Los Angeles County
Metropolitan Transportation Authority

West Santa Ana Branch Transit Corridor

Draft EIS/EIR Appendix D
Final Transportation Impact Analysis Report

Metro

WEST SANTA ANA BRANCH TRANSIT CORRIDOR PROJECT

Draft EIS/EIR Appendix D
Final Transportation Impact Analysis Report

Prepared for:

Metro

Los Angeles County
Metropolitan Transportation Authority

Prepared by:

WSP
444 South Flower Street
Suite 800
Los Angeles, California 90071

Jacobs

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AUTHORS

Loren Bloomberg, Jacobs

Alfredo Cabrera Ventura, Jacobs

Charlie Hetland, Jacobs

Shankar Natarajan, Jacobs

Christina Baghdasarian, WSP

Spencer Jaeger, WSP

Luke Yang, WSP

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AA	Alternatives Analysis
ADA	Americans with Disabilities Act
AM	morning (ante-meridian)
BRT	bus rapid transit
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CIDH	cast-in-drilled-hole
DASH	Downtown Area Short Hop
FTA	Federal Transit Administration
HCM	Highway Capacity Manual
HRT	heavy rail transit
I-	interstate
ICU	intersection capacity utilization
LA	Los Angeles
LA County	Los Angeles County
LADOT	Los Angeles Department of Transportation
LAUS	Los Angeles Union Station
LAX	Los Angeles International Airport
LOS	level-of-service
LRT	light rail transit
LRTP	Long-Range Transportation Plan
LRV	light rail vehicle
Metro	Los Angeles County Metropolitan Transportation Authority
mph	mile(s) per hour
MSF	maintenance and storage facility
MWD	Metropolitan Water District
N/A	not applicable
NEPA	National Environmental Policy Act
NOP	Notice of Preparation
NTS	Norwalk Transit System
OCTA	Orange County Transportation Authority

Acronym	Definition
OPR	Office of Planning and Research
PEROW	Pacific Electric Right-of-Way
PM	afternoon (post-meridian)
Project	West Santa Ana Branch Transit Corridor
ROW	right-of-way
RTIP	regional transportation improvement plan
RTP	regional transportation plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SR	state route
TBM	tunnel boring machine
TMP	transportation management plan
TRB	Transportation Research Board
UPRR	Union Pacific Railroad
US	U.S. Highway
V/C	volume/capacity
VMT	vehicle miles traveled
WSAB	West Santa Ana Branch

1 INTRODUCTION

1.1 Study Background

The West Santa Ana Branch (WSAB) Transit Corridor (Project) is a proposed light rail transit (LRT) line that would extend from four possible northern termini in southeast Los Angeles (LA) County to a southern terminus in the City of Artesia, traversing densely populated, low-income, and heavily transit-dependent communities. The Project would provide reliable, fixed-guideway transit service that would increase mobility and connectivity for historically underserved, transit-dependent, and environmental justice communities; reduce travel times on local and regional transportation networks; and accommodate substantial future employment and population growth.

Based on the current impacts of the recent social response to the COVID-19 virus and the resulting decline in travel demand, at this time it is not possible to predict future changes to the project purpose and need, schedule, and traffic operation impacts that may result from a COVID-19 response of an unpredictable nature and length. Should significant changes in the planning assumptions, project schedule, project scope, or surrounding project environment result because of a prolonged COVID-19 response, Federal Transit Administration (FTA) and Los Angeles County Metropolitan Transportation Authority (Metro) will consider additional environmental evaluation and public input consistent with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA).

1.2 Alternatives Evaluation, Screening, and Selection Process

A wide range of potential alternatives have been considered and screened through the alternatives analysis processes. In March 2010, the Southern California Association of Governments (SCAG) initiated the Pacific Electric Right-of-Way (PEROW)/WSAB Alternatives Analysis (AA) Study (SCAG 2013) in coordination with the relevant cities, Orangeline Development Authority (now known as Eco-Rapid Transit), the Gateway Cities Council of Governments, the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority, and the owners of the right-of-way (ROW)—Union Pacific Railroad (UPRR), BNSF Railway, and the Ports of Los Angeles and Long Beach. The AA Study evaluated a wide variety of transit connections and modes for a broader 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana in Orange County. In February 2013, SCAG completed the PEROW/WSAB Corridor Alternatives Analysis Report[1] and recommended two LRT alternatives for further study: West Bank 3 and the East Bank.

Following completion of the AA Study, Metro completed the WSAB Technical Refinement Study in 2015 focusing on the design and feasibility of five key issue areas along the 19-mile alignment of the WSAB Transit Corridor within LA County:

- Access to Union Station in downtown Los Angeles
- Northern Section Options

[1] Initial concepts evaluated in the SCAG report included transit connections and modes for the 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana. Modes included low speed magnetic levitation (maglev) heavy rail, light rail, and bus rapid transit (BRT).

- Huntington Park Alignment and Stations
- New Metro C (Green) Line Station
- Southern Terminus at Pioneer Station in Artesia

In September 2016, Metro initiated the WSAB Transit Corridor Environmental Study with the goal of obtaining environmental clearance of the Project under CEQA and NEPA.

Metro issued a Notice of Preparation (NOP) on May 25, 2017, with a revised NOP issued on June 14, 2017, extending the comment period. In June 2017, Metro held public scoping meetings in the Cities of Bellflower, Los Angeles, South Gate, and Huntington Park. Metro provided project updates and information to stakeholders with the intent to receive comments and questions through a comment period that ended in August 2017. A total of 1,122 comments were received during the public scoping period from May through August 2017. The comments focused on concerns regarding the Northern Alignment options, with specific concerns related to potential impacts to Alameda Street with an aerial alignment. Given potential visual and construction issues raised through public scoping, additional Northern Alignment concepts were evaluated.

In February 2018, the Metro Board of Directors approved further study of the alignment in the Northern Section due to community input during the 2017 scoping meetings. A second alternatives screening process was initiated to evaluate the original four Northern Alignment options and four new Northern Alignment concepts. The Final Northern Alignment Alternatives and Concepts Updated Screening Report was completed in May 2018 (Metro 2018a). The alternatives were further refined and, based on the findings of the second screening analysis and the input gathered from the public outreach meetings, the Metro Board of Directors approved Build Alternatives E and G for further evaluation (now referred to as Alternatives 1 and 2, respectively, in this report).

On July 11, 2018, Metro issued a revised and recirculated CEQA Notice of Preparation, thereby initiating a scoping comment period. The purpose of the revised Notice of Preparation was to inform the public of the Metro Board's decision to carry forward Alternatives 1 and 2 into the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). During the scoping period, one agency and three public scoping meetings were held in the Cities of Los Angeles, Cudahy, and Bellflower. The meetings provided project updates and information to stakeholders with the intent to receive comments and questions to support the environmental process. The comment period for scoping ended in August 24, 2018; over 250 comments were received.

Following the July 2018 scoping period, a number of project refinements were made to address comments received, including additional grade separations, removing certain stations with low ridership, and removing the Bloomfield extension option. The Metro Board adopted these refinements to the project description at their November 2018 meeting.

1.3 Report Purpose and Structure

The purpose of this report is to evaluate existing transportation conditions in the Study Area and evaluate potential impacts of the No Build Alternative, and Build Alternatives, including design options and maintenance and storage facilities (MSFs) on the multimodal transportation system.

This report provides information about traffic on the freeway system, local roads, and intersections; parking; pedestrian facilities; bicycle facilities; and transit systems. The Study Area includes the Build Alternatives, including the transportation facilities near the proposed LRT tracks and stations. Ultimately, the evaluation of transportation impacts assesses the effects of project operations and project construction on local roads and intersections, the effects of changes in roadway networks due to construction of new tracks, the effects of local increased traffic demand associated with station parking (needs and potential reductions in street parking), the effects on pedestrian facilities due to increased traffic demand associated with the stations, the effects on bicycle facilities due to construction of new tracks, and the potential changes to existing transit services.

1.4 General Topic Background

For the purposes of NEPA, this study generally assesses traffic impacts using level-of-service (LOS) criteria, following the methodologies of the *Highway Capacity Manual* (HCM) (Transportation Research Board [TRB] 2010). Inputs to the HCM methodologies for traffic analysis include traffic volumes (e.g., turning movement volumes at intersections), geometry (number of lanes) and control (signal parameters). At intersections, LOS is determined by calculating average delay (in seconds per vehicle). To assess impacts, future No Build Alternative traffic volumes were developed using regional travel demand model forecasts, which help to serve as the baseline for comparison. The Build Alternatives traffic volumes are determined by adding the information about the local effects of the Build Alternatives under consideration to the No Build Alternative traffic volumes. This analysis focuses on traffic operations at intersections near proposed stations and road crossings under the Build Alternatives condition.

California Senate Bill 743, which was codified in California Public Resources Code Section 21099, required amendments to the CEQA Guidelines with respect to the criteria for determining the significance of transportation impacts. Specifically, under California Public Resources Code Section 21009, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Consistent with this requirement, the California Natural Resources Agency adopted changes in 2018 to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. Under the amendments, automobile delay (as measured by LOS and other similar metrics) no longer constitutes a significant environmental impact under CEQA (California Public Resources Code, Section 21099, subdivision (b)(3); CEQA Guidelines, Section 15064.3, subdivision (a)). Pursuant to new CEQA Guidelines Section 15064.3, subdivision (b)(2), transportation projects that reduce, or have no impact on, VMT are presumed to have a less-than-significant transportation impact. Because the Build Alternatives would reduce or have no impact on VMT, this study assumes that the Build Alternatives would not have significant transportation impacts under CEQA.

For the purposes of both NEPA and CEQA, this study considers multimodal impacts, including changes to transit service (primarily bus), parking (supply and demand) and effects on active transportation (bicycles and pedestrians). The interface between the rail (at the stations and crossings) and existing multimodal transportation system is also part of the analysis.

1.5 Methodology

This section provides the methodology, impact criteria, and thresholds used to determine impacts to the transportation system resulting from the Build Alternatives, including the design options.

As discussed in Section 3.1, NEPA does not provide specific requirements or criteria for assessing the potential for adverse effects from traffic and transportation-based improvements. As discussed in Section 1.4, transportation impacts of the Project are presumed to be less than significant (CEQA Guidelines, Section 15064.3(b)(2)). To provide for a comprehensive assessment of potential traffic, transportation, and mobility effects and impacts under NEPA and CEQA, the methodology described in Sections 1.5.1 to 1.5.7 was established.

Table 1.1 describes the types of potential impacts, the proposed approach for assessing these impacts. More details on the approach for assessing impacts for each element are provided in Sections 1.5.1 to 1.5.7.

Table 1.1. Transportation Analysis Approach

Transportation Element	Potential Impact	Analysis Approach
At-grade crossings (see Section 1.5.1 for more details)	Operational impacts due to new at-grade crossings: affects intersection operations where tracks are through/adjacent to existing intersections and where queues from mid-block rail crossings build up when gates are down.	Assess intersection operations with gate down time, new signal timing and changes in geometry. Estimate queues from mid-block crossings and their effect on nearby intersections.
Road network changes (see Section 1.5.1 for more details)	Street/lane closures or roadway realignments due to new crossings or grade separation.	Assess intersection operations due to potentially rerouted traffic; qualitative assessment of impacts associated with changes in access.
Regional travel (see Section 1.5.5 for more details)	Changes to VMT or VHT.	Evaluate VMT/VHT changes at the regional, county and Study Area levels using the regional travel demand model.
Transit station and MSF travel demand (see Section 1.5.1 and 1.5.2 for more details)	Additional traffic demand and congestion on local roads near new stations and MSF.	Assess intersection operations using projected future traffic volumes for the No Build, Build Alternatives.
Bus-rail interface (see Section 1.5.2 for more details)	Changes to bus access at rail stations, including impacts to existing routes.	Assess changes to local service and utilization.
Bike and pedestrian (see Section 1.5.3 for more details)	Access and operations for bike/pedestrian facilities.	Qualitative.

Transportation Element	Potential Impact	Analysis Approach
Parking (see Section 1.5.4 for more details)	On-street parking impacts due to physical changes to existing on- and off-street parking to accommodate the proposed LRT alignment, stations, and other project elements (e.g., TPSSs). Spillover parking resulting from unmet transit parking demand at proposed stations where transit parking would be provided. Indirect effects, including traffic circulation/delay and vehicle emissions.	Comparison of remaining parking supply against surveyed parking utilization or parking demand.
Construction traffic/transit/active transportation/parking and underground or overhead rail lines (see Section 1.5.7 for more details)	Workers and equipment accessing the construction site would increase traffic and require parking. Transportation system effects associated with aerial (columns) or underground (cut and cover) construction of rail lines could result in lane or roadway closures, which would affect vehicular traffic and transit services. Construction could also result in closure of bicycle and pedestrian facilities.	Qualitative, with high-level descriptions of number of workers relative to total traffic volume, and descriptions of Study Area and affected cross-sections. Discuss temporary changes to traffic circulation, haul truck routes, parking and transit detours during construction.
Freight track realignment (see Section 7.1)	Realignment of freight tracks due to the new LRT tracks.	Qualitative, with high-level descriptions of the freight tracks realignment.

Source: Compiled by Jacobs in 2020
Notes: CEQA = California Environmental Quality Act; LRT = light rail transit; MSF = maintenance and storage facility; NEPA = National Environmental Policy Act; TMP = transportation management plan; VHT = vehicle hours traveled; VMT = vehicle miles traveled

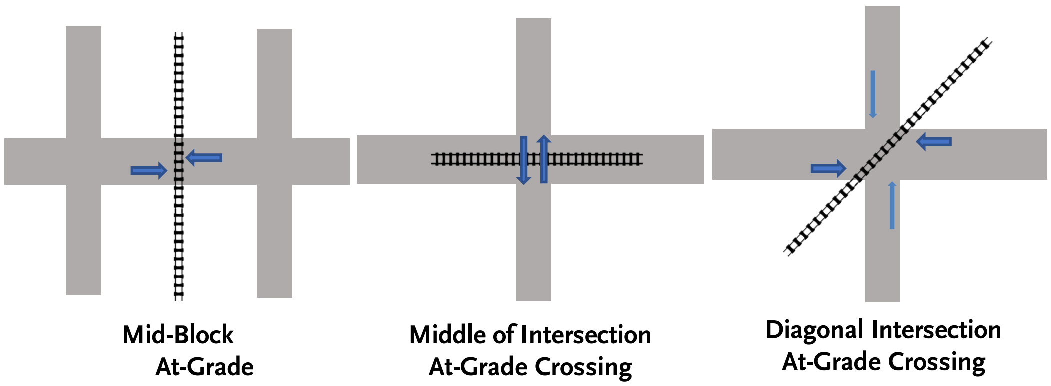
The following subsections provide details on the individual assessment methodology for each element.

1.5.1 Analysis Approach: Traffic Operations

At-grade rail crossings (where a street crosses railroad tracks at the same level) have the potential for affecting traffic operations on arterials and local streets. New crossings would be located near or at existing intersections. When the train crossing gates are down, vehicles attempting to cross the tracks would be forced to stop, increasing delay for vehicles and the potential for queues to form, affecting adjacent intersections and intersections beyond. The existing freight train crossings at some existing at-grade crossings were not considered because of the low number of trains. LRT crossings were considered the most representative condition that would occur most frequently with the overall traffic operations. The condition in which an LRT and freight train cross successively or concurrently was not considered to be the most representative crossing condition.

Figure 1-1 illustrates three common configurations of at-grade crossings and the effects on intersections.

Figure 1-1. At-Grade Crossing Configurations at or near Intersections



Source: Prepared by Jacobs in 2020

Figure 1-2 provides a good example of the third configuration, which is of the existing Paramount Boulevard/Rosecrans Avenue crossing. The proposed operating plans for the Build Alternatives assume 12 train crossings per direction in the peak hour, equating to 24 train crossings per hour for both directions. With this schedule, a train from each direction will cross at each at-grade crossing every 5 minutes, so there will be a train crossing from either direction every 2.5 minutes. Alternative 2 is the only alternative to have 2.5-minute headways proposed during one hour of weekday peak periods for the section between the 7th Street/Metro Center Station and the Slauson/A (Blue) Line Station. However, the section is either aerial or underground. Per Metro's grade crossing safety policy, gate down times are determined based on the train crossing configuration (for mid-block train crossings, gates would be down 45 seconds; for middle or diagonal intersection train crossings, gates would be down 30 seconds).

Figure 1-2. Existing Paramount Boulevard and Rosecrans Avenue At-Grade Train Crossing

Source: Prepared by Jacobs in 2020

There are hundreds of signalized intersections, and even more unsignalized intersections, within the Study Area. The focus of this impact analysis is on those intersections that would be affected by the new transit service. A preliminary screening was conducted to determine the key intersection where there could be an impact.

The screening process assessed the intersections in the Study Area in terms of potential effects, based on location (proximity to a rail crossing and/or station) and traffic volume to identify the intersections within the Affected Area. Assessments were based on field reviews, preliminary engineering plans, and professional judgment. The assessments included:

- The potential effects at each rail crossing, which would be used to determine the potential impact to the surrounding intersections. The trains would result in vehicle queues and the potential to disrupt traffic operations at nearby intersections.
- The potential effects from stations, where high demand would result in higher traffic volumes from station trips.
- Proximity to a rail crossing/station.
- Overall traffic volumes (intersections with higher volumes are more likely to have an impact).

The specific steps for the traffic analysis of at-grade crossings are described below. These steps also apply to the traffic analysis conducted for other elements:

- **Assess existing operations:** The evaluation of existing operations started by considering geometry, traffic volumes and signal timing. The Synchro software was used to evaluate traffic operations using two performance measures (Synchro is a macroscopic traffic operations analysis and optimization software application used to measure intersection performance):

- **LOS**: based on average delay per vehicle in the peak hours. LOS is described in more detail in Section 1.5.9, along with alternative measures (intersection capacity utilization [ICU] and volume/capacity [V/C] ratios). There are multiple options for LOS analysis, so they are outlined separately in Sections 1.5.8.2 and 1.5.8.3. Section 1.5.10 provides details on the application of LOS, including impact determination.
- **95th percentile queues**: Vehicle queue lengths vary with each signal cycle, but 95th percentile queues are among the longest—the queues that are expected in only 1 out of 20 cycles. Evaluations were conducted for the AM and PM peak hours on typical weekdays, consistent with the traffic volumes collected in the field.

- **Future No Build traffic volumes**: Future traffic volumes were derived using growth rates obtained from the Metro travel demand model. The growth rates were applied to the existing conditions traffic volumes collected in late 2016 and throughout 2017. Signal timing from existing conditions were retained, with updated green time indication for each intersection turning movement using the optimization function from Synchro.
- **Evaluate No Build traffic operations at each intersection:** Performance measures included LOS and 95th percentile queues.
- **Project future Build traffic volumes**: The new LRT could result in increases or decreases in station area traffic volumes:

  - Traffic volumes could decrease because of a shift from automobile to transit.
  - Traffic volumes could increase or decrease because of changes to the local road network to accommodate new train service (e.g., where tracks would conflict with existing streets, converting a two-way street to a one-way street). See later in this section for more details.
  - Traffic volumes could increase because of new park-and-ride or kiss-and-ride facilities at Build Alternatives stations. See Section 1.5.2 for more details.

- **Evaluate Build traffic operations at each intersection:** The evaluation considered changes to traffic volumes (as described in the bullet above), geometrics and performance measures, which include LOS and 95th percentile queues.
- **Assess impacts:** Section 1.5.9 discusses impact criteria—when a degradation in LOS associated with the operation of the Build Alternatives is deemed an impact. For example, a change from LOS A to LOS B may not be considered an impact, while another intersection that remains at LOS F but has a slight increase in delay could be considered an impact. Section 1.5.10 includes a discussion of both LOS/delay and queue impacts.

Roadway network changes may be needed to accommodate new track alignments. These may include closures of entire street segments, reductions in the number of lanes, or closures of nonsignalized railroad crossings. Closures or realignments may be due to new crossings or grade separation design requirements.

Quantitative evaluations were conducted largely using the same approach as described in earlier in this section. Changes in traffic volumes (both increases and decreases) were determined by reassigning traffic from the existing network. Consistent with typical professional practice, local reassignments were done by hand, using knowledge of local traffic patterns and professional judgment.

A quantitative impact assessment was conducted using LOS analysis, as described in earlier in this section. In addition, qualitative assessments of impacts associated with changes in access were provided.

The evaluation for MSFs focused on the number of vehicle trips the facility generated. Due the uniqueness of these facilities, the trip rate from an existing Metro LRT maintenance facility was used in determining the trips the maintenance facilities would generate. The number of trips was used to determine whether an intersection performance analysis (with and without the MSF) needed to be conducted. The Los Angeles Department of Transportation (LADOT) *Transportation Impact Study Guidelines* (LADOT 2016), the guidelines referenced for the traffic analysis as further discussed in Section 1.5.9, set the threshold for new developments at 43 vehicle trips during the AM/PM peak hours. The qualitative assessment of the surrounding area was conducted to consider the nearby local street network, vehicle traffic activity, and truck routes to the facility.

1.5.2 Analysis Approach: Transit

Increases in local traffic are expected to be associated with new transit stations. The Metro travel demand model provided projections of the number of new vehicle trips associated with these stations. The broader Study Area was analyzed, because transit changes affect transit service to a greater area than just the Affected Area (typically defined as the immediately adjacent area along the alignment). Particularly at the south end of the Study Area, there would be an increase in trips associated with park-and-ride and kiss-and-ride activities. Travel patterns associated with these increased trips were determined based on knowledge of local traffic patterns and professional judgment. A quantitative impact assessment was conducted using LOS analysis, as described in Section 1.5.1.

The analysis of the bus-rail interface focused on the interaction between Metro/other transit bus services and the new LRT stations. As described in Section 4, the Study Area currently includes a wide range of transit services. Ridership would be likely to change on Study Area bus routes, particularly those reconfigured to provide feeder services to the proposed stations.

The evaluation included quantitative information on transit service, as available from the Metro travel demand model:

- Number of trips by feeder buses
- Passenger load on other transit routes in the Study Area
- Total passenger miles on buses in the Study Area

Other potential impacts were determined qualitatively.

1.5.3 Analysis Approach: Active Transportation

The evaluation for nonmotorized (active) transportation focused on the access for bicyclists and pedestrians. The broader Study Area was analyzed to best capture how any adjustments made by Build Alternatives to active transportation facilities affect the existing and planned active transportation facility networks. Specific Build Alternative improvements for nonmotorized transportation were identified and described. Most of these improvements would be beneficial for bicyclists and pedestrians. Potential (adverse) impacts may include the following:

- An increase in traffic on roadways with existing bike facilities
- Elimination of bicycle lanes or routes, or sidewalks

1.5.4 Analysis Approach: Parking

Potential parking impacts include consequences of, or impacts from, changes in the supply of on- and off- street parking, and changes in parking demand from transit users. Indirect traffic and air quality impacts can also occur as a result of insufficient parking resulting in vehicles circling while looking for parking.

Effects to parking were assessed by considering how operation of the Project would affect the on- and off-street parking supplies (including free and paid public and privately owned lots). For instance, on-street parking spaces may be permanently removed in order to accommodate the LRT tracks, and off-street parking spaces may be permanently removed to accommodate other project features, such as traction power substations (TPSSs). The parking analysis also considered whether the demand from transit parking would exceed the available parking supply, resulting in spillover parking.

On- and Off-street Parking Analysis

The loss of on-street parking itself is not an adverse effect under NEPA, but it can be a local concern. A visual survey was conducted for the parking Affected Area (approximately 0.25 mile around each station, along streets immediately adjacent to the proposed alignment and other project features, and off-street parking lots where permanent easements or acquisitions are required for the Project) to determine supply and utilization of on-street parking. On-street parking effects were assessed by comparing the observed parking utilization with the number of parking spaces available after the removal of spaces resulting from the Project. If the on-street parking supply would decrease below the observed utilization, adverse effects would occur.

The on-street parking analysis also considered whether the loss of on-street parking would result in increases in traffic circulation and traffic delay, as well as a corresponding increase in emissions as drivers seek to find available on-street parking.

Effects to off-street parking on private properties were assessed to determine whether the loss of these parking spaces would result in the supply to fall below the requirements as per the applicable city parking code. If supply would fall below requirements, an adverse effect would occur. Metro would enter into an agreement with the applicable jurisdiction for the loss of off-street parking spaces associated with governmental institutions (e.g., city offices). In these instances, it is assumed that an agreement would be reached and no adverse effects would occur. The off-street parking analysis also considered whether excess parking demand at each station would result in increases in traffic circulation, traffic delay, and a corresponding increase in emissions as drivers seek to find available on-street parking.

Spillover Parking Analysis

The spillover parking analysis considered whether operation of the Project could result in the demand for transit parking to exceed the parking supply being provided by the Project at the corresponding proposed station. Estimates of forecasted parking demand were extracted from the Metro regional travel demand model at each station where transit parking would be provided. At stations where transit parking demand is projected to exceed the number of parking spaces provided, the unutilized supply of on-street parking was also considered to determine if transit parking demand could be accommodated via available on-street parking. Adverse spillover parking impacts would occur if the demand is higher than the combined on- and off-street parking capacity at each station.

For stations without dedicated transit parking, the travel demand model did not include any parking supply and therefore, parking demand was not projected. For these stations, it is assumed that no transit parking would materialize during operation of the Project as there would not be a dedicated parking supply. However, an analysis of available on-street parking was conducted around these stations to determine if some parking demand could be accommodated if passengers do attempt to drive to these stations.

The regional travel demand model uses unconstrained demand at stations with dedicated transit parking as a conservative estimate of total parking demand. If drivers find that parking is not available at their intended station (either dedicated transit parking or on street), it is anticipated that over time some trips would shift to other modes (e.g., kiss-and-ride, bicycle, or transit) to access the station or would drive to their ultimate destination. As such, in the long term, parking demand could be lower than that projected by the regional travel demand model if drivers cannot be accommodated. However, the analysis assumes a worst-case scenario because there may be periods when the demand is higher than available parking at the stations, particularly after the start of service.

1.5.5 Analysis Approach: Vehicle Miles Traveled

As described in Sections 1.4 and 3.2, California Senate Bill 743 guides the state to focus on VMT and related measures as an alternative to traditional LOS analysis. An analysis focused on VMT was conducted for CEQA purposes.

By definition, VMT analysis is a regional assessment. However, for large regions like the greater Los Angeles region, the effects of individual projects may be relatively small. Therefore, three different geographic evaluations were used: SCAG region, LA County, and the Study Area, with VMT and vehicle hours traveled assessed for the Existing Condition, No Build Alternative, and Build Alternatives.

1.5.6 Analysis Approach: CEQA Evaluation

As discussed in Sections 1.4 and 3.2, pursuant to California Public Resources Code Section 21099, subdivision (b)(3) and CEQA Guidelines Section 15064.3, automobile delay is not considered an environmental impact under CEQA. The following thresholds are used to assess potential traffic and transportation impacts under CEQA. Specifically, this analysis considers whether the Project would:

(a) Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
(b) 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

1.5.7 Analysis Approach: Construction

Impacts to the transportation system (roadway, freight tracks, transit, bicycle, pedestrian and parking) could result during construction of the Build Alternatives. Construction could require peak, off-peak, and/or night-time closures of lanes, roads or intersections, shoofly tracks, either short-term (1 or 2 days) or long-term (over the course of several days, weeks or months). Closures could affect travel lanes for vehicles, bus routes or stops, bicycle facilities, sidewalks, schedules for freight train movement, and on- or off-street parking. Detours for vehicular, transit or nonmotorized traffic could be required. Additionally, construction workers would add traffic to local streets and may use on-street or off-street parking for their personal vehicles.

The discussion of potential impacts focused on the types of construction activities associated with elements of the Build Alternatives, including aerial and underground rail construction, intersection and street improvements to accommodate at-grade rail and station construction. The evaluation considered the locations, the number of lanes and the duration of closures for traffic and parking. Locations existing freight tracks would need shoofly tracks. Potential impacts due to delays or detours to transit routes along those roadways were considered. The evaluation also considered haul routes and construction worker parking.

1.5.8 Intersection and Roadway Segment Performance Measures

Traffic engineers use multiple measures to evaluate roadway performance. LOS is the most common, but other measures can be used to assess the wide range of roadway types, time periods and modes that use each facility. The subsections below outline three potential ways to evaluate performance on the roadway network.

1.5.8.1 Level-of-Service

LOS is a standard means of evaluating operations at intersections and other roadway elements. LOS analysis is based on delay at the intersections and requires evaluation of traffic volumes, geometry and traffic control (e.g., stop signs or traffic signals). Intersection LOS is determined using the analysis methodologies described in the HCM (TRB 2010). It is based on six defined levels (A through F), which describe conditions ranging from “ideal” to “worst.” Table 1.2 summarizes the HCM intersection LOS criteria.

For both signalized and unsignalized intersections, the average control delay per vehicle is estimated for all lane groups (left, through, right lane combination) and then aggregated for each intersection leg and for the intersection as a whole.

Signalized intersection HCM analysis accounts for the effects of signal coordination and platoon formation (vehicles traveling in a group) on intersection operations.
All-way-stop-controlled intersection analysis is based on the degree of vehicle conflict for each intersection leg caused by the opposing vehicles and each conflicting vehicle. Two-way stop-controlled intersection analysis is based on gap acceptance and conflicting traffic for vehicles stopped on the minor-street intersection leg.

