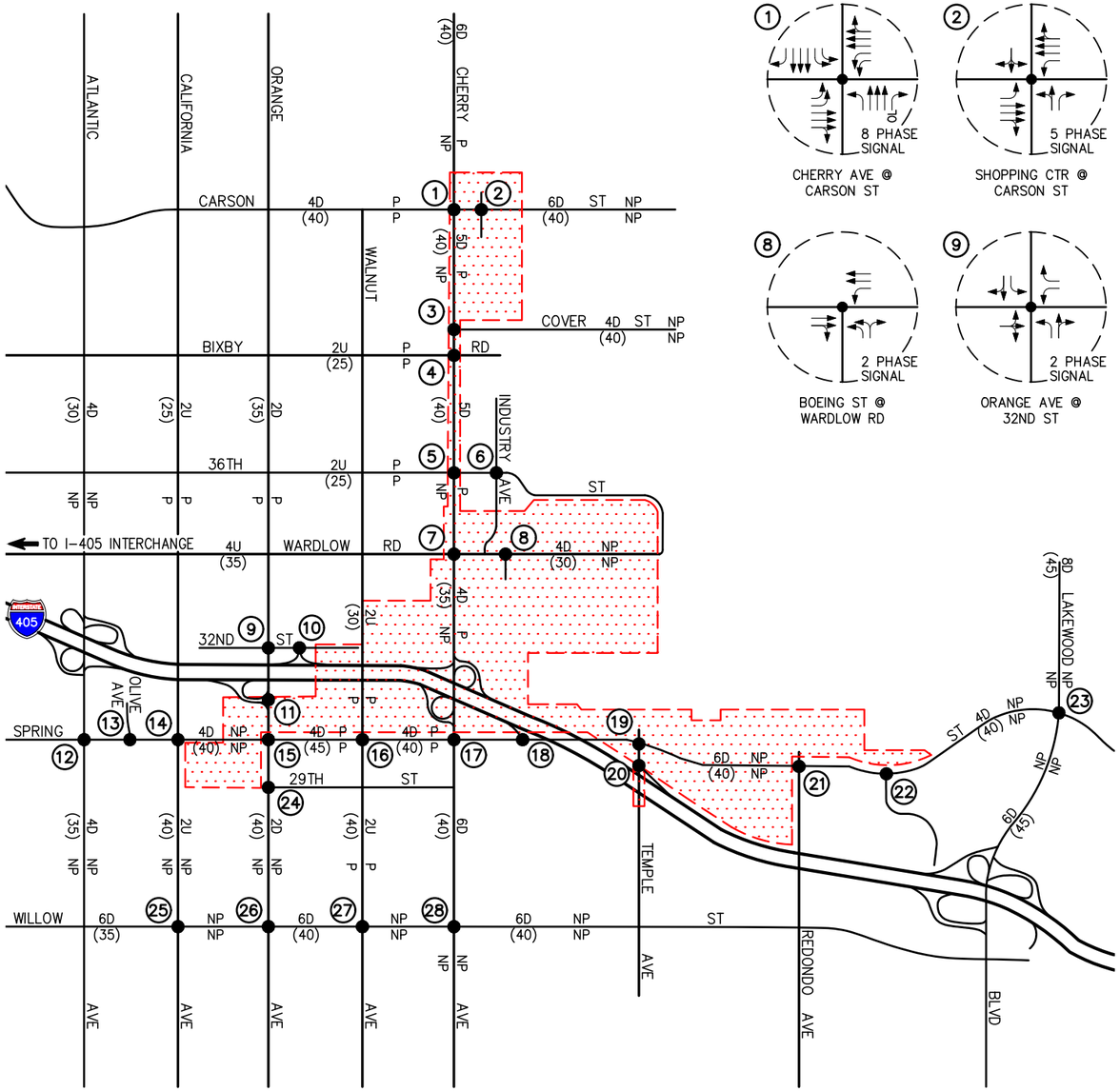
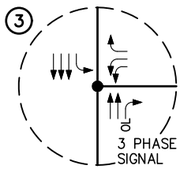


CHERRY AVE @ CARSON ST

SHOPPING CTR @ CARSON ST



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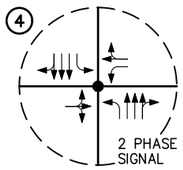
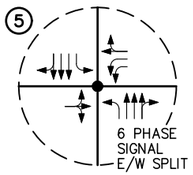
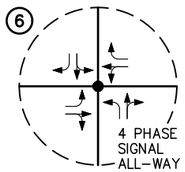


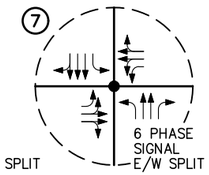
CHERRY AVE @ BIXBY RD



CHERRY AVE @ 36TH ST



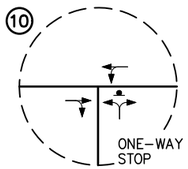
INDUSTRY AVE @ 36TH ST



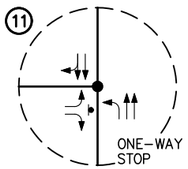
CHERRY AVE @ WARDLOW RD

BOEING ST @ WARDLOW RD

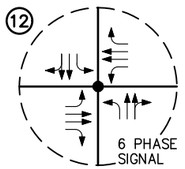
ORANGE AVE @ 32ND ST



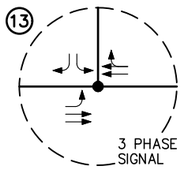
I-405 NB RAMPS @ 32ND ST



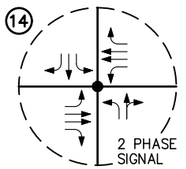
ORANGE AE @ I-405 SB RAMPS



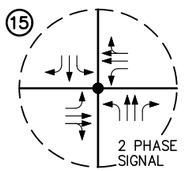
ATLANTIC AVE @ SPRING ST



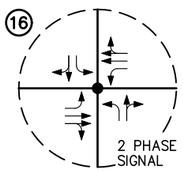
OLIVE AVE @ SPRING ST



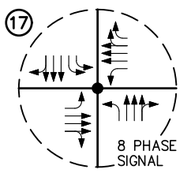
CALIFORNIA AVE @ SPRING ST



ORANGE AVE @ SPRING ST



WALNUT AVE @ SPRING ST



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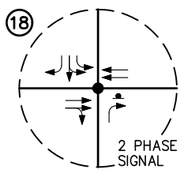
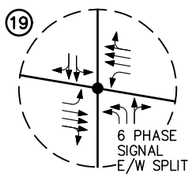
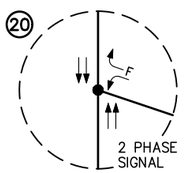


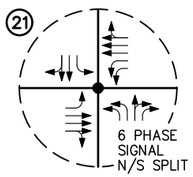
I-405 SB OFF-RAMPS @ SPRING ST



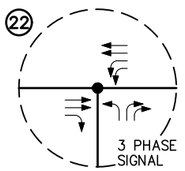
TEMPLE AVE @ SPRING ST



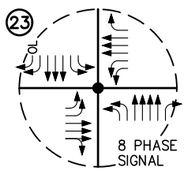
TEMPLE AVE @ I-405 NB OFF-RAMPS



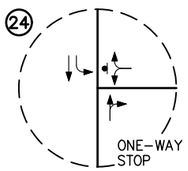
REDONDO AVE @ SPRING ST



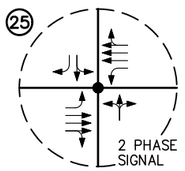
KILROY AIRPORT WAY @ SPRING ST



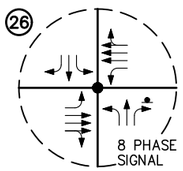
LAKEWOOD BLVD @ SPRING ST



ORANGE AVE @ 29TH ST



CALIFORNIA AVE @ WILLOW ST



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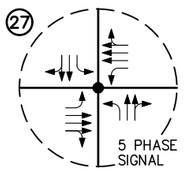

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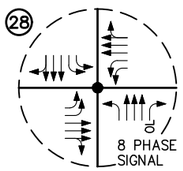

CHERRY AVE @ WILLOW ST

NO SCALE

KEY

(#) = STUDY INTERSECTION
= APPROACH LANE ASSIGNMENT
● = TRAFFIC SIGNAL, ☚ = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED

2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
OL = OVELAP
F = FREE-RIGHT
= PROJECT SITE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3-11-1

Existing Year 2018 Roadway Conditions and Intersection Controls

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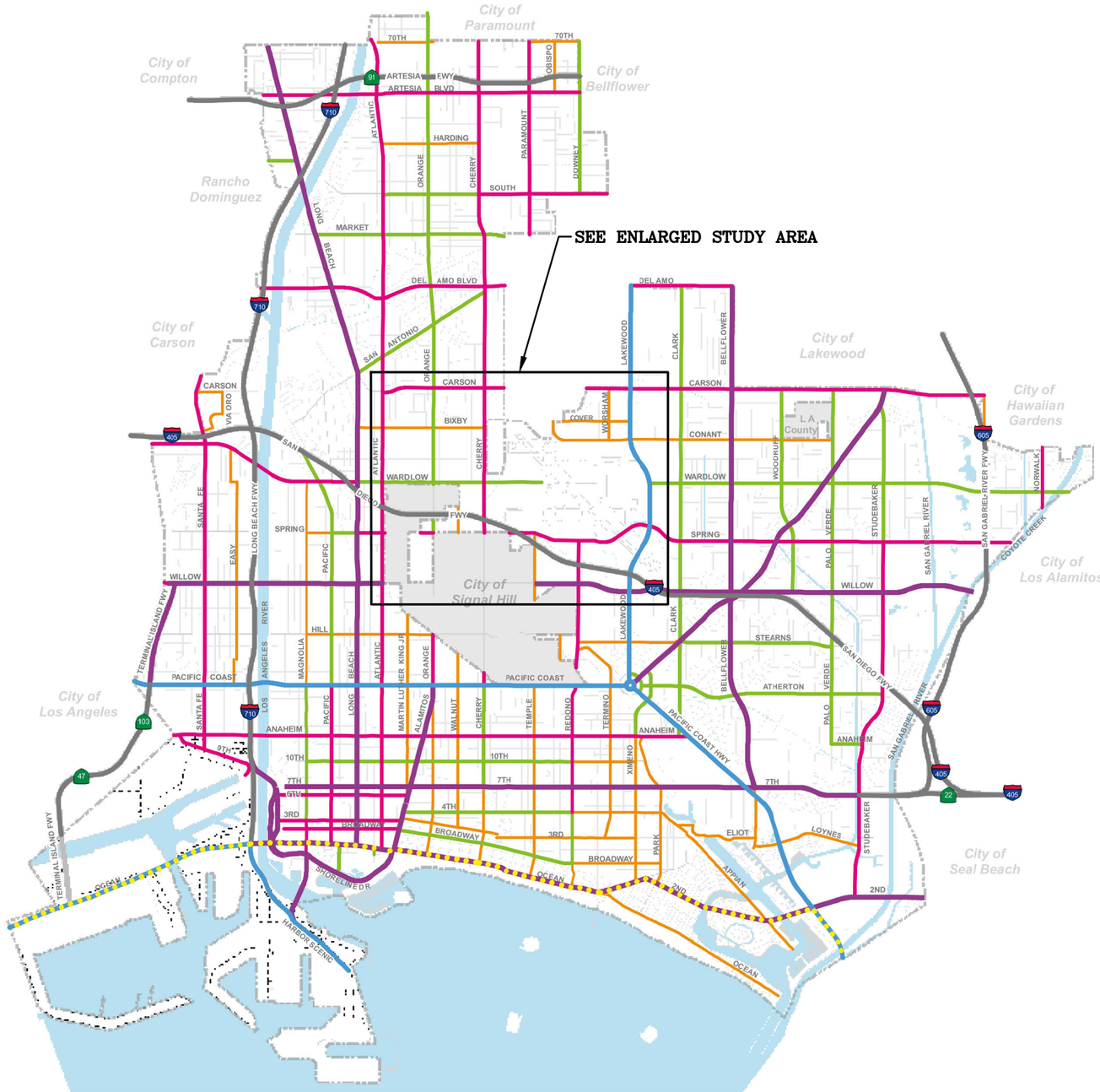
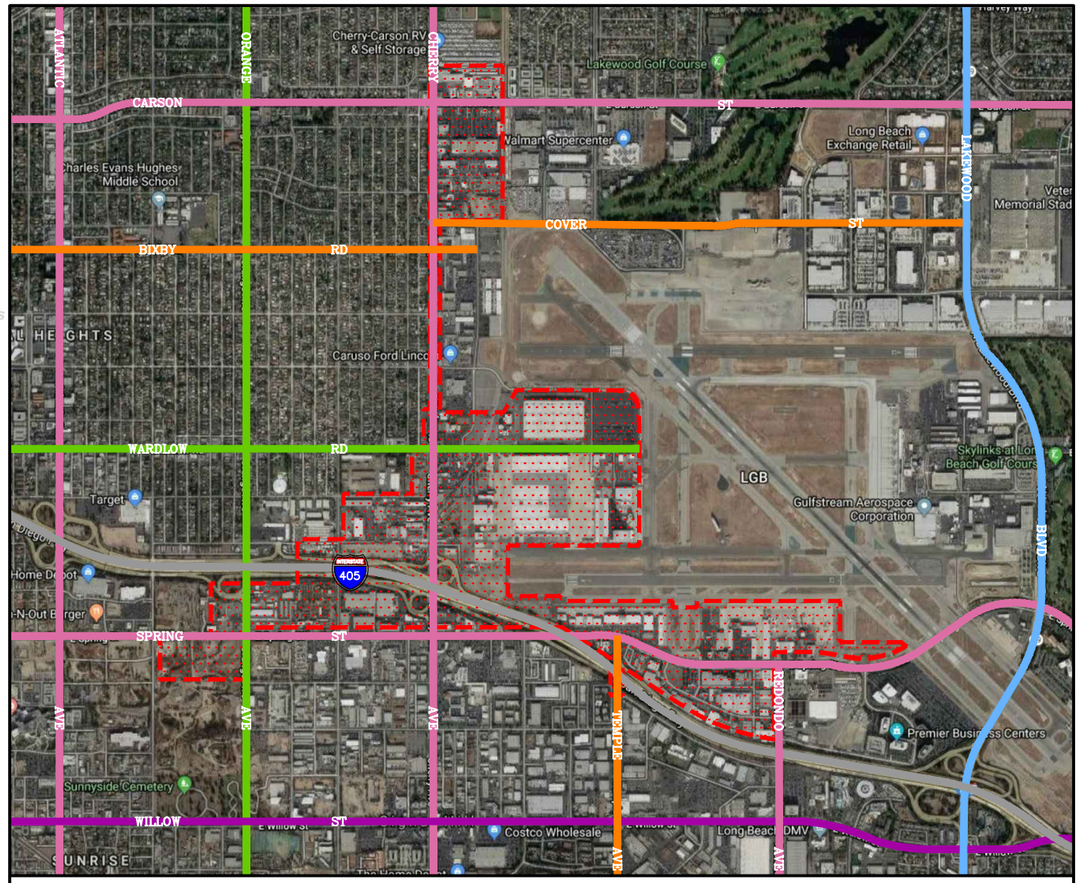


Legend

Classifications

- Freeway
- Regional Corridor
- Boulevard
- Major Avenue
- Minor Avenue
- Neighborhood Connector
- Scenic Route
- Local Street
- Port-Related Street



ENLARGED STUDY AREA

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-2

Existing Year 2018 Street Classifications

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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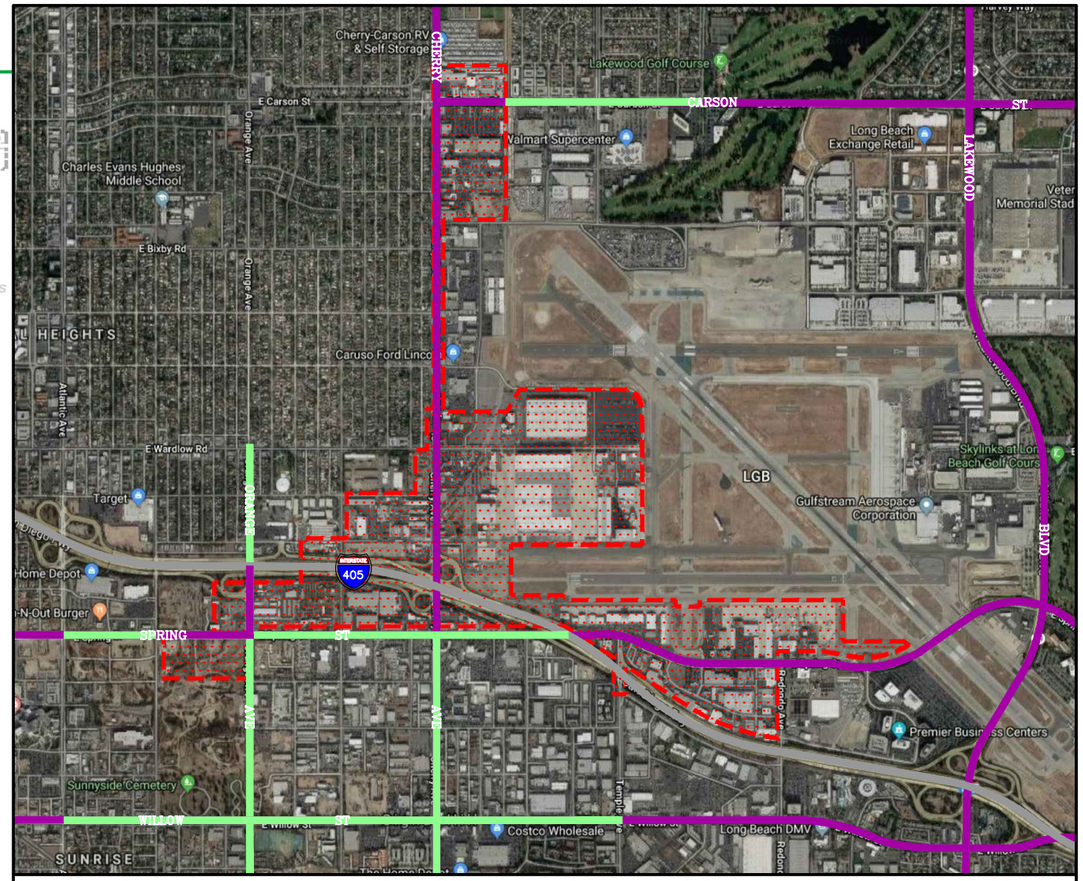

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-3

Existing Year 2018 Truck Routes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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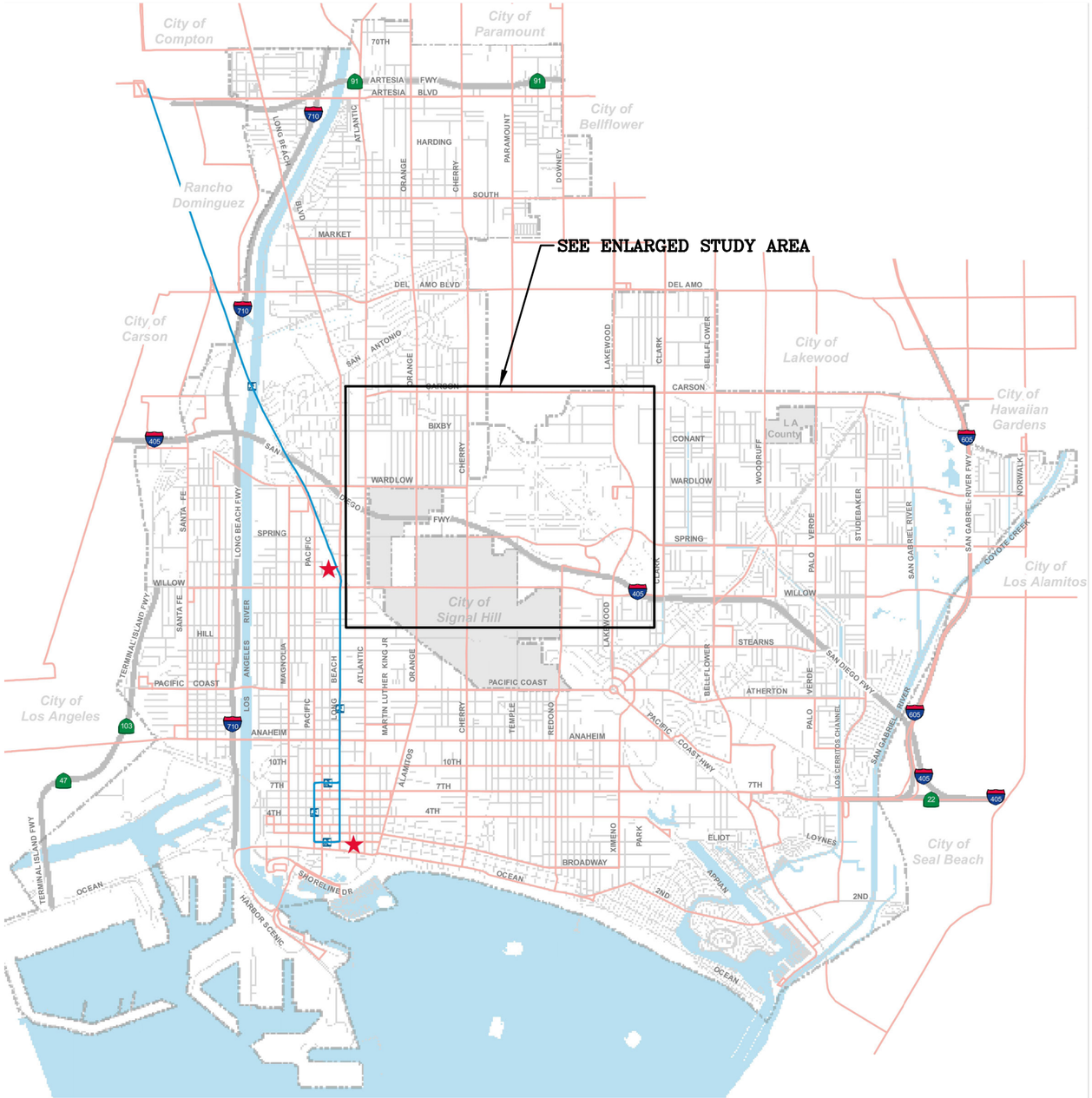
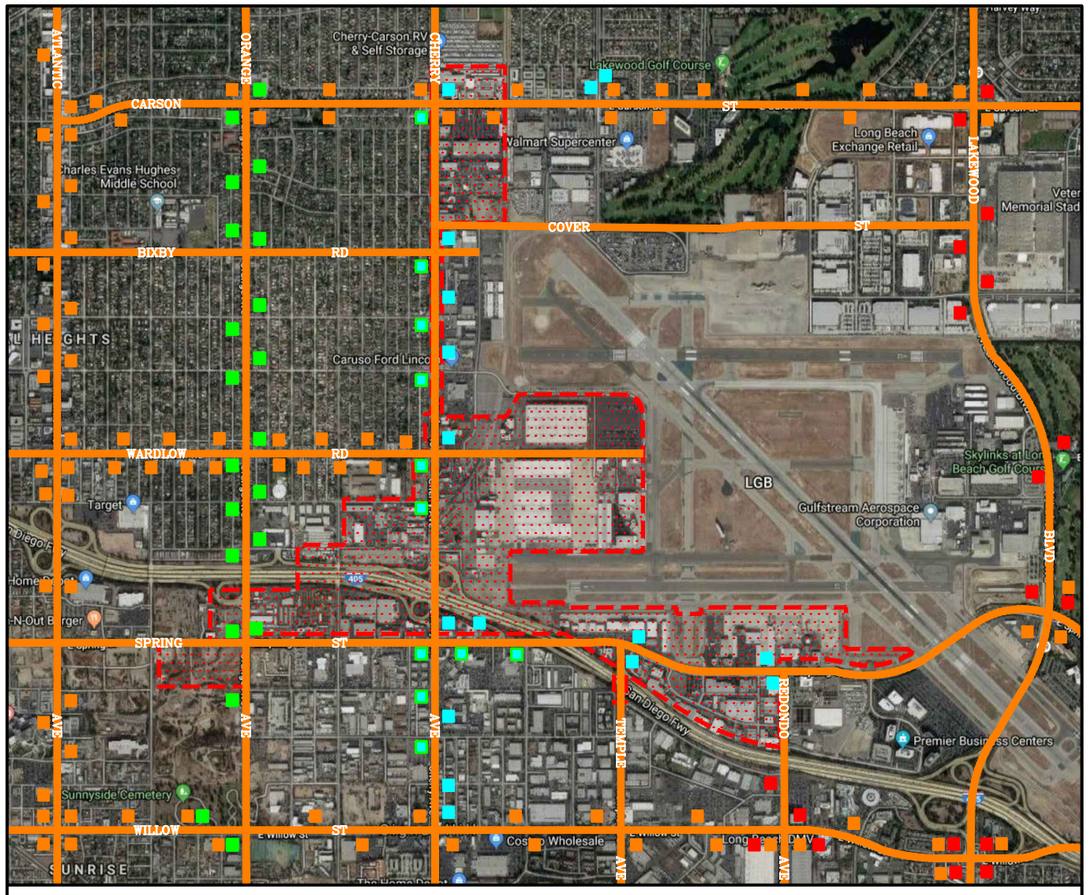


Legend

- Metro Rail Stations
- Metro Rail
- Bus Routes (includes LB Transit, Metro, and OCTA)
- Multimodal Hub
- **Bus Stops Routes: 21 – 23**
- **Bus Stops Routes: 61, 101–104, 131**
- **Bus Stops Routes: 71**
- **Bus Stops Routes: 111–112, 176**



ENLARGED STUDY AREA

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-4

Existing Year 2018 Public Transit

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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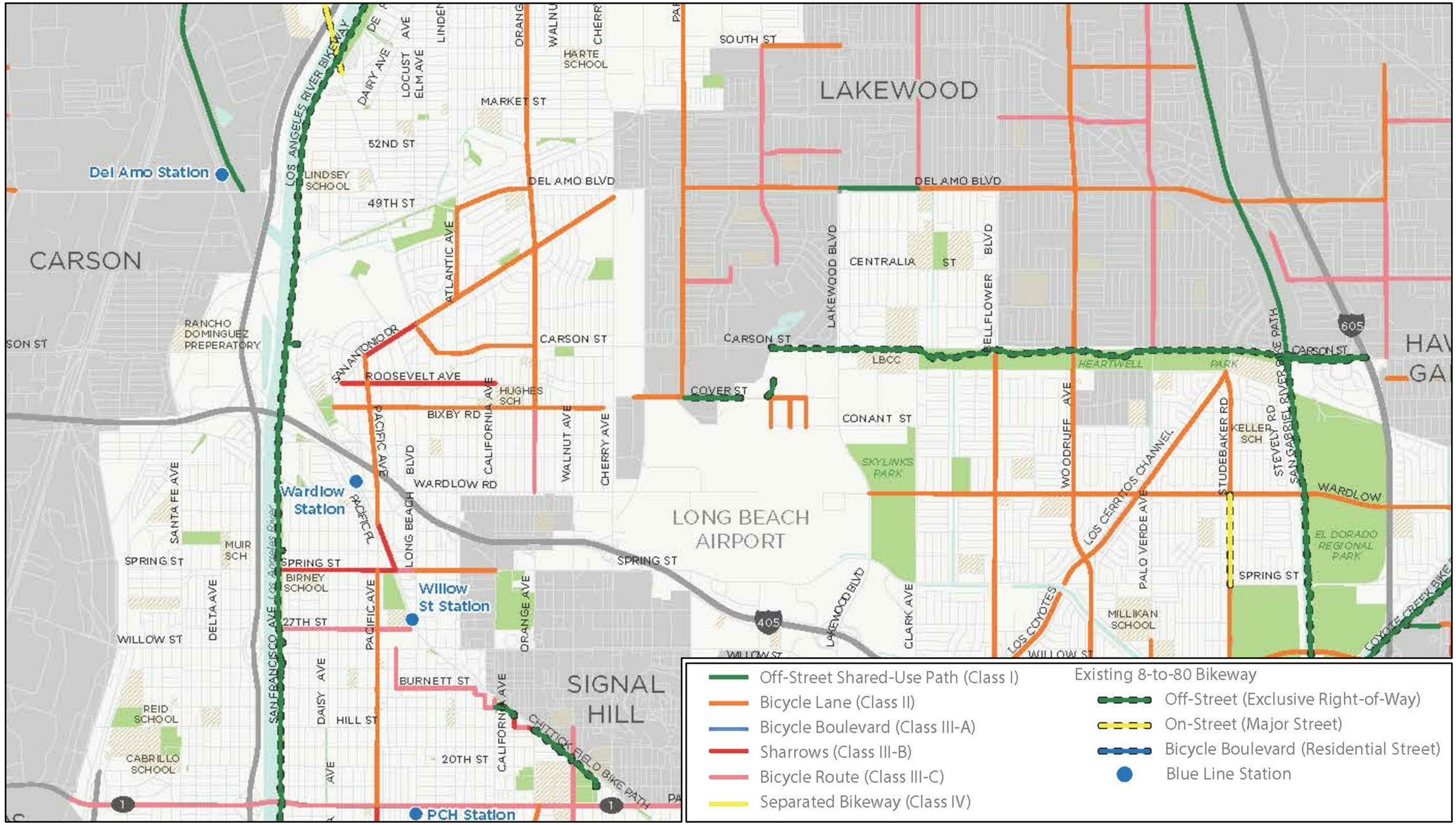

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-5A

Existing Bicycle Routes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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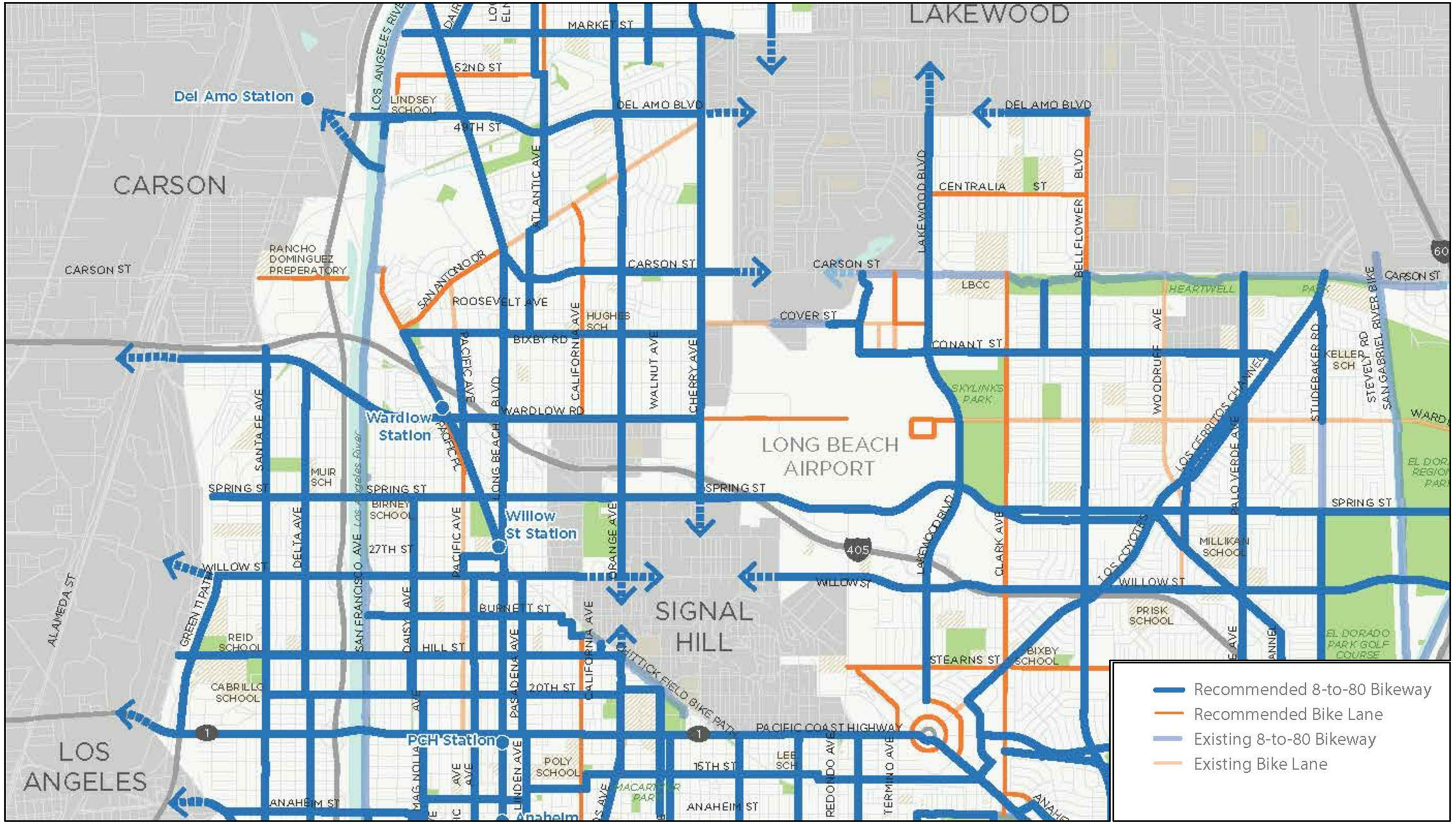

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-5B

Existing and Proposed "8-to-80" Bicycle Facilities

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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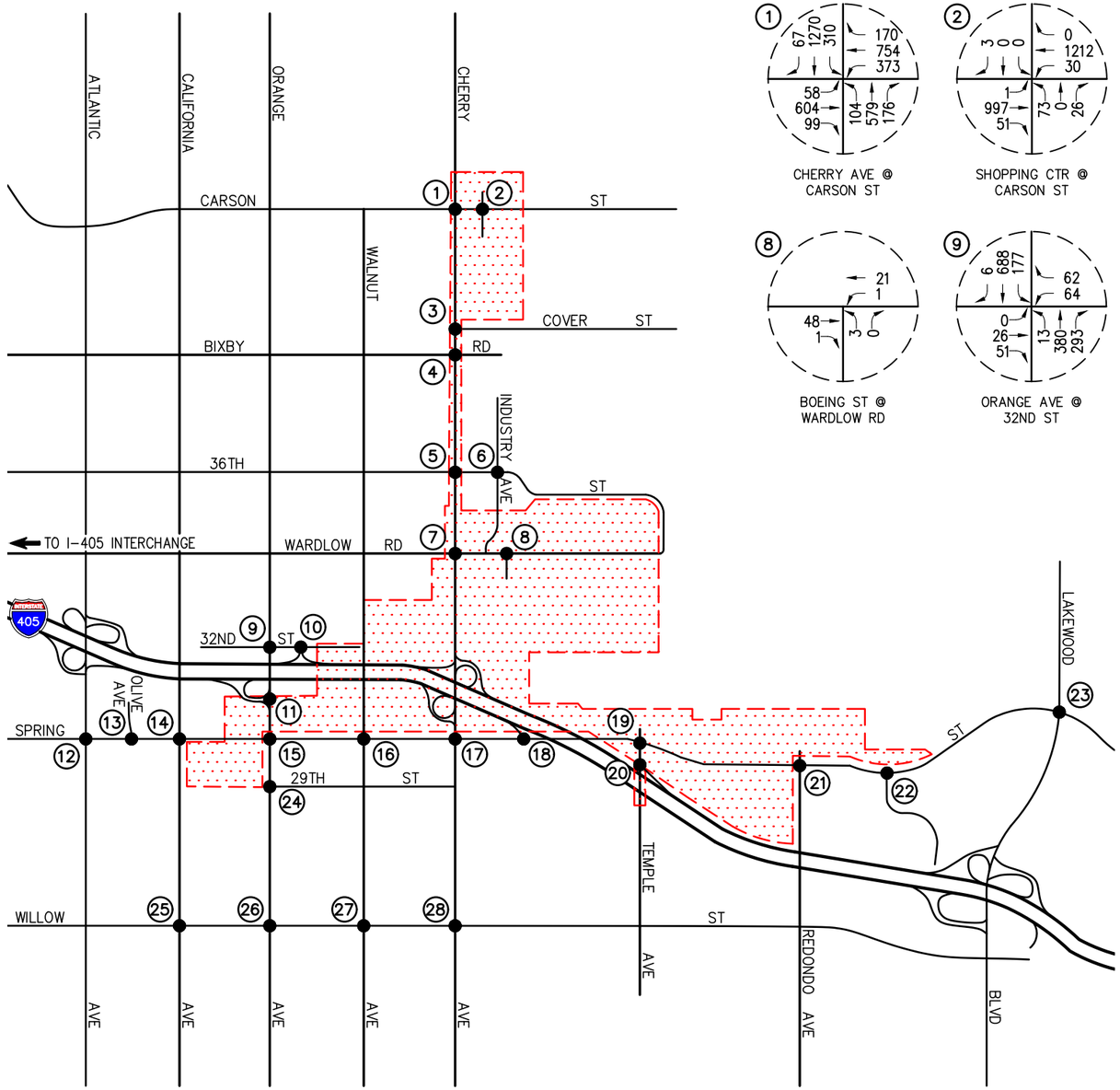
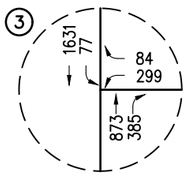
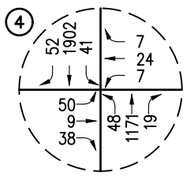