Table 1.2. Intersection Level-of-Service Criteria for Signalized, All-Way Stop and Two-Way Stop Intersections

Level-of-Service	Description of Operation	Signalized Intersection Delay (seconds/vehicle)	All-Way Stop or Two-Way Stop Intersection Delay (seconds/vehicle)
A	Describes primarily free-flow conditions at average travel speeds. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delays at intersections are minimal.	≤ 10	0-10
B	Represents reasonably unimpeded operations at average travel speeds. The ability to maneuver in the traffic stream is slightly restricted and delays are not bothersome	> 10-20	> 10-15
C	Represents stable operations; however, ability to change lanes and maneuver may be more restricted than LOS B and longer queues are experienced at intersections.	> 20-35	> 15-25
D	Congestion occurs and a small change in volumes increases delays substantially.	> 35-55	> 25-35
E	Severe congestion occurs with extensive delays and low travel speeds.	> 55-80	> 35-50
F	Characterizes arterial flow at extremely low speeds and severe intersection congestion, with long delays and extensive queuing.	> 80	> 50

Source: TRB 2010

Because the HCM methodologies for analyzing intersection operations provide both LOS values and detailed delay estimates (seconds/vehicle), they are the most robust tools for evaluating intersection performance. These methodologies are sensitive to changes in signal timing and the effects of queues and platoons from rail crossings in the vicinity. Sections 1.5.2 and 1.5.3 describe two alternative methods, but neither is as effective for assessing impacts.

1.5.8.2 Volume/Capacity Ratios

V/C ratios for segment analysis are used for some studies. The calculation is relatively simple: the projected volume is divided by the estimated capacity of a roadway segment. Higher V/C ratios (near or above 1.0) are associated with unacceptable operations. However, V/C ratios have limited value for this study as most of the traffic-related impacts are expected to be at intersections. Similarly, V/C ratios are much more valuable for projects where there are substantial changes in demand. For this study, the main traffic issues are the grade crossing locations, where the biggest effect would be the gate down time. Capacity changes with crossing gates are highly dynamic and cannot be captured in a simple capacity estimate, so most of the impacts of the Build Alternatives would be lost in a V/C assessment.

1.5.8.3 Intersection Capacity Utilization

ICU is an alternative method of assessing intersection performance. ICU provides a planning-level estimate of the intersection capacity, as a function of the entering volume. It is calculated using V/C ratios by allocating approximate green time to different approaches, and the product is a ratio (which can be higher or lower than 1.0) of the volume to the available capacity. While ICU is useful for planning applications, providing a general view of the effectiveness of the intersection, it does not provide information on the effects for drivers. Similar to V/C ratios, ICU does not take into account the effects of most train operations, especially gate down times for occasional cycles, or queues from nearby crossings.

1.5.9 Recommended Impact Criteria and Thresholds for Intersection Evaluation

Most of the quantitative evaluations described in Table 1.1 requires an assessment of traffic impacts. These assessments will be conducted using the HCM methodology, as recommended in Section 1.5.10.

From the discussion above, the best approach for traffic impact analysis for the Study Area will focus on intersections. The discussion below considers the specific intersection impact criteria to be used.

1.5.10 Applying LOS for Impact Assessment

At one level, HCM evaluations are straightforward, particularly for signalized intersections, where most of the Build Alternatives impacts would likely occur. The HCM LOS definitions represent industry standards and they provide an accepted methodology using existing traffic counts, travel demand model predictions and basic information (or assumptions) about geometry and signal timing.

However, there are no definitive guidelines that provide specific rules for evaluating LOS to determine impacts. The potential LOS issue is addressed in different ways, but the basic questions that would need to be answered are:

- What LOS (A through F) is acceptable?
- If there is a change in LOS (e.g., from A to B, or C to F), are certain changes acceptable (i.e., not an impact) and others are not?
- If the LOS does not change, but delay increases (e.g., LOS E goes from 58 to 62 seconds of delay per vehicle), what is the minimum threshold of delay increase that would be considered an impact?

1.5.10.1 Other Projects and Jurisdictional Guidance

Many jurisdictions within the Study Area do not address all (or any) of these issues within their corresponding policies or regulations. Therefore, quantitative LOS analyses require assumptions to determine impacts. Appendix A - Attachment 3 is a summary review of other relevant traffic studies in the vicinity. Each of these studies has similar characteristics: multimodal (rail or bus), multiple jurisdictions, and a broad study area. While there are some common approaches presented within Appendix A - Attachment 3, the approach for traffic analysis (and associated transportation analysis) varies from study to study. In general, traffic impacts were assessed at intersections using delay thresholds correlating to LOS, but the specific thresholds and criteria varied.

The next step was to consider the performance evaluation measures and impact criteria used by the jurisdictions in the Study Area. Table 1.3 summarizes that evaluation for the 15 cities, plus Metro and LA County. Methodologies were obtained from cities' general plans or transportation/traffic study guidelines. The table summarizes the methodology, impact determination and LOS thresholds preferred by each city/agency.

Table 1.3 indicates that there is not one consistent methodology, impact determination, and LOS threshold in all the jurisdictions. While many use V/C analysis (ICU calculations) for signalized intersections, they do not have any means of determining impacts. Also, as described in Sections 1.5.8.2 and 1.5.8.3, V/C and ICU are not sensitive to the traffic impacts expected with these Build Alternatives.

Only the Cities of Los Angeles (LADOT 2016) and Paramount (2007), and LA County (1997), have defined procedures for determining traffic impacts. Paramount and the County both use V/C and ICU methods. The former Los Angeles Department of Transportation (LADOT) 2016 guidelines use LOS and provide a defined method.

1.5.10.2 Recommendation and Application of LADOT Guidelines for LOS Evaluation under NEPA

The conclusion from these assessments is that the best approach is to apply LADOT's 2016 *Transportation Impact Study Guidelines*, which represent an effective and accurate assessment methodology for potential delay-related traffic and transportation impacts that can be applied to the Build Alternatives. Also, these same procedures were applied in Metro's recent similar environmental study (Metro L [Gold] Line Foothill Extension Phase 2B). Alternative approaches, given the length of the Build Alternatives corridors and the 17 local jurisdictions involved, make it impractical to use different guidelines for different jurisdictions.

The LADOT guidelines include different methods but provide guidance for use of the HCM method for signalized intersections to assess transportation infrastructure projects. Table 3 of the LADOT guidelines provides threshold values where impacts would occur if the Build Alternatives would result in the following delays at Study Area intersections, under the "with Project" condition:

- If Build Alternatives LOS is C and an increase in average delay of ≥ 6.0 seconds over No Build.
- If Build Alternatives LOS is D and an increase in average delay of ≥ 4.0 seconds over No Build.
- If Build Alternatives LOS is E or F and an increase in average delay of ≥ 2.5 seconds over No Build.

1.5.10.3 Queuing Impact Evaluation

There may also be potential impacts related to queuing, particularly at intersections near new at-grade crossings, as described in Section 1.5.1. There are no formal criteria for evaluating queueing, especially because queues would be highly variable around train arrivals. LADOT's 2016 guidance notes that other tools "may also be necessary to fully understand the effects of the Project in terms of queue lengths…" (2016). However, LADOT's 2016 guidance document does not provide more specific details. Therefore, the assessment of queuing impacts will identify locations where the projected 95th percentile queue would affect intersection operations, typically resulting when a queue at a crossing extends back to an adjacent intersection.

Table 1.3. Traffic Impact Analysis Metrics and Impact Criteria, by Study Area Jurisdiction

No.	City/Agency	Methodology		Impact Determination		Source	Web Site
		Street Segment	Signalized Intersection	Street Segment	Signalized Intersection		
1	Los Angeles	not specified	Vehicle Delay (HCM)	Not specified	Delay difference of 2.5 to 6 seconds, at LOS C to F	*Transportation Impact Study Guidelines* (LADOT 2016) (former guidelines)	http://ladot.lacity.org/sites/g/files/wph266/f/COLA-TISGuidelines-010517.pdf
2	Vernon	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Vernon 2013)	http://www.cityofvernon.org/images/community-services/Zoning/Circulation%20&%20Infrastructure%20Element%202015.pdf
3	Huntington Park	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Huntington Park 1991)	http://www.hpca.gov/DocumentCenter/View/407
4	Maywood	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Maywood no date)	https://evogov.s3.amazonaws.com/media/100/media/35350.pdf
5	Bell	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Bell 1996)	http://www.cityofbell.org/home/showdocument?id=714
6	Cudahy	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Cudahy 2016)	http://www.cityofcudahy.com/uploads/5/3/9/9/53994499/cudahy_existing_conditions_report_2-2016_final.pdf
7	South Gate	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of South Gate 2009)	http://www.cityofsouthgate.org/DocumentCenter/View/147
8	Bell Gardens	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Bell Gardens 2016)	http://www.bellgardens.org/GOVERNMENT/CityDepartments/CommunityDevelopment/Planning/GeneralPlan.aspx

No.	City/Agency	Methodology		Impact Determination		Source	Web Site
		Street Segment	Signalized Intersection	Street Segment	Signalized Intersection		
9	Lynwood	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Lynwood 2003)	http://lynwood.ca.us/wp-content/uploads/2016/07/2003-08CityofLynwoodGeneralPlan.pdf
10	Downey	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Downey 2005)	http://www.downeyca.org/civicax/filebank/blobdload.aspx?BlobID=3490
11	Paramount	V/C	V/C (ICU)	Goal is LOS E or better, except where base year is LOS F (increase in V/C of 0.04 to 0.1 at LOS C to F is considered an impact to the street segment)	Goal is LOS E or better, except where base year is LOS F (increase in V/C of 0.04 to 0.1 at LOS C to F is considered an impact to the signalized intersections)	*General Plan* (City of Paramount 2007)	http://cdm16255.contentdm.oclc.org/cdm/ref/collection/p266301ccp2/id/714
12	Bellflower	V/C	V/C (ICU)	Goal is LOS C or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Bellflower 1997)	https://www.bellflower.org/civicax/filebank/blobdload.aspx?BlobID=28088
13	Lakewood	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Lakewood 2009)	http://www.lakewoodcity.org/civicax/filebank/blobdload.aspx?BlobID=22728
14	Artesia	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Artesia 2010)	http://www.cityofartesia.us/DocumentCenter/View/101
15	Cerritos	V/C	V/C (ICU)	Goal is LOS D or better (no definition for impacts)	Goal is LOS D or better (no definition for impacts)	*General Plan* (City of Cerritos 2004)	http://www.cerritos.us/GOVERNMENT/_pdfs/Chapter04.Circulation.pdf
16	Metro Congestion Management Program	V/C	V/C (ICU)	Goal is LOS E or better, except where base year is LOS F (no definition for impacts)	Goal is LOS E or better, except where base year is LOS F (no definition for impacts)	*Congestion Management Program* (Metro 2010)	http://media.metro.net/docs/cmp_final_2010.pdf

No.	City/Agency	Methodology		Impact Determination		Source	Web Site
		Street Segment	Signalized Intersection	Street Segment	Signalized Intersection		
17	LA County	V/C (two-lane road only)	V/C (ICU)	Increase in traffic of 1% to 4% at LOS C to F	Increase in V/C of 0.01 to 0.04 at LOS C to F	*Traffic Impact Analysis Report Guidelines* (LA County 1997)	http://dpw.lacounty.gov/traffic/traffic%20impact%20analysis%20guidelines.pdf

Source: Compiled by Jacobs in 2020

Notes: HCM = Highway Capacity Manual; ICU = intersection capacity utilization; LA = Los Angeles; LADOT = Los Angeles Department of Transportation; LOS = level-of-service; V/C = volume/capacity

2 PROJECT DESCRIPTION

This section describes the No Build Alternative and the four Build Alternatives studied in the WSAB Transit Corridor Draft Environmental Impact Statement/Environmental Impact Report, including design options, station locations, and MSF site options. The Build Alternatives were developed through a comprehensive alternatives analysis process and meet the purpose and need of the Project.

The No Build Alternative and two Build Alternatives are generally defined as follows:

- **No Build Alternative -** Reflects the transportation network in the 2042 horizon year without the proposed Build Alternatives. The No Build Alternative includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained *Metro 2009 Long-Range Transportation Plan* (2009 LRTP) (Metro 2009) and SCAG's *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) (SCAG 2016), as well as additional projects funded by Measure M that would be completed by 2042.
- **Build Alternatives:** The Build Alternatives consist of a new LRT line that would extend from different termini in the north to the same terminus in the City of Artesia in the south. The Build Alternatives are referred to as:
  - Alternative 1: Los Angeles Union Station to Pioneer Station; the northern terminus would be located underground at Los Angeles Union Station (LAUS) Forecourt
  - Alternative 2: 7th Street/Metro Center to Pioneer Station; the northern terminus would be located underground at 8th Street between Figueroa Street and Flower Street near 7th Street/Metro Center Station
  - Alternative 3: Slauson/A (Blue) Line to Pioneer Station; the northern terminus would be located just north of the intersection of Long Beach Avenue and Slauson Avenue in the City of Los Angeles, connecting to the current A (Blue) Line Slauson Station
  - Alternative 4: I-105/C (Green) Line to Pioneer Station; the northern terminus would be located at I-105 in the City of South Gate, connecting to the C (Green) Line along the I-105

Two design options are under consideration for Alternative 1. Design Option 1 would locate the northern terminus station box at the LAUS Metropolitan Water District (MWD) east of LAUS and the MWD building, below the baggage area parking facility. Design Option 2 would add the Little Tokyo Station along the WSAB alignment. The Design Options are further discussed in Section 2.3.6.

Figure 2-1 presents the four Build Alternatives and the design options. In the north, Alternative 1 would terminate at LAUS and primarily follow Alameda Avenue south underground to the proposed Arts/Industrial District Station. Alternative 2 would terminate near the existing 7th Street/Metro Center Station in the Downtown Transit Core and would primarily follow 8th Street east underground to the proposed Arts/Industrial District Station.

Figure 2-1. Project Alternatives

Source: Metro 2020

From the Arts/Industrial District Station to the southern terminus at Pioneer Station, Alternatives 1 and 2 share a common alignment. South of Olympic Boulevard, the Alternatives 1 and 2 would transition from an underground configuration to an aerial configuration, cross over the Interstate (I-) 10 freeway and then parallel the existing Metro A (Blue) Line along the Wilmington Branch ROW as it proceeds south. South of Slauson Avenue, which would serve as the northern terminus for Alternative 3, Alternatives 1, 2, and 3 would turn east and transition to an at-grade configuration to follow the La Habra Branch ROW along Randolph Street. At the San Pedro Subdivision ROW, Alternatives 1, 2, and 3 would turn southeast to follow the San Pedro Subdivision ROW and then transition to the PEROW, south of the I-105 freeway. The northern terminus for Alternative 4 would be located at the I-105/C Line Station. Alternatives 1, 2, 3, and 4 would then follow the PEROW to the southern terminus at the proposed Pioneer Station in Artesia. The Build Alternatives would be grade-separated where warranted, as indicated on Figure 2-2.

Figure 2-2. Project Alignment by Alignment Type

Source: Metro 2020

2.1 Geographic Sections

The approximately 19-mile corridor is divided into two geographic sections—the Northern and Southern Sections. The boundary between the Northern and Southern Sections occurs at Florence Avenue in the City of Huntington Park.

2.1.1 Northern Section

The Northern Section of the project corridor includes approximately 8 miles of Alternatives 1 and 2 and 3.8 miles of Alternative 3. Alternative 4 is not within the Northern Section. The Northern Section covers the geographic area from downtown Los Angeles to Florence Avenue in the City of Huntington Park and would generally traverse the Cities of Los Angeles, Vernon, Huntington Park, and Bell, and the unincorporated Florence-Firestone community of LA County (Figure 2-3). Alternatives 1 and 2 would traverse portions of the Wilmington Branch (between Martin Luther King Jr. Boulevard along Long Beach Avenue to Slauson Avenue). Alternatives 1, 2, and 3 would traverse portions of the La Habra Branch ROW (between Slauson Avenue along Randolph Street to Salt Lake Avenue) and San Pedro Subdivision ROW (between Randolph Street to approximately Paramount Boulevard).

Figure 2-3. Northern Section

Source: Metro 2020

2.1.2 Southern Section

The Southern Section includes 11 miles of Alternatives 1, 2, and 3 and includes all 6.6 miles of Alternative 4. The Southern Section covers the geographic area from south of Florence Avenue in the City of Huntington Park to the City of Artesia and would generally traverse the Cities of Huntington Park, Cudahy, South Gate, Downey, Paramount, Bellflower, Cerritos, and Artesia (Figure 2-4). In the Southern Section, all four Build Alternatives would utilize portions of the San Pedro Subdivision and the Metro-owned PEROW (between approximately Paramount Boulevard to South Street).

Figure 2-4. Southern Section

Source: Metro 2020

2.2 No Build Alternative

For the NEPA evaluation, the No Build Alternative is evaluated in the context of the existing transportation facilities in the Transit Corridor (the Transit Corridor extends approximately 2 miles from either side of the proposed alignment) and other capital transportation improvements and/or transit and highway operational enhancements that are reasonably foreseeable. Because the No Build Alternative provides the background transportation network, against which the Build Alternatives' impacts are identified and evaluated, the No Build Alternative does not include the Project.

The No Build Alternative reflects the transportation network in 2042 and includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained Metro 2009 LRTP and the SCAG 2016 RTP/SCS, as well as additional projects funded by Measure M, a sales tax initiative approved by voters in November 2016. The No Build Alternative includes Measure M projects that are scheduled to be completed by 2042.

Table 2.1 lists the existing transportation network and planned improvements included as part of the No Build Alternative.

Table 2.1. No Build Alternative 2042 – Existing Transportation Network and Planned Improvements

Project	To/From	Location Relative to Transit Corridor
Rail (Existing)		
Metro Rail System (LRT and heavy rail transit)	Various locations	Within Transit Corridor
Metrolink (Southern California Regional Rail Authority) System	Various locations	Within Transit Corridor
Rail (Under Construction/Planned)[1]		
Metro Westside D (Purple) Line Extension	Wilshire/Western to Westwood/VA Hospital	Outside Transit Corridor
Metro C (Green) Line Extension[2] to Torrance	96th Street Station to Torrance	Outside Transit Corridor
Metro C (Green) Line Extension	Norwalk to Expo/Crenshaw[3]	Outside Transit Corridor
Metro East-West Line/Regional Connector/Eastside Phase 2	Santa Monica to Lambert Santa Monica to Peck Road	Within Transit Corridor
Metro North-South Line/Regional Connector/Foothill Extension to Claremont Phase 2B	Long Beach to Claremont	Within Transit Corridor
Metro Sepulveda Transit Corridor	Metro G (Orange) Line to Metro E (Expo) Line	Outside Transit Corridor
Metro East San Fernando Valley Transit Corridor	Sylmar to Metro G (Orange) Line	Outside Transit Corridor
Los Angeles World Airport Automated People Mover	96th Street Station to LAX Terminals	Outside Transit Corridor

Project	To/From	Location Relative to Transit Corridor
Metrolink Capital Improvement Projects	Various projects	Within Transit Corridor
California High-Speed Rail	Burbank to LA LA to Anaheim	Within Transit Corridor
Link US	LAUS	Within Transit Corridor
Bus (Existing)		
Metro Bus System (including BRT, Express, and local)	Various locations	Within Transit Corridor
Municipality Bus System[4]	Various locations	Within Transit Corridor
Bus (Under Construction/Planned)		
Metro G (Orange) Line (BRT)	Del Mar (Pasadena) to Chatsworth Del Mar (Pasadena) to Canoga Canoga to Chatsworth	Outside Transit Corridor
Vermont Transit Corridor (BRT)	120th Street to Sunset Boulevard	Outside Transit Corridor
North San Fernando Valley BRT	Chatsworth to North Hollywood	Outside Transit Corridor
North Hollywood to Pasadena	North Hollywood to Pasadena	Outside Transit Corridor
Highway (Existing)		
Highway System	Various locations	Within Transit Corridor
Highway (Under Construction/Planned)		
High Desert Multi-Purpose Corridor	SR-14 to SR-18	Outside Transit Corridor
I-5 North Capacity Enhancements	SR-14 to Lake Hughes Rd	Outside Transit Corridor
SR-71 Gap Closure	I-10 to Rio Rancho Rd	Outside Transit Corridor
Sepulveda Pass Express Lane	I-10 to US-101	Outside Transit Corridor
SR-57/SR-60 Interchange Improvements	SR-70/SR-60	Outside Transit Corridor
I-710 South Corridor Project (Phases 1 and 2)	Ports of Long Beach and LA to SR-60	Within Transit Corridor
I-105 Express Lane	I-405 to I-605	Within Transit Corridor
I-5 Corridor Improvements	I-605 to I-710	Outside Transit Corridor

Source: Metro 2018, WSP 2019

Notes: [1] Where extensions are proposed for existing Metro rail lines, the origin/destination is defined for the operating scheme of the entire rail line following completion of the proposed extensions and not just the extension itself.

[2] Metro C (Green) Line extension to Torrance includes new construction from Redondo Beach to Torrance; however, the line will operate from Torrance to 96th Street.

[3] The currently under construction Metro Crenshaw/LAX Line will operate as the Metro C (Green) Line.

[4] The municipality bus network system is based on service patterns for Bellflower Bus, Cerritos on Wheels, Cudahy Area Rapid Transit, Get Around Town Express, Huntington Park Express, La Campana, Long Beach Transit, Los Angeles Department of Transportation, Norwalk Transit System, and the Orange County Transportation Authority.

BRT = bus rapid transit; I = Interstate; LA = Los Angeles; LAUS = Los Angeles Union Station; LAX = Los Angeles International Airport; LRT = light rail transit; SR = State Route; VA = Veterans Affairs

2.3 Build Alternatives

2.3.1 Proposed Alignment Configuration for the Build Alternatives

This section describes the alignment for each of the Build Alternatives. The general characteristics of the four Build Alternatives are summarized in Table 2.2. Figure 2-5 illustrates the freeway crossings along the alignment. Additionally, the Build Alternatives would require relocation of existing freight rail tracks within the ROW to maintain existing operations where there would be overlap with the proposed light rail tracks. Figure 2-6 depicts the alignment sections that would share operation with freight and the corresponding ownership.

Table 2.2. Summary of Build Alternative Components

Component	Quantity			
Alternatives	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Alignment Length	19.3 miles	19.3 miles	14.8 miles	6.6 miles
Stations Configurations	11 3 aerial; 6 at-grade; 2 underground[3]	12 3 aerial; 6 at-grade; 3 underground	9 3 aerial; 6 at-grade	4 1 aerial; 3 at-grade
Parking Facilities	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	4 (approximately 2,180 spaces)
Length of underground, at-grade, and aerial	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	12.2 miles at-grade; 2.6 miles aerial[1]	5.6 miles at-grade; 1.0 mile aerial[1]
At-grade crossings	31	31	31	11
Freight crossings	10	10	9	2
Freeway Crossings	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	4 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	3 (2 freeway undercrossings[2] at I-605, SR-91)
Elevated Street Crossings	25	25	15	7
River Crossings	3	3	3	1
Traction Power Substation Facilities	22[3]	23	17	7
Maintenance and Storage Facility Site Options	2	2	2	2

Source: Prepared by WSP in 2020

Notes: [1] Alignment configuration measurements count retained fill embankments as at-grade.

[2] The light rail tracks crossing beneath freeway structures.

[3] Under Design Option 2 – Add Little Tokyo Station, an additional underground station and traction power substation site would be added under Alternative 1.

Figure 2-5. Freeway Crossings

Source: Prepared by WSP in 2020

Figure 2-6. Existing Rail Right-of-Way Ownership

Source: Prepared by WSP in 2020

2.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

The total alignment length of Alternative 1 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 1 would include 11 new LRT stations, 2 of which would be underground, 6 would be at-grade, and 3 would be aerial. Under Design Option 2, Alternative 1 would have 12 new LRT stations, and the Little Tokyo Station would be an additional underground station. Five of the stations would include parking facilities, providing a total of up to 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 1 would begin at a proposed underground station at/near LAUS either beneath the LAUS Forecourt or, under Design Option 1, east of the MWD building beneath the baggage area parking facility (Section 2.3.6). Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. A tunnel extraction portal would be located within the tail tracks for both Alternative 1 terminus station options.

From LAUS, the alignment would continue underground crossing under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between 1st Street and 2nd Street (note: under Design Option 2, Little Tokyo Station would be constructed). From the optional Little Tokyo Station, the alignment would continue underground beneath Alameda Street to the proposed Arts/Industrial District Station under Alameda Street between 6th Street and Industrial Street. (Note, Alternative 2 would have the same alignment as Alternative 1 from this point south. Refer to Section 2.3.3 for additional information on Alternative 2.)

The underground alignment would continue south under Alameda Street to 8th Street, where the alignment would curve to the west and transition to an aerial alignment south of Olympic Boulevard. The alignment would cross over the I-10 freeway in an aerial viaduct structure and continue south, parallel to the existing Metro A (Blue) Line at Washington Boulevard. The alignment would continue in an aerial configuration along the eastern half of Long Beach Avenue within the UPRR-owned Wilmington Branch ROW, east of the existing Metro A (Blue) Line and continue south to the proposed Slauson/A Line Station. The aerial alignment would pass over the existing pedestrian bridge at E. 53rd Street. The Slauson/A Line Station would serve as a transfer point to the Metro A (Blue) Line via a pedestrian bridge. The vertical circulation would be connected at street level on the north side of the station via stairs, escalators, and elevators. (The Slauson/A Line Station would serve as the northern terminus for Alternative 3; refer to Section 2.3.4 for additional information on Alternative 3.)

South of the Slauson/A Line Station, the alignment would turn east along the existing La Habra Branch ROW (also owned by UPRR) in the median of Randolph Street. The alignment would be on the north side of the La Habra Branch ROW and would require the relocation of existing freight tracks to the southern portion of the ROW. The alignment would transition to an at-grade configuration at Alameda Street and would proceed east along the Randolph Street median. Wilmington Avenue, Regent Street, Albany Street, and Rugby Avenue would be closed to traffic crossing the ROW, altering the intersection design to a right-in, right-out configuration. The proposed Pacific/Randolph Station would be located just east of Pacific Boulevard.

From the Pacific/Randolph Station, the alignment would continue east at-grade. Rita Avenue would be closed to traffic crossing the ROW, altering the intersection design to a right-in, right-out configuration. At the San Pedro Subdivision ROW, the alignment would transition to an aerial configuration and turn south to cross over Randolph Street and the freight tracks, returning to an at-grade configuration north of Gage Avenue. The alignment would be located on the east side of the existing San Pedro Subdivision ROW freight tracks, and the existing tracks would be relocated to the west side of the ROW. The alignment would continue at-grade within the San Pedro Subdivision ROW to the proposed at-grade Florence/Salt Lake Station south of the Salt Lake Avenue/Florence Avenue intersection.

South of Florence Avenue, the alignment would extend from the proposed Florence/Salt Lake Station in the City of Huntington Park to the proposed Pioneer Station in the City of Artesia, as shown in Figure 2 4. The alignment would continue southeast from the proposed at-grade Florence/Salt Lake Station within the San Pedro Subdivision ROW, crossing Otis Avenue, Santa Ana Street, and Ardine Street at-grade. The alignment would be located on the east side of the existing San Pedro Subdivision freight tracks and the existing tracks would be relocated to the west side of the ROW. South of Ardine Street, the alignment would transition to an aerial structure to cross over the existing UPRR tracks and Atlantic Avenue. The proposed Firestone Station would be located on an aerial structure between Atlantic Avenue and Firestone Boulevard.

The alignment would then cross over Firestone Boulevard and transition back to an at-grade configuration prior to crossing Rayo Avenue at-grade. The alignment would continue south along the San Pedro Subdivision ROW, crossing Southern Avenue at-grade and continuing at-grade until it transitions to an aerial configuration to cross over the LA River. The proposed LRT bridge would be constructed next to the existing freight bridge. South of the LA River, the alignment would transition to an at-grade configuration crossing Frontage Road at-grade, then passing under the I-710 freeway through the existing box tunnel structure and then crossing Miller Way. The alignment would then return to an aerial structure to cross the Rio Hondo Channel. South of the Rio Hondo Channel, the alignment would briefly transition back to an at-grade configuration and then return to an aerial structure to cross over Imperial Highway and Garfield Avenue. South of Garfield Avenue, the alignment would transition to an at-grade configuration and serve the proposed Gardendale Station north of Gardendale Street.

From the Gardendale Station, the alignment would continue south in an at-grade configuration, crossing Gardendale Street and Main Street to connect to the proposed I 105/C Line Station, which would be located at-grade north of Century Boulevard. This station would be connected to the new infill C (Green) Line Station in the middle of the freeway via a pedestrian walkway on the new LRT bridge. The alignment would continue at-grade, crossing Century Boulevard and then over the I-105 freeway in an aerial configuration within the existing San Pedro Subdivision ROW bridge footprint. A new Metro C (Green) Line Station would be constructed in the median of the I-105 freeway. Vertical pedestrian access would be provided from the LRT bridge to the proposed I-105/C Line Station platform via stairs and elevators. To accommodate the construction of the new station platform, the existing Metro C (Green) Line tracks would be widened and, as part of the I-105 Express Lanes Project, the I-105 lanes would be reconfigured. (The I-105/C Line Station would serve as the northern terminus for Alternative 4; refer to Section 2.3.5 for additional information on this alternative.)