CHERRY AVE @ CARSON ST

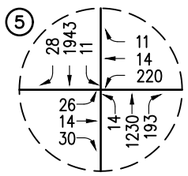
SHOPPING CTR @ CARSON ST



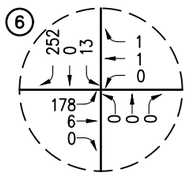
CHERRY AVE @ COVER ST



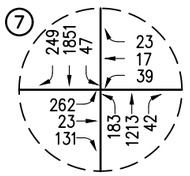
CHERRY AVE @ BIXBY RD



CHERRY AVE @ 36TH ST



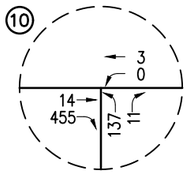
INDUSTRY AVE @ 36TH ST



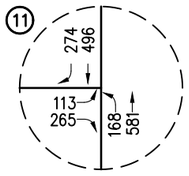
CHERRY AVE @ WARDLOW RD

BOEING ST @ WARDLOW RD

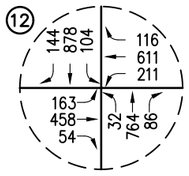
ORANGE AVE @ 32ND ST



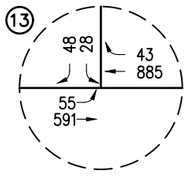
I-405 NB RAMPS @ 32ND ST



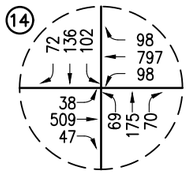
ORANGE AE @ I-405 SB RAMPS



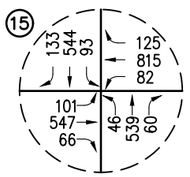
ATLANTIC AVE @ SPRING ST



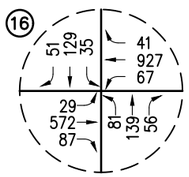
OLIVE AVE @ SPRING ST



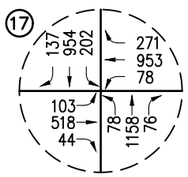
CALIFORNIA AVE @ SPRING ST



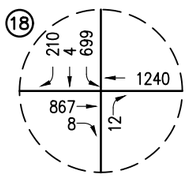
ORANGE AVE @ SPRING ST



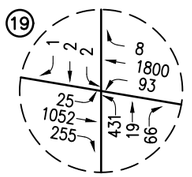
WALNUT AVE @ SPRING ST



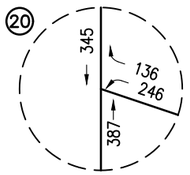
CHERRY AVE @ SPRING ST



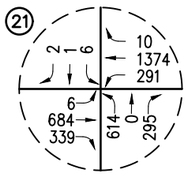
I-405 SB OFF-RAMPS @ SPRING ST



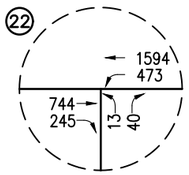
TEMPLE AVE @ SPRING ST



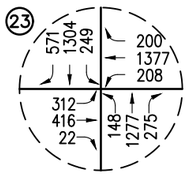
TEMPLE AVE @ I-405 NB OFF-RAMPS



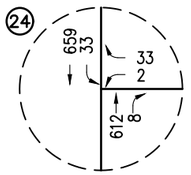
REDONDO AVE @ SPRING ST



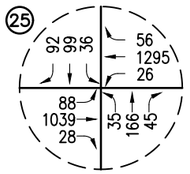
KILROY AIRPORT WAY @ SPRING ST



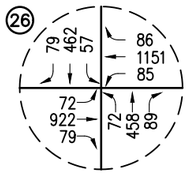
LAKEWOOD BLVD @ SPRING ST



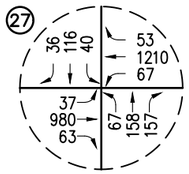
ORANGE AVE @ 29TH ST



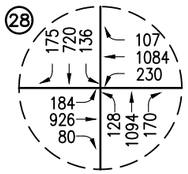
CALIFORNIA AVE @ WILLOW ST



ORANGE AVE @ WILLOW ST



WALNUT AVE @ WILLOW ST



CHERRY AVE @ WILLOW ST

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-6

Existing (Year 2018) AM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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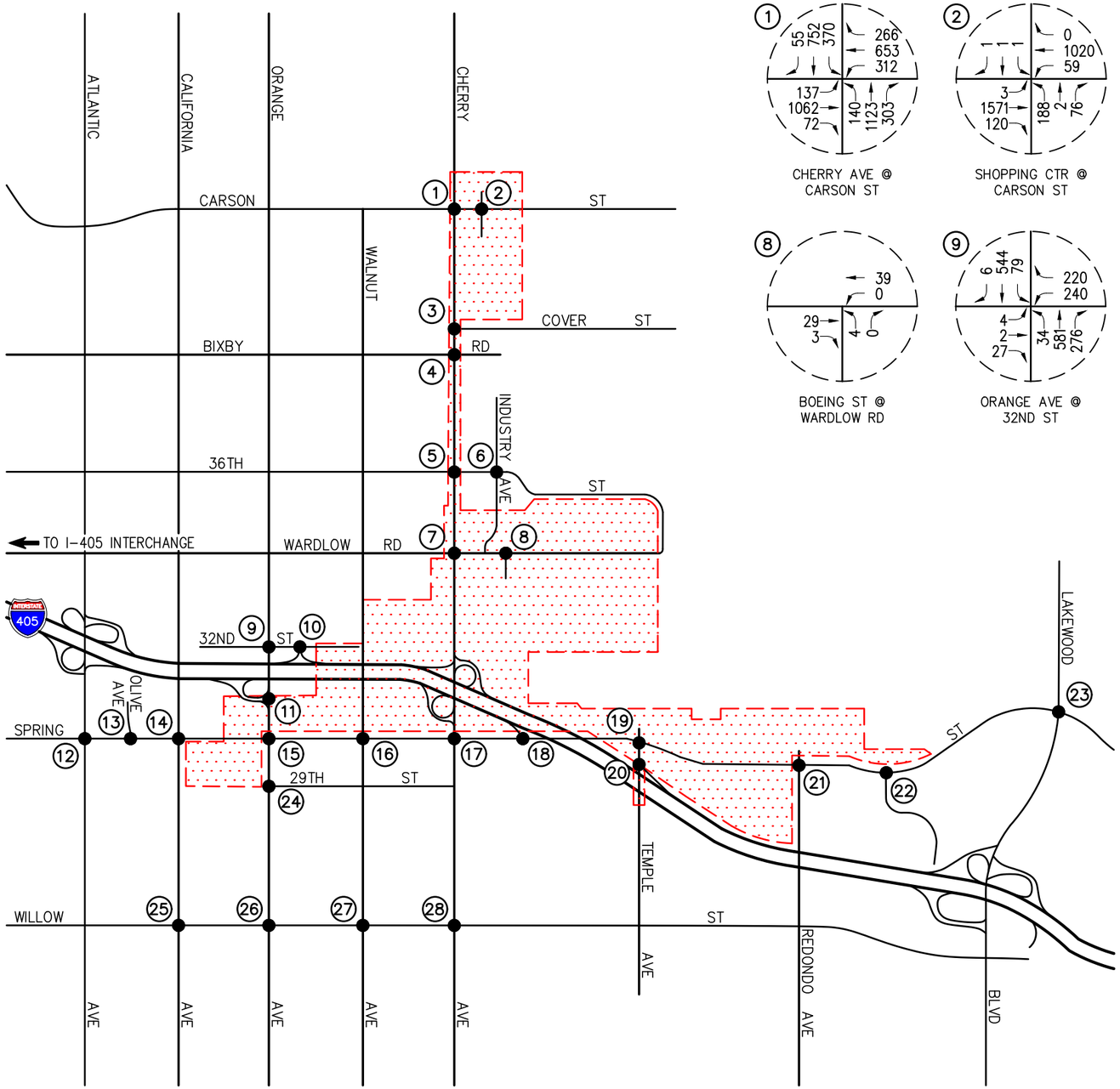
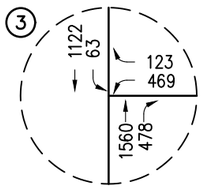
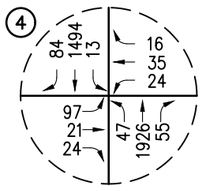


CHERRY AVE @ CARSON ST

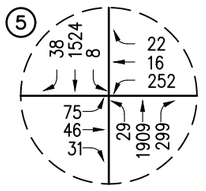
SHOPPING CTR @ CARSON ST



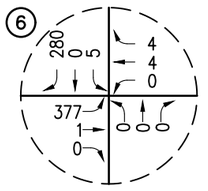
CHERRY AVE @ COVER ST



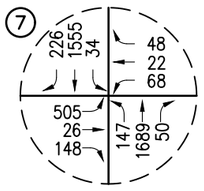
CHERRY AVE @ BIXBY RD



CHERRY AVE @ 36TH ST



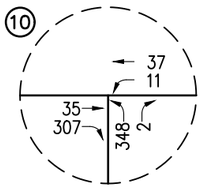
INDUSTRY AVE @ 36TH ST



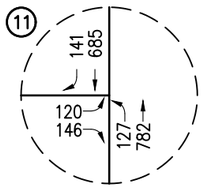
CHERRY AVE @ WARDLOW RD

BOEING ST @ WARDLOW RD

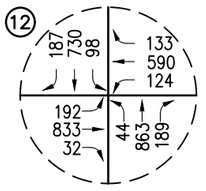
ORANGE AVE @ 32ND ST



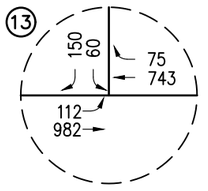
I-405 NB RAMPS @ 32ND ST



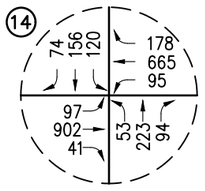
ORANGE AE @ I-405 SB RAMPS



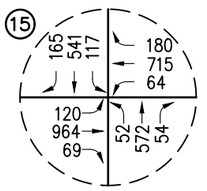
ATLANTIC AVE @ SPRING ST



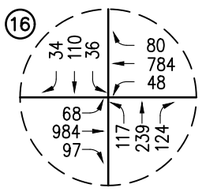
OLIVE AVE @ SPRING ST



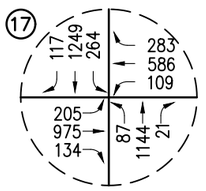
CALIFORNIA AVE @ SPRING ST



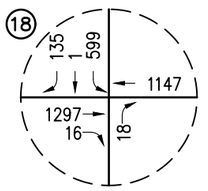
ORANGE AVE @ SPRING ST



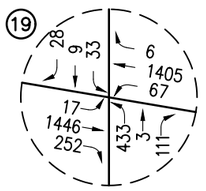
WALNUT AVE @ SPRING ST



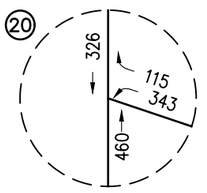
CHERRY AVE @ SPRING ST



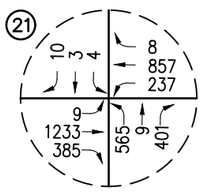
I-405 SB OFF-RAMPS @ SPRING ST



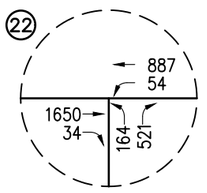
TEMPLE AVE @ SPRING ST



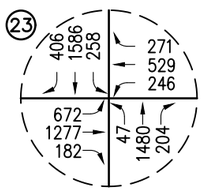
TEMPLE AVE @ I-405 NB OFF-RAMPS



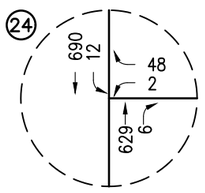
REDONDO AVE @ SPRING ST



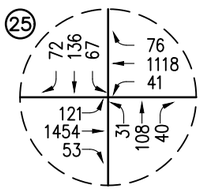
KILROY AIRPORT WAY @ SPRING ST



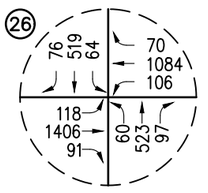
LAKEWOOD BLVD @ SPRING ST



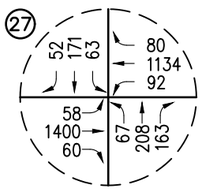
ORANGE AVE @ 29TH ST



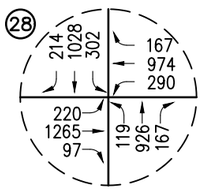
CALIFORNIA AVE @ WILLOW ST



ORANGE AVE @ WILLOW ST



WALNUT AVE @ WILLOW ST



CHERRY AVE @ WILLOW ST

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-7

Existing (Year 2018) PM Peak Hour Traffic Volumes

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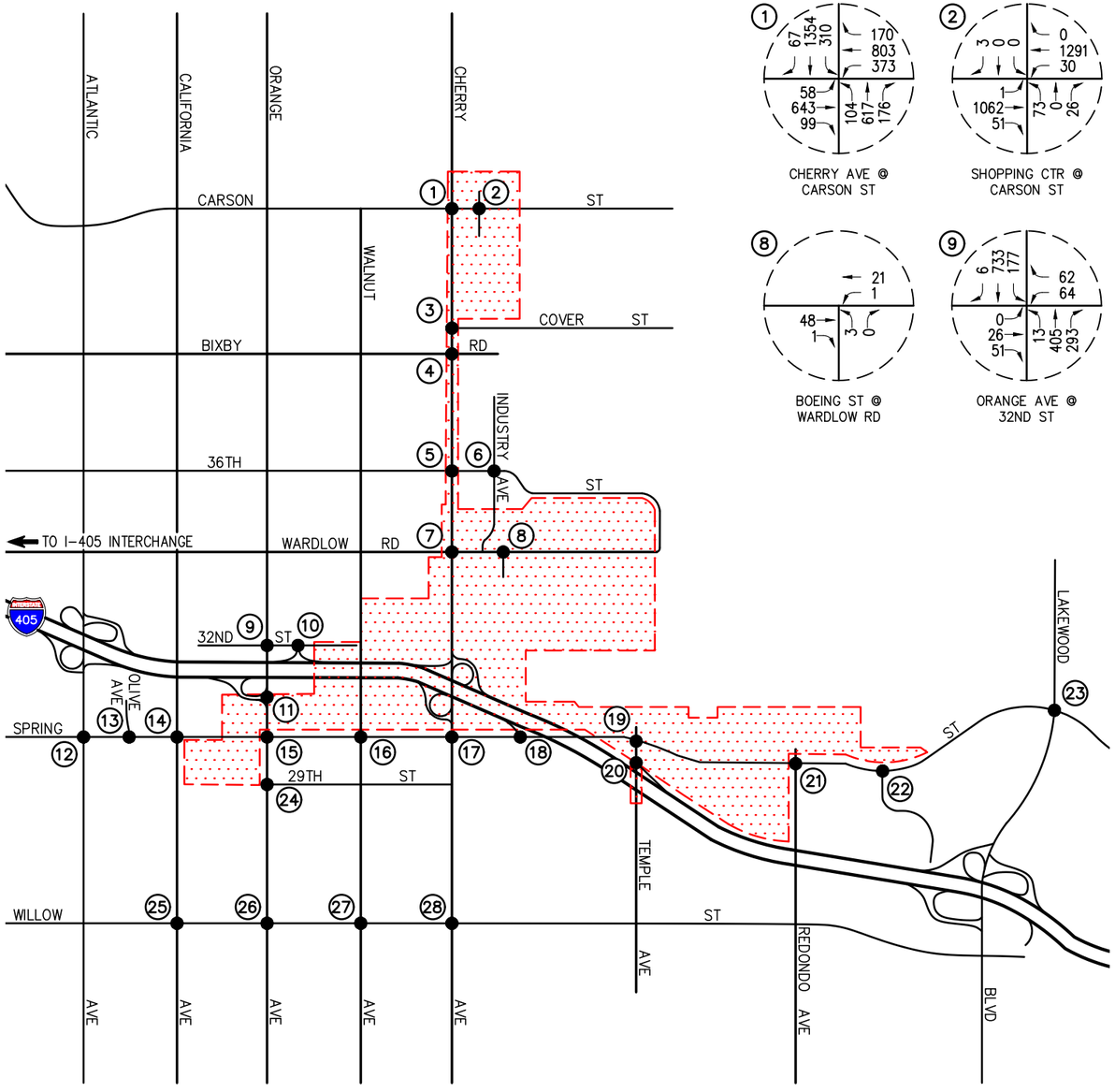
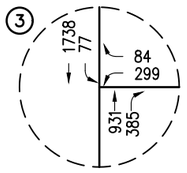
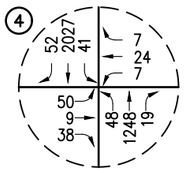


CHERRY AVE @ CARSON ST

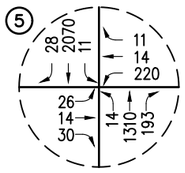
SHOPPING CTR @ CARSON ST



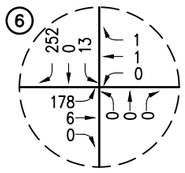
CHERRY AVE @ COVER ST



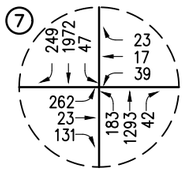
CHERRY AVE @ BIXBY RD



CHERRY AVE @ 36TH ST



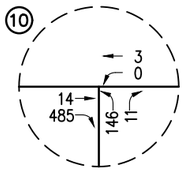
INDUSTRY AVE @ 36TH ST



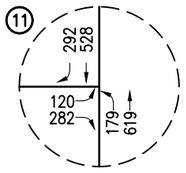
CHERRY AVE @ WARDLOW RD

BOEING ST @ WARDLOW RD

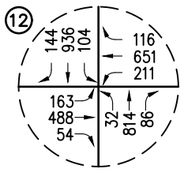
ORANGE AVE @ 32ND ST



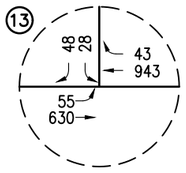
I-405 NB RAMPS @ 32ND ST



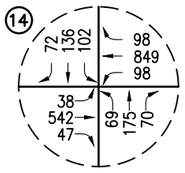
ORANGE AE @ I-405 SB RAMPS



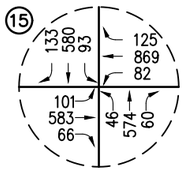
ATLANTIC AVE @ SPRING ST



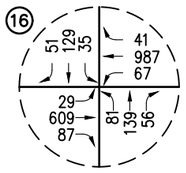
OLIVE AVE @ SPRING ST



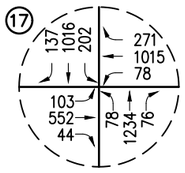
CALIFORNIA AVE @ SPRING ST



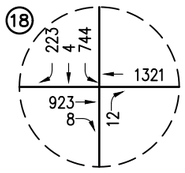
ORANGE AVE @ SPRING ST



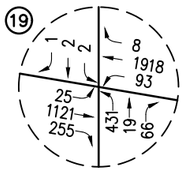
WALNUT AVE @ SPRING ST



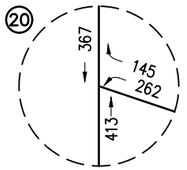
CHERRY AVE @ SPRING ST



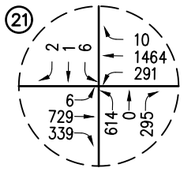
I-405 SB OFF-RAMPS @ SPRING ST



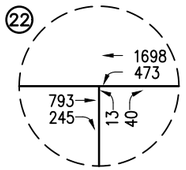
TEMPLE AVE @ SPRING ST



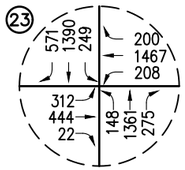
TEMPLE AVE @ I-405 NB OFF-RAMPS



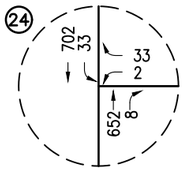
REDONDO AVE @ SPRING ST



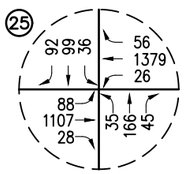
KILROY AIRPORT WAY @ SPRING ST



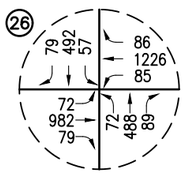
LAKEWOOD BLVD @ SPRING ST



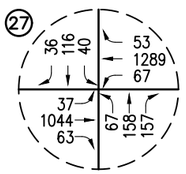
ORANGE AVE @ 29TH ST



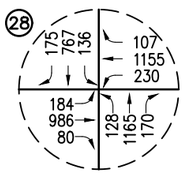
CALIFORNIA AVE @ WILLOW ST



ORANGE AVE @ WILLOW ST



WALNUT AVE @ WILLOW ST



CHERRY AVE @ WILLOW ST

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

N

NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-8

Year 2040 Baseline AM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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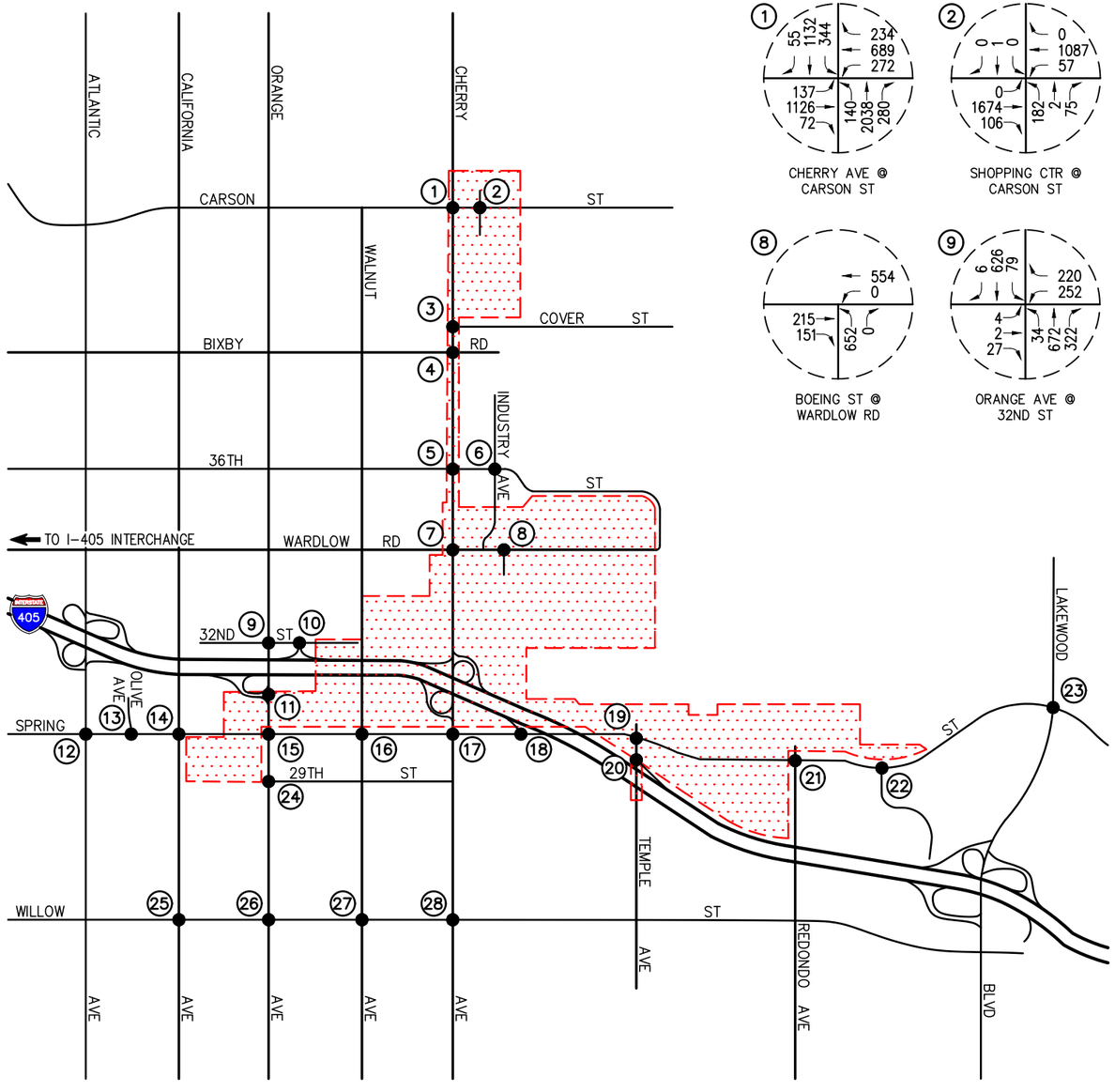

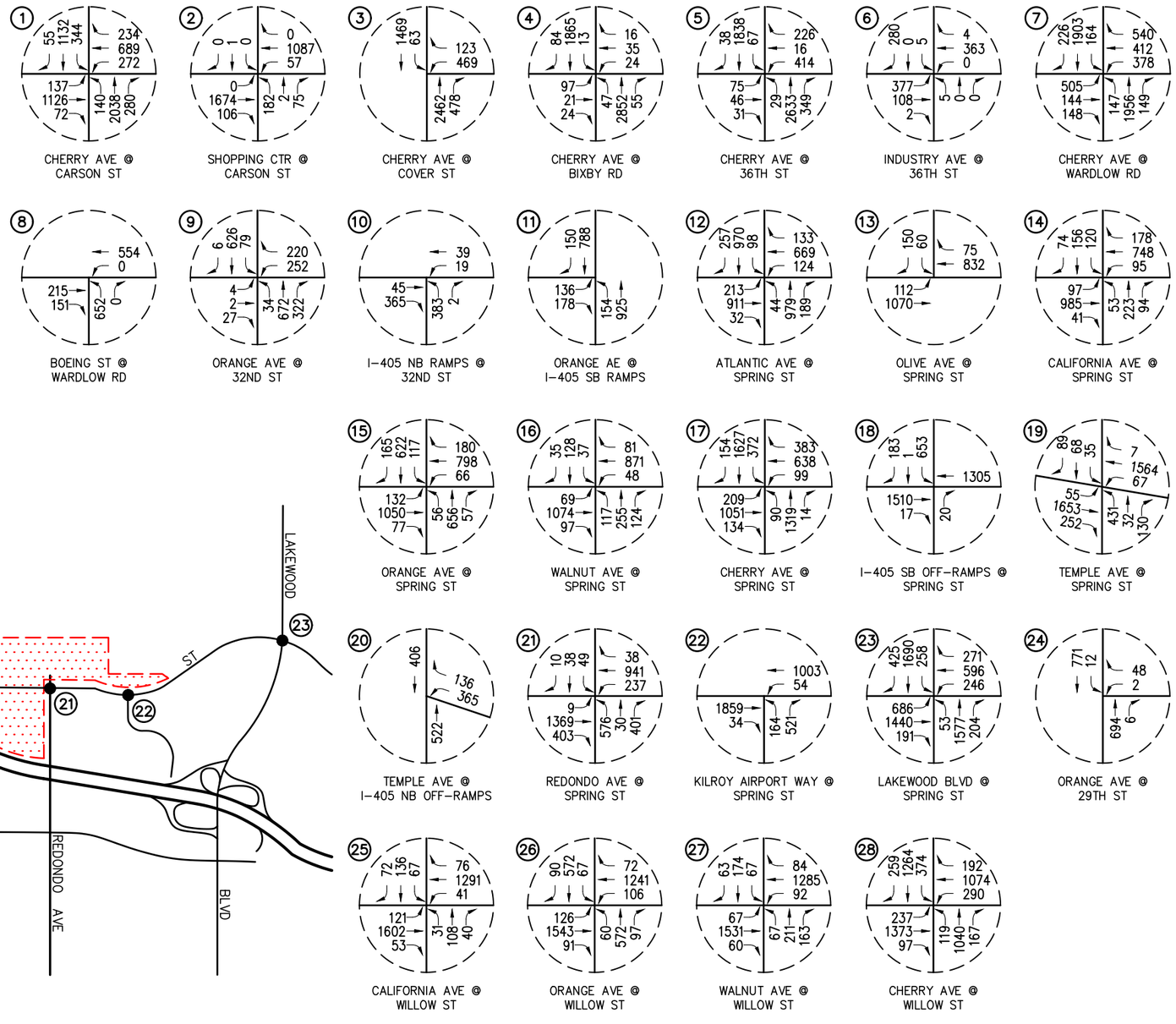

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

N

NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-9

Year 2040 Plus Project PM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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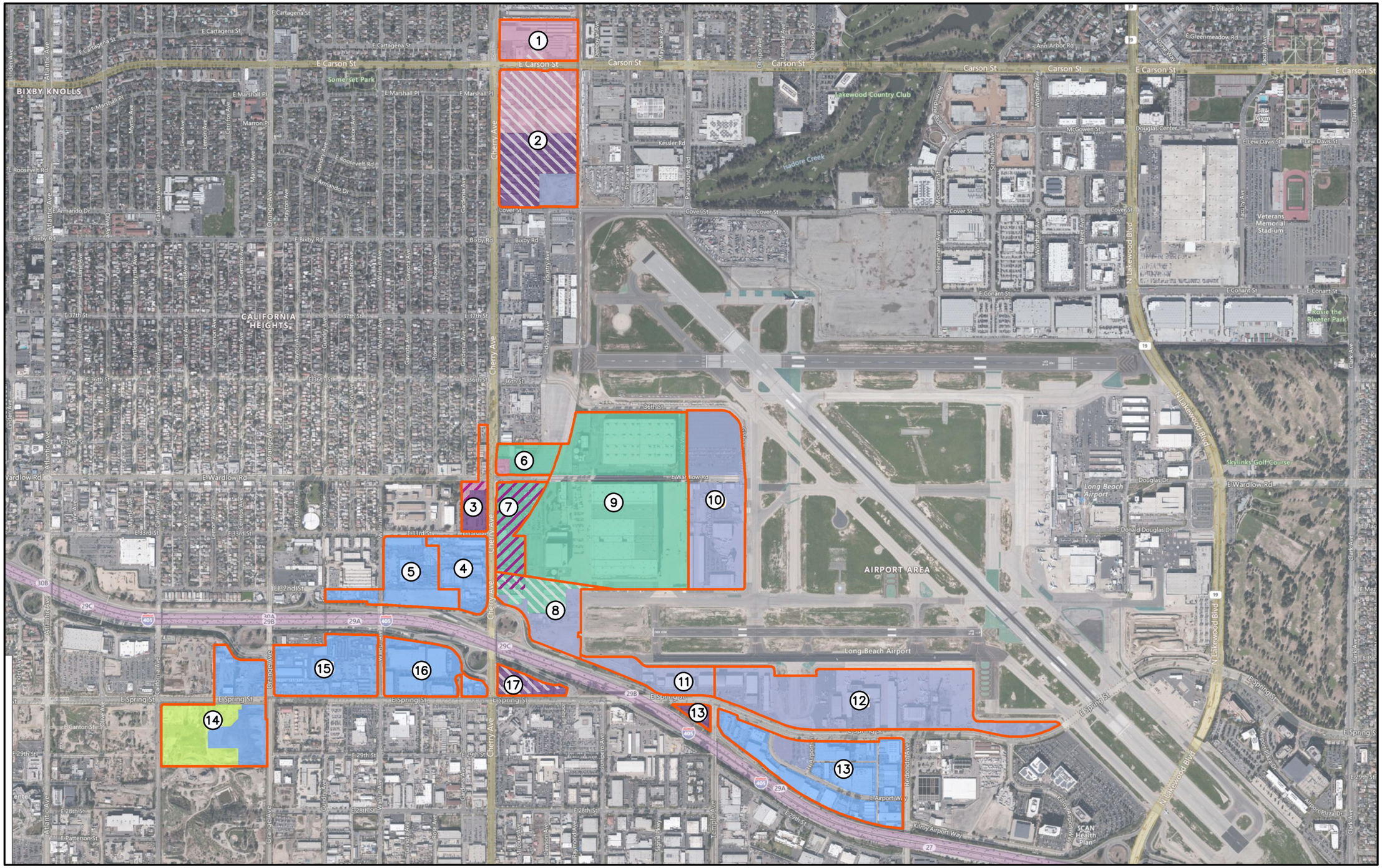

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-10

Globemaster Corridor Specific Plan TAZ Map

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SOURCE: Lindscott Law & Greenspan Engineers, 2020

DUDEK

FIGURE 3.11-11A
Project Trip Distribution Pattern (Passenger Cars)
Globemaster Corridor Specific Plan Draft PEIR/PEIS

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SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-11B

Project Trip Distribution Pattern (Trucks)

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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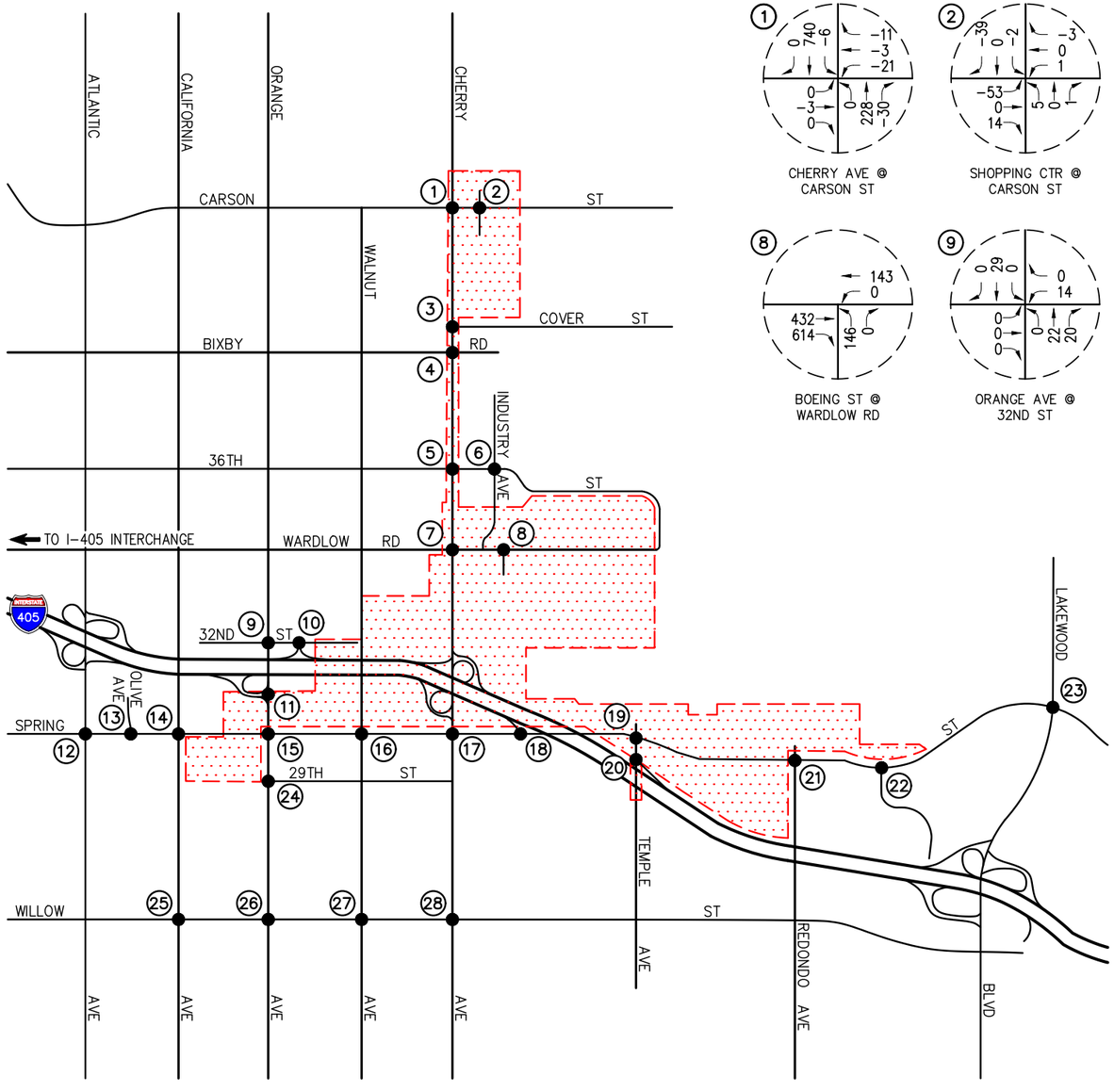