South of the I-105 freeway, the alignment would continue at-grade within the San Pedro Subdivision ROW. In order to maintain freight operations and allow for freight train crossings, the alignment would transition to an aerial configuration as it turns southeast and enter the PEROW. The existing freight track would cross beneath the aerial alignment and align on the north side of the PEROW east of the San Pedro Subdivision ROW. The proposed Paramount/Rosecrans Station would be located in an aerial configuration west of Paramount Boulevard and north of Rosecrans Avenue. The existing freight track would be relocated to the east side of the alignment beneath the station viaduct.

The alignment would continue southeast in an aerial configuration over the Paramount Boulevard/Rosecrans Avenue intersection and descend to an at-grade configuration. The alignment would return to an aerial configuration to cross over Downey Avenue descending back to an at-grade configuration north of Somerset Boulevard. One of the adjacent freight storage tracks at Paramount Refinery Yard would be relocated to accommodate the new LRT tracks and maintain storage capacity. There are no active freight tracks south of the World Energy facility.

The alignment would cross Somerset Boulevard at-grade. South of Somerset Boulevard, the at-grade alignment would parallel the existing Bellflower Bike Trail that is currently aligned on the south side of the PEROW. The alignment would continue at-grade crossing Lakewood Boulevard, Clark Avenue, and Alondra Boulevard. The proposed at-grade Bellflower Station would be located west of Bellflower Boulevard.

East of Bellflower Boulevard, the Bellflower Bike Trail would be realigned to the north side of the PEROW to accommodate an existing historic building located near the southeast corner of Bellflower Boulevard and the PEROW. It would then cross back over the LRT tracks at-grade to the south side of the ROW. The LRT alignment would continue southeast within the PEROW and transition to an aerial configuration at Cornuta Avenue, crossing over Flower Street and Woodruff Avenue. The alignment would return to an at-grade configuration at Walnut Street. South of Woodruff Avenue, the Bellflower Bike Trail would be relocated to the north side of the PEROW. Continuing southeast, the LRT alignment would cross under the SR-91 freeway in an existing underpass. The alignment would cross over the San Gabriel River on a new bridge, replacing the existing abandoned freight bridge. South of the San Gabriel River, the alignment would transition back to an at-grade configuration before crossing Artesia Boulevard at-grade.

East of Artesia Boulevard the alignment would cross beneath the I-605 freeway in an existing underpass. Southeast of the underpass, the alignment would continue at-grade, crossing Studebaker Road. North of Gridley Road, the alignment would transition to an aerial configuration to cross over 183rd Street and Gridley Road. The alignment would return to an at-grade configuration at 185th Street, crossing 186th Street and 187th Street at-grade. The alignment would then pass through the proposed Pioneer Station on the north side of Pioneer Boulevard at-grade. Tail tracks accommodating layover storage for a three-car train would extend approximately 1,000 feet south from the station, crossing Pioneer Boulevard and terminating west of South Street.

2.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The total alignment length of Alternative 2 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 2 would include 12 new LRT stations, 3 of which would be underground, 6 would be at-grade, and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 2 would begin at the proposed WSAB 7th Street/Metro Center Station, which would be located underground beneath 8th Street between Figueroa Street and Flower Street. A pedestrian tunnel would provide connection to the existing 7th Street/Metro Center Station. Tail tracks, including a double crossover, would extend approximately 900 feet beyond the station, ending east of the I-110 freeway. From the 7th Street/Metro Center Station, the underground alignment would proceed southeast beneath 8th Street to the South Park/Fashion District Station, which would be located west of Main Street beneath 8th Street.

From the South Park/Fashion District Station, the underground alignment would continue under 8th Street to San Pedro Street, where the alignment would turn east toward 7th Street, crossing under privately owned properties. The tunnel alignment would cross under 7th Street and then turn south at Alameda Street. The alignment would continue south beneath Alameda Street to the Arts/Industrial District Station located under Alameda Street between 7th Street and Center Street. A double crossover would be located south of the station box, south of Center Street. From this point, the alignment of Alternative 2 would follow the same alignment as Alternative 1, which is described further in Section 2.3.2.

2.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The total alignment length of Alternative 3 would be approximately 14.8 miles, consisting of approximately 12.2 miles of at-grade, and 2.6 miles of aerial alignment. Alternative 3 would include 9 new LRT stations, 6 would be at-grade and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 1 aerial freeway crossing, 3 river crossings, 15 aerial road crossings, and 9 freight crossings. In the north, Alternative 3 would begin at the Slauson/A Line Station and follow the same alignment as Alternatives 1 and 2, described in Section 2.3.2.

2.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The total alignment length of Alternative 4 would be approximately 6.6 miles, consisting of approximately 5.6 miles of at-grade and 1.0 mile of aerial alignment. Alternative 3 would include 4 new LRT stations, 3 would be at-grade, and 1 would be aerial. Four of the stations would include parking facilities, providing a total of approximately 2,180 new parking spaces. The alignment would include 11 at-grade crossings, 2 freeway undercrossings, 1 aerial freeway crossing, 1 river crossing, 7 aerial road crossings, and 2 freight crossings. In the north, Alternative 4 would begin at the I-105/C Line Station and follow the same alignment as Alternatives 1, 2, and 3, described in Section 2.3.2.

2.3.6 Design Options

Alternative 1 includes two design options:

- **Design Option 1:** LAUS at the Metropolitan Water District (MWD) – The LAUS station box would be located east of LAUS and the MWD building, below the baggage area parking facility instead of beneath the LAUS Forecourt. Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. From LAUS, the underground alignment would cross under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between Traction Avenue and 1st Street. The underground alignment between LAUS and the Little Tokyo Station would be located to the east of the base alignment.
- **Design Option 2:** Add the Little Tokyo Station – Under this design option, the Little Tokyo Station would be constructed as an underground station and there would be a direct connection to the Regional Connector Station in the Little Tokyo community. The alignment would proceed underground directly from LAUS to the Arts/Industrial District Station primarily beneath Alameda Street.

2.3.7 Maintenance and Storage Facility

MSFs accommodate daily servicing and cleaning, inspection and repairs, and storage of light rail vehicles (LRV). Activities may take place in the MSF throughout the day and night depending upon train schedules, workload, and the maintenance requirements.

Two MSF options are evaluated; however, only one MSF would be constructed as part of the Project. The MSF would have storage tracks, each with sufficient length to store three-car train sets and a maintenance-of-way vehicle storage. The facility would include a main shop building with administrative offices, a cleaning platform, a traction power substation, employee parking, a vehicle wash facility, a paint and body shop, and other facilities as needed. The east and west yard leads (i.e., the tracks leading from the mainline to the facility) would have sufficient length for a three-car train set. In total, the MSF would need to accommodate approximately 80 LRVs to serve the Project's operations plan.

Two potential locations for the MSF have been identified—one in the City of Bellflower and one in the City of Paramount. These options are described further in the following sections.

2.3.8 Bellflower MSF Site Option

The Bellflower MSF site option is bounded by industrial facilities to the west, Somerset Boulevard and apartment complexes to the north, residential homes to the east, and the PEROW and Bellflower Bike Trail to the south. The site is approximately 21 acres in area and can accommodate up to 80 vehicles (Figure 2-7).

2.3.9 Paramount MSF Site Option

The Paramount MSF site option is bounded by the San Pedro Subdivision ROW on the west, Somerset Boulevard to the south, industrial and commercial uses on the east, and All American City Way to the north. The site is 22 acres and could accommodate up to 80 vehicles (Figure 2-7).

Figure 2-7. Maintenance and Storage Facility Options

Source: Prepared by WSP in 2020

3 REGULATORY FRAMEWORK

This section provides federal, state and regional/local regulations that are applicable to the transportation system assessment of the WSAB Transit Corridor Study Area.

3.1 Federal

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 Code of Federal Regulations Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code 794). The Federal Highway Administration has enacted regulations for the implementation of the Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including transportation enhancement activities.

NEPA does not include specific guidance or direction with respect to the evaluation of alternatives and their relative effects on traffic and transportation. Guidance information was reviewed from FTA publications on transportation impact assessments on transit operation, traffic circulation, and parking. In addition, the Federal Highway Administration guidance on full consideration regarding safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations 652) was considered. It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities.

3.2 State

CEQA, as amended, establishes environmental guidelines for the analysis and the threshold-based determinations regarding potentially significant environmental impacts. The specifically applicable significance criteria developed using guidance provided in the most recently updated (December 2018) version of the CEQA Appendix G (California Code of Regulations Title 14 Section 15000 et seq.) and relevant local policies are discussed in Section 3.3. Effects of the construction and long-term operation of the Build Alternatives on transportation and circulation were considered and incorporated, as applicable.

Assembly Bill 1358, the Complete Streets Act, requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, older people and people with disabilities, as well as motorists. Any substantive revision of the circulation element in the general plan of a California local government will include Complete Streets provisions.

Senate Bill 743, which was codified in Public Resources Code Section 21099, requires the California Office of Planning and Research (OPR) to establish new CEQA guidelines "for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." The new criteria required a move away from vehicle delay and LOS and a move toward more multimodal concepts “that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated.”

In 2018, Section 15064.3 was added to CEQA Guidelines to reflect the provisions of Senate Bill 743. The section addresses both land use and transportation projects, and broadly describes the methodology, including the potential for qualitative analysis used to assess VMT. The overall guidance for transportation projects is that they are presumed to have a less-than-significant project impact if they reduce VMT (CEQA Guidelines, Section 15064.3(b)(2)). Agencies are given “broad discretion” to select the methodology for analysis, or even apply a qualitative approach. As described in Section 1.5.6, the transportation impact analysis and determinations methodology have used a VMT based approach.

The California Department of Transportation (Caltrans) has jurisdiction over the construction and maintenance of state highways and freeways within the Study Area. Caltrans also coordinates several statewide transportation programs that directly impact the circulation system in the region. These include the State Transportation Improvement Program, the Congestion and Mitigation and Air Quality Program and the Traffic Congestion Relief Program.

3.3 Regional/Local

Relevant planning documents include regional transportation plans prepared by SCAG and Metro, as well as general plans and specific plans for each of the affected jurisdictions in the Build Alternatives' Study Area. The general plans, circulation elements and corresponding specific plans for LA County and the cities in the Study Area provide the local regulatory framework and policies related to transportation and traffic issues.

The Regional Transportation Improvement Plan (RTIP) is a capital listing of all transportation projects proposed over a 6-year period for the SCAG region. The SCAG region encompasses six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities. The projects include highway improvements; transit, rail and bus facilities; high-occupancy vehicle lanes; signal synchronization; intersection improvements; and freeway ramps. In the SCAG region, an RTIP update is produced every other year on an even-year cycle. The RTIP is prepared to implement projects and programs listed in the RTP and developed to comply with state and federal requirements. Projects that are anticipated to receive federal funding or are subject to a federally required action are added to the Federal Transportation Improvement Program. These includes regionally significant transportation projects where approvals from federal funding agencies are required, regardless of funding sources. County transportation commissions propose county projects from city and local submittals using the current RTP policies, programs and projects as a guide. Locally prioritized project lists are forwarded to SCAG for review. From this list, SCAG develops the RTIP based on consistency with the current RTP, inter-county connectivity, financial constraints, and air quality conformity satisfaction. Identified RTIP/SCAG roadway improvements will be assumed in the analysis and modeling of future scenarios.

Each jurisdiction has different approaches for identifying transportation (circulation) deficiencies. Discussion of the coordinated and consistent approach for analysis across these jurisdictions is included in Section 1.5.

4 AFFECTED ENVIRONMENT/EXISTING CONDITIONS

This section provides an assessment of the existing conditions in the Study Area. The first subsection is an overview of the travel demand. Then, details on the roadway network (freeway, arterials and local roads, and intersections) are presented. The next subsection provides details on the transit service (rail and bus). Finally, discussions of active transportation (bicycle and pedestrian travel) and parking are provided.

The NOP for the Project was issued on May 25, 2017, so the year 2017 was selected to represent Existing Conditions. The Existing Conditions assessment was based on best available data available from either 2016 or 2017, depending on availability. Traffic data were collected in late 2016 and early 2017, transit data were gathered in 2017, but the regional travel demand model (described in Section 4.1) uses a base year of 2016. (Where data sources for Existing Conditions are referenced, the exact year [2016 or 2017] is noted.)

4.1 Travel Demand in the Corridor

To determine major travel patterns within the Study Area, data from Metro's Travel Demand Model: Corridors Base Model 2018 (CBM18) were extracted. The model was calibrated to 2012 and validated to 2017 conditions using the substantial amount of available data and information on the current travel behavior and travel patterns of Southern California transit riders.

The model has been applied to provide forecast demands on other corridors in the region. Travel characteristics for this model were derived from Metro trip tables, which are based on the RTP/SCS trip tables (SCAG 2016). The model is documented in the *Corridors Base Model 2018 Calibration and Validation Report* (Metro 2019b).

According to these Existing Conditions trip tables, there were 6.4 million daily person-trips in the Study Area. Of the 6.4 million daily trips:

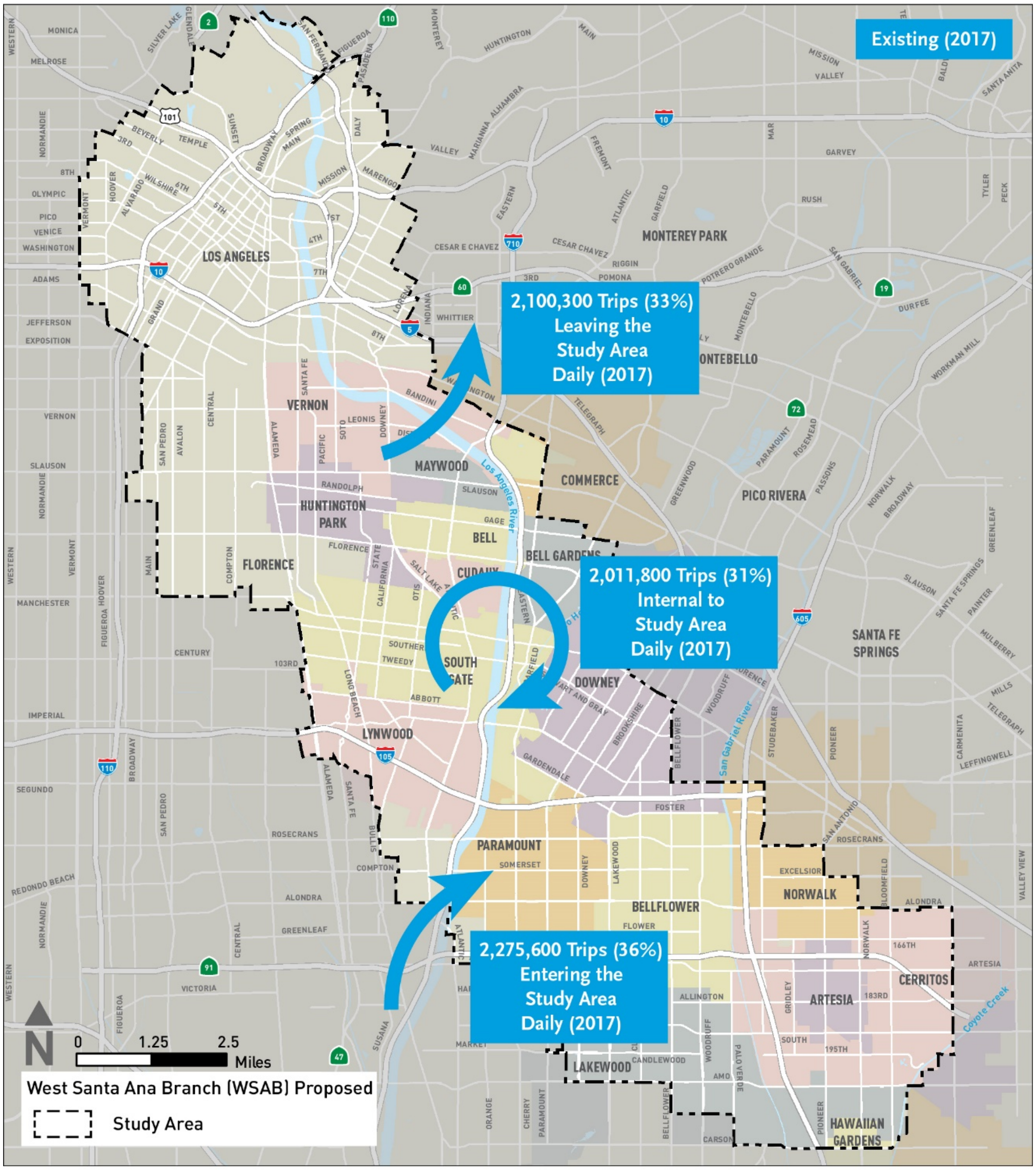
- 2.1 million (33 percent) of the trips are round trips from origins inside the Study Area to destinations outside the area (i.e., the trip leaves the Study Area).
- 2.0 million (31 percent) of the trips are round trips from origins within the Study Area to destinations within the area (i.e., the trip is internal to the Study Area).
- 2.3 million (36 percent) of the trips are round trips from origins outside the Study Area to destinations inside the area (i.e., the trip enters the Study Area).

Figure 4-1 illustrates trip patterns in the Study Area.

The Study Area is an important transit corridor, accounting for nearly 28 percent (494,000 transit trips) of the SCAG region's transit trips. Figure 4-2 illustrates the distribution of these transit trips. Of these 494,000 transit trips:

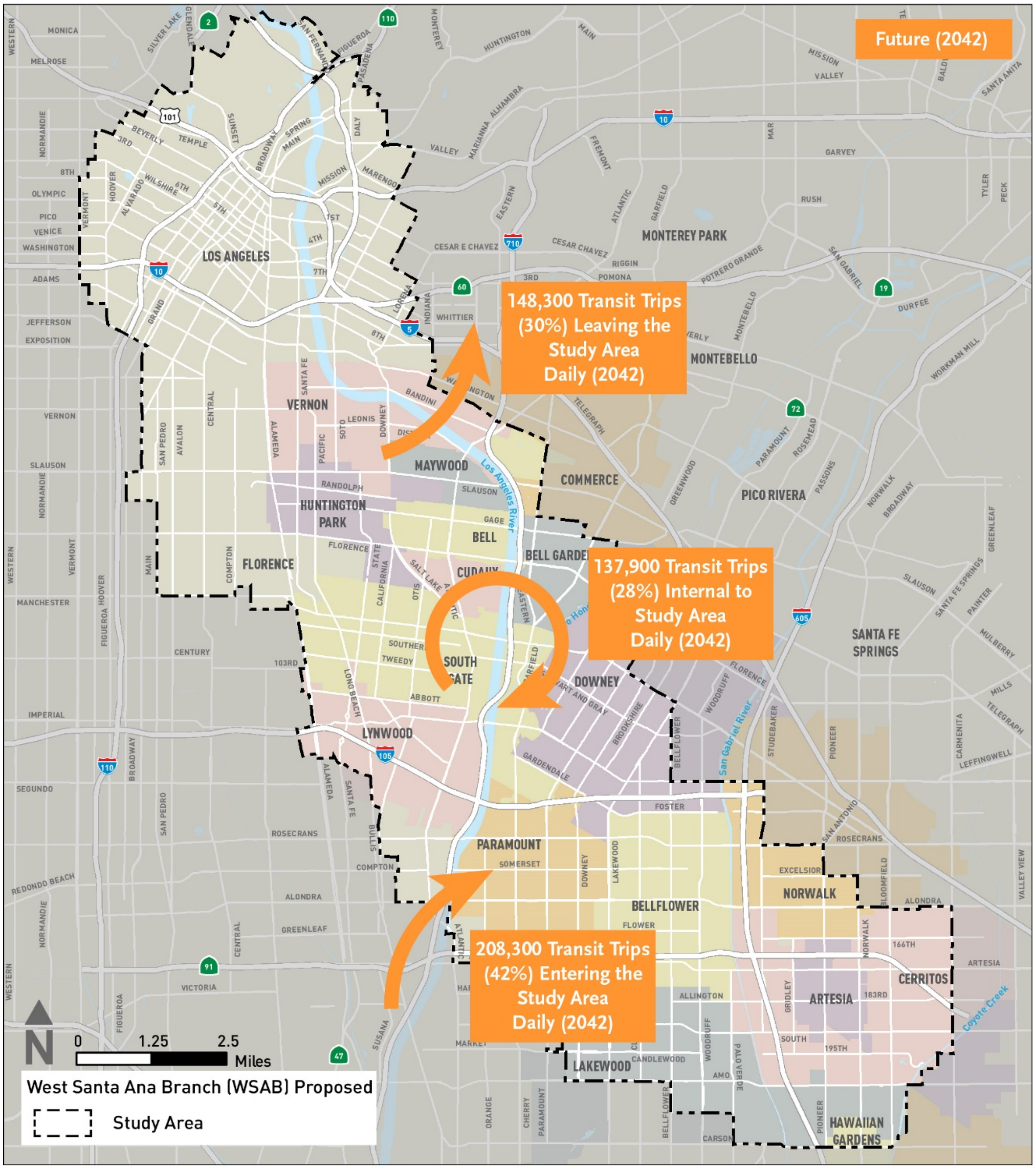
- 148,000 (30 percent) trips originate in the Study Area and are destined for locations outside the Study Area (i.e., the transit trips leaving the Study Area).
- 208,000 (42 percent) trips are attracted to the Study Area from points outside the Study Area (i.e., the transit trips entering the Study Area).
- 138,000 (28 percent) trips stay within the Study Area (i.e., the transit trips internal to the Study Area).

Figure 4-1. Existing (2017) Daily Person Trips Internal, Leaving and Entering the Study Area



Source: Metro 2019a

Figure 4-2. Future (2042) Transit Trips Internal, Leaving and Entering the Study Area



Source: Metro 2019a

These percentages illustrate the diverse needs to provide high-quality transit service throughout the Study Area and to/from regional connections and population/employment centers.

4.2 General Corridor-Wide Roadway Network Conditions

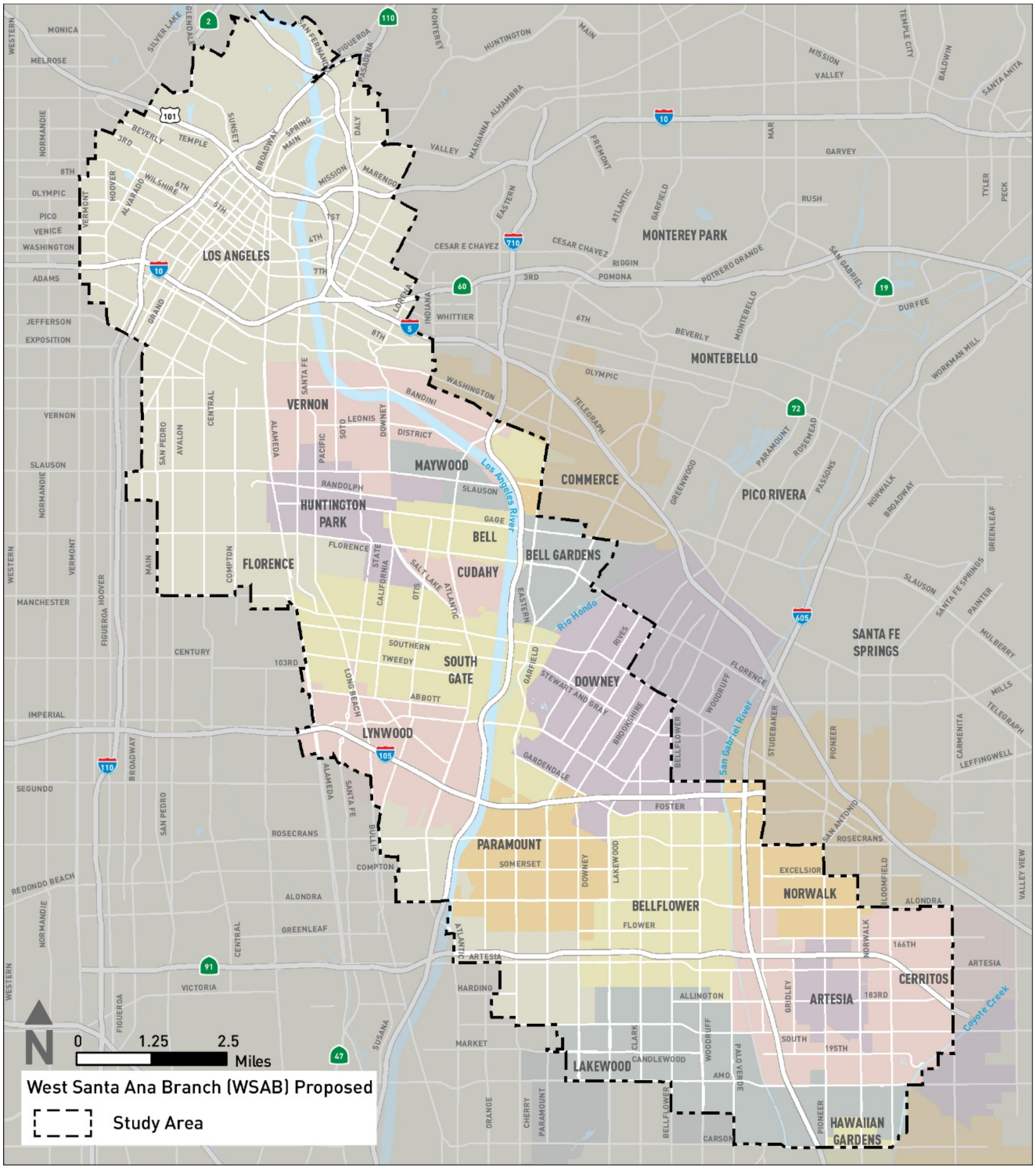
The roadway network includes a wide range of facilities: freeways, arterials, local roads and intersections.

4.2.1 Freeways, Arterials and Local Roads

The Study Area is served by an extensive freeway system that provides access to areas throughout LA County and the Southern California region. As Figure 4-3 illustrates, the following eight freeways are located within the Study Area:

- **Interstate (I)-5/Santa Ana Freeway:** This freeway runs through the Study Area at a northwest-southeast diagonal for 6 miles. This freeway forms a majority of the eastern Study Area boundary. I-5 connects LA County internally, north to the Central Valley and Sacramento, and south to Orange County and San Diego.
- **I-710/Long Beach Freeway:** This north-south freeway runs through the middle of the Study Area for 8.5 miles. It connects Long Beach and the Ports of Long Beach and Los Angeles north to its current terminus in the City of Alhambra in the San Gabriel Valley.
- **I-605/San Gabriel Freeway:** This north-south freeway passes through the southern end of the Study Area for 4 miles. It connects to I-210 in the San Gabriel Valley to the north, and to I-405 at the boundary between Los Angeles and Orange Counties to the south.
- **I-110/Harbor Freeway:** This north-south freeway crosses the northwest end of the Study Area for 6 miles. It connects to I-10 in the north and I-105 and I-405 in the south.
- **I-105/Glenn Anderson or Century Freeway:** This east-west freeway crosses in the southern end of the Study Area for 8.5 miles. It connects to I-605 in the east and I-405 in the west, ending west of I-405 in the Los Angeles International Airport (LAX) area. The Metro C (Green) Line operates in the freeway median west from the City of Norwalk to the LAX area.
- **State Route (SR)-91/Artesia Freeway:** This east-west freeway operates through the southern end of the Study Area for 8.5 miles. It connects Los Angeles, Orange, Riverside and San Bernardino Counties from the I-110/Harbor Freeway in the South Bay east to downtown San Bernardino.
- **I-10/San Bernardino Freeway:** This east-west freeway crosses the northern end of the Study Area for 8 miles. It provides access to I-710, near City Terrace, and I-110 in the northwest end of the Study Area.
- **U.S. Highway (US)-101/Hollywood Freeway:** This freeway runs through the northern part of the Study Area at a northwest-southeast diagonal for 4 miles. It continues from central LA County, near downtown LA (East LA interchange area) north to the Central Coast and San Francisco.

Figure 4-3. Existing Freeway and Highway System



Source: Prepared by WSP in 2020

Table 4.1 provides a summary of the major roadway facilities (both freeways and arterials) for each of the 12 cities and local communities within the Study Area. These are regional roadways that have a notable amount of vehicular activity and connect to the local roads where impacts (see Section 1.5) are most likely to occur at the intersection level. Affected intersections are described in Section 4.2.2.