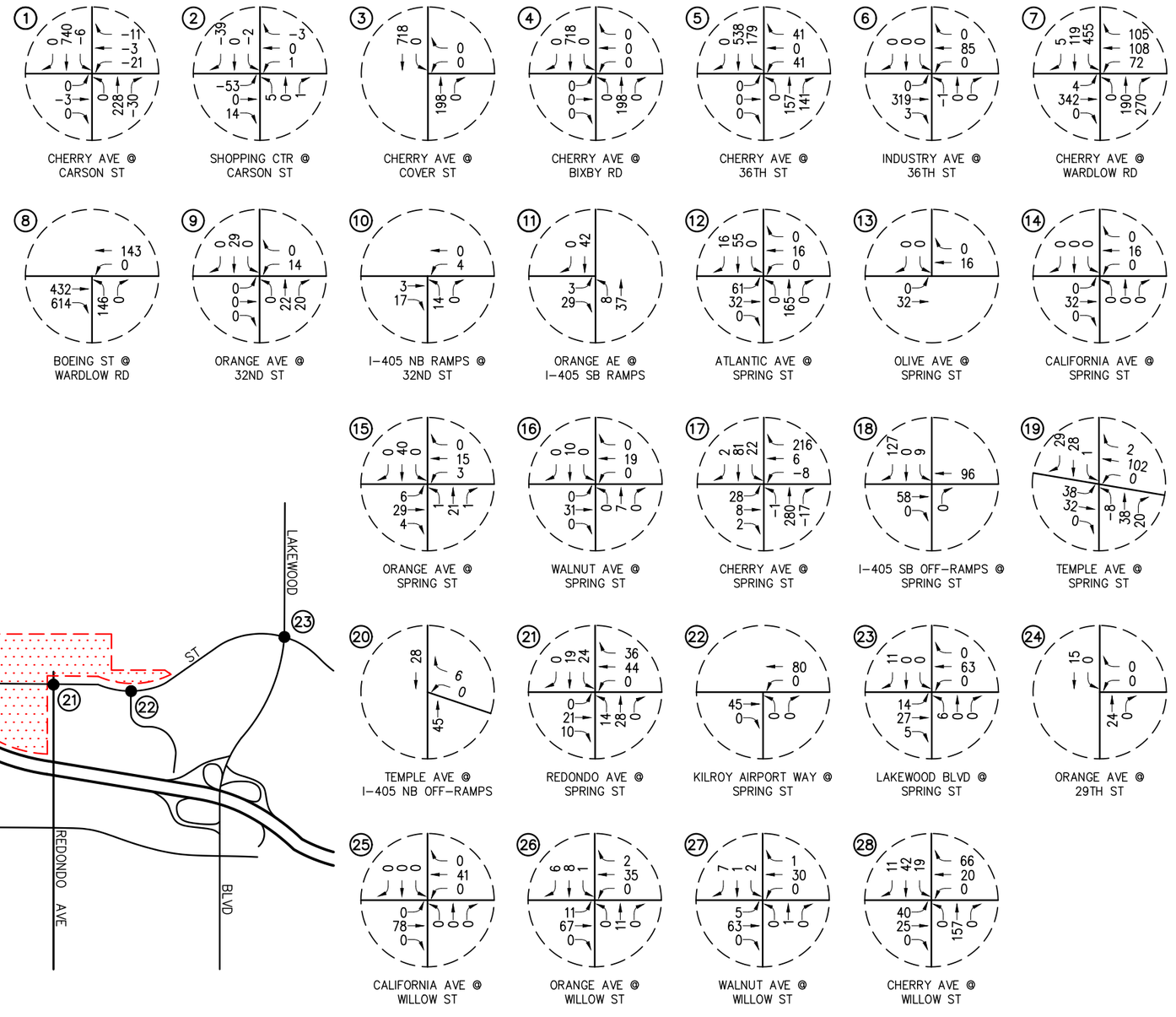

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(#) = STUDY INTERSECTION

= PROJECT SITE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-12

AM Peak Hour Project Only Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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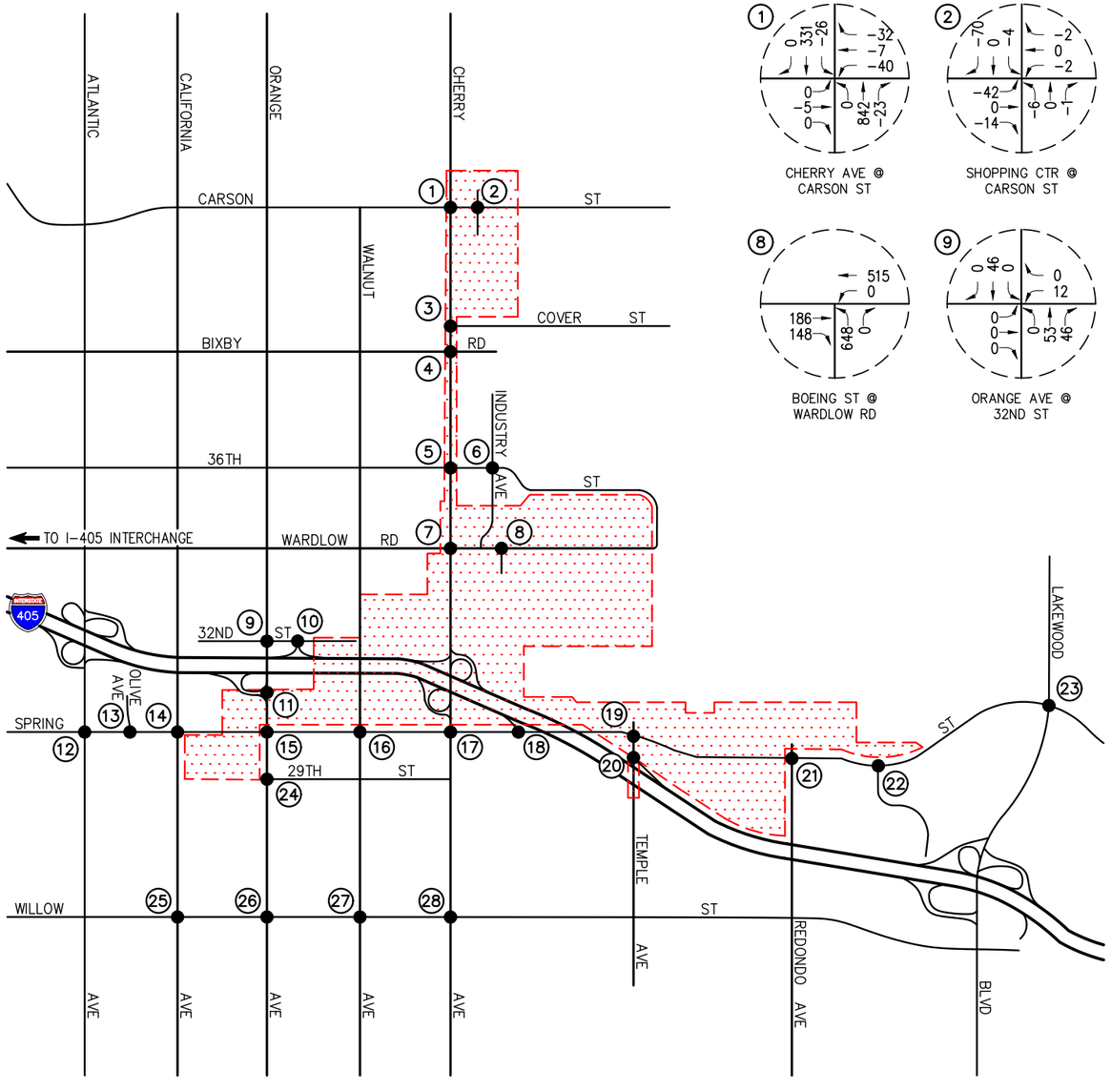

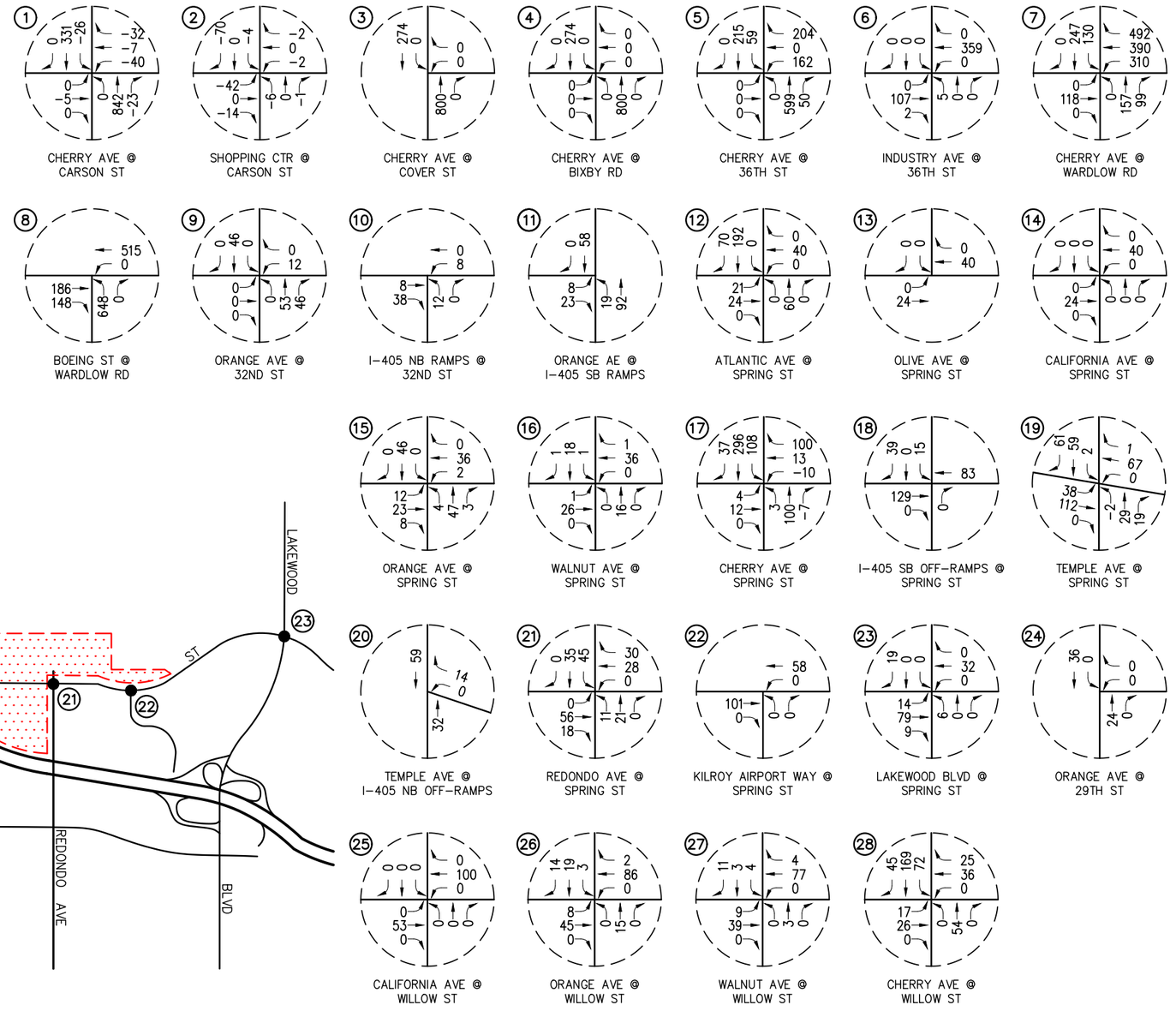

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-13

PM Peak Hour Project Only Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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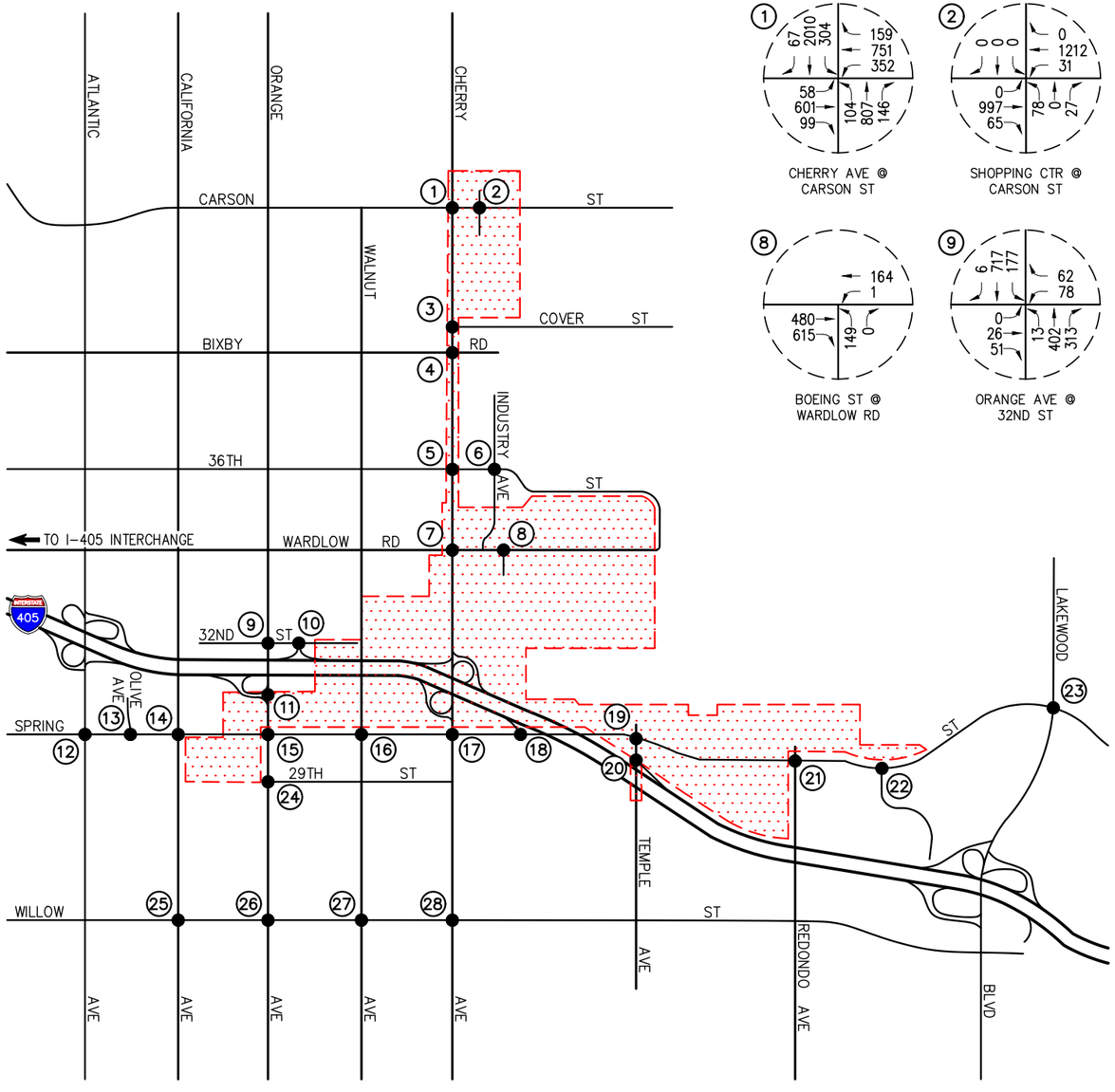

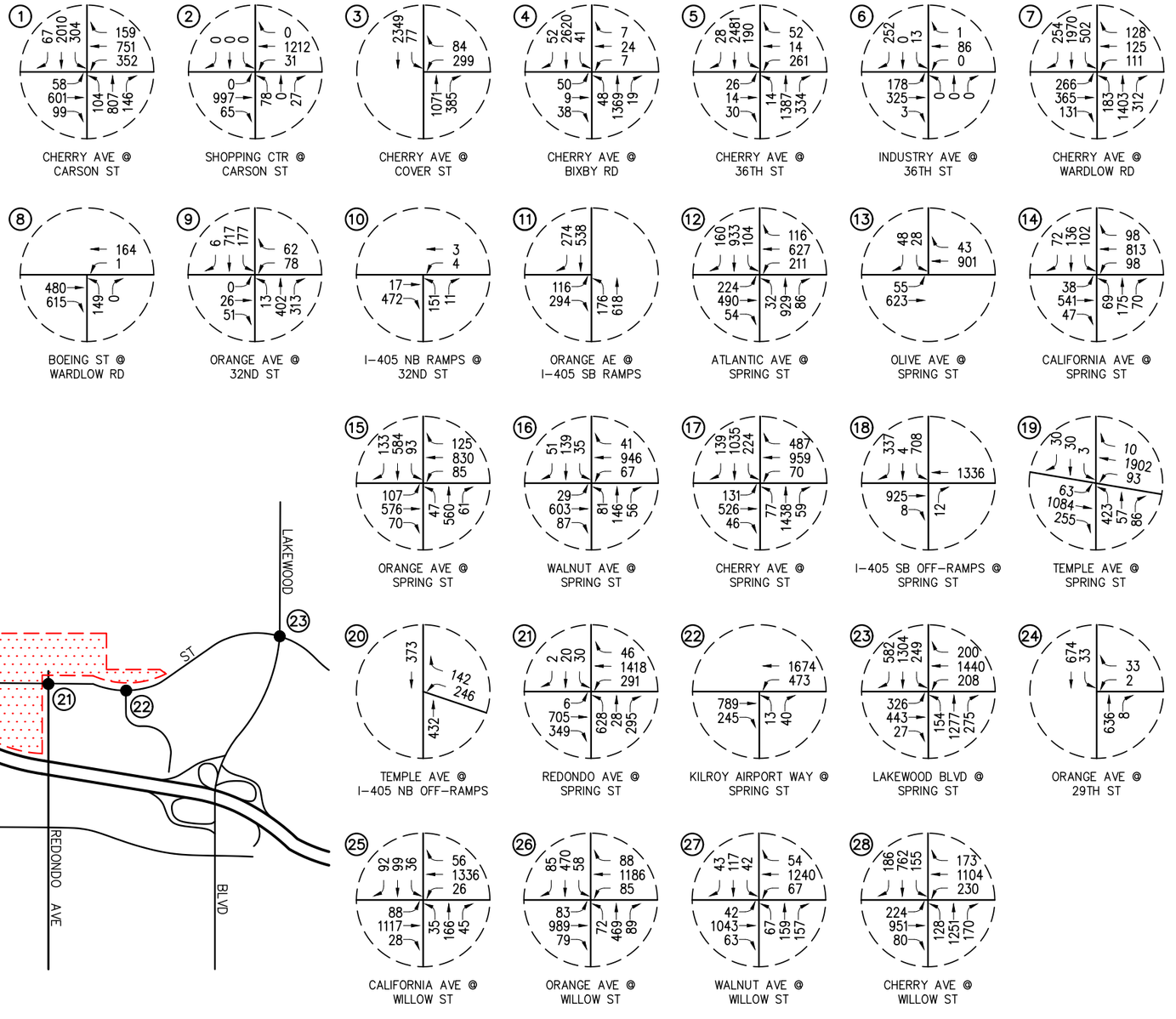

KEY

(#) = STUDY INTERSECTION

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N NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-14

Existing (Year 2018) Plus Project AM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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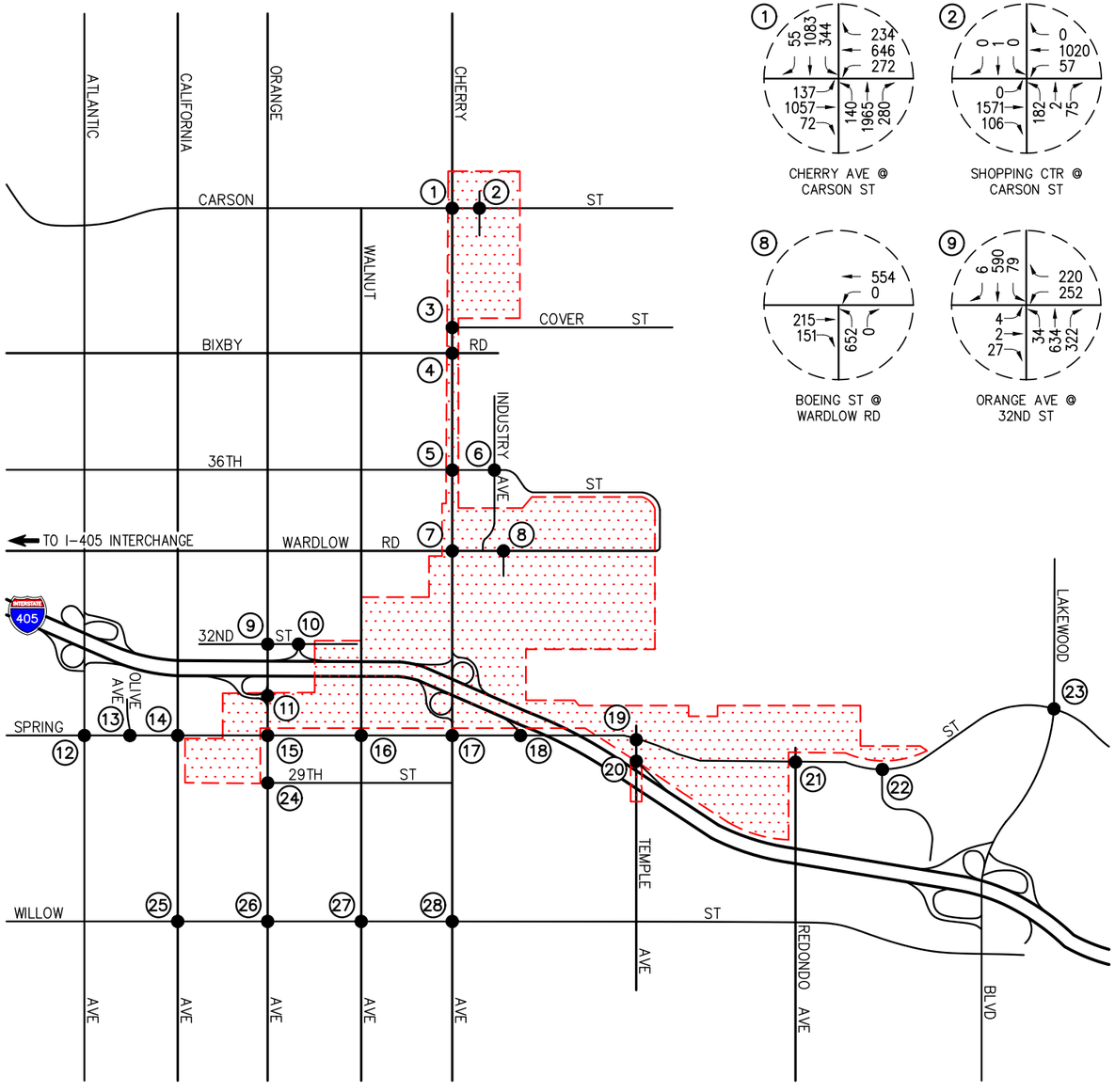

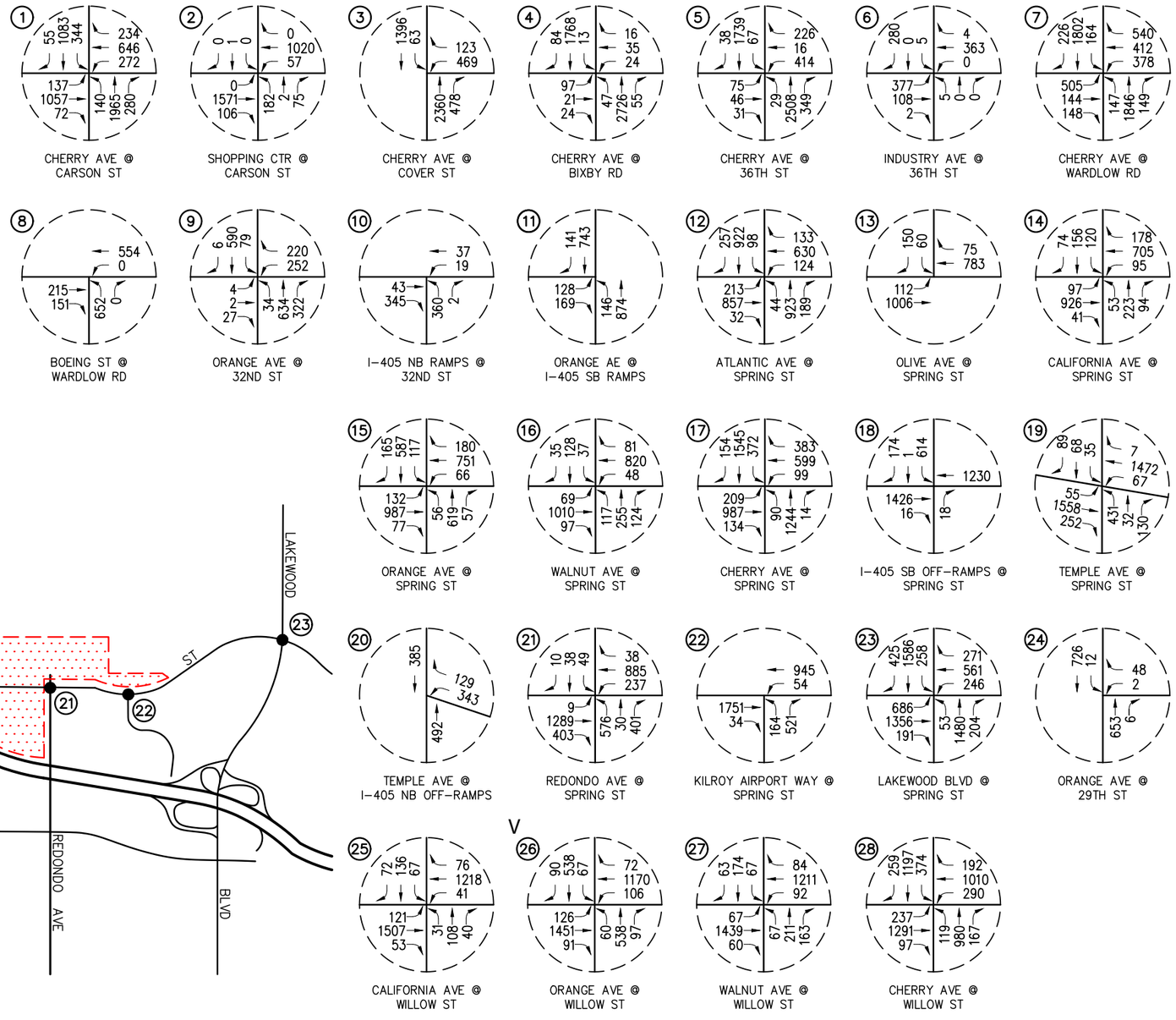

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-15

Existing (Year 2018) Plus Project PM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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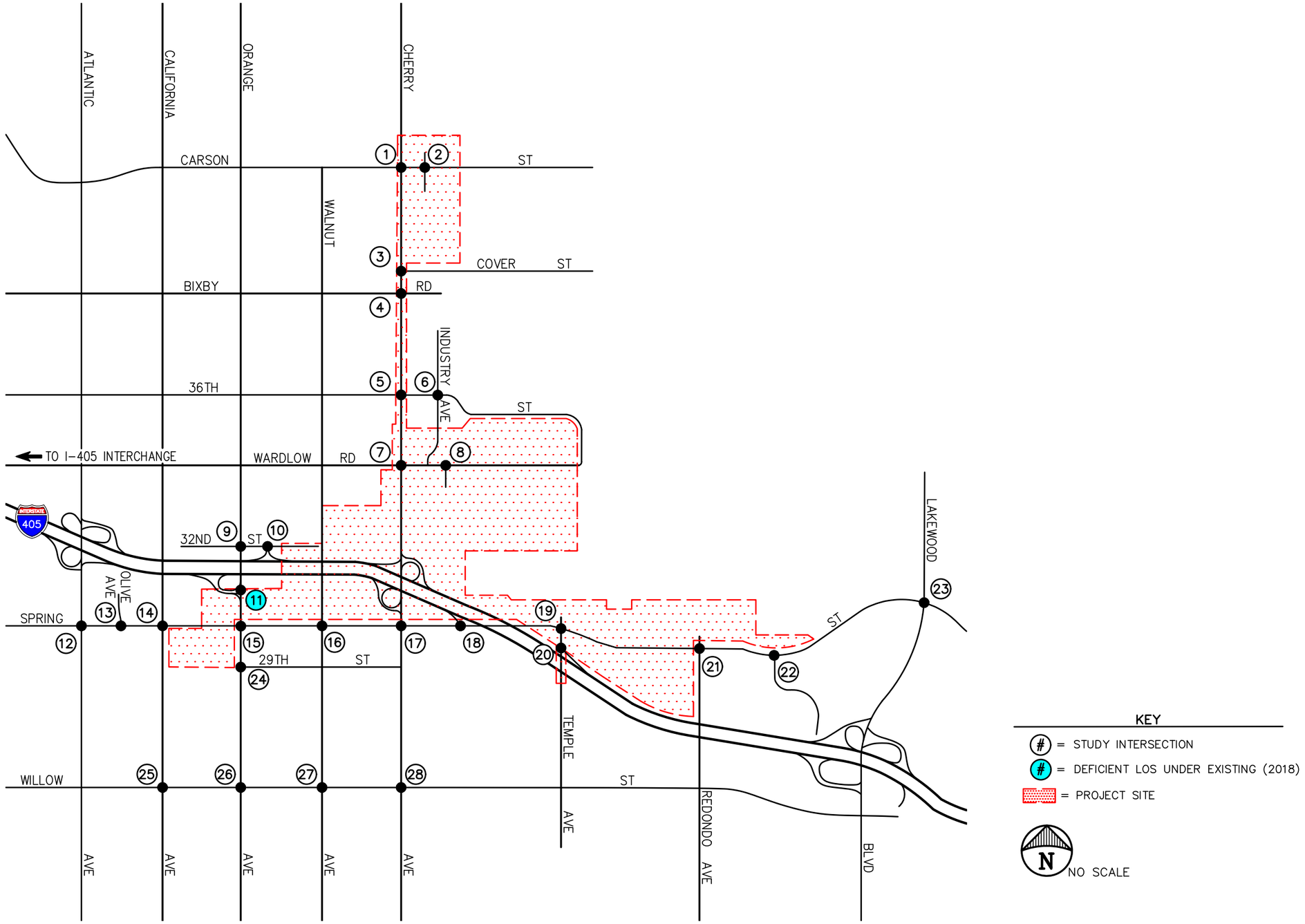

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-16

Existing (2018) Deficient LOS Summary

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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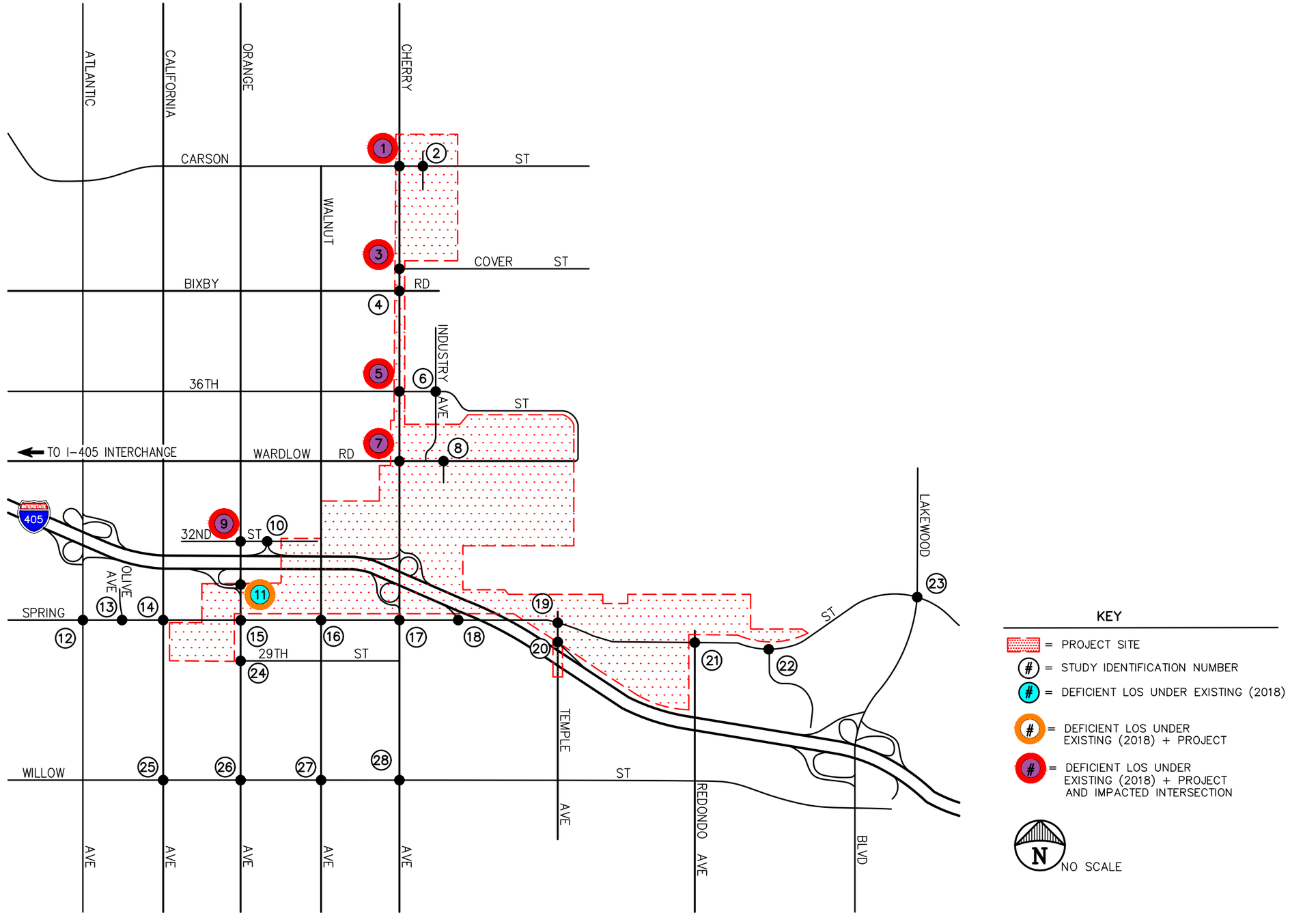