Table 4.1. Major Roadway Facilities within the Study Area

City/Community	Major Roadway Facilities
Downtown Los Angeles	I-10, I-110, US-101
Boyle Heights	US-101, I-10, I-5, SR-60, Olympic Boulevard
Central Alameda	Alameda Street
South Park	E. Martin Luther King Jr. Boulevard
Florence-Graham (Florence-Firestone)	Firestone Boulevard, Florence Avenue, Central Avenue, Long Beach Avenue
Vernon	I-710, S. Soto Street, S. Downey Road
Maywood	S. Atlantic Boulevard, I-710
Huntington Park	Alameda Street, Pacific Boulevard
Bell	Atlantic Boulevard, I-710
Bell Gardens	I-710, Florence Avenue
Cudahy	Atlantic Boulevard, I-710
South Gate	I-710, Long Beach Boulevard
Downey	I-605, I-105, I-710, I-5
Lynwood	I-710, I-105, Long Beach Boulevard, Alameda Street, Imperial Highway
Paramount	I-105, I-710, Rosecrans Avenue
Bellflower	SR-91, I-105, I-605, Rosecrans Avenue
Norwalk	SR-91, I-5, I-105, I-605, Rosecrans Avenue
Cerritos	I-605, SR-91, Artesia Boulevard
Lakewood	I-605, Del Amo Boulevard
Artesia	SR-91, I-605, Pioneer Boulevard

Source: Arellano Associates 2016
Note: I = Interstate; SR = State Route; US = U.S. Highway

Existing traffic volumes (vehicles per day) and truck percentages for each freeway are listed in Table 4.2 and displayed on Figure 4-4. Figure 4-4 also displays the major arterial traffic volumes. As reflected in Table 4.2, freeway segments in the Study Area carry between 130,000 and 300,000 vehicles per day (both directions). These volumes were compiled using Caltrans' traffic census data (Caltrans 2016a, 2016b). Segments of I-10, I-110, I-605, and I-5 have the highest traffic volumes, but all freeways carry consistently high volumes. For comparison, the highest-volume freeway in the State of California is I-405 (at Seal Beach Boulevard in Orange County) with a volume of 377,600 vehicles per day in 2016 (Caltrans 2016a, 2016b).

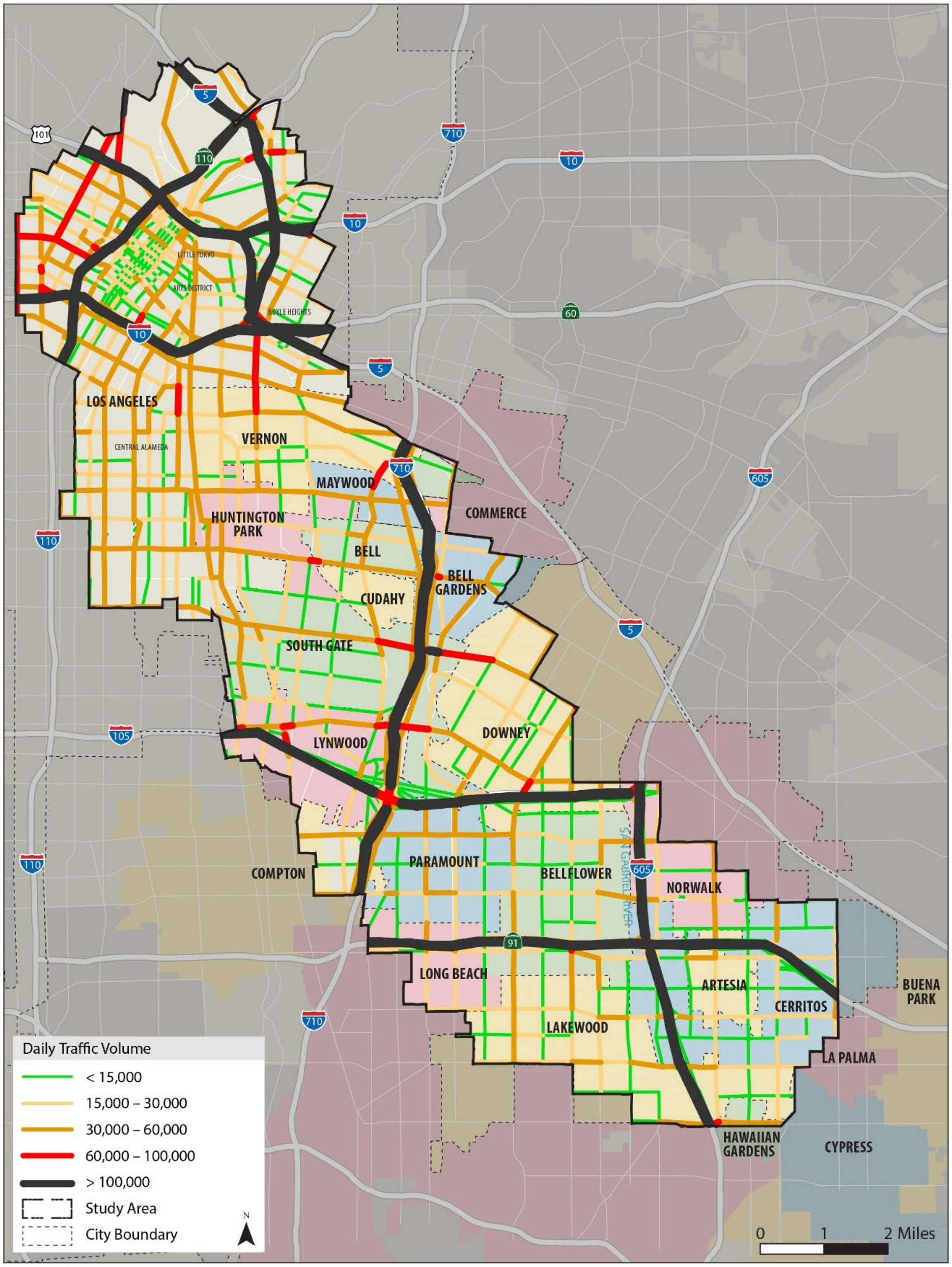
Table 4.2. Existing Average Annual Daily Traffic Volumes and Average Truck Percentages on Freeways

Freeway	From	To	AADT Volumes* (minimum – maximum)	Average Truck % (minimum – maximum)
I-5	I-710	SR-2	221,000 – 287,000	5 – 8
I-710	SR-91	I-5	204,000 – 241,000	8 – 9
I-605	Carson Road	I-105	186,000 – 298,000	5 – 6
I-110	I-10	I-5	160,000 – 291,000	1 – 3
I-105	I-110	I-605	195,000 – 240,000	5 – 9
SR-91	I-710	I-605	259,000 – 277,000	8
I-10	I-110	I-710	255,000 – 307,000	3 – 6
US-101	I-5	SR-2	136,000 – 266,000	3 – 4

Source: Adapted from Caltrans 2016a and 2016b
Notes: * AADT is the total volume for the year divided by 365 days.
AADT = Annual Average Daily Traffic; I = Interstate; SR = State Route; US = U.S. Highway

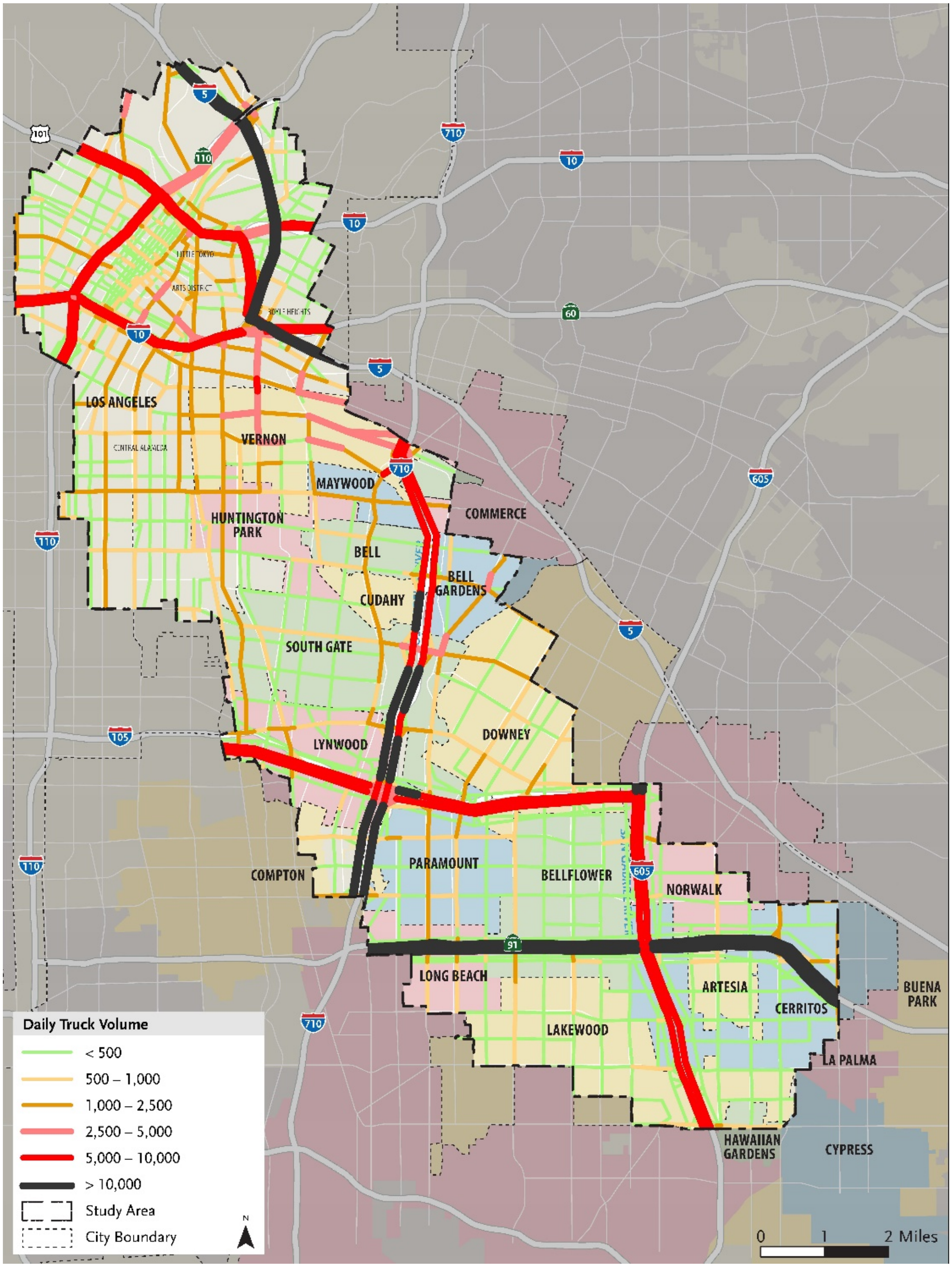
Among these freeways, I-710 (between SR-91 and I-5), I-105 (between I-110 and I-605), and SR-91 (between I-710 and I-605) carry the largest percentage of truck traffic, with percentages ranging from 5 to 9 percent. These freeways provide trucks access to the Ports of Long Beach and Los Angeles south of the Study Area and to warehouses associated with the movement of goods. Truck percentages vary widely and are usually highest on rural freeways, but truck concentrations approaching 10 percent of overall traffic are considered high for urban areas. Truck volumes are illustrated on Figure 4-5.

Figure 4-4. Existing Daily Traffic Volumes on Freeways and Major Arterials in the Study Area



Source: Metro Travel Demand Model 2017-2042 (adapted from the SCAG Regional Travel Demand Model)

Figure 4-5. Existing Truck Volumes in the Study Area



Source: Metro Travel Demand Model 2017-2042 (adapted from the SCAG Regional Travel Demand Model)

Table 4.3 summarizes existing travel times along segments of I-105, I-710 and I-5 in the Study Area. These are the three freeways closest to the proposed Build Alternatives' alignments. Travel times for these facilities are based on data obtained through Google Maps, which is an accurate source for a wide range of existing travel time data because the data are gathered from thousands of users in real time. The values in Table 4.3 represent ranges of travel times and travel speeds for the typical weekday peak periods (the data were collected on a Wednesday and include a large population of users indirectly surveyed using Global Positioning System tracking technology). Among the three freeway segments shown, I-5 (from the East Los Angeles interchange to I-605) has the slowest average travel speed. I-105 and I-710 have somewhat lower travel speeds and higher travel time but are still generally congested. All three freeways have a wide range of travel times, indicating that drivers cannot reliably predict the time it will take to reach their desired destinations.

Table 4.3. Freeway Peak Hour Travel Times and Average Travel Speeds

Description	Distance (miles)	Peak AM Travel Time (travel speed)	Peak PM Travel Time (travel speed)
I-105 from I-110 to I-605	10.3	18 to 60 minutes (12 to 34 mph)	22 to 55 minutes (11 to 28 mph)
I-710 from SR-60 to SR-91	11.6	20 to 45 minutes (15 to 35 mph)	26 to 60 minutes (12 to 27 mph)
I-5 from East Los Angeles interchange (I-60/I-101/I-5) to I-605 interchange	9.5	24 to 50 minutes (11 to 24 mph)	40 to 75 minutes (8 to 14 mph)

Source: Google Maps 2017
Notes: Peak hours are 6 to 9 AM and 3 to 7 PM.
AM = morning; I = Interstate; mph = mile(s) per hour; PM = afternoon; SR = State Route

Arterials are generally higher-speed surface streets, while traffic on local roads generally travels at lower speeds. Arterials and local roads account for the vast majority of the total roadway network through the Study Area's cities and unincorporated LA County. Many arterials often serve as freeway access routes, as well as alternative routes to congested freeway corridors.

The north-south and east-west grid formed by these arterials includes multiple crossings of freeways, flood channels and railroad lines. Major arterials typically have four to eight through lanes, with dedicated intersection turn pockets and mid-block center median turn pockets (or dual left-turn lanes) between major intersections.

Existing traffic volumes on arterials and local roads are illustrated on Figure 4-4. Traffic volumes are lower on arterials and local roads than freeways, with most carrying less than 30,000 vehicles per day in both directions (15,000 vehicles per day per direction), compared to over 100,000 vehicles per day in each direction on most freeways.

Major east-west arterials include parts of 7th Street, Olympic Boulevard, Washington Boulevard, Slauson Avenue, Florence Avenue, Firestone Boulevard, Imperial Highway, Rosecrans Avenue and Alondra Boulevard. Major north-south arterials include parts of Figueroa Street, Alameda Street, State Street, Atlantic Boulevard, Garfield Avenue, Paramount Boulevard, Lakewood Boulevard, Bellflower Boulevard and Studebaker Road. Table 4.4 summarizes current peak hour travel times along these major arterials, which are most representative of the high-volume north-south and east-west surface streets in the Study Area. As discussed above, travel times were measured using data obtained through Google Maps.

Table 4.4. High-Volume Arterial Peak Hour Travel Times and Average Travel Speeds

Description	Distance (miles)	Peak AM Travel Time (travel speed)	Peak PM Travel Time (travel speed)
7th Street from I-110 to I-5	4.4	14 to 45 minutes (6 to 18 mph)	16 to 45 minutes (6 to 16 mph)
Olympic Boulevard from I-110 to Soto Street	4.1	10 to 45 minutes (6 to 25 mph)	12 to 35 minutes (7 to 20 mph)
Washington Boulevard from I-110 to I-710	6.5	14 to 50 minutes (8 to 27 mph)	14 to 45 minutes (9 to 27 mph)
Slauson Avenue from I-110 to Atlantic Avenue	5.4	16 to 45 minutes (8 to 20 mph)	18 to 45 minutes (6 to 18 mph)
Florence Avenue from I-110 to Lakewood Boulevard	9.8	30 to 70 minutes (8 to 20 mph)	35 to 85 minutes (7 to 17 mph)
Firestone Boulevard from Alameda Street to Paramount Boulevard	5.4	10 to 35 minutes (10 to 32 mph)	14 to 45 minutes (7 to 23 mph)
Imperial Highway from I-105 to I-605	7.1	14 to 45 minutes (10 to 30 mph)	16 to 45 minutes (10 to 26 mph)
Rosecrans Avenue from Alameda Street to I-605	6.5	12 to 35 minutes (11 to 32 mph)	14 to 45 minutes (9 to 28 mph)
Alondra Boulevard from Alameda Street to I-605	6.5	14 to 35 minutes (11 to 28 mph)	14 to 40 minutes (10 to 28 mph)
Figueroa Street from I-110 to US-101	2.9	7 to 26 minutes (7 to 25 mph)	9 to 35 minutes (5 to 20 mph)
Alameda Street from 1st Street to El Segundo Boulevard	9.2	27 to 70 minutes (8 to 20 mph)	28 to 85 minutes (6 to 20 mph)
State Street from Slauson Avenue to SR-91	7.2	28 to 48 minutes (9 to 15 mph)	24 to 49 minutes (9 to 18 mph)
Atlantic Avenue from I-5 to Orange County Line	11.2	29 to 70 minutes (9 to 23 mph)	30 to 75 minutes (9 to 22 mph)
Garfield Avenue from SR-91 to Slauson Avenue	7.5	14 to 45 minutes (10 to 32 mph)	20 to 50 minutes (9 to 23 mph)
Paramount Boulevard from South Street to Florence Avenue	6.8	12 to 35 minutes (12 to 34 mph)	14 to 35 minutes (12 to 29 mph)
Lakewood Boulevard from South Street to Firestone Boulevard	5.5	9 to 28 minutes (12 to 37 mph)	12 to 25 minutes (13 to 28 mph)
Bellflower Boulevard from South Street to Firestone Boulevard	5.0	10 to 26 minutes (12 to 30 mph)	10 to 26 minutes (12 to 30 mph)
Studebaker Road from Centralia Street to Imperial Highway	5.6	10 to 26 minutes (13 to 34 mph)	12 to 26 minutes (13 to 34 mph)

Source: Google Maps 2017
Notes: Peak hours are 6 to 9 AM and 3 to 7 PM.
AM = morning; I = Interstate; mph = mile(s) per hour; PM = afternoon; SR = State Route; US = U.S. Highway

These major arterials had a travel speed varying from 7 to 23 mph. These travel speeds are typical for arterials where there are frequent signalized intersections, resulting in lower travel speeds and higher travel times.

4.2.2 Intersections

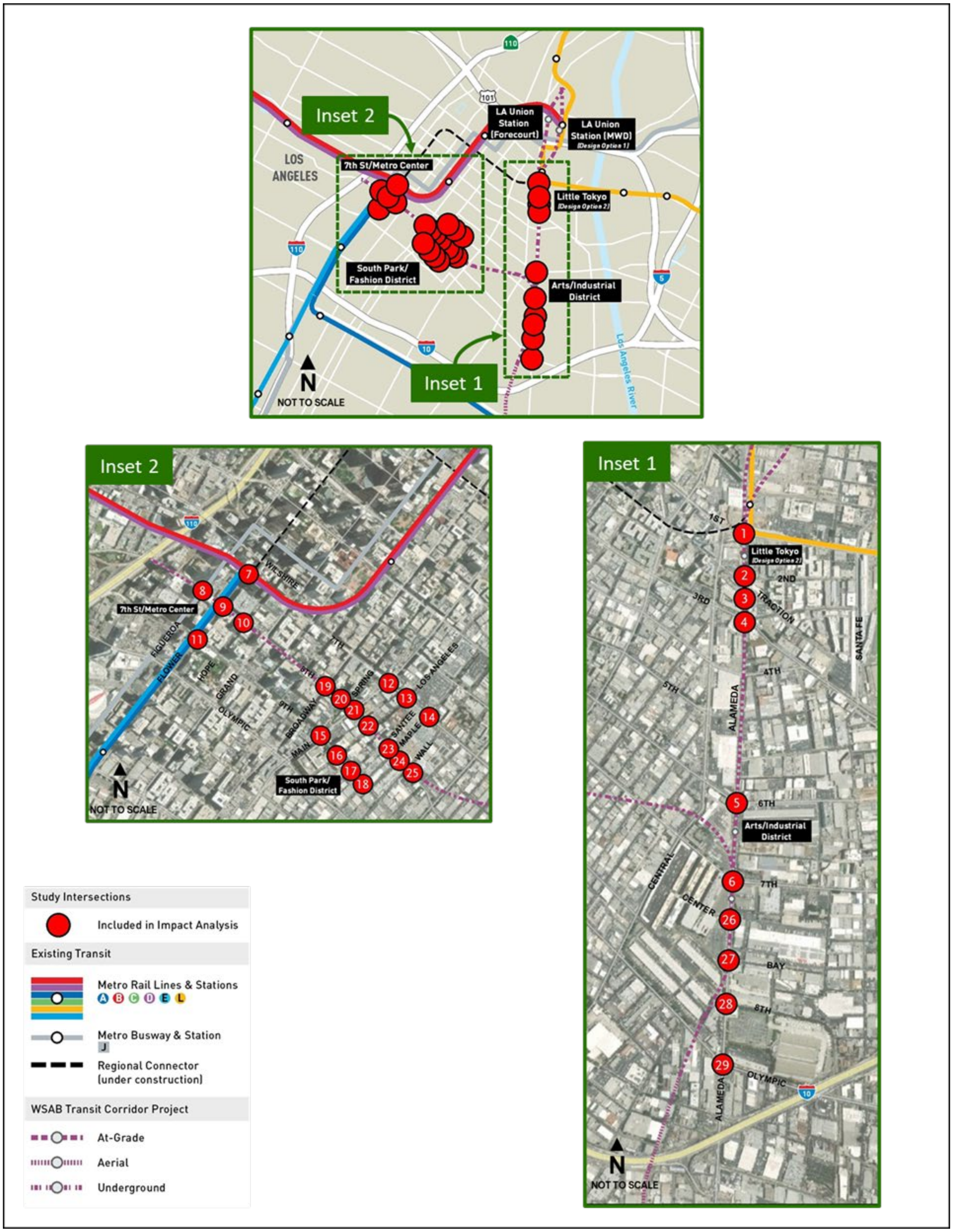
Most intersections within the Affected Area (as described in Section 1.5.1) are controlled by a traffic signal or stop signs, with a few intersections being uncontrolled. Many intersections near rail crossings are controlled with gate arms (typically found on arterials) or warning signs (typically found on lower-volume local roads). The signalized intersections near controlled rail crossings with gate arms are connected to the crossing, allowing for dynamic adjustments to signal timing (changing based on traffic conditions) that help prevent vehicles from queuing on the tracks when there are oncoming trains.

Figure 4-6 to Figure 4-9 provide an overview of the 101 key intersections along the alignment.

Along the alignment between Union Station or 7th Street/Metro Center Station and Florence/Salt Lake Station, it is mainly in an industrial and business center area, except for the residential area at its southern end near the areas of Central-Alameda, Florence-Firestone, and City of Huntington Park. This area of the Project has a higher density of intersections than the area of the Project to the south (Florence Avenue to Pioneer Boulevard). Because this area of the alignment includes industrial areas, trucks account for a significant portion of its traffic. Along the alignment between Florence/Salt Lake Station and the Pioneer Station, it is mainly residential, with some industrial areas between the Florence/Salt Lake Station and the Firestone Station. There are some major retail areas near the Pioneer Station. Because this area of the alignment is mainly in a residential area, there are relatively low volumes of truck traffic except at the north end.

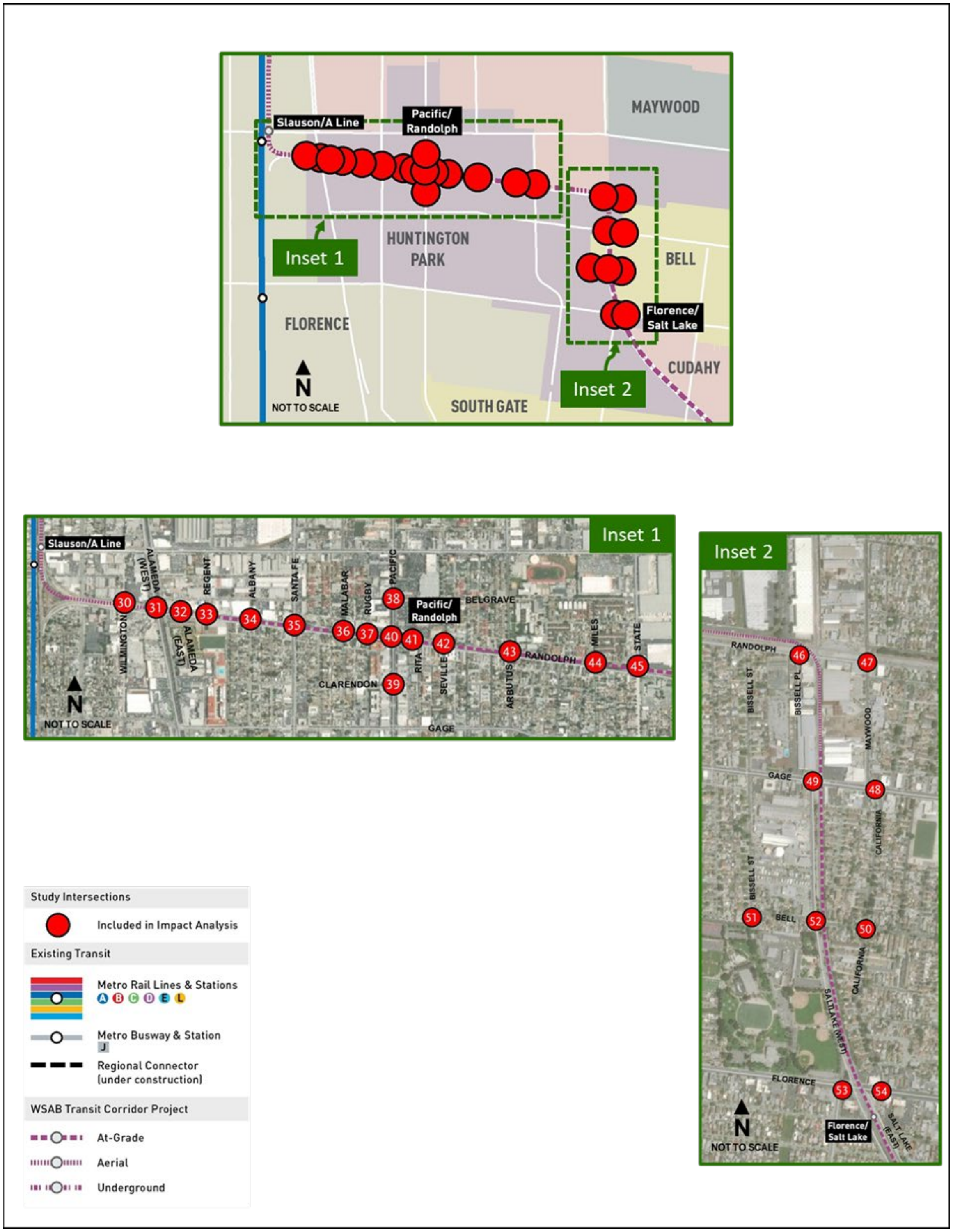
Table 4.5 lists the 101 key intersections, with details on jurisdiction, control type, reason for inclusion in the analysis and intersection delay/LOS for each. Appendix A - Attachment 1 has detailed turning movement traffic volumes for the AM and PM peak for each intersection. Over half (51 percent) of the intersections (52 intersections) operate at LOS C or worse, and 13 percent (13 intersections) are LOS E or worse. Operations are similar in the AM and PM peak periods.

Figure 4-6. Key Intersections (1 of 4)



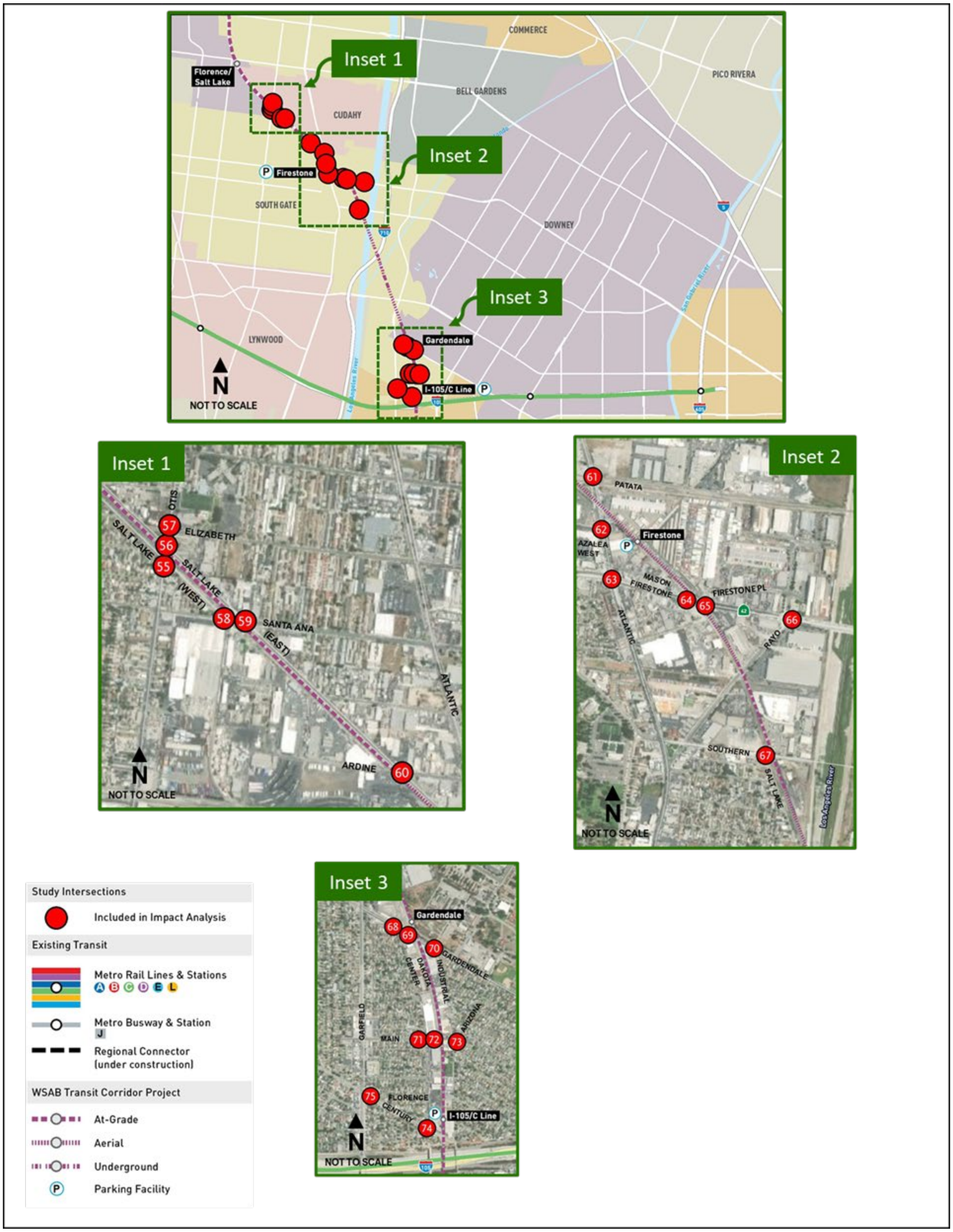
Source: Prepared by Jacobs in 2020

Figure 4-7. Key Intersections (2 of 4)



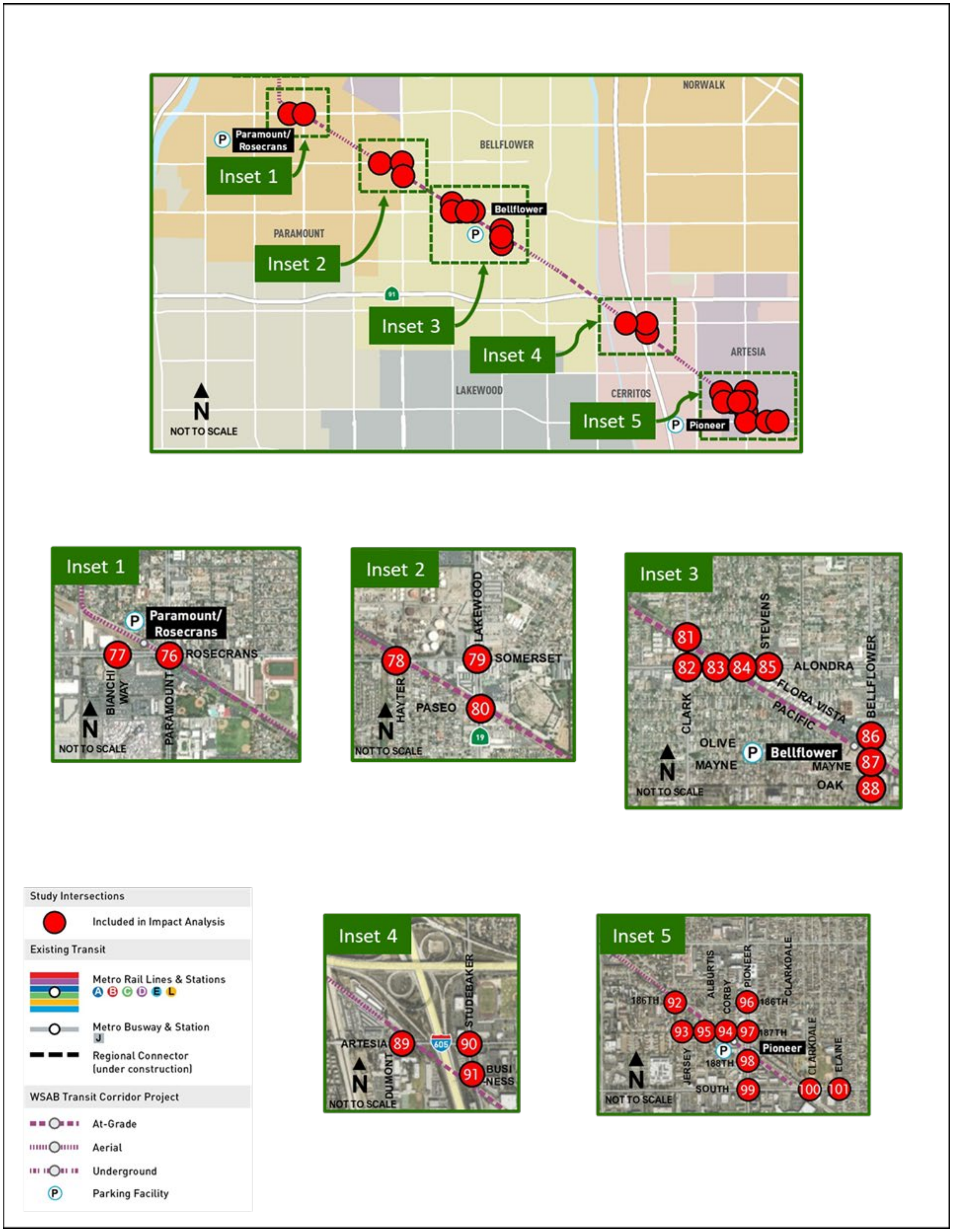
Source: Prepared by Jacobs in 2020

Figure 4-8. Key Intersections (3 of 4)



Source: Prepared by Jacobs in 2020

Figure 4-9. Key Intersections (4 of 4)



Source: Prepared by Jacobs in 2020

Table 4.5. Key Intersections and Existing Operations

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
1	Alameda St/1st St	Los Angeles	Traffic Signal	Near Little Tokyo Station (Alternative 1 – Design Option 2)	10/A-AM 11/B-PM
2	Alameda St/2nd St	Los Angeles	Traffic Signal	Near Little Tokyo Station (Alternative 1 – Design Option 2)	12/B-AM 19/B-PM
3	Alameda St/Traction Ave	Los Angeles	Two-Way Stop	Near Little Tokyo Station (Alternative 1 – Design Option 2)	12/B-AM 12/B-PM
4	Alameda St/3rd St	Los Angeles	Traffic Signal	Near Little Tokyo Station (Alternative 1 – Design Option 2)	20/C-AM 15/B-PM
5	Alameda St/6th St	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternative 1)	11/B-AM 13/B-PM
6	Alameda St/7th St	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternatives 1 and 2)	17/B-AM 14/B-PM
7	7th St/Flower St	Los Angeles	Traffic Signal	Near 7th St/Metro Center Station (Alternative 2)	16/B-AM 22/C-PM
8	8th St/Figueroa St	Los Angeles	Traffic Signal	Near 7th St/Metro Center Station (Alternative 2)	21/C-AM 25/C-PM
9	8th St/Flower St	Los Angeles	Traffic Signal	Near 7th St/Metro Center Station (Alternative 2)	28/C-AM 32/C-PM
10	8th St/Hope St	Los Angeles	Traffic Signal	Near 7th St/Metro Center Station (Alternative 2)	16/B-AM 15/B-PM
11	9th St/Flower St	Los Angeles	Traffic Signal	Near 7th St/Metro Center Station (Alternative 2)	20/B-AM 26/C-PM
12	7th St/Main St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	13/B-AM 16/B-PM
13	7th St/Los Angeles St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	18/B-AM 13/B-PM
14	7th St/Maple Ave	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	10/A-AM 8/A-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
15	9th St/Main St/Spring St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	14/B-AM 16/B-PM
16	9th St/Los Angeles St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	18/B-AM 17/B-PM
17	9th St/Santee St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	5/B-AM 6/A-PM
18	9th St/Maple St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	19/B-AM 20/C-PM
19	8th St/Broadway	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	24/C-AM 24/C-PM
20	8th St/Spring St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	23/C-AM 24/C-PM
21	8th St/Main St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	27/C-AM 30/C-PM
22	8th St/Los Angeles St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	9/A-AM 12/B-PM
23	8th St/Santee St	Los Angeles	Two-Way Stop	Near South Park/Fashion District Station (Alternative 2)	17/C-AM 21/C-PM
24	8th St/Maple Ave	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	5/A-AM 5/A-PM
25	8th St/Wall St	Los Angeles	Traffic Signal	Near South Park/Fashion District Station (Alternative 2)	14/B-AM 14/B-PM
26	Alameda St/Center St	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternative 2)	2/A-AM 5/A-PM
27	Alameda St/Bay St	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternative 2)	13/B-AM 12/B-PM
28	Alameda St/8th St	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternative 2)	1/A-AM 1/A-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
29	Alameda St/Olympic Blvd	Los Angeles	Traffic Signal	Near Arts/Industrial District Station (Alternative 2)	16/B-AM 19/B-PM
30	Randolph St/Wilmington Ave	Huntington Park	All-Way Stop	Rail in Intersection	21/C-AM 12/B-PM
31	Randolph St/Alameda St (West)	Huntington Park	Traffic Signal	Rail in Intersection	48/D-AM 24/C-PM
32	Randolph St/Alameda St (East)	Huntington Park	Two-Way Stop	Rail in Intersection	9/A-AM 10/A-PM
33	Randolph St/Regent St	Huntington Park	Two-Way Stop	Rail in Intersection	15/C-AM 13/B-PM
34	Randolph St/Albany St	Huntington Park	Two-Way Stop	Rail in Intersection	29/D-AM 24/C-PM
35	Randolph St/Santa Fe Ave	Huntington Park	Traffic Signal	Rail in Intersection	23/C-AM 19/B-PM
36	Randolph St/Malabar St	Huntington Park	Traffic Signal	Rail in Intersection	21/C-AM 20/C-PM
37	Randolph St/Rugby Ave	Huntington Park	Two-Way Stop	Rail in Intersection	62/F-AM 14/B-PM
38	Pacific Blvd/Belgrave Ave	Huntington Park	Traffic Signal	Rail in Intersection	7/A-AM 8/A-PM
39	Pacific Blvd/Clarendon Ave	Huntington Park	Traffic Signal	Crossing Proximity	9/A-AM 7/A-PM
40	Pacific Blvd/Randolph St	Huntington Park	Traffic Signal	Rail in Intersection	30/C-AM 37/D-PM
41	Randolph St/Rita Ave	Huntington Park	Two-Way Stop	Rail in Intersection	25/C-AM 48/E-PM
42	Randolph St/Seville Ave	Huntington Park	Traffic Signal	Rail in Intersection	35/C-AM 30/C-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
43	Randolph St/Miles Ave	Huntington Park	Traffic Signal	Rail in Intersection	34/C-AM 28/C-PM
44	Randolph St/Arbutus Ave	Huntington Park	All-Way Stop	Rail in Intersection	18/C-AM 10/B-PM
45	Randolph St/State St	Huntington Park	Traffic Signal	Rail in Intersection	21/C-AM 13/B-PM
46	Randolph St/Bissell Pl	Huntington Park	Two-Way Stop	Crossing Proximity	14/B-AM 13/B-PM
47	Randolph St/Maywood Ave	Huntington Park	Traffic Signal	Crossing Proximity	13/B-AM 13/B-PM
48	Gage Ave/California Ave	Bell	Traffic Signal	Crossing Proximity	16/B-AM 19/C-PM
49	Gage Ave/Salt Lake Ave (West)	Bell	Traffic Signal	Crossing Proximity	16/B-AM 28/C-PM
50	Bell Ave/California Ave	Huntington Park	All-Way Stop	Crossing Proximity	18/C-AM 14/B-PM
51	Bell Ave/Bissell St	Bell	Traffic Signal	Crossing Proximity	9/A-AM 9/A-PM
52	Bell Ave/Salt Lake Ave	Huntington Park	All-Way Stop	Crossing Proximity	63/F-AM 47/E-PM
53	Florence Ave/California Ave (West)	Huntington Park	Traffic Signal	Near Florence/Salt Lake Station	34/C-AM 38/D-PM
54	Florence Ave/California Ave (East)	Huntington Park	Traffic Signal	Near Florence/Salt Lake Station	53/D-AM 29/C-PM
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	All-Way Stop	Crossing Proximity	37/E-AM 45/E-PM
56	Otis Ave/Salt Lake Ave (East)	Cudahy	All-Way Stop	Crossing Proximity	75/E-AM 64/F-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
57	Otis Ave/Elizabeth St	Cudahy	Two-Way Stop	Crossing Proximity	35/D-AM 47/E-PM
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	Two-Way Stop	Crossing Proximity	41/E-AM 36/E-PM
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	All-Way Stop	Crossing Proximity	43/E-AM 48/E-PM
60	Ardine St/Salt Lake Ave	Cudahy	All-Way Stop	Crossing Proximity	30/D-AM 24/C-PM
61	Atlantic Ave/Salt Lake Ave	Cudahy	Traffic Signal	Crossing Proximity	53/D-AM 65/E-PM
62	Atlantic Ave/Azalea West	South Gate	Traffic Signal	Near Firestone Station, with 600 Parking Spaces	4/A-AM 8/A-PM
63	Firestone Blvd/Atlantic Ave	South Gate	Traffic Signal	Near Firestone Station, with 600 Parking Spaces	53/D-AM 46/D-PM
64	Firestone Blvd/Mason St	South Gate	Traffic Signal	Near Firestone Station, with 600 Parking Spaces	7/A-AM 8/A-PM
65	Firestone Blvd/Firestone Pl	South Gate	Traffic Signal	Near Firestone Station, with 600 Parking Spaces	8/A-AM 8/A-PM
66	Firestone Blvd/Rayo Ave	South Gate	Traffic Signal	Near Firestone Station, with 600 Parking Spaces	116/F-AM 95/F-PM
67	Southern Ave/Salt Lake Ave	South Gate	Two-Way Stop	Crossing Proximity	9/A-AM 9/A-PM
68	Gardendale St/Center St	South Gate	Two-Way Stop	Near Gardendale Station	19/C-AM 17/C-PM
69	Gardendale St/Dakota Ave	South Gate	All-Way Stop	Near Gardendale Station	28/D-AM 13/B-PM
70	Gardendale St/Industrial Ave	South Gate	Two-Way Stop	Near Gardendale Station	35/D-AM 22/C-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
71	Main St/Center St	South Gate	Two-Way Stop	Crossing Proximity	15/B-AM 13/B-PM
72	Main St/Dakota Ave	South Gate	Two-Way Stop	Crossing Proximity	10/B-AM 10/B-PM
73	Main St/Arizona Ave/Industrial Ave	South Gate	Two-Way Stop	Crossing Proximity	18/C-AM 19/C-PM
74	Century Blvd/Center St	South Gate	Two-Way Stop	Near I-105/C Line Station, with 326 Parking Spaces	10/A-AM 9/A-PM
75	Century Blvd/Florence Ave	South Gate	Two-Way Stop	Near I-105/C Line Station, with 326 Parking Spaces	9/A-AM 9/A-PM
76	Rosecrans Ave/Paramount Blvd	Paramount	Traffic Signal	Near Paramount/Rosecrans Station, with 490 Parking Spaces	55/D-AM 48/D-PM
77	Rosecrans Ave/Bianchi Way	Paramount	Traffic Signal	Near Paramount/Rosecrans Station, with 490 Parking Spaces	2/A-AM 13/B-PM
78	Somerset Blvd/Hayter Ave	Paramount	Two-Way Stop	Crossing Proximity	29/D-AM 32/D-PM
79	Somerset Blvd/Lakewood Blvd	Bellflower	Traffic Signal	Crossing Proximity	32/C-AM 30/C-PM
80	Paseo St/Lakewood Blvd	Bellflower	Traffic Signal	Crossing Proximity	4/A-AM 3/A-PM
81	Flora Vista St/Clark Ave	Bellflower	Two-Way Stop	Crossing Proximity	14/B-AM 18/C-PM
82	Alondra Blvd/Clark Ave	Bellflower	Traffic Signal	Crossing Proximity	47/D-AM 48/D-PM
83	Alondra Blvd/Pacific Ave	Bellflower	Traffic Signal	Crossing Proximity	5/A-AM 12/B-PM
84	Alondra Blvd/Flora Vista St	Bellflower	Two-Way Stop	Crossing Proximity	37/E-AM 32/D-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
85	Alondra Blvd/Stevens Ave	Bellflower	Two-Way Stop	Crossing Proximity	51/F-AM 30/D-PM
86	Bellflower Blvd/Flora Vista St	Bellflower	Traffic Signal	Near Bellflower Station, with 263 Parking Spaces	7/A-AM 14/B-PM
87	Bellflower Blvd/Mayne St	Bellflower	Traffic Signal	Near Bellflower Station, with 263 Parking Spaces	11/B-AM 10/B-PM
88	Bellflower Blvd/Oak St	Bellflower	Traffic Signal	Crossing Proximity	22/C-AM 25/C-PM
89	Artesia Blvd/Dumont Ave	Cerritos	Traffic Signal	Crossing Proximity	18/B-AM 9/A-PM
90	Artesia Blvd/Studebaker Rd	Cerritos	Traffic Signal	Crossing Proximity	85/F-AM 61/E-PM
91	Business Cir/Studebaker Rd	Cerritos	Two-Way Stop	Crossing Proximity	15/B-AM 16/C-PM
92	186th St/Jersey Ave	Artesia	All-Way Stop	Crossing Proximity	9/A-AM 9/A-PM
93	187th St/Alburtis Ave	Artesia	Two-Way Stop	Crossing Proximity	10/A-AM 9/A-PM
94	187th St/Corby Ave (West)	Artesia	Two-Way Stop	Crossing Proximity	9/A-AM 10/A-PM
95	187th St/Corby Ave (East)	Artesia	Two-Way Stop	Crossing Proximity	9/A-AM 9/A-PM
96	186th St/Pioneer Blvd	Artesia	Traffic Signal	Crossing Proximity	7/A-AM 5/A-PM
97	187th St/Pioneer Blvd	Artesia	Traffic Signal	Near Pioneer Station, with 1,100 Parking Spaces	7/A-AM 5/A-PM
98	188th St/Pioneer Blvd	Artesia	Two-Way Stop	Near Pioneer Station, with 1,100 Parking Spaces	11/B-AM 13/B-PM

No	Intersection Name	Jurisdiction	Control Type	Selection Reason	Delay/LOS*
99	South St/Pioneer Blvd	Cerritos	Traffic Signal	Crossing Proximity	34/C-AM 41/D-PM
100	South St/Clarkdale Ave	Artesia	Traffic Signal	Crossing Proximity	18/B-AM 12/B-PM
101	South St/Elaine Ave	Artesia	Traffic Signal	Crossing Proximity	11/B-AM 12/B-PM

Source: Compiled by Jacobs in 2020
Notes: * This column shows the peak hour delay in seconds/vehicle followed by the LOS, first for the AM peak hour, then for the PM peak hour. For example, "21/C-AM 13/B-PM" means a 21 second/vehicle delay, which is LOS C in the AM peak hour, and a 13 second/vehicle delay, which is LOS B in the PM peak hour under the existing conditions.
AM = morning; LOS = level- of-service; PM = afternoon

4.3 Transit Conditions

The Study Area has existing railroad and bus transit services provided by Metro, Metrolink, LADOT, and Orange County Transportation Authority (OCTA), and other local/municipal bus and shuttle providers. Figure 4-10 and Figure 4-11 present the transit services within the Study Area.

The service types include:

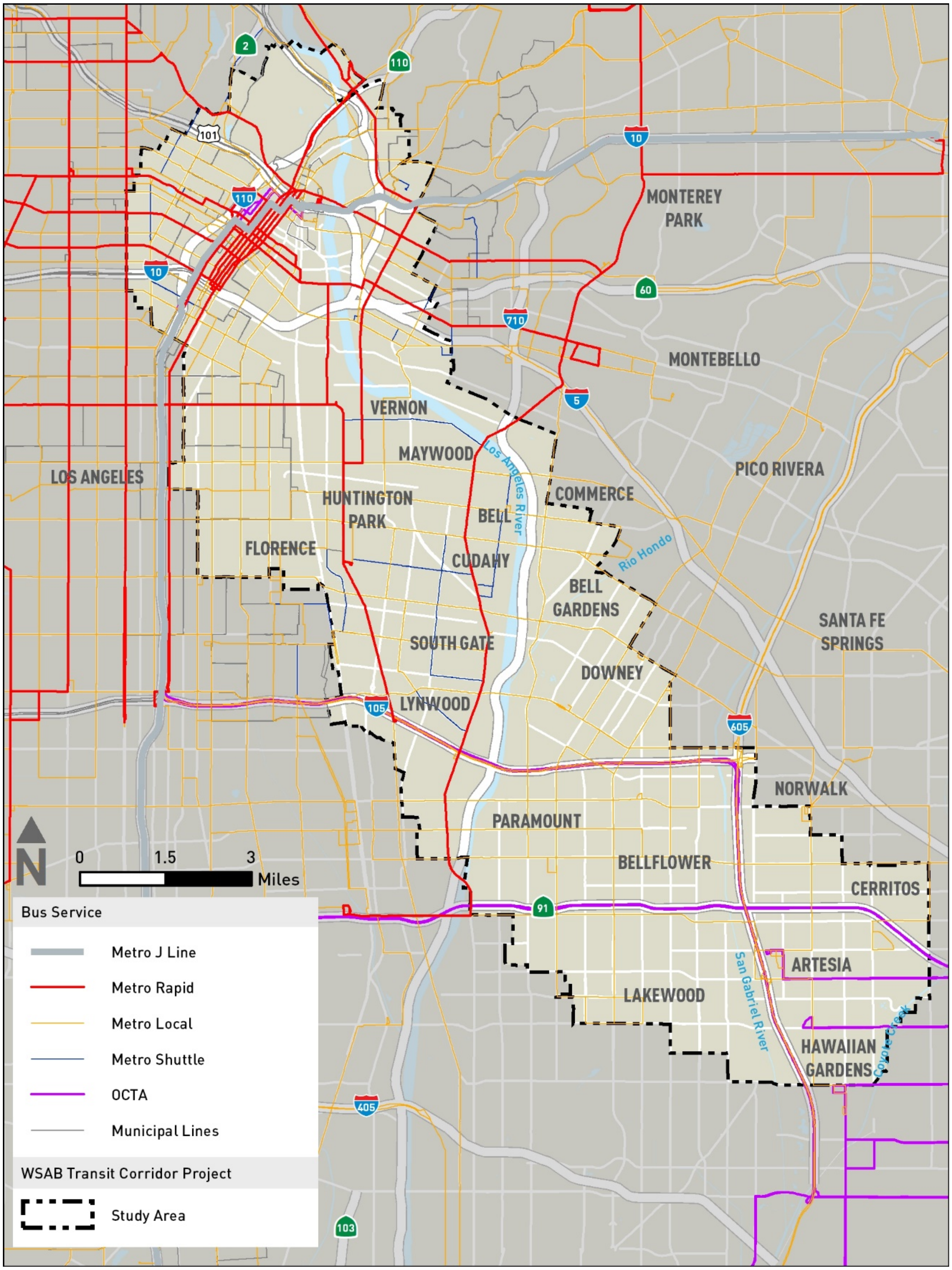
- **Heavy rail transit (HRT) and LRT:** Trains operating in dedicated ROW generally at-grade and adjacent to vehicular traffic.
- **Local and limited bus:** Traditional bus service.
- **Express bus:** Defined routes with limited stops that generally use freeways for a portion of their trips to reduce travel time.
- **Shuttles and circulators:** Local service on defined routes with a high density of stops to support short-distance trips.
- **Metro Rapid:** A system of high-speed bus service on nearly 400 miles of routes, incorporating signal priority and fewer stops to reduce travel time.
- **Metrolink commuter rail:** Longer-distance train service on dedicated tracks, with limited stops and higher speeds.
- **Downtown Area Short Hop (DASH):** Local routes in Los Angeles, with a high density of stops.

Within the Study Area, these services include 10 Metro Rapid, 2 HRT, 4 LRT, and 6 Metrolink lines (major transit lines/routes). None of the existing transit lines/routes provide a continuous transit mode connecting the cities in the Study Area.

4.3.1 Metro Rail Lines

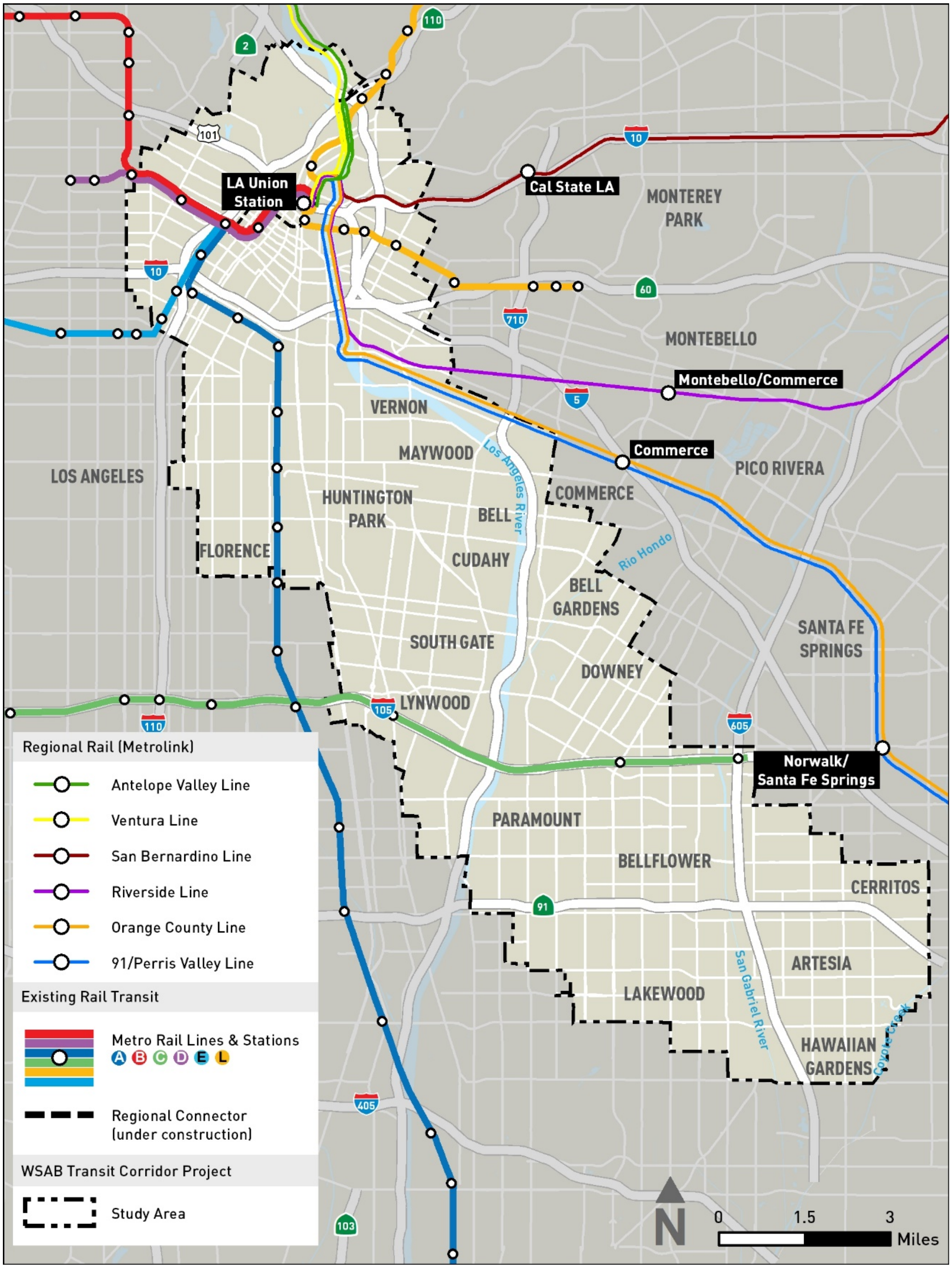
Metro's urban rapid transit system includes a combination of heavy rail, LRT and bus rapid transit (BRT) services. There are six Metro rail lines (LRT and underground) in the Study Area, all passing through parts of the Study Area. As shown on Figure 4-11, the Metro C (Green) Line runs east-west through the Study Area, from Norwalk in the east to the South Bay in the west. The Metro A (Blue) Line runs north-south through the western part of the Study Area, from downtown LA in the north to Long Beach in the south. The Metro E (Expo) Line runs concurrently with the Metro A (Blue) Line from the terminus station in downtown LA to Washington Boulevard, then separates en route to its terminus station in Santa Monica. The Metro L (Gold) Line passes through the northeast corner of the Study Area, with a central stop at Union Station en route to terminal stations in Azusa and East Los Angeles. The Metro B (Red) and D (Purple) Lines pass through the northwest part of the Study Area, en route to terminal stations in North Hollywood (where the Metro B [Red] Line connects to the Metro G [Orange] Line en route to the San Fernando Valley) and Wilshire/Western in Los Angeles (the Metro D [Purple] Line terminus). These lines are described in further detail in the following sections.

Figure 4-10. Study Area Bus Service



Source: Prepared by Jacobs in 2020

Figure 4-11. Study Area Rail Service



Source: Prepared by Jacobs in 2020

The Metro B (Red) and D (Purple) Lines are served by heavy passenger rail. The Metro A (Blue), C (Green), L (Gold), and E (Expo) Lines are served by LRT. Table 4.6 shows the service frequency or headways of the Metro rail lines.