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-17

Existing (2018) + Project Deficient LOS Summary

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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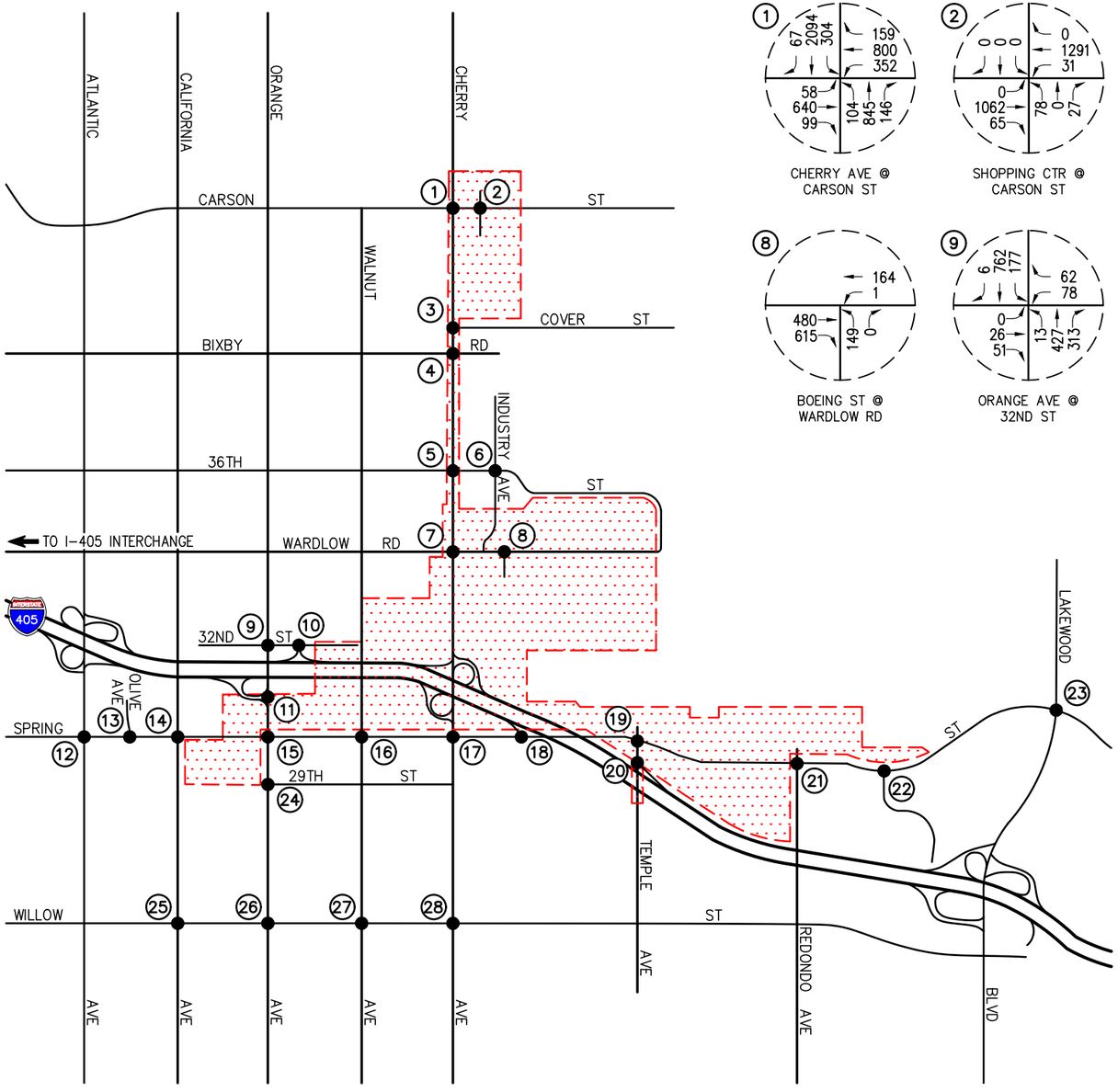

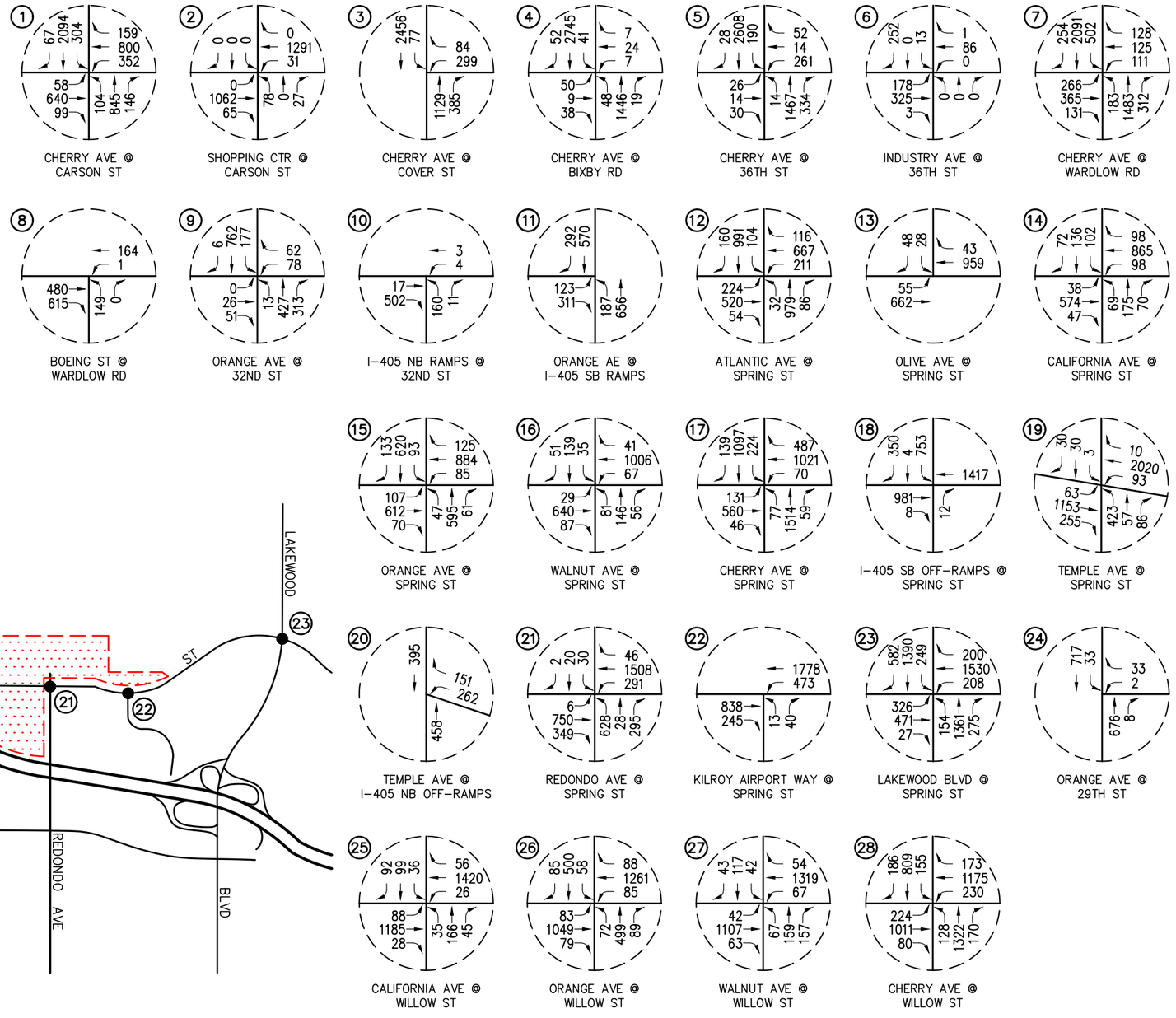

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(#) = STUDY INTERSECTION

= PROJECT SITE

N NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-18

Year 2040 Plus Project AM Peak Hour Traffic Volumes

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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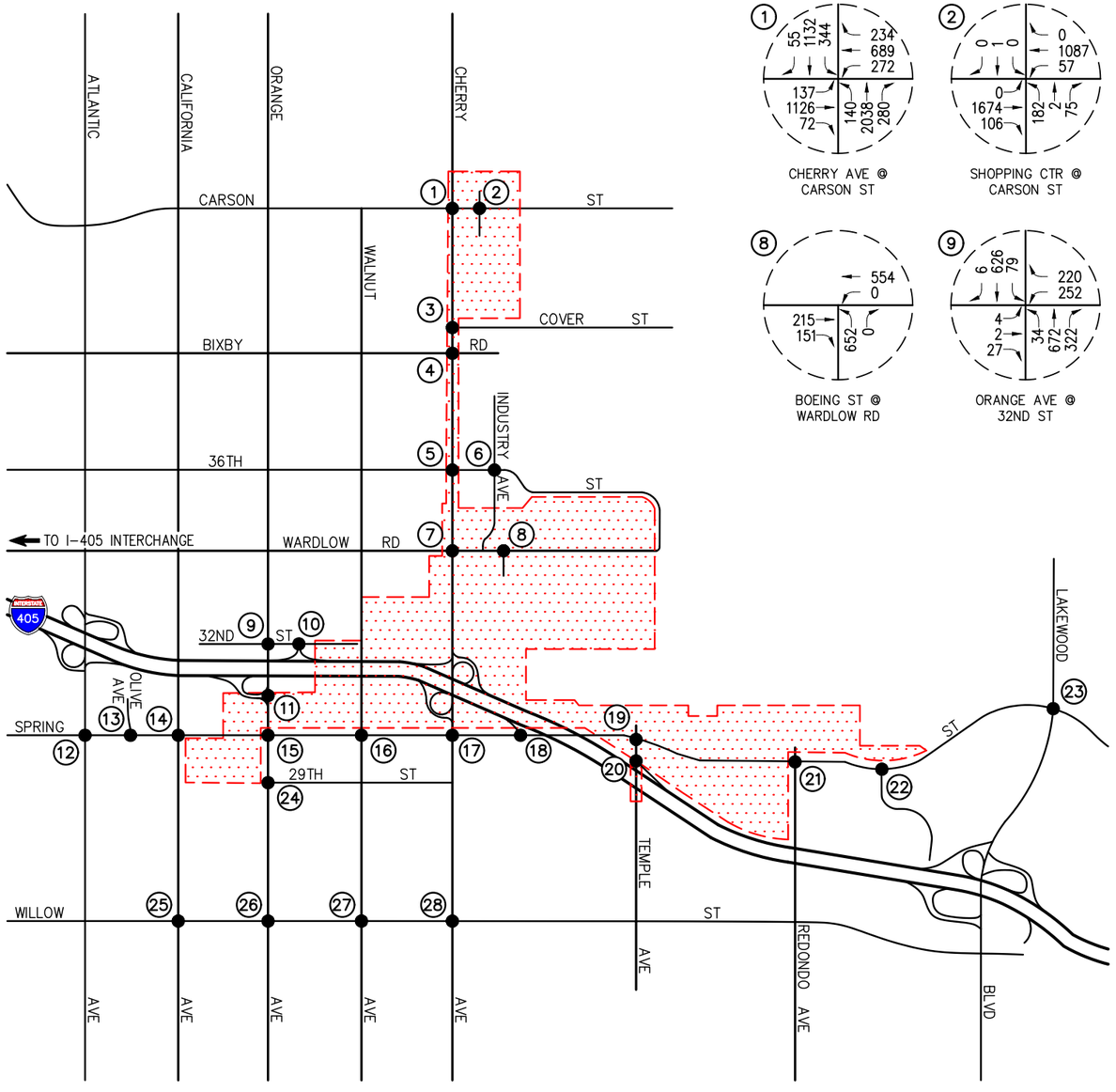

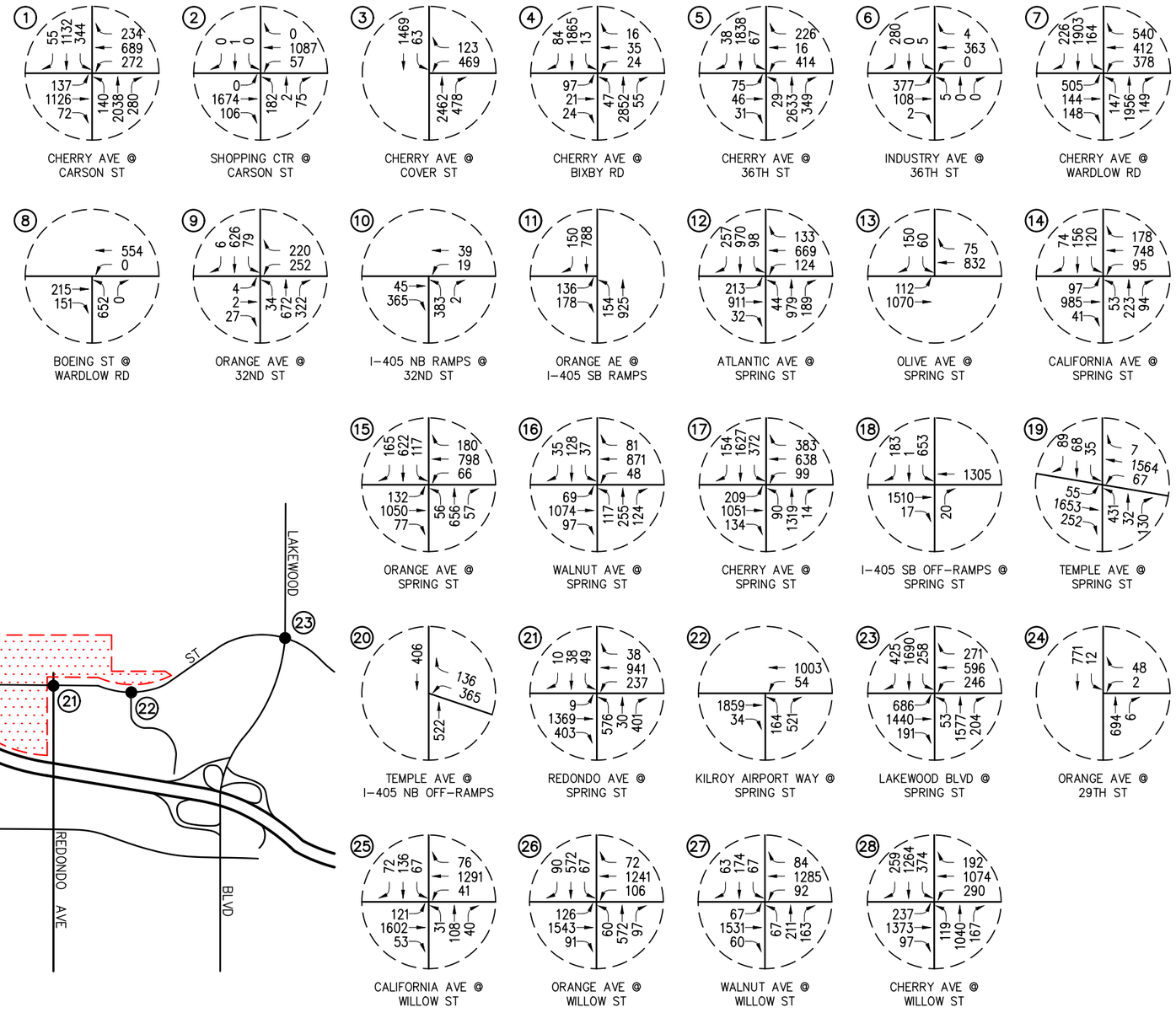

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-19

Year 2040 Baseline Plus Project PM Peak Hour Traffic Volumes.

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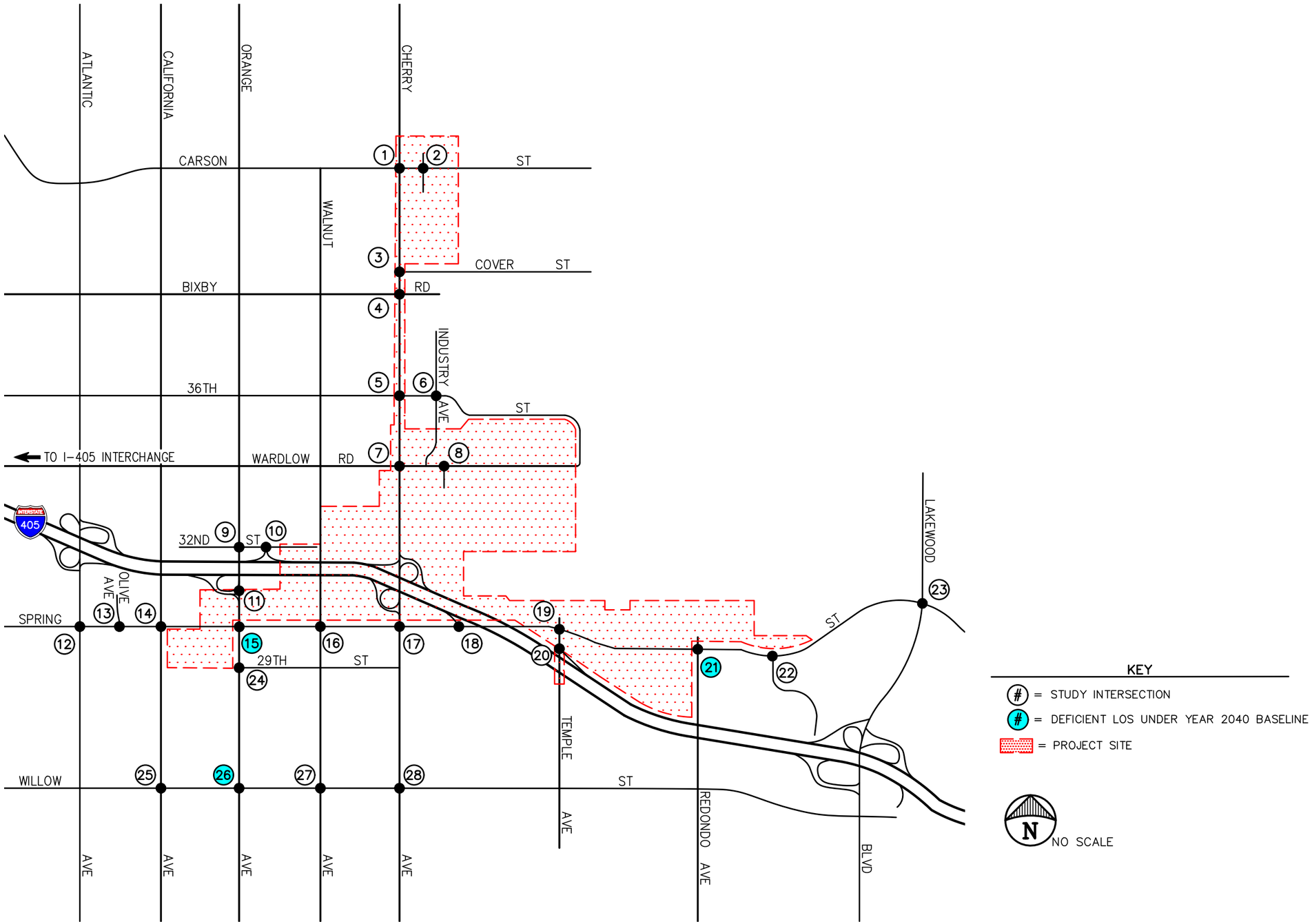