Table 4.6. Metro Rail Line Service Frequency (headways in minutes)

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
A (Blue)	6	12	10	12-15	10	12-15	10
B (Red)	10	12	10-20	12-15	20	12-15	10
C (Green)	6	15	20	15	20	15	20
D (Purple)	10	12	10-20	12-15	10-20	12-15	10
D (Expo)	6	12	20	12-15	20	12-15	20
L (Gold)	6	12	10-20	7-8	10-20	7-8	10

Source: Metro 2017

4.3.1.1 Metro A (Blue) Line

The Metro A (Blue) Line is an LRT line running north-south between the Downtown Los Angeles Metro Center and Long Beach, Flower Street, Washington Boulevard, Long Beach Avenue, Willowbrook Avenue and Long Beach Boulevard. The Metro A (Blue) Line is about 22 miles long with 22 stops. Nine stops are within the Study Area: 7th Street/Metro Center, Pico, Grand/Los Angles Trade Technical College, San Pedro, Washington, Vernon, Slauson, Florence and Firestone. Table 4.7 shows the 2016 ridership statistics on the Metro A (Blue) Line.

Table 4.7. Metro A (Blue) Line Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	78,754	583,935	255	20,082,165	148,903,454
Saturday	48,865	368,780	53	2,589,819	19,545,344
Sunday	39,946	310,160	58	2,316,842	17,989,291
Total	-	-	**366**	**24,988,825**	**186,438,089**

Source: Metro 2016a

4.3.1.2 Metro B (Red) Line

The Metro B (Red) Line is an HRT underground line that runs primarily north-south between Downtown LAUS and North Hollywood. The Metro B (Red) Line is 16 miles long with 14 stops. Except for the southern terminus at Union Station, the Metro B (Red) Line does not have stops within or adjacent to the Study Area. Table 4.8 shows the 2016 ridership statistics on the Metro B (Red) Line.

Table 4.8. Metro B (Red) Line Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	143,422	701,632	255	36,572,538	178,916,270
Saturday	89,717	489,307	53	4,754,993	25,933,267
Sunday	74,169	395,749	58	4,301,821	22,953,417
Total	**-**	**-**	**366**	**45,629,352**	**227,802,953**

Source: Metro 2016a
Note: Ridership numbers include the Metro D (Purple) Line.

4.3.1.3 Metro C (Green) Line

The Metro C (Green) Line is an LRT line that runs east-west between Redondo Beach and Norwalk, predominantly along I-105. The Metro C (Green) Line is about 20 miles long with 27 stops. Three stops are within the Study Area: Norwalk, Lakewood Boulevard and Long Beach Boulevard. Table 4.9 shows the 2016 ridership statistics on the Metro C (Green) Line.

Table 4.9. Metro C (Green) Line Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	35,950	239,777	255	9,167,307	61,143,228
Saturday	17,995	109,611	53	953,714	5,809,408
Sunday	14,816	89,661	58	859,302	5,200,351
Total	**-**	**-**	**366**	**10,980,323**	**72,152,987**

Source: Metro 2016a

4.3.1.4 Metro L (Gold) Line

The Metro L (Gold) Line is an LRT line that runs east-west between Azusa and East Los Angeles via Union Station. The Metro L (Gold) Line is 31 miles long with 27 stops. Two stops are within the Study Area: Union Station and Little Tokyo. Table 4.10 shows the 2016 ridership statistics on the Metro L (Gold) Line.

Table 4.10. Metro L (Gold) Line Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	50,587	303,920	255	12,899,643	77,499,627
Saturday	34,314	203,733	53	1,818,633	10,797,863
Sunday	30,436	176,111	58	1,765,269	10,214,442
Total	**-**	**-**	**366**	**16,483,545**	**98,511,933**

Source: Metro 2016a

4.3.1.5 Metro D (Purple) Line

The Metro D (Purple) Line is an HRT line that runs east-west between Downtown Los Angeles Metro Center and Koreatown (Wilshire/Western). The Metro D (Purple) Line is 6 miles long with 8 stops, 6 of which are shared with the Metro B (Red) Line. Like the Metro B (Red) Line, the Metro D (Purple) Line only shares the Union Station stop within the Study Area. Ridership numbers for the Metro D (Purple) Line are not reported separately by Metro but are included in the Metro B (Red) Line ridership data (see Table 4.8).

4.3.1.6 Metro E (Expo) Line

The Metro E (Expo) Line is an LRT line that runs primarily east-west between 7th Street/Metro Center and Santa Monica Stations. The Metro E (Expo) Line is 15 miles long with 19 stops. Two stops are within the Study Area: 7th Street/Metro Center and Pico. Table 4.11 shows the 2016 ridership statistics on the Metro E (Expo) Line.

Table 4.11. Metro E (Expo) Line Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	39,793	166,349	255	10,147,189	42,418,878
Saturday	29,757	115,837	53	1,577,114	6,139,341
Sunday	28,485	114,561	58	1,652,126	6,644,542
Total	**-**	**-**	**366**	**13,376,428**	**55,202,762**

Source: Metro 2016a

4.3.2 Metrolink/Amtrak

Metrolink is a regional commuter rail service that operates seven routes. Six routes are within the Study Area: the Antelope Valley Line, the Ventura Line, the San Bernardino Line, the Orange County Line, the Riverside Line, and the 91/Perris Valley Line. Table 4.12 shows the service frequencies (total number of trains per day) of these Metrolink lines.

Table 4.12. Metrolink Line Service Frequency

Line	Daily Service Frequency (trains/day)	
	Weekday	Weekend
Antelope Valley Line	30	12
Ventura Line	31	N/A
San Bernardino Line	38	20
Riverside Line	7	-
Orange County Line	16	4
91/Perris Valley Line	7	2

Source: Metrolink 2017a
Note: N/A = not applicable

The Cal State LA stop on the San Bernardino Line, the Montebello/Commerce stop on the Riverside Line, the Commerce stop on the Orange County Line, and the Norwalk stop on the Orange County and 91/Perris Valley Lines are close to the Study Area. The Montebello/Commerce and Norwalk stops are full-service stops, while the Commerce stop is a limited-service stop (i.e., only on certain trains). Table 4.13 shows the 2016 ridership statistics of the three Metrolink lines.

Table 4.13. Metrolink Ridership Data

Line	Weekday	Saturday	Sunday
Antelope Valley Line	5,808	2,334	1,952
Ventura Line	3,668	N/A	N/A
San Bernardino Line	9,218	3,848	2,604
Riverside Line	4,557	N/A	N/A
Orange County Line	9,167	2,388	2,055
91/Perris Valley Line	2,878	748	518

Source: Metrolink 2017
Note: N/A = not applicable

4.3.3 Metro Bus

Metro operates several types of bus services throughout its larger service area. These services can be categorized into rapid, express, local, limited and shuttle/circulator services based on trip distance, trip frequency and travel times. The major bus services in each category along the WSAB Transit Corridor and within the Study Area are described below.

4.3.3.1 Metro Rapid

Rapid is a bus service that operates primarily in mixed-flow traffic on heavily traveled corridors with transit signal priority on signals along the route, with limited stops and enhanced bus stations. Major routes in the Study Area include Routes 705, 720, 751, 760 and 762. Table 4.14 shows the service frequency (i.e., minutes between buses) of the Metro Rapid lines. Table 4.15 shows the 2016 ridership statistics on these lines.

Table 4.14. Metro Rapid Service Frequency (minutes between buses)

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
705	10-20	30	30	-	-	-	-
720	2-10	7-8	8-20	6-12	10-20	8-12	10-20
751	12-15	20	-	-	-	-	-
760	8-20	25	30	23-27	30	-	-
762	17-30	30	35-70	-	-	-	-

Source: Metro 2017

Table 4.15. Metro Rapid Weekday Ridership Statistics

Line	Weekday Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
705	6,207	24,093	255	1,582,891	6,143,684
720	33,826	199,206	255	8,625,751	50,797,657
751	5,007	17,085	255	1,276,776	4,356,674
760	4,874	19,193	255	1,242,833	4,894,157
762	4,013	21,538	255	1,023,390	5,492,072

Source: Metro 2016a

Details of the individual Metro Rapid lines are as follows:

- Line 705 connects West Hollywood with Vernon via La Cienega Boulevard and Vernon Avenue. Of the 27 stops in this line, three stops are located in the vicinity of the proposed Build Alternatives within the Study Area, near Vernon.
- Line 720 connects to East Los Angeles, Commerce, Downtown Los Angeles and Santa Monica via Wilshire Boulevard and Whittier Boulevard. Of the 29 stops in this line, five stops are located in the vicinity of the proposed Build Alternatives within the Study Area, near Downtown Los Angeles.
- Line 751 connects Cypress Park with Huntington Park via Avenue 26, Daly Street and Soto Street. Of the 21 stops in this line, nine stops are in located in the vicinity of the proposed Build Alternatives within the Study Area, near Huntington Park and Vernon.
- Line 760 connects Downtown Los Angeles with Lynwood via Santa Fe Avenue, Pacific Boulevard and Long Beach Boulevard. Of the 24 stops in this line, 15 stops are located in the vicinity of the proposed Build Alternatives within the Study Area.
- Line 762 connects Pasadena with Compton and Lynwood via Fair Oaks Avenue and Atlantic Boulevard. Of the 30 stops in this line, eight stops are located in the vicinity of the proposed Build Alternatives within the Study Area.

4.3.3.2 Metro Express

Metro Express routes provide long-distance trips with fewer stops along the route and more stops at the beginning and end of the routes. The express routes usually operate from stations with park-and-ride lots, with stops at major activity centers or transfer points. The routes use freeways, high-occupancy vehicle, high-occupancy toll or bus lanes. Two express lines, Lines 460 and 577, pass through the Study Area. Table 4.16 shows the service frequency of the Metro Express routes and Table 4.17 shows the 2016 ridership statistics.

Table 4.16. Metro Express Service Frequency (minutes between buses)

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
460	20-30	30	30-60	25-30	30-50	30	30-50
577	40-45	45	60	-	-	-	-

Source: Metro 2017

Table 4.17. Metro Express Ridership Statistics

Line	Weekday Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
460	4,877	75,703	255	1,243,715	19,304,382
577	842	12,952	255	214,672	3,302,663

Source: Metro 2016a

Line 460 connects Downtown Los Angeles with Disneyland via Harbor Transitway and I-105. The line has several stops in Downtown Los Angeles, limited stops in the Harbor Transitway and I-105, and several stops east of Norwalk. Of the 71 stops in this line, about 25 are located in the vicinity of the proposed Build Alternatives within the Study Area, near Norwalk, Artesia and Cerritos.

Route 577 is a north-south line that connects El Monte with Long Beach via I-605. There are only seven stops in this line, and three of these stops are located in the vicinity of the proposed Build Alternatives within the Study Area, near Norwalk.

4.3.3.3 Shuttle Bus

Shuttle routes and circulators serve short-distance trips and operate in mixed-flow traffic secondary streets. They connect local communities with high-capacity transit services such as Metro Rail. There are two major shuttle bus routes that are located in the vicinity of the proposed Build Alternatives within the Study Area: Route 611 and Route 612. Table 4.18 shows the service frequency of Metro Shuttle bus service.

Table 4.18. Metro Shuttle Service Frequency (minutes between buses)

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
611	30-50	60	60	60	60	60	60
612	60	60	60	60	60	60	60

Source: Metro 2017

Route 611 is a circulator serving Huntington Park and passes through two Metro A (Blue) Line stops: Vernon and Florence. In all, there are about 80 stops on Route 611, all of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.19 shows the 2016 ridership statistics on this line.

Table 4.19. Line 611 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	1,607	5,060	255	409,740	1,290,403
Saturday	1,055	3,389	53	55,907	179,619
Sunday	893	2,966	58	51,766	172,042
Total	**-**	**-**	**366**	**517,413**	**1,642,064**

Source: Metro 2016a

Route 612 is a circulator serving South Gate that passes through two Metro Stops: 103rd Street/Watts Towers on the Metro A (Blue) Line and Willowbrook/Rosa Parks on the Metro C (Green) and A (Blue) Lines. There are about 72 stops in Route 612, about 60 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.20 shows the 2016 ridership statistics on this line.

Table 4.20. Line 612 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	1,351	4,958	255	344,508	1,264,252
Saturday	1,017	3,881	53	53,881	205,703
Sunday	897	3,408	58	52,026	197,658
Total	**-**	**-**	**366**	**450,415**	**1,667,613**

Source: Metro 2016a

4.3.3.4 Local Bus

There are several Metro Local bus routes in the Study Area. These routes operate on city streets with several stops along the route within the Study Area. Major local bus routes in the vicinity include Routes 2, 4, 14, 16, 18, 45, 51, 60, 81, 108, 110, 111, 115, 117, 120, 258, 265 and 266. Table 4.21 shows the service frequency of Metro Local bus service.

Table 4.21. Metro Local Bus Service Frequency (minutes between buses)

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
2	8-15	20-30	15-20	10-15	20-30	15-20	20-30
4	10-15	15-20	15-20	15-20	15-20	15-20	20-30
14	5-10	10-15	15-20	15-20	15-20	15-20	15-20
16	5-10	10-15	10-15	10-15	10-15	10-15	10-15
18	10	10-15	15-20	10-15	20-30	10-15	20-30
45	5-10	10-15	15-20	10-15	20-30	10-15	20-30
51	5-10	10-15	15-20	10-15	20-30	10-15	20-30
60	15-20	15-20	20-30	15-20	20-30	15-20	20-30
81	5-10	15-20	20-30	20-30	30-60	20-30	30-60
108	8-15	15-17	20-60	14-20	20-60	20	30-60
110	10-20	20-30	20-60	20-30	30-60	30-35	40-60
111	9-20	15	20-60	12-15	20-60	12-15	20-60
115	4-12	12-20	20-60	15-20	30-60	18-22	30-60
117	15-25	22-25	40-60	20-25	30-60	30	30-60
120	30-40	60	50-60	60	60	60	60
258	35-40	40	40-60	-	-	-	-

Line	Weekdays			Saturdays		Sundays	
	Peaks	Daytime	Evening	Daytime	Evening	Daytime	Evening
265	30-55	55	55	55	55	55	55
266	20-30	40	60	40-45	40-45	35-40	50-60

Source: Metro 2017

Route 2 is an east-west local service from Downtown Los Angeles to Westwood near UCLA via Sunset Boulevard. There are about 97 potential stops in Route 2, about 28 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.22 shows the 2016 ridership statistics on this line.

Table 4.22. Route 2 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,252	66,165	255	3,889,336	16,872,120
Saturday	9,661	41,722	53	512,054	2,211,272
Sunday	7,266	31,310	58	421,452	1,816,000
Total	-	-	**366**	**5,121,108**	**20,899,392**

Source: Metro 2016a

Route 4 is an east-west local service from Downtown Los Angeles to West Los Angeles via Santa Monica Boulevard. There are about 102 potential stops in Route 4, about 23 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.23 shows the 2016 ridership statistics on this line.

Table 4.23. Route 4 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,443	58,118	255	3,938,050	14,820,042
Saturday	12,944	51,135	53	686,028	2,710,175
Sunday	10,462	43,511	58	606,811	2,523,612
Total	-	-	**366**	**5,230,889**	**20,053,829**

Source: Metro 2016a

Route 14 is an east-west local service from Downtown Los Angeles to Beverly Hills via Santa Beverly Boulevard. There are about 45 potential stops in Route 14, about 17 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.24 shows the 2016 ridership statistics on this line.

Table 4.24. Route 14 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	18,208	56,350	255	4,643,002	14,369,244
Saturday	9,532	31,292	53	505,195	1,658,475
Sunday	7,368	24,929	58	427,321	1,445,880
Total	-	-	**366**	**5,575,518**	**17,473,599**

Source: Metro 2016a

Route 16 is an east-west local service from Downtown Los Angeles to Century City/Culver City via 3rd Street, Burton Way and Santa Monica Boulevard. There are about 64 potential stops in Route 16, about 11 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.25 shows the 2016 ridership statistics on this line.

Table 4.25. Route 16 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	22,337	63,890	255	5,696,056	16,292,013
Saturday	16,775	49,292	53	889,092	2,611,500
Sunday	13,000	39,350	58	753,993	2,282,272
Total	-	-	**366**	**7,339,141**	**21,185,785**

Source: Metro 2016a

Route 18 is an east-west local service from Koreatown to Downtown Los Angeles to Montebello via 6th Street and Whitter Boulevard. There are about 77 potential stops in Route 18, about 23 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.26 shows the 2016 ridership statistics on this line.

Table 4.26. Route 18 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	18,566	47,631	255	4,734,231	12,145,936
Saturday	14,186	36,499	53	751,847	1,934,440
Sunday	10,537	29,005	58	611,124	1,682,299
Total	-	-	**366**	**6,097,202**	**15,762,675**

Source: Metro 2016a

Route 45 is a north-south local service from South Los Angeles to Downtown Los Angeles to Lincoln Heights via Broadway. There are about 82 potential stops in Route 45, about 22 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.27 shows the 2016 ridership statistics on this line.

Table 4.27. Route 45 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,576	48,921	255	3,971,946	12,474,753
Saturday	12,804	40,549	53	678,609	2,149,072
Sunday	9,245	31,058	58	536,208	1,801,363
Total	**-**	**-**	**366**	**5,186,773**	**16,425,188**

Source: Metro 2016a

Route 51 is a north-south local service from Compton to Downtown Los Angeles to Koreatown via Compton Boulevard, Avalon Boulevard, San Pedro Street and 7th Street. There are about 94 potential stops in Route 51, about 89 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.28 shows the 2016 ridership statistics on this line.

Table 4.28. Route 51 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	25,439	75,763	255	6,486,936	19,319,636
Saturday	20,842	61,140	53	1,104,652	3,240,424
Sunday	14,381	44,763	58	834,109	2,596,261
Total	**-**	**-**	**366**	**8,425,697**	**25,156,321**

Source: Metro 2016a

Route 60 is a north-south local service from Compton to Downtown Los Angeles via Long Beach Boulevard/Pacific Avenue, Santa Fe Avenue and 7th Street. There are about 83 potential stops in Route 60, about 70 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.29 shows the 2016 ridership statistics on this line.

Table 4.29. Route 60 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,277	52,390	255	3,895,574	13,359,511
Saturday	11,607	43,441	53	615,159	2,302,364
Sunday	9,804	38,837	58	568,649	2,252,540
Total	**-**	**-**	**366**	**5,079,382**	**17,914,415**

Source: Metro 2016a

Route 81 is a north-south local service from South Los Angeles to Downtown Los Angeles to Eagle Rock via Figueroa Street. There are about 98 potential stops in Route 81, about 20 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.30 shows the 2016 ridership statistics on this line.

Table 4.30. Route 81 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,489	56,530	255	3,949,752	14,415,099
Saturday	10,345	39,697	53	548,285	2,103,947
Sunday	7,845	30,257	58	455,018	1,754,911
Total	-	-	**366**	**4,953,055**	**18,273,957**

Source: Metro 2016a

Route 108 is an east-west local service from Pico Rivera to Marina Del Rey near Venice via Slauson Avenue. There are about 103 potential stops in Route 108, about 32 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.31 shows the 2016 ridership statistics on this line.

Table 4.31. Route 108 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	16,362	61,754	255	4,172,365	15,747,303
Saturday	10,210	38,816	53	541,140	2,057,247
Sunday	7,028	28,613	58	407,603	1,659,580
Total	-	-	**366**	**5,121,108**	**19,464,130**

Source: Metro 2016a

Route 110 is an east-west local service from Playa Vista to Bell Gardens via Jefferson Boulevard, Cantilena Avenue and Gage Avenue. There are about 97 stops in this line, about 50 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.32 shows the 2016 ridership statistics on this line.

Table 4.32. Route 110 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	9,084	33,007	255	2,316,526	8,416,806
Saturday	5,248	20,044	53	278,128	1,062,322
Sunday	3,496	13,668	58	202,754	792,722
Total	-	-	**366**	**2,797,408**	**10,271,850**

Source: Metro 2016a

Route 111 is an east-west local service from Inglewood Transit Center to Bell Gardens via Florence Avenue. There are about 53 potential stops in Route 111, about 30 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.33 shows the 2016 ridership statistics on this line.

Table 4.33. Route 111 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	16,403	54,523	255	4,182,891	13,903,312
Saturday	12,211	38,672	53	647,201	2,049,619
Sunday	10,038	32,100	58	582,230	1,861,819
Total	**-**	**-**	**366**	**5,412,322**	**17,814,750**

Source: Metro 2016a

Route 115 is an east-west local service from Norwalk Metro Station to Playa Del Ray via Manchester Boulevard and Firestone Boulevard. There are about 101 potential stops in Route 115, about 37 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.34 shows the 2016 ridership statistics on this line.

Table 4.34. Route 115 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	15,005	52,567	255	3,826,372	13,404,592
Saturday	9,339	33,582	53	494,989	1,779,863
Sunday	6,944	25,574	58	402,730	1,483,282
Total	**-**	**-**	**366**	**4,724,091**	**16,667,737**

Source: Metro 2016a

Route 117 is an east-west local service from LAX Transit Center to Lakewood Boulevard Metro Station via Imperial Highway, Tweedy Boulevard and Century Boulevard. There are about 79 potential stops in Route 117, about 31 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.35 shows the 2016 ridership statistics on this line.

Table 4.35. Route 117 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	8,493	27,219	255	2,165,589	6,940,727
Saturday	6,160	20,162	53	326,483	1,068,599
Sunday	4,836	16,069	58	280,511	932,005
Total	**-**	**-**	**366**	**2,772,583**	**8,941,331**

Source: Metro 2016a

Route 120 is an east-west local service from Aviation/LAX Station to Whittwood Town Center via Imperial Highway, Studebaker Road, Telegraph Road and Leffingwell Road. There are about 116 potential stops in Route 120, about 35 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.36 shows the 2016 ridership statistics on this line.

Table 4.36. Route 120 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	4,051	19,494	255	1,033,031	4,970,878
Saturday	1,943	10,206	53	102,990	540,944
Sunday	1,621	8,753	58	94,014	507,670
Total	**-**	**-**	**366**	**1,230,035**	**6,019,492**

Source: Metro 2016a

Route 258 is a north-south local service from Altadena to Paramount via Garfield Avenue, Arizona Avenue, Monterey Pass Road, Fremont Avenue and Lake Avenue. There are about 107 potential stops in Route 258, about 27 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.37 shows the 2016 ridership statistics on this line.

Table 4.37. Route 258 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	2,185	10,747	255	557,082	2,740,583
Saturday	-	-	-	-	-
Sunday	-	-	-	-	-
Total	**-**	**-**	**255**	**557,082**	**2,740,583**

Source: Metro 2016a

Route 265 is a north-south local service from Pico Rivera to Lakewood Center Mall Paramount via Paramount Boulevard. There are about 63 potential stops in Route 265, about 36 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.38 shows the 2016 ridership statistics on this line.

Table 4.38. Route 265 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	1,602	7,450	255	408,480	1,899,661
Saturday	880	4,304	53	46,615	228,105
Sunday	671	3,472	58	38,891	201,387
Total	**-**	**-**	**366**	**493,986**	**2,329,153**

Source: Metro 2016a

Route 266 is a north-south local service from Sierra Madre Villa Station to Lakewood Center Mall via Rosemead Boulevard and Lakewood Boulevard. There are about 107 potential stops in Route 266, about 28 of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Table 4.39 shows the 2016 ridership statistics on this line.

Table 4.39. Route 266 Ridership Statistics

Day Type	Estimated Ridership	Average Passenger Miles	Day Count	Total Estimated Ridership	Total Passenger Miles
Weekday	4,849	23,713	255	1,236,582	6,046,774
Saturday	3,524	17,144	53	186,794	908,617
Sunday	2,722	13,836	58	157,866	802,469
Total	**-**	**-**	**366**	**1,581,242**	**7,757,860**

Source: Metro 2016a

4.3.4 Municipal Operators

Other transit operators serving the area include municipal operators, contract operators and localities. Some of the major operators in the area include the Los Angeles DASH system, the Long Beach Transit system and the Norwalk Transit System (NTS).

DASH is operated by the City of Los Angeles. There are about 32 lines in DASH, 9 of which are located in the vicinity of the proposed Build Alternatives within the Study Area: Downtown Lines (A, B, D, E, and F), Chesterfield Square, King East, Pueblo del Rio and Southeast. Table 4.40 shows the service frequency of DASH lines.

Table 4.40. LADOT DASH Service Frequency

Line	Daily Service Frequency		
	Weekday	Saturday	Sunday
Downtown A	7 minutes	-	-
Downtown B	8 minutes	-	-
Downtown D	5-15 minutes	-	-
Downtown E	5 minutes	6 minutes	15 minutes
Downtown F	10 minutes	20 minutes	20 minutes
Chesterfield Square	20 minutes	20 minutes	20 minutes
King-East	20 minutes	20 minutes	-
Pueblo del Rio	20 minutes	20 minutes	-
Southeast	20 minutes	20 minutes	20 minutes

Source: LADOT 2017
Notes: DASH = Downtown Area Short Hop; LADOT = Los Angeles Department of Transportation

The following list describes the lines identified in Table 4.40:

- Downtown A is a circular service in the Downtown Los Angeles area that connects Little Tokyo with City West. The route serves 19 stops, all located in the vicinity of the proposed Build Alternatives within the Study Area.
- Downtown B is a circular service in the Downtown Los Angeles area that connects Chinatown with the Financial District. The route serves 16 stops, all located in the vicinity of the proposed Build Alternatives within the Study Area.
- Downtown D is a circular service in the Downtown Los Angeles area that connects Union Station with South Park. The route serves 22 stops, all located in the vicinity of the proposed Build Alternatives within the Study Area.
- Downtown E is a circular service in the Downtown Los Angeles area that connects City West with the Fashion District. The route serves 26 stops, all located in the vicinity of the proposed Build Alternatives within the Study Area.
- Downtown F is a circular service in the Downtown Los Angeles area that connects the Financial District with the Exposition Park/USC. The route serves 18 stops, all located in the vicinity of the proposed Build Alternatives within the Study Area.
- Chesterfield Square is a circulator service that connects the Chesterfield Square area with Florence Station of the Metro A (Blue) Line. The route serves 34 stops, 20 of which are located in the vicinity of the proposed Build Alternatives within the Study Area.
- King-East is a circulator service in the Jefferson Park/South Park Area that travels along Martin Luther King Boulevard and serves San Pedro Station on the Metro A (Blue) Line and Los Angles Trade Technical College/Ortho Institute on the Metro E (Expo) Line. The route serves 32 stops, all of which are located in the vicinity of the proposed Build Alternatives within the Study Area.
- Pueblo del Rio is a circulator service that connects with the Vernon Station of the Metro A (Blue) Line. The route serves 10 stops, all of which are located in the vicinity of the proposed Build Alternatives within Study Area.
- Southeast is a circulator service that serves 37th Street busway station and Vernon Station on the Metro A (Blue) Line. The route serves 42 stops, 22 of which are located in the vicinity of the proposed Build Alternatives within the Study Area.

Long Beach Transit is a municipal transit operator of the City of Long Beach and operates fixed and flexible bus transit services in Long Beach and adjoining areas including Cerritos, Lakewood, Signal Hill and Belmont Shore. There are 35 routes operated by Long Beach Transit, 13 of which are located in the vicinity of the proposed Build Alternatives within the Study Area: Routes 22, 91, 92, 93, 101, 102, 103, 111, 112, 172, 173, 191, and 192. Table 4.41 shows the service frequency of the Long Beach Transit lines.

Table 4.41. Long Beach Transit Lines Service Frequency

Line	Daily Service Frequency	
	Weekday	Weekend
22	30 minutes	40 minutes
91	30 minutes	30 minutes
92	30 minutes	-
93	30 minutes	-
101	40 minutes	60 minutes
102	60 minutes	60 minutes
103	40 minutes	60 minutes
111	30 minutes	60 minutes
112	30 minutes	60 minutes
172	30 minutes	40 minutes
173	30 minutes	40 minutes
191	30 minutes	40 minutes
192	30 minutes	40 minutes

Source: Long Beach Transit 2020

The following list describes the lines identified in Table 4.41:

- Route 22 is a circular service between downtown Long Beach and Metro C (Green) Line Lakewood Station. The route serves 49 stops; 22 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 91 is a circular service between downtown Long Beach and Alondra Boulevard. The route serves 80 stops; 23 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 92 is a circular service between downtown Long Beach and Alondra Boulevard. The route serves 80 stops; 20 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 93 is a circular service between downtown Long Beach and Alondra Boulevard. The route serves 76 stops; 33 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 101 is a circular service between Santa Fe Avenue and Norwalk Boulevard. The route serves 39 stops; 28 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 102 is a circular service between Santa Fe Avenue and Norwalk Boulevard. The route serves 45 stops; 4 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 103 is a circular service between Santa Fe Avenue and Norwalk Boulevard. The route serves 40 stops; 16 stops are in the vicinity of the proposed Build Alternatives within the Study Area.

- Route 111 is a circular service between downtown Long Beach and South Street. The route serves 33 stops; 19 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 112 is a circular service between downtown Long Beach and South Street. The route serves 58 stops; 19 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 172 is a circular service between downtown Long Beach and Metro C (Green) Line Norwalk Station. The route serves 68 stops; 30 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 173 is a circular service between downtown Long Beach and Metro C (Green) Line Norwalk Station. The route serves 81 stops; 23 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 191 is a circular service between downtown Long Beach and Bloomfield Street. The route serves 73 stops; 21 stops are in the vicinity of the proposed Build Alternatives within the Study Area.
- Route 192 is a circular service between downtown Long Beach and Los Cerritos Center. The route serves 79 stops; 20 stops are in the vicinity of the proposed Build Alternatives within the Study Area.