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-20

Year 2040 Deficient LOS Summary

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-21

Year 2040 + Project Deficient LOS Summary

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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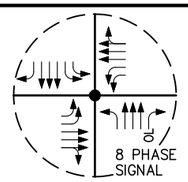
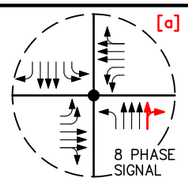
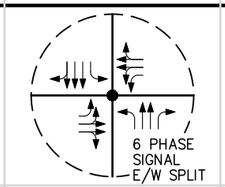
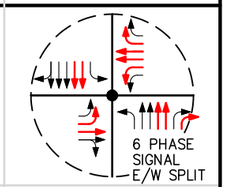
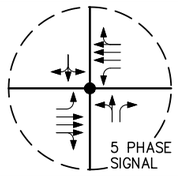
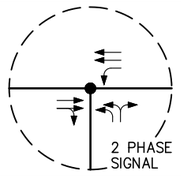
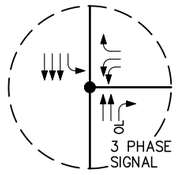
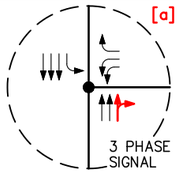
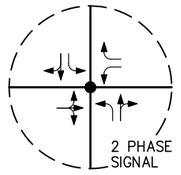
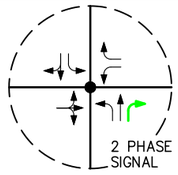
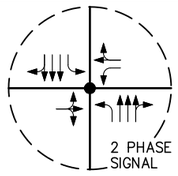
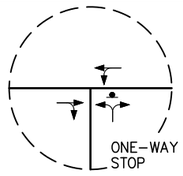
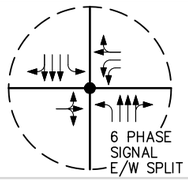
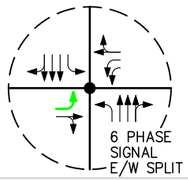
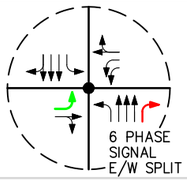
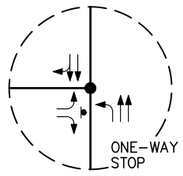
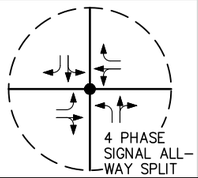
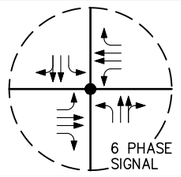
INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION	INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
① CHERRY AVE @ CARSON ST		N/A		⑦ CHERRY AVE @ WARDLOW RD		N/A	
② SHOPPING CTR @ CARSON ST		N/A	N/A	⑧ BOEING ST @ WARDLOW RD		N/A	N/A
③ CHERRY AVE @ COVER ST		N/A		⑨ ORANGE AVE @ 32ND ST			N/A
④ CHERRY AVE @ BIXBY RD		N/A	N/A	⑩ I-405 NB RAMPS @ 32ND ST		N/A	N/A
⑤ CHERRY AVE @ 36TH ST				⑪ ORANGE AVE @ I-405 SB RAMPS		N/A	N/A
⑥ INDUSTRY AVE @ 36TH ST		N/A	N/A	⑫ ATLANTIC AVE @ SPRING ST		N/A	N/A

KEY

= APPROACH LANE ASSIGNMENT
= POTENTIAL MITIGATION WITHOUT R.O.W. ACQUISITION
= POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP
[a] = POTENTIAL MITIGATION REQUIRES ELIMINATION OF EXISTING NORTHBOUND RIGHT-TURN OVERLAP PHASE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-22A

Existing (2018) + Project Potential Mitigation Measures (Intersections 1-12)

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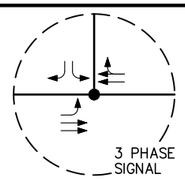
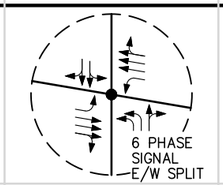
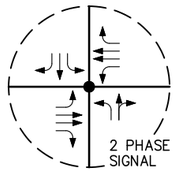
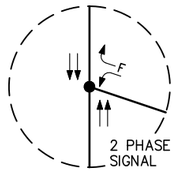
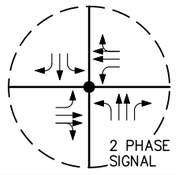
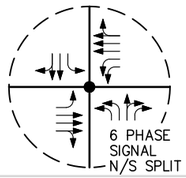
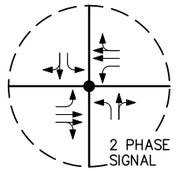
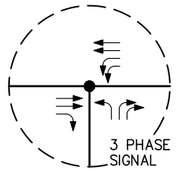
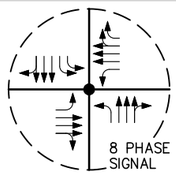
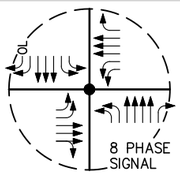
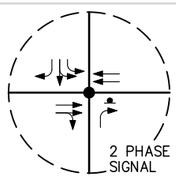
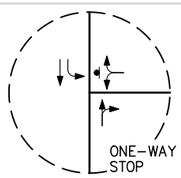
INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION	INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
⑬ OLIVE AVE @ SPRING ST		N/A	N/A	⑲ TEMPLE AVE @ SPRING ST		N/A	N/A
⑭ CALIFORNIA AVE @ SPRING ST		N/A	N/A	⑳ TEMPLE AVE @ I-405 NB OFF-RAMPS		N/A	N/A
⑮ ORANGE AVE @ SPRING ST		N/A	N/A	㉑ REDONDO AVE @ SPRING ST		N/A	N/A
⑯ WALNUT AVE @ SPRING ST		N/A	N/A	㉒ KILROY AIRPORT WAY @ SPRING ST		N/A	N/A
⑰ CHERRY AVE @ SPRING ST		N/A	N/A	㉓ LAKEWOOD BLVD @ SPRING ST		N/A	N/A
⑱ I-405 SB OFF-RAMPS @ SPRING ST		N/A	N/A	㉔ ORANGE AVE @ 29TH ST		N/A	N/A

KEY

= APPROACH LANE ASSIGNMENT
= POTENTIAL MITIGATION WITHOUT R.O.W. ACQUISITION
= POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP

N
NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-22B

Existing (2018) + Project Potential Mitigation Measures (Intersections 13-24)

Globemaster Corridor Specific Plan Draft PEIR/PEIS

DUDEK

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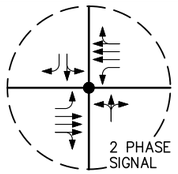
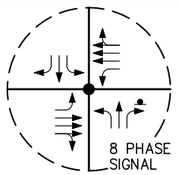
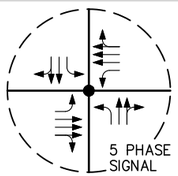
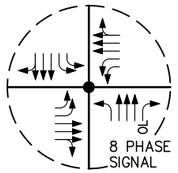
INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION	INTERSECTION	EXISTING	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
(25) CALIFORNIA AVE @ WILLOW ST		N/A	N/A				
(26) ORANGE AVE @ WILLOW ST		N/A	N/A				
(27) WALNUT AVE @ WILLOW ST		N/A	N/A				
(28) CHERRY AVE @ WILLOW ST		N/A	N/A				

KEY

- = APPROACH LANE ASSIGNMENT
- = POTENTIAL MITIGATION WITHOUT R.O.W. ACQUISITION
- = POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
- ● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP

N NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-22C

Existing (2018) + Project Potential Mitigation Measures (Intersections 25-28)

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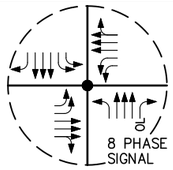
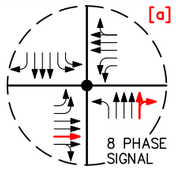
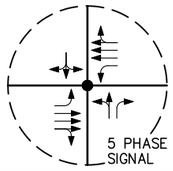
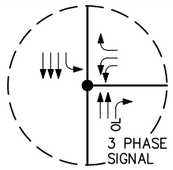
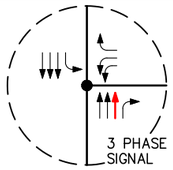
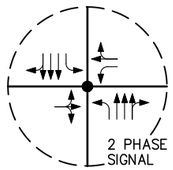
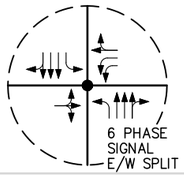
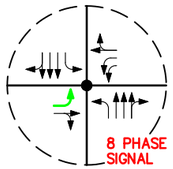
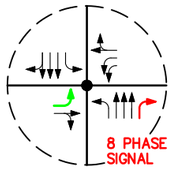
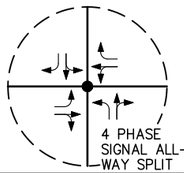
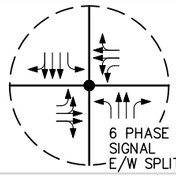
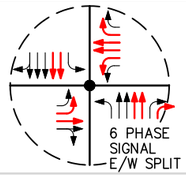
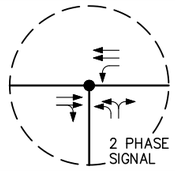
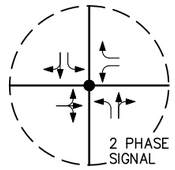
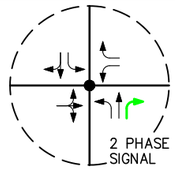
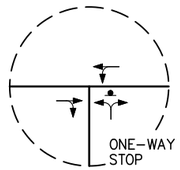
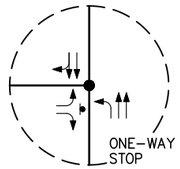
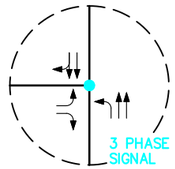
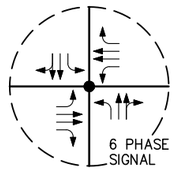
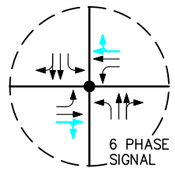
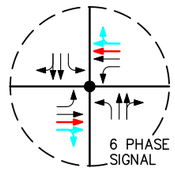
INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
① CHERRY AVE @ CARSON ST		N/A	N/A	
② SHOPPING CTR @ CARSON ST		N/A	N/A	N/A
③ CHERRY AVE @ COVER ST		N/A	N/A	
④ CHERRY AVE @ BIXBY RD		N/A	N/A	N/A
⑤ CHERRY AVE @ 36TH ST		N/A		
⑥ INDUSTRY AVE @ 36TH ST		N/A	N/A	N/A

INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
⑦ CHERRY AVE @ WARDLOW RD		N/A	N/A	
⑧ BOEING ST @ WARDLOW RD		N/A	N/A	N/A
⑨ ORANGE AVE @ 32ND ST		N/A		N/A
⑩ I-405 NB RAMPS @ 32ND ST		N/A	N/A	N/A
⑪ ORANGE AVE @ I-405 SB RAMPS			N/A	N/A
⑫ ATLANTIC AVE @ SPRING ST			N/A	

KEY

- = APPROACH LANE ASSIGNMENT
- = YEAR 2040 PLANNED IMPROVEMENTS
- = POTENTIAL MITIGATION WITHOUT R.O.W. ACQUISITION
- = POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
- ● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP
- [a] = POTENTIAL MITIGATION REQUIRES ELIMINATION OF EXISTING NORTHBOUND RIGHT-TURN OVERLAP PHASE

NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-23A

Year 2040 + Project Potential Mitigation Measures (Intersections 1-12)

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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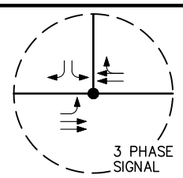
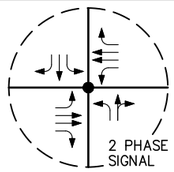
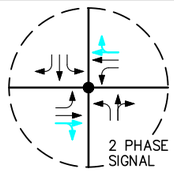
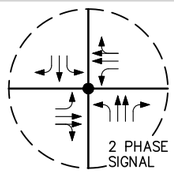
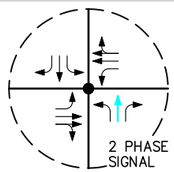
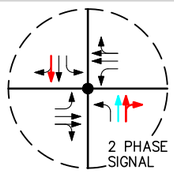
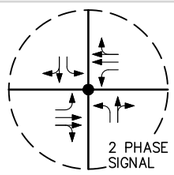
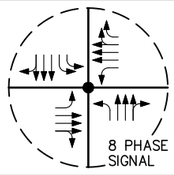
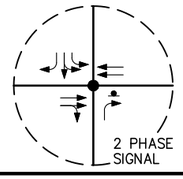
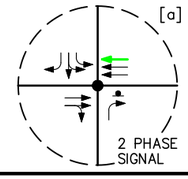
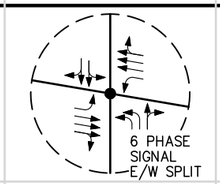
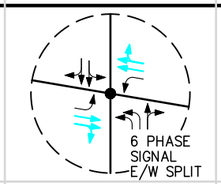
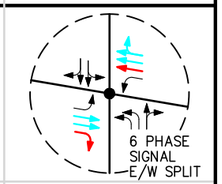
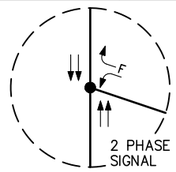
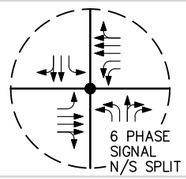
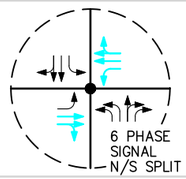
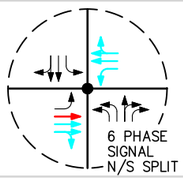
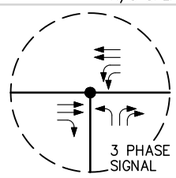
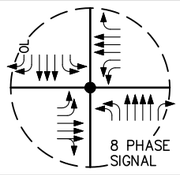
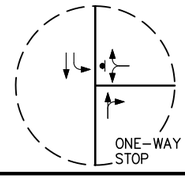
INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
⑬ OLIVE AVE @ SPRING ST		N/A	N/A	N/A
⑭ CALIFORNIA AVE @ SPRING ST			N/A	N/A
⑮ ORANGE AVE @ SPRING ST			N/A	
⑯ WALNUT AVE @ SPRING ST		N/A	N/A	N/A
⑰ CHERRY AVE @ SPRING ST		N/A	N/A	N/A
⑱ I-405 SB OFF-RAMPS @ SPRING ST		N/A		N/A

INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
⑲ TEMPLE AVE @ SPRING ST			N/A	
⑳ TEMPLE AVE @ I-405 NB OFF-RAMPS		N/A	N/A	N/A
㉑ REDONDO AVE @ SPRING ST			N/A	
㉒ KILROY AIRPORT WAY @ SPRING ST		N/A	N/A	N/A
㉓ LAKEWOOD BLVD @ SPRING ST		N/A	N/A	N/A
㉔ ORANGE AVE @ 29TH ST		N/A	N/A	N/A

NO SCALE

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- = POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
- ● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP
- [a] = IMPACTED UNDER CALTRANS METHODOLOGY ONLY

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-23B

Year 2040 + Project Potential Mitigation Measures (Intersections 13-24)

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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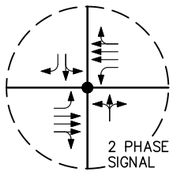
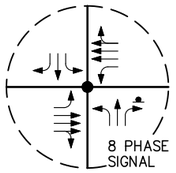
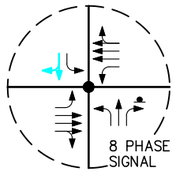
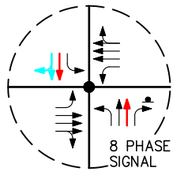
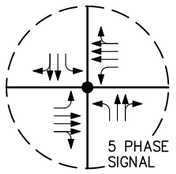
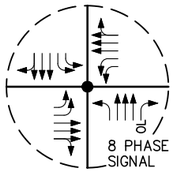
INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION	INTERSECTION	EXISTING	YEAR 2040 PLANNED IMPROVEMENTS	POTENTIAL MITIGATION WITHOUT ROW ACQUISITION	POTENTIAL MITIGATION WITH ROW ACQUISITION
㉕ CALIFORNIA AVE @ WILLOW ST		N/A	N/A	N/A					
㉖ ORANGE AVE @ WILLOW ST			N/A						
㉗ WALNUT AVE @ WILLOW ST		N/A	N/A	N/A					
㉘ CHERRY AVE @ WILLOW ST		N/A	N/A	N/A					

KEY

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- = POTENTIAL MITIGATION WITH R.O.W. ACQUISITION NEEDED
- ● = TRAFFIC SIGNAL, F = FREE RIGHT, OL = OVERLAP

N NO SCALE

SOURCE: Lindscott Law & Greenspan Engineers, 2020

FIGURE 3.11-23C

Year 2040 + Project Potential Mitigation Measures (Intersections 25-28)

Globemaster Corridor Specific Plan Draft PEIR/PEIS

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