NTS is a municipal transit operator of the City of Norwalk and operates fixed-route and paratransit bus transit services in Norwalk and adjoining areas of Artesia, Bellflower, Cerritos, Industry, La Mirada and Whittier. There are seven routes in NTS, three of which are located in the vicinity of the proposed Build Alternatives within the Study Area: Routes 1, 2 and 5. Table 4.42 shows the service frequency of NTS lines.

Table 4.42. NTS Service Frequency

Line	Daily Service Frequency	
	Weekday	Weekend
Route 1	30 minutes	45 minutes
Route 2	30 minutes	75 minutes
Route 5	45 minutes	-

Source: City of Norwalk 2017
Note: NTS = Norwalk Transit System

Route 1 connects Rio Hondo College with Bellflower via Norwalk. There are eight stops in this line, three of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Route 2 connects the Norwalk Metro Station with Cerritos College and Cerritos Mall. Seven stops are in this line, five of which are located in the vicinity of the proposed Build Alternatives within the Study Area. Route 5 connects the Norwalk Metro Station with La Mirada. There are three stops in this line, two of which are located in the vicinity of the proposed Build Alternatives within the Study Area.

4.3.5 Local Operators

Local circulator services, demand response services and paratransit services are also provided by a variety of operators in the area. Local circulator services are provided by many incorporated cities including the Cities of Huntington Park, Bell, Bell Gardens, Cudahy, Lynwood, Downey, Paramount, Bellflower, Cerritos and Artesia. Descriptions of these services are as follows:

- The City of Huntington Park operates Huntington Park Express, a circulator service covering the city and operating weekdays between 6:00 AM and 6:30 PM, with a frequency of every 25 minutes.
- The City of Bell operates La Campana, a circulator service covering the City and major destinations in the neighboring Cities of Cudahy and Bell Gardens. Services operate at a frequency of 40 minutes, 6 days a week.
- The City of Bell Gardens operates a circulator service covering the city. Services operate at a frequency of 20 to 30 minutes, 6 days a week.
- The City of Cudahy operates Cudahy Area Rapid Transit, a free circulator service with 60-minute headways within the city limits during weekdays.
- The City of Lynwood operates four fixed-route services: Red, Green, Purple and Blue. The Red and Green lines operate with 30-minute headways every day. The Purple line operates with 60-minute headways every day. The Blue line operates with 30-minute headways on weekdays only.
- The City of Downey's public transit system, DowneyLINK, operates Monday through Friday from 6:30 AM to 6:30 PM with four circulating routes. All routes begin and end at the Downey Depot Transportation Center.
- The City of Paramount operates Easy Rider Shuttle, a circulator service covering the city and operating weekdays between 6:00 AM and 6:30 PM, with a frequency of every 25 minutes.
- The City of Bellflower operates two fixed-route lines within the city limits. Hours of service are Monday through Friday, 7:00 AM to 5:00 PM, with 30-minute headways. Lines begin and end each half hour at the Bellflower Transit Center, located on Oak Street east of Bellflower Boulevard.
- The City of Cerritos operates Cerritos on Wheels services, which consist of two fixed-route lines within the city limits. Hours of service are Monday through Friday, 6:00 AM to 5:00 PM, and Saturdays between 9:00 AM and 5:00 PM with 60-minute headways.
- The City of Artesia offers a free-of-charge transportation service, the Artesia Express, to senior citizens and individuals with disabilities who are Artesia residents.

4.3.6 Transit System Performance

Auto travel is the primary mode of transportation throughout Southern California.
One measure of transit performance is the mode share, or percentage of trips that are made by transit. LA County has the highest transit share in the region. Table 4.43 shows the percentage of trips by mode in the six-county SCAG region.

Table 4.43. Trips by Mode – SCAG Region

County	Auto	Transit	Bicycle	Walk
Imperial	90.49%	N/A	0.25%	8.22%
Los Angeles	69.65%	4.47%	1.86%	23.28%
Orange	80.76%	2.51%	1.48%	14.39%
Riverside	82.60%	1.14%	1.40%	13.93%
San Bernardino	83.21%	1.52%	1.26%	13.37%
Ventura	81.49%	1.11%	2.65%	13.58%
SCAG Region	**74.96%**	**3.32%**	**1.70%**	**19.24%**

Source: SCAG 2012
Note: SCAG = Southern California Association of Governments

One measure of transit performance is the percentage of time that the transit vehicle arrives at the stop on time. Table 4.44 shows the on-time performance (per Metro) of Metro-operated bus transit lines in the Study Area. Modest late arrival percentages are an indication of street congestion in the area.

Table 4.44. Weekday On-Time Performance

Line	On-Time	Early	Late
705	66%	5%	29%
720	66%	7%	28%
751	80%	4%	16%
760	67%	4%	29%
762	72%	3%	25%
460	72%	3%	25%
577	85%	1%	14%
611	66%	3%	31%
612	70%	2%	27%
108	70%	7%	23%
110	75%	6%	19%
111	75%	3%	22%
115	71%	5%	24%
117	68%	4%	28%
120	72%	2%	26%
258	68%	3%	28%
265	75%	2%	23%
266	76%	1%	24%

Source: Metro 2016b

4.4 Active Transportation

The Study Area has an extensive bicycle and pedestrian system (Figure 4-12). Within the Study Area, Metro and SCAG have adopted plans, policies, and projects that support active transportation options as a viable transportation mode as shown in Table 2.1. Regional, county and local policy and planning documents seek to increase the number of bicyclists who ride for commuting and other daily purposes. Text reference to Figure 4-12

Existing bicycle facilities are shown on Figure 4-12 and are classified using Caltrans' *Highway Design Manual* (Caltrans 2016b). These facility classifications include the following:

- Class I Bikeways are also known as bicycle paths, shared-use paths or bicycle trails. They provide completely separated right-of-way designated for exclusive use of bicycles and/or pedestrians with cross flows by vehicles minimized. Most of them are located along flood-control channels, riverbanks, active or inactive rail corridor ROW or utility corridor right-of-way.
- Class II Bikeways are also known as bicycle lanes. These facilities provide striped lanes for one-way bicycle travel on a street.
- Class III Bikeways are also known as bicycle routes. These facilities are suggested travel ways marked by "bike route" signs but have no other signs, striping, or markings separating bicycle traffic from vehicular traffic.
- Class IV Bikeways are protected bike lanes that are physically separated from the vehicle travel lane by more than the white stripe. Separation may be accomplished with grades, flexible bollards, or permanent barriers.

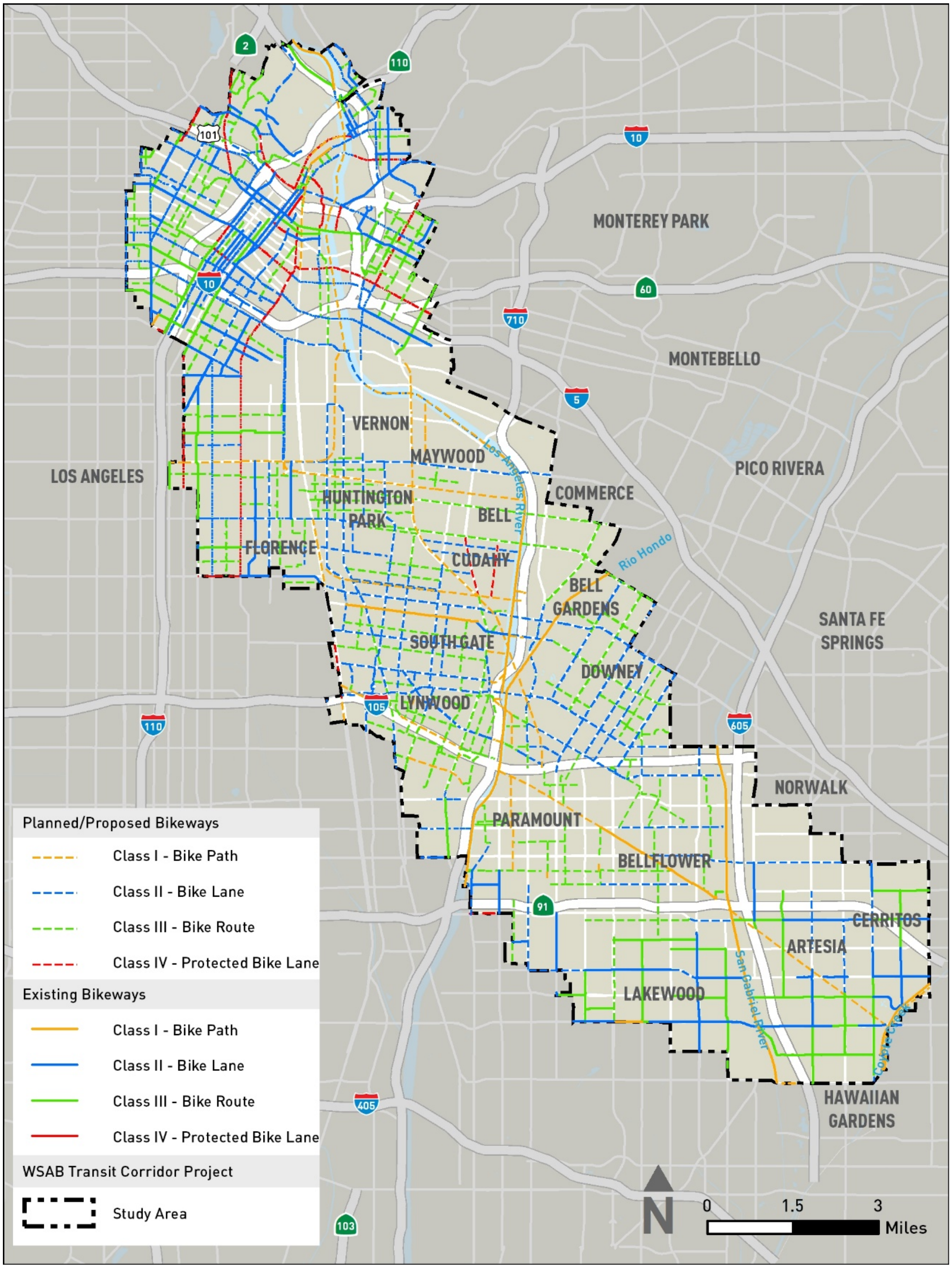
Table 4.45 lists the length of bicycle facilities in miles by classification in the SCAG region.

Table 4.45. Existing Bicycle Facilities (Mileage) in the Los Angeles Metropolitan Area

County	Class 1	Class 2	Class 3	Total
Imperial	3	4	82	**89**
Los Angeles	302	661	519	**1,482**
Orange	259	706	87	**1,052**
Riverside	44	248	129	**421**
San Bernardino	77	276	150	**503**
Ventura	61	257	54	**379**
SCAG Region	**746**	**2,150**	**1,021**	**3,919**

Source: SCAG 2016
Notes: All units are in miles; SCAG = Southern California Association of Governments

Figure 4-12. Existing Study Area Bikeways



Source: Prepared by Jacobs in 2020

Class I Bikeways in the vicinity of the proposed Build Alternatives within the Study Area are as follows:

- Los Angeles River bikeway runs north-south along the Los Angeles River from Vernon to Long Beach. Within the Study Area, the bikeway is parallel to I-710.
- Rio Hondo Bike Path runs parallel to Rio Hondo and joins Los Angeles River bikeway at the confluence of Rio Hondo and the Los Angeles River in South Gate.
- San Gabriel River Trail runs north-south along the San Gabriel River. The trail runs from Seal Beach to Azusa. Within the Study Area, the bikeway is parallel to I-605.
- Southern Avenue Greenway is located in South Gate. This trail runs along Southern Avenue under the overhead power lines. This trail connects with the Los Angeles River bikeway near South Gate via a small Class II segment.
- Paramount Bike Trail runs on the ROW of the Pacific Electric transit system across the City of Paramount between Somerset Boulevard and Lakewood Boulevard. The trail connects to Bellflower Bike Trail at the Lakewood Boulevard.
- Bellflower Bike Trail runs for more than 2 miles on the PEROW transit system across the City of Bellflower. The trail connects to San Gabriel River Trail at the Ruth R. Caruthers Park.
- Coyote Creek Trail runs adjacent to the Coyote Creek flood control channel. The path begins in Santa Fe Springs on the north fork of the Coyote Creek and extends south into Long Beach, where it joins the San Gabriel River bicycle path.

Major Class II Bikeways in the vicinity of the proposed Build Alternatives within the Study Area are as follows:

- Del Amo Boulevard between Pioneer Boulevard and Paramount Boulevard
- Woodruff Avenue between Ashworth Street and Willow Street
- Pioneer Boulevard from Arteria Boulevard to Cover Street
- Downtown Spring Street between Main Street and Cesar Chavez Avenue
- Main Street between Venice Boulevard and Cesar Chavez Avenue
- Los Angeles Street between 1st Street and Alameda Street
- Olive Street between Washington Boulevard and 7th Street
- Grand Avenue between 39th Street and 7th Street
- Figueroa Street between Wilshire Boulevard and Sunset Boulevard
- 1st Street between Fremont Avenue and San Pedro Street/Judge John Aiso Street
- 2nd Street between Figueroa Street and Broadway
- 7th Street between Figueroa Street and Main Street

4.5 Parking

This section describes the existing on-street parking supply and demand, and the existing off-street parking supply. The Affected Area for parking has extensive on- and off-street parking. There is a wide range of parking types and regulations. There is extensive on- and off-street parking, both free and paid. Many of the on-street parking spaces are time-limited or permit-only, especially in the northern areas of the Project were utilization is higher, and off-street parking charges are higher. Observations of on-street parking utilization were made during an extensive field survey in 2017. Table 4.46 and Table 4.47 provide summaries of on-street parking supply and utilization for the locations where stations are proposed and along the alignment where track infrastructure and other features for the Project could require permanently removing and/or replacing parking. As shown in these tables, utilization ranged from approximately 20 to 90 percent during the peak parking periods.

Table 4.46. On-Street Parking Conditions: Proposed Locations

Station	Parking Survey Area [a] (acres)	Applicable Alternative(s)	Existing On-Street Parking Spaces	Observed Field Utilization
LAUS	59.6	1, Design Option 1	47	90%
Little Tokyo	232.6	1, Design Option 2	1,803	90%
Arts/Industrial District[b]	108.0	1, 2	980	90%
South Park/Fashion District [c]	127.0	2	888	70%
7th St/Metro Center [c]	145.0	2	465	90%
Slauson/A Line	114.0	1, 2, 3	729	80%
Pacific/Randolph	170.0	1, 2, 3	1,624	60%
Florence/Salt Lake	108.0	1, 2, 3	1,106	30%
Firestone	106.0	1, 2, 3	461	50%
Gardendale	116.0	1, 2, 3	688	40%
I-105/C Line	47.4	1, 2, 3, 4	818	40%
Paramount/Rosecrans	88.9	1, 2, 3, 4	350	70%
Bellflower	164.0	1, 2, 3, 4	576	30%
Pioneer	94.5	1, 2, 3, 4	785	20%

Source: Compiled by Jacobs in 2020
Notes: I- = Interstate
[a] For purposes of the parking impact analysis, the parking Affected Area is 0.25 mile around each station, but in some cases, a smaller or larger area was surveyed to determine parking supply and utilization based on existing characteristics and constraints that could influence the distance an individual may walk from a parking space. The table identifies the area where surveys were completed for each proposed station.
[b] The acreage of the Parking Survey Area is measured from the location of this station under Alternative 1; the location of the station under Alternative 2 is also within the area surveyed.
[C] At this station, the parking resource assessment is an estimate utilizing Google Earth aerial maps captured in December 2017.

Table 4.47. On-Street Conditions: Along the Alignment

Mid-Station Location	Description	Parking Survey Area (acres)	Applicable Alternative(s)	Existing On-Street Parking Spaces	Observed Field Utilization
Long Beach Ave	Between Olympic Street and 14th Street	1.0	1, 2	20	90%
Long Beach Ave	Between Vernon Ave and 24th St	4.0	1, 2	109	70%
Randolph St	Between Holmes Ave and State St	1.5	1, 2, 3	550	20%
Main St	Between Center St and Industrial Ave	0.4	1, 2, 3	12	20%

Source: Compiled by Jacobs in 2020

The change in the number of parking spaces and a preliminary qualitative assessment of the relative impact were used to determine the parking survey areas discussed in the remainder of this section (see Section 5.4 for the detailed impact assessment and effect determinations). The parking survey area (the middle column of Table 4.46 and Table 4.47) varies by location, considering the parking demand from the proposed station, lost spaces (due to Build Alternatives construction), the number and type of spaces near the station and the utilization. Appendix A - Attachment 2 illustrates the specific areas surveyed for the parking study.

Note that the parking evaluation in this section is based on existing conditions. The inventory and availability are based on the use of the on-street parking for public uses. The evaluation of parking demand for the Build Alternatives is provided in Section 5.4.

4.5.1 Parking Availability near Proposed Stations

The parking evaluation of existing on-street parking conditions is presented from north to south, covering the entirety of the Study Area.

4.5.1.1 Los Angeles Union Station (Alternative 1)

Observations of on-street parking in the proposed Union Station vicinity were made between 4:00 PM and 5:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 90 percent. Table 4.48 is a summary of a field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of spaces (based on the field observation), are provided. The "Existing Available Spaces" reflects all spaces, whether occupied or not.

Table 4.48. On-street Parking Availability – Los Angeles Union Station Vicinity

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Space s	SB/EB	Spaces
North/ South	Los Angeles St	Arcadia St	Alameda St	NP	0	NP	0
	Alameda St	Arcadia St	Bauchet St	NP	0	NP	0
	Main St	Cesar Chavez St	Alameda St	NP	0	NP	0
	Vignes St	Bauchet St	Cesar Chavez St	NP	0	NP	0
		Cesar Chavez St	US-101	NP	0	NP	0
East/ West	Cesar Chavez St	Main St	Vignes St	NP	0	NP	0
	Bauchet St	Alameda St	N/A (cul-de-sac)	NP	0	TU	6
	Avila St	Vignes St	Clara St	TU	22	TU	7
	Clara St	Avila St	Vignes St	TU	5	TU	7
	Center St	Alameda St	US-101	NP	0	NP	0

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; NB = northbound; NP = no parking; WB = westbound; SB = southbound; TU = time unlimited

Within the Union Station vicinity parking analysis area, the following streets have no parking: Los Angeles Street, Alameda Street, Main Street, Cesar Chavez Street, Vignes Street, and Center Street. Bauchet Street, Avila Street and Clara Street have time-unlimited parking. There are multiple off-street parking structures within the parking analysis area such as Union Station, Metropolitan Water District and Metro. There are several off-street parking lots in the parking analysis area such as El Pueblo de Los Angeles and California Endowment. There are paid or private properties that have off-street parking lots. Table 4.49 summarizes the overall parking observed in the Union Station vicinity parking analysis area. The on-street parking observed near the proposed station is all time-unlimited.

Table 4.49. On-street Parking Summary – Union Station Vicinity

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
47	42	90%	0	0	0	47
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.2 Little Tokyo Station (Alternative 1 - Design Option 2)

Observations of on-street parking around the proposed station were made between 1:00 PM and 4:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 90 percent. Table 4.50 summarizes the field review of parking availability in the vicinity of the stations. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.50. On-street Parking Availability – Little Tokyo Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/ South	Judge John Aiso St	Temple St	1st St	M2H	3	NP	0
	San Pedro St	1st St	2nd St	TL2H	9	TL2H	8
		2nd St	3rd St	TL2H	13	TL2H	11
		3rd St	4th St	TL2H	4	TL2H	9
	Omar St	3rd St	4th St	TU	22	TU	14
	Crocker St	3rd St	4th St	TU	26	TU	24
	Towne Ave	3rd St	4th St	TU	15	TU	19
	Central Ave	1st St	2nd St	TL2H	9	TL2H	4
		2nd St	3rd St	TL2H	15	TL2H	17
		3rd St	4th St	TL2H	22	TL2H	18
	Alameda St	Temple St	1st St	NP	0	NP	0
		1st St	2nd St	NP	0	M2H	9

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
		2nd St	Traction	NP	0	NP	0
		Traction	4th Pl	NP	0	NP	0
		4th Pl	4th St	M4H	18	NP	0
		4th St	5th St	NP	0	NP	0
		5th St	Palmetto St	NP	0	NP	0
	Seaton St	4th St	Palmetto St	TU	38	TU	58
	Rose St	1st St	3rd St	TU	12	TU	8
	Colyton St	4th St	Palmetto St	TU	74	TU	96
	Hewitt St	1st St	3rd St	M2H	14	M2H	14
		4th St	Palmetto St	TU	51	TU	68
	Garey St	1st St	3rd St	M2H	7	M2H	12
	Molina St	4th St	Palmetto St	TU	34	TU	47
	Vignes	Temple St	2nd St	M2H	11	M2H	5
	Mateo St	4th Pl	Palmetto St	TU	28	TU	21
	Santa Fe St	1st St	3rd St	TU	17	TU	47
		3rd St	4th St	TU	21	TU	79
		4th St	Palmetto St	NP	0	NP	0
East/ West	Temple St	Judge John Aiso St	Alameda St	TU	25	NP	0
		Alameda St	Vignes St	NP	0	M4H	12
	1st St	Judge John Aiso St	Central Ave	M2H	15	M2H	9
		Central Ave	Alameda St	NP	0	NP	0
		Alameda St	Rose St	NP	0	NP	0
	2nd St	San Pedro St	Central Ave	M2H	15	M2H	16
		Central Ave	Alameda St	M2H	2	M2H	4
		Alameda St	Rose St	NP	0	NP	0
		Rose St	Hewitt St	TU	8	M2H	8
		Hewitt St	Garey St	M10H	10	M10H	10
		Garey St	Santa Fe Ave	TU	21	TL2H	25
	3rd St	San Pedro St	Central Ave	M2H	24	M4H	25
		Central Ave	Alameda St	M2H	9	M2H	13
		Alameda St	Traction Ave	M10H	5	M10H	10
		Traction Ave	Santa Fe Ave	TU	28	TU	16

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
	Traction Ave	Alameda St	Rose St	M10H	7	M10H	6
		Rose St	3rd St	M4H	7	M10H	3
		3rd St	Merrick Ave	TL4H	47	TL4H	26
	4th St	San Pedro St	Central Ave	TL1H	33	TL1H	14
		Central Ave	Alameda St	NP	0	NP	0
		Alameda St	4th Place	TU	16	TU	14
		4th Place	Santa Fe Ave	NP	0	NP	0
	4th Place	3rd St	Hewitt St	M10H	9	M10H	14
		Hewitt St	Molino St	TU	11	TU	11
		Molino St	Santa Fe Ave	TU	18	TU	20
	5th Street	Alameda St	Hewitt St	NP	0	TU	61
	Palmetto St	Alameda St	Mateo St	TU	35	TU	26
		Mateo St	Santa Fe Ave	TU	19	TU	13
	Willow St	Mateo St	Santa Fe Ave	TU	17	TU	15

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; M2H = Metered 2 Hour; M4H = Metered 4 Hour; M10H = Metered 10 Hour; NB = northbound; NP = No Parking; SB = southbound; TU = Time-Unlimited; TL1H = Time-Limited 1 Hour; TL2H = Time-Limited 2 Hours; TL4H = Time-Limited 4 Hours; WB = westbound

Central Avenue between 1st Street and 4th Street generally has 2-hour time-restricted parking on both sides of the street. The majority of Alameda Street between Temple Street and 5th Street has no parking except for two locations. The first exception is between 1st Street and 2nd Street on the east Alameda Street where there is 2-hour metered parking. The second exception is between 4th Place and 4th Street on the west side of Alameda Street where there is 4-hour metered parking.

San Pedro Street between 1st Street and 4th Street generally has 2-hour metered parking on both sides of the street. Vignes Street between Temple Street and 2nd Street typically has 2-hour metered parking.

Santa Fe Avenue between 1st Street and 3rd Street has time-unlimited parking on both sides of the street. Between 3rd Street and 4th Street, there is time-unlimited parking on the east side of Santa Fe Avenue. Between 4th Street and Palmetto, Santa Fe has no parking on either side.

Temple Street between Judge John Aiso Street and Vignes Street has a combination of 1-hour metered parking, 2-hour metered parking, and no parking.

1st Street between San Pedro Street and Central Avenue has 2-hour parking on both sides of the street, and 1st Street between Central Avenue and Santa Fe Avenue has no parking on either side.

On 2nd Street between San Pedro Street and Alameda Street there is 2-hour metered parking on both sides of the street. There is 10-hour metered parking along 2nd Street between Alameda Street and Rose Street on the south side and between Hewitt Street and Garey Street on both sides. There is 2-hour metered parking along 2nd Street on the north side between Alameda Street and Hewitt Street.

On 3rd Street between San Pedro Street and Central Avenue, there is 2-hour metered parking in the westbound direction and 4-hour metered parking in the eastbound direction. Between Central Avenue and Alameda Street, 3rd Street has 2-hour metered parking on both sides of the street. Between Alameda Street and Traction Avenue, 3rd Street has 10-hour metered parking on both sides of the street. Between Traction Avenue and Santa Fe Avenue, there is time-unlimited parking on both sides of the street.

4th Street between San Pedro Street and Central Avenue has 1-hour time-restricted parking on both sides of the street. Between Central Avenue and Alameda Street, 4th Street has no parking on either side of the street. Between Alameda Street and 4th Place, 4th Street has time-unlimited parking on both sides of the street. 4th Street between 4th Place and Santa Fe Avenue has no parking on either side.

Traction Avenue between Alameda Street and Merrick Street has a combination of time-unlimited parking, 2-hour time-restricted parking, 4-hour time-restricted angled parking, 2-hour metered parking, 4-hour metered parking, and 10-hour metered parking.

Throughout Little Tokyo, there is paid, private, and public off-street parking in parking structures and parking lots.

Table 4.51 summarizes the overall parking observed in the Little Tokyo parking analysis area. The majority of on-street parking observed near the proposed station is time-unlimited, except for the metered and time restrictions mentioned above.

Table 4.51. On-street Parking Summary – Little Tokyo Station

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
1,803	1,604	90%	326	0	284	1,193
			18%	0%	16%	66%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.3 Arts/Industrial District Station (Alternatives 1 and 2)

Observations of on-street parking around the proposed Arts/Industrial District Station were made between 1:00 PM and 4:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 90 percent. Table 4.52 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.52. On-street Parking Availability – Arts/Industrial District Station (Alternative 1 and 2)

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/ South	Ceres Ave	Central Ave	7th St	TU	70	TU	73
	Kohler St	6th St	7th St	TU	27	TU	33
	Central Ave	Ceres Ave	7th St	NP	0	M2H	58
	Alameda St	Palmetto St	Factory Pl	NP	0	NP	0
		Factory Pl	6th St	NP	0	NP	0
		6th St	Industrial St	NP	0	NP	0
		Industrial St	7th St	NP	0	NP	0
		7th St	Center St	NP	0	NP	0
		Center St	Bay St	TU	24	TU	16
	Mill St	6th St	7th St	TU	45	TU	44
East/ West	7th St	Ceres Ave	Alameda St	TL2H	62	TL2H	57
		Alameda St	Mill St	TL2H	49	NP	0
	Industrial St	Kohler St	Central Ave	TU	17	TU	17
		Alameda St	Mill St	TU	48	TU	48
	Wilde St	Kohler St	Central Ave	TU	13	TU	14
	6th St	Ceres Ave	Alameda St	M2H	18	TL2H	18
		Alameda St	Mill St	TU	52	NP	0
	Factory Place	Alameda St	Mill St	TU	42	TU	74
	Palmetto St	Alameda St	Hewitt St	TU	35	TU	26

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; M2H = Metered 2 Hour; NB = northbound; NP = No Parking; SB = southbound; TL2H = Time-Limited 2 Hours
TU = Time-Unlimited; WB = westbound

On 7th Street between Ceres Avenue and Alameda Street, there is 2-hour time-restricted parking on both sides of the street. On 7th Street between Alameda and Mill Street, there is time-unlimited parking in the westbound direction, and no parking in the eastbound direction.

On 6th Street between Ceres Avenue and Alameda Street, there is 2-hour metered parking in the westbound direction and 2-hour time-restricted parking in the eastbound direction. On 6th Street between Alameda Street and Mills Street, there is time-unlimited parking in the westbound direction.

Alameda Street between Palmetto Street and 7th Street has no parking on either side of the street. Alameda Street between 7th Street and Bay Street has time-unlimited parking. Southbound Central Avenue between Ceres Avenue and 8th Street has 2-hour metered parking. On northbound Central Avenue in this area, there is no stopping anytime. There are two private off-street multi-level parking structures and two parking lots (4.6 acres) at the right-of-way DTLA shopping center located on southbound Alameda Street south of

7th Street. Along southbound Alameda Street between 6th Street and 7th Street, Metro owns a property and has a facility for bus parking (8 acres).

The surrounding streets north of 7th Street typically have time-unlimited parking on both sides of the street. These streets include Kohler Street, Industrial Street, Wilde Street, Wholesale Street and Mill Street.

Table 4.53 summarizes the overall parking observed in the 7th/Alameda parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited, except for the metered and time restrictions mentioned above.

Table 4.53. On-street Parking Summary – Arts/Industrial District Station (Alternative 1 and 2)

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
980	873	90%	76	0	186	718
			8%	0%	19%	73%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.4 7th Street/Metro Center Station (Alternative 2)

Observations of on-street parking in the proposed 7th Street/Metro Center Station vicinity were made using Google Earth mapping from December 2017, with an observed on-street parking occupancy of 90 percent. Table 4.54 is a summary of a field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of spaces (based on the field observation), are provided. The "Existing Available Spaces" reflects all spaces, whether occupied or not.

Table 4.54. On-street Parking Availability – 7th Street/Metro Center Vicinity

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/ South	Figueroa St	W Olympic Blvd	W 6th St	M2H	19	M2H	20
	Flower St	W Olympic Blvd	W 6th St	M2H	18	M2H	19
	S Hope St	W Olympic Blvd	W 6th St	M2H	18	M2H	22
	Grand Ave	W Olympic Blvd	W 6th St	M2H	18	M2H	17
	S Olive St	W Olympic Blvd	W 6th St	M2H	24	M2H	25
	S Hill St	W Olympic Blvd	W 6th St	M2H	28	M2H	33
	Francisco St	W 8th St	W 9th St	NP	0	NP	0
		W 7th St	Wilshire Blvd	NP	0	NP	0

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	W 6th St	Francisco St	S Hill St	NP	0	M2H	5
	Wilshire Blvd	Francisco St	Grand Ave	M2H	28	M2H	33
	W 7th St	Francisco St	S Hill St	M2H	31	M2H	32
	W 8th St	Francisco St	S Hill St	M2H	17	M2H	17
	W 9th St	Francisco St	S Hill St	M2H	40	M2H	41
	W Olympic Blvd	Cottage Pl	S Hill St	M2H	11	M2H	10

Source: Google Earth, December 2017
Notes: EB = eastbound; M2H = metered 2 hours; NB = northbound; NP = no parking; WB = westbound; SB = southbound; TU = time unlimited

Within the 7th Street/Metro Center Station vicinity parking analysis area, the following streets have no parking: Francisco Street. Figueroa Street, Flower Street, South Hope Street, Grand Avenue, South Olive Street, South Hill Street, West 6th Street, Wilshire Boulevard, West 7th Street, West 8th Street, West 9th Street, and West Olympic Boulevard all have 2 hour metered parking. There are multiple off-street private parking structures within the parking analysis area. There are also paid or private properties that have off-street parking lots. Table 4.55 summarizes the overall parking observed in the 7th Street/Metro Center vicinity parking analysis area. The on-street parking observed near the proposed station is all metered.

Table 4.55. On-street Parking Summary – 7th Street/Metro Center Vicinity

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
465	419	90%	465	0	0	0
			100%	0%	0%	0%

Source: Google Earth, December 2017
Notes: AM = morning; PM = afternoon

4.5.1.5 South Park/Fashion District Station (Alternative 2)

Observations of on-street parking in the proposed South Park/Fashion District Station vicinity were made using Google Earth mapping from December 2017, with an observed on-street parking occupancy of 70 percent. Table 4.56 is a summary of a field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of spaces (based on the field observation), are provided. The “Existing Available Spaces” reflects all spaces, whether occupied or not.

Table 4.56. On-street Parking Availability – South Park/Fashion District Station Vicinity

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/ South	S Broadway Ave	E 7th St	Olympic Blvd	M2H	23	M2H	23
	S Spring St	E 6th St	E 9th St	M2H	28	M2H	29
	S Main St	E 6th St	Olympic Blvd	M2H	22	M2H	23
	S Los Angeles St	E 6th St	Olympic Blvd	M2H	44	M2H	44
	Santee St	Dead End	Olympic Blvd	M2H	28	M2H	28
	Maple Ave	E 6th St	Olympic Blvd	M2H	50	M2H	45
	S Cecilia St	E 8th St	E 9th St	NP	0	NP	0
	Wall St	E 6th St	Olympic Blvd	M2H	53	M2H	53
	San Julian St	E 7th St	Olympic Blvd	M2H	43	M2H	44
East/ West	W 6th St	S Spring St	Wall St	NP	35	M2H	35
	W 7th St	S Broadway Ave	San Julian St	M2H	13	M2H	13
	W 8th St	S Broadway Ave	San Julian St	M2H	40	M2H	41
	W 9th St	S Broadway Ave	San Julian St	M2H	37	M2H	37
	W Olympic Blvd	S Broadway Ave	San Julian St	M2H	29	M2H	28

Source: Google Earth, December 2017
Notes: EB = eastbound; M2H = metered 2 hours; NB = northbound; NP = no parking; WB = westbound; SB = southbound; TU = time unlimited

Within the South Park/Fashion District Station vicinity parking analysis area, the following streets have no parking: South Cecilia Street. South Broadway Avenue, South Spring Street, South Main Street, South Los Angeles Street, Santee Street, Maple Avenue, Wall Street, San Julian Street, West 6th Street, West 7th Street, West 8th Street, West 9th Street, and West Olympic Boulevard all have 2 hour metered parking. There are multiple off-street private parking structures within the parking analysis area. There are also paid or private properties that have off-street parking lots. Table 4.57 summarizes the overall parking observed in the South Park/Fashion District Station vicinity parking analysis area. The on-street parking observed near the proposed station is all metered.

Table 4.57. On-street Parking Summary – South Park/Fashion District Station Vicinity

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
888	622	70%	888	0	0	0
			100%	0%	0%	0%

Source: Google Earth, December 2017
Notes: AM = morning; PM = afternoon

4.5.1.6 Slauson/A Line Station (Alternatives 1, 2, and 3)

Observations of parking around the proposed Slauson/A Line Station were made between 8:00 AM and 10:00 AM on Friday, September 15, 2017, with an observed on-street parking occupancy of 80 percent. Table 4.58 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.58. Parking Availability – Slauson/A Line Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Compton Ave	56th St	58th St	TU	25	TU	25
	Makee St	58th St	Slauson Ave	TU	13	TU	14
	Fortuna St	55th St	56th St	TU	9	TU	10
		56th St	57th St	TU	11	TU	11
		57th St	Slauson Ave	TU	20	TU	22
	Miramonte Blvd	Slauson Ave	60th St	TU	19	TU	21
	Morgan Ave	55th St	57th St	TU	18	TU	20
		57th St	Slauson Ave	TU	16	TU	17
	Long Beach Ave	Slauson	55th St	M1H	30	M1H	30
	Duarte St	55th St	57th St	TU	21	TU	20
		57th St	Slauson Ave	TU	18	TU	18
	Holmes Ave	55th St	57th St	TU	18	TU	13
		57th St	Slauson Ave	TU	18	TU	16
		Slauson	Randolph St	TU	6	TU	12
	Banderas St	55th St	57th St	TU	18	TU	22
		57th St	Slauson Ave	TU	17	TU	15
North/ South	55th St	Fortuna St	Morgan Ave	TU	8	TU	12
		Morgan Ave	Long Beach Ave	TU	8	TU	7
		Long Beach Ave	Duarte St	TU	5	TU	5
		Duarte St	Holmes Ave	TU	6	TU	9
		Holmes Ave	Bandera	TL60	6	TU	9
	57th St	Fortuna St	Morgan Ave	TU	9	TU	8
		Morgan Ave	Long Beach	TU	8	TU	8
		Long Beach Ave	Duarte St	TU	8	TU	9
		Duarte St	Holmes Ave	TU	8	TU	10
		Holmes St	Bandera St	TU	8	TU	8
	Slauson Ave	Hooper	Compton Ave	NP	0	NP	0
		Compton Ave	Long Beach Ave	NP	0	TU	0
		Long Beach Ave	Alameda St	NP	0	TU	7

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; M1H = Metered 1 Hour; NB = northbound; NP = No Parking; SB = southbound; TL60 = Time-Limited 60 Minutes; TU = Time-Unlimited; WB = westbound

Northbound Long Beach Avenue on the east side of the street has time-unlimited parking between Slauson Avenue and 55th Street. Southbound Long Beach Avenue on the west side of the street has time-unlimited parking. Holmes Avenue between Randolph Street and 55th Street has time-unlimited parking on both sides of the street. Compton Avenue between 58th Drive and 56th Street has time-unlimited parking on both sides of the street.

55th Street between Bandera Street and Fortuna Street has time-unlimited parking on both sides of the street. 57th Street between Alba Street and Compton Avenue also has time-unlimited parking on both sides of the street. There is off-street private parking along the south side of Slauson Avenue between Miramonte Boulevard and Wilmington Street.

There is off-street public parking (2 acres) at the Augustus F. Hawkins Nature Park, which is located near the northeast corner of the Slauson Avenue and Compton Avenue intersection.

The surrounding residential neighborhood streets of Makee Avenue, Miramonte Boulevard, Converse Avenue, 56th Street, 58th Drive, 58th Place, Wilmington Avenue, Alba Street, Bandera Street, Duarte Street, Morgan Avenue and Fortuna Street all have time-unlimited parking on both sides of the street.

Table 4.59 summarizes the overall parking observed in the Slauson/A Line Station parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited, except for the metered and time restrictions mentioned above.

Table 4.59. Parking Summary – Slauson/A Line Station

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
729	569	80%	60	0	6	663
			8%	0%	1%	91%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.7 Pacific/Randolph Station (Alternatives 1, 2, and 3)

Observations of parking around the proposed Pacific/Randolph Station were made between 10:00 AM and 12:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 60 percent. Table 4.60 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.60. Parking Availability – Pacific/Randolph Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/West	Slauson Ave	Malabar St	Pacific Blvd	TL2H7-6	8	TL2H7-6	14
		Pacific Blvd	Seville Ave	TU	16	TL2H7-6	14
		Seville Ave	Stafford Ave	TL2H7-6	9	TL2H7-6	7
		Stafford Ave	Templeton St	TL2H7-6	6	TU	13
		Templeton St	Miles Ave	NP	0	NP	0

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
	Belgrave Ave	Malabar St	Rugby Ave	TU	8	TU	11
		Rugby Ave	Pacific Blvd	TL2H7-6	9	TL2H7-6	11
		Pacific Blvd	Seville Ave	TU	23	TU	21
		Seville Ave	Stafford Ave	TU	14	TU	10
		Stafford Ave	Templeton	TU	11	TU	9
		Templeton St	Miles Ave	TL2H7-6	5	TL2H7-6	4
	Randolph St	Malabar St	Rugby Ave	TU	13	TU	4
		Rugby Ave	Pacific Blvd	TU	3	TU	2
		Pacific Blvd	Rita Ave	TU	5	TU	0
		Rita Ave	Seville Ave	TU	12	TU	5
		Seville Ave	Stafford Ave	TU	13	TU	4
		Stafford Ave	Templeton St	TU	13	TU	12
		Templeton St	Miles Ave	TU	6	TU	6
	Clarendon Ave	Rugby Ave	Pacific Blvd	M2H	12	M2H	10
		Pacific Blvd	Rita Ave	M2H	11	M2H	10
		Rita Ave	Seville Ave	TU	13	TU	12
		Seville Ave	Stafford Ave	TU	12	TU	12
		Stafford Ave	Templeton St	TU	13	TU	12
		Templeton St	Miles Ave	TU	8	TU	4
	Gage Ave	Rugby Ave	Pacific	M2H	3	M2H	2
		Pacific Blvd	Rita Ave	M2H	1	M2H	1
		Rita Ave	Seville Ave	NP	0	NP	0
		Seville Ave	Miles Ave	M2H	20	M2H	9
North/ South	Malabar St	Slauson Ave	Belgrave Ave	TL2H7-6	14	TL2H7-6	13
		Belgrave Ave	Randolph St	TU	14	TU	17
		Randolph St	Clarendon Ave	TU	26	TU	23
		Clarendon Ave	Gage Ave	TU	17	TU	20
	Rugby Ave	Belgrave Ave	Randolph St	TU	16	TU	16
		Randolph St	Gage Ave	TU	28	TU	39
	Pacific Blvd	Slauson Ave	Belgrave Ave	TU	18	TU	12
		Belgrave Ave	Randolph St	TU	12	TU	15
		Randolph St	Clarendon Ave	TU	26	TU	28
		Clarendon Ave	Gage Ave	TU	30	TU	32
	Rita Ave	Slauson Ave	Belgrave Ave	TU	14	TU	13

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
		Belgrave Ave	Randolph St	TU	15	TU	17
		Randolph St	Clarendon Ave	TU	25	TU	26
		Clarendon Ave	Gage Ave	TU	18	TU	19
	Seville Ave	Slauson Ave	Belgrave Ave	TU	15	TU	14
		Belgrave Ave	Randolph St	TU	14	TU	14
		Randolph St	Clarendon Ave	TU	26	TU	23
		Clarendon Ave	Gage Ave	TU	17	TU	19
	Stafford Ave	Slauson Ave	Belgrave Ave	TU	15	TU	15
		Belgrave Ave	Randolph St	TU	16	TU	17
		Randolph St	Clarendon Ave	TU	23	TU	24
		Clarendon Ave	Gage Ave	TU	16	TU	18
	Templeton St	Slauson Ave	Belgrave Ave	TU	13	TU	14
		Belgrave Ave	Randolph	TU	14	TU	16
		Randolph St	Clarendon Ave	TU	26	TU	25
		Clarendon Ave	Gage Ave	TU	17	TU	18
	Miles Ave	Slauson Ave	Belgrave Ave	TU	14	TU	13
		Belgrave Ave	Randolph St	TU	15	TU	17
		Randolph St	Clarendon Ave	TU	25	TU	26
		Clarendon Ave	Gage Ave	TU	17	TU	19

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; M2H = Metered 2 Hour; NB = northbound; NP = No Parking; SB = southbound; TL2H7-6 = Time-Limited 2 Hours, 7 AM to 6 PM; TU = Time-Unlimited; WB = westbound

Pacific Boulevard between Gage Avenue and Belgrave Avenue is a major commercial corridor and has time-unlimited parking on both sides of the street. Randolph Street between Santa Fe Avenue and Malabar Street has time-unlimited parking on both sides of the street. Westbound Randolph Street between Malabar Street and Stafford Avenue has no parking, while most of this segment in the eastbound direction has time-unlimited parking. In the median of Randolph Street between Seville Avenue and Stafford Avenue, there is time-unlimited parking.

Both Gage Avenue and Clarendon Avenue between Rugby Avenue and Rita Avenue have 2-hour metered parking on both sides of the street. Both Gage Avenue and Clarendon Avenue between Santa Fe Avenue and Rugby Avenue have time-unlimited parking with some no-parking zones. Similar parking configurations are in place for Gage Avenue and Clarendon Avenue between Rita Avenue and Miles Avenue.

Belgrave Avenue between Santa Fe Avenue and Miles Avenue has time-unlimited parking on both sides of the street, except for the segment between Rugby Avenue and Pacific Boulevard where there is 2-hour metered parking. Parking on Slauson Avenue between Santa Fe

Avenue and Miles Avenue includes time-unlimited parking, 2-hour restricted parking, and some green curb parking.

The surrounding residential neighborhood streets of Middleton Street, Malabar Street, Rugby Street, Rita Avenue, Seville Avenue, Stafford Avenue, and Templeton Street have time-unlimited parking.

Table 4.61 summarizes the overall parking observed in the Pacific/Randolph parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited, except for the metered and time restrictions mentioned above.

Table 4.61. Parking Summary – Pacific/Randolph Station

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
1,624	949	60%	56	0	170	1,421
			3%	0%	10%	87%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.8 Florence/Salt Lake Station (Alternatives 1, 2, and 3)

Observations of parking around the proposed Florence/Salt Lake Station were made between 10:00 AM and 1:00 PM on Friday, September 8, 2017, with an observed on-street parking occupancy of 30 percent. Table 4.62 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.62. Parking Summary – Florence/Salt Lake Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Hope St	California Ave	Salt Lake Ave	TU	32	TU	37
	Flower St	Yahualica Pl	California Ave	TU	45	TU	47
		California Ave	Salt Lake Ave	TU	25	TU	29
	Live Oak St	State St	California Ave	TU	52	TU	52
		California Ave	Salt Lake Ave	TU	18	TU	18
		Salt Lake Ave	Bear Ave	TU	7	TU	7
	California St	State St	California Ave	TU	50	TU	52
		California Ave	Salt Lake Ave	TU	10	TU	12
	Walnut St	State St	California Ave	TU	57	TU	50
		California Ave	Salt Lake Ave	NP	0	TU	6
		Salt Lake Ave	Bear Ave	TU	6	NP	0

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
	Florence Ave	State St	Salt Lake Ave	TU	33	NP 3-6	33
		Salt Lake Ave	Bear Ave	TL2H7-6	17	TL2H7-6	14
	Weik Ave	Anita Dr	Bear Ave	TU	18	TU	19
		California Dr	Anita Dr	TU	7	TU	8
	Beck Ave	California Ave	Bear Ave	TU	31	NP	0
	Anita Dr	California Ave	Weik Ave	TU	13	TU	13
North/ South	State St	Live Oak St	California St	TL2H7-6	2	TU	5
		California St	Walnut St	TL2H7-6	8	TU	7
		Walnut St	Florence Ave	NP	0	NP	0
	California Ave	Hope St	Flower St	TL2H7-6	5	TL2H7-6	6
		Flower St	Live Oak St	TL2H7-6	5	TL2H7-6	6
		Live Oak St	California St	TL2H7-6	6	TL2H7-6	6
		California St	Walnut St	TL2H7-6	7	TL2H7-6	7
		Walnut St	Florence Ave	NP	0	NP	0
	Salt Lake Ave (West)	Hope St	Flower St	NP	0	NP	0
		Flower St	Live Oak St	NP	0	NP	0
		Live Oak St	California St	NP	0	NP	0
		California St	Walnut St	NP	0	NP	0
		Walnut St	Florence Ave	TU	21	TU	6
		Florence Ave	Bell Ave	TU	115	TU	7
	Salt Lake Ave (East)	Live Oak St	Walnut St	TU	7	NP	0
		Walnut St	Florence Ave	NP	0	NP	0
	Bear Ave	Live Oak St	Walnut St	TU	8	TU	9
		Walnut St	Florence Ave	TU	4	NP	0
		Florence St	Beck Ave	TU	14	TU	17
	California Ave	Florence Ave	Beck Ave	TU	10	NP	0

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; EB = eastbound; NB = northbound; NP = No Parking; NP3-6 = No Parking 3 PM to 6 PM; PM = afternoon SB = southbound; TL2H7-6 = Time-Limited 2 Hours, 7 AM to 6 PM; TU = Time-Unlimited; WB = westbound

Florence Avenue has time-unlimited parking between State Street and Salt Lake Avenue. Between Salt Lake Avenue and Bear Avenue, Florence Avenue has 2-hour parking on both sides of the street.

On the west side of the San Pedro Branch tracks between Florence Avenue and Hope Street, Salt Lake Avenue has time-unlimited parking and stretches of no parking. On the east side of the San Pedro Branch tracks, Salt Lake Avenue is mostly no parking with the exception of the east side of the street between Live Oak Street and Walnut Street.

California Avenue has 2-hour parking between Walnut Street and Hope Street. To the north of Florence Avenue and Beck Avenue, California Avenue has parking on the east side of the street.

Salt Lake Park near the intersection of Florence Avenue and Salt Lake Avenue has several off-street parking lots that are time-unlimited. There are also several private off-street parking lots along Florence Avenue that are time-unlimited.

The streets in the residential neighborhood bounded to the south by Florence Avenue and to the west by California Avenue have time-unlimited parking. The streets in the residential neighborhood bounded to the north by Florence Avenue, to the west by State Street and to the east by Bear Street and California Avenue have time-unlimited parking.

Table 4.63 summarizes the overall parking observed in the Florence parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited, except for the time restrictions mentioned above.

Table 4.63. Parking Summary – Florence/Salt Lake Station

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
1,106	298	30%	0	0	89	984
			0%	0%	8%	89%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.1.9 Firestone Station (Alternatives 1, 2, and 3)

Observations of parking around the proposed Firestone Station were made between 12:00 PM and 2:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 50 percent. Table 4.64 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.64. Parking Availability – Firestone Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Ardine St	Salt Lake Ave	Atlantic Ave	TU	11	TU	19
	Patata St	Atlantic Ave	Wilcox Ave	TU	18	TU	15
	Firestone Blvd	Kauffman Ave	Annetta Ave	NP	0	TU	4
		Annetta Ave	Hildreth Ave	NP	0	TU	4
		Hildreth Ave	Burke Ave	NP	0	TU	6

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
		Burke Ave	Dudlext Ave	NP	0	TU	7
		Dudlext Ave	Vossler Ave	NP	0	TU	7
		Vossler Ave	Atlantic Ave	NP	0	NP	0
		Atlantic Ave	Lotta Ave	NP, TL2H9-3	10	NP, TL2H9-3	6
		Lotta Ave	Mason St	NP, TL2H9-3	10	NP, TL2H9-3	12
	Mason St	Atlantic Ave	Firestone Blvd	TU	23	TU	20
	Southern Ln	Vossler Ave	May Ct	TU	11	TU	11
		May Ct	Atlantic Ave	TU	12	TU	10
	Branyon Ave	Atlantic Ave	Lotta Ave	NP	0	NP	0
		Lotta Ave	Alley	NP	0	TU	10
		Alley	End	TU	4	TU	5
North/ South	Salt Lake Ave	Ardine St	Atlantic Ave	NP	0	TU	37
	Lotta Ave	Firestone Blvd	Branyon Ave	TU	7	TU	14
	Atlantic Ave	Ardine St	Patata St	TL2H7-6	9	TU	10
		Patata St	Wright Pl	NP	0	NP	0
		Wright Pl	Mason St	TU	6	NP	0
		Mason St	Firestone Blvd	NP	0	NP	0
		Firestone Blvd	Southern Ln	TU	10	TU	14
	May Ct	Vossler Ave	Southern Ln	TU	24	TU	24
	Vossler Ave	Firestone Blvd	May Ct	TU	10	TU	16
		May Ct	Southern Ln	TU	17	TU	17
	Dudlext Ave	Firestone Blvd	Alley	TU	3	TU	2
	Burke Ave	Firestone Blvd	Alley	TU	2	TU	3
	Hildreth Ave	Firestone Blvd	Alley	NP	0	NP	0

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; NB = northbound; NP = No Parking; SB = southbound; TL2H7-6 = Time-Limited 2 Hours, 7 AM to 6 PM
TL2H9-3 = Time-Limited 2 Hours, 9 AM to 3 PM; TU = Time-Unlimited; WB = westbound

The east side of Atlantic Avenue between Ardine Street and Patata Street has 2-hour parking between the hours of 7:00 AM and 6:00 PM, while the west side of the street has time-unlimited parking. There is no parking along Atlantic Avenue between Patata Street and Wright Place, but there is time-unlimited parking between Wright Place and Firestone Boulevard. Atlantic Avenue has time-unlimited parking between Firestone Boulevard and Southern Lane, except for the first 140 feet on the east side of Atlantic Avenue, south of Firestone Boulevard, where there is no parking.

Ardine Street has time-unlimited parking between Atlantic Avenue and Salt Lake Avenue. Salt Lake Avenue has no parking along the east side of the street and has time-unlimited parking along the west side between Ardine Street and Atlantic Avenue. Patata Street has time-unlimited parking between Atlantic Avenue and Wilcox Street.

Firestone Boulevard has no parking along the north side of the street between Atlantic Avenue and Kauffman Avenue. The south side of Firestone has no parking between Atlantic Avenue and Vossler Avenue, and time-unlimited parking between Vossler Avenue and Hildreth Avenue. Firestone Boulevard has 2-hour parking between 9:00 AM and 3:00 PM, with no parking outside of those hours, between Hildreth Avenue and Kauffman Avenue, and between Atlantic Avenue and Mason Street.

There is no parking on the north side of Branyon Avenue between Atlantic Avenue and the alley east of Lotta Avenue, and there is time-unlimited parking for the remainder. The south side of Branyon Avenue has no parking between Atlantic Avenue and Lotta Avenue and has time-unlimited parking for the remainder. Lotta Avenue has time-unlimited parking between Firestone Boulevard and Branyon Avenue, except for three spaces on the west side of the street, south of Firestone Boulevard, which are marked 30-minute parking.

The neighborhood south of Firestone Boulevard and west of Atlantic Avenue (along Southern Lane, May Court and Vossler Avenue) has time-unlimited parking. There is also time-unlimited parking for the first block south of Firestone Boulevard along Dudlext Avenue and Burk Avenue. Hildreth Avenue has no parking along the first block south of Firestone Avenue.

There were no public off-street parking lots observed near the proposed station area. There is a large shopping center to the northeast of Atlantic Avenue and Firestone Boulevard, with 14.5 acres of off-street parking.

Table 4.65 summarizes the overall on-street parking observed in the Firestone parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited, except for the time restrictions mentioned above.

Table 4.65. Parking Summary – Firestone Station

Total Spaces	Occupied	Observed Field Utilization	Metered Spaces	Permit Spaces	Time-Limited Spaces	Time-Unlimited Spaces
461	224	50%	0	0	0	461
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017

4.5.1.10 Gardendale Station (Alternatives 1, 2, and 3)

Observations of parking around the proposed Gardendale Station were made between 9:30 AM and 12:00 PM on Friday, September 15, 2017, with an observed on-street parking occupancy of 40 percent. Table 4.66 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.66. Parking Availability – Gardendale Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Gardendale St	Utah Ave	Garfield Ave	TU	9	TU	5
		Garfield Ave	Monroe Ave	NP	0	NP	0
		Monroe Ave	Center St	TU	12	NP	0
		Center St	Dakota Ave	TU	13	TU	5
		Dakota Ave	Industrial Ave	TU	18	TU	7
		Industrial Ave	Arizona Ave	TU	33	TU	27
	Monroe Ave	Utah Ave	Garfield Ave	TU	6	TU	7
		Garfield Ave	Gardendale St	TU	3	TU	8
	Taft Ave	Garfield Ave	Center St	TU	17	TU	17
	Jefferson Ave	Garfield Ave	Center St	TU	21	TU	21
	McKinley Ave	Utah Ave	Garfield Ave	TU	7	TU	7
		Garfield Ave	Center St	TU	22	TU	22
		Industrial Ave	Arizona Ave	TU	21	TU	23
	Wilson Ave	Garfield Ave	Center St	TU	25	TU	25
		Industrial Ave	Arizona Ave	TU	15	TU	13
North/ South	Arizona Ave	Gardendale St	McKinley Ave	TU	6	TU	6
		McKinley Ave	Wilson Ave	TU	6	TU	5
	Industrial Ave	Gardendale St	McKinley Ave	TU	7	TU	8
		McKinley Ave	Wilson Ave	TU	8	TU	11
	Center St	Gardendale St	Taft Ave	TU	8	TU	8
		Taft Ave	Jefferson Ave	TU	8	TU, NP8-5	8
		Jefferson Ave	McKinley Ave	TU	11	TU, NP8-5	9
		McKinley Ave	Wilson Ave	TU	11	TU, NP8-5	8
	Garfield Ave	Gardendale St	Monroe Ave	TU	2	NP	0
		Monroe Ave	Taft Ave	TU	8	TU	6
		Taft Ave	Jefferson Ave	TU	8	TU	6
		Jefferson Ave	McKinley Ave	TU	8	TU	7
		McKinley Ave	Wilson Ave	TU	8	TU	9
	Utah Ave	Gardendale St	Monroe Ave	TU	13	TU	14
		Monroe Ave	Utah Ave	TU	28	TU	28

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; EB = eastbound; NP = No Parking; NP8-5 = No Parking 8 AM to 5 PM; PM = afternoon; SB = southbound
TU = Time-Unlimited; WB = westbound

This area has no on-street parking north of Gardendale Street. There is time-unlimited parking along the north side of Gardendale Street between Utah Avenue and Garfield Avenue, and between Monroe Avenue and Arizona Avenue. Time-unlimited parking is also available along the south side of Gardendale Street between Utah Avenue and Garfield Avenue, and between Center Street and Arizona Avenue.

Utah Avenue has time-unlimited parking between Gardendale Street and McKinley Avenue. Garfield Avenue also has time-unlimited parking between Gardendale Street and McKinley Avenue, except for the west side of the street between Gardendale Street and Monroe Avenue, where there is no parking. The west side of Center Street between Gardendale Street and Wilson Avenue has no parking Monday through Friday between 8:00 AM and 5:00 PM, but the east side of the street has time-unlimited parking. Both Industrial Avenue and Arizona Avenue have time-unlimited parking from Gardendale Street to Wilson Avenue.

Monroe Avenue and McKinley Avenue have time-unlimited parking between Utah Avenue and Garfield Avenue. There is also time-unlimited parking along Monroe Avenue, Taft Avenue, Jefferson Avenue, McKinley Avenue and Wilson Avenue between Garfield Avenue and Center Street. Additional time-unlimited parking is available along McKinley Avenue and Wilson Avenue between Industrial Avenue and Arizona Avenue.

There were no public off-street parking lots observed near the proposed station area. The County of Los Angeles Department of Public Works operates the Hollydale Yard, which has 6.5 acres of off-street parking between the proposed corridor and Garfield Avenue. There are also 2.5 acres of private off-street parking adjacent to the east side of the proposed corridor.

Table 4.67 summarizes the overall on-street parking observed in the Gardendale parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited.

Table 4.67. Parking Summary – Gardendale Station

Total Spaces	Occupied	Observed Field Utilization	Metered Spaces	Permit Spaces	Time-Limited Spaces	Time-Unlimited Spaces
688	254	40%	0	0	0	688
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017

4.5.1.11 I-105/C Line Station (Alternatives 1, 2, 3, and 4)

Observations of parking around the proposed I-105/C Line Station were made between 4:00 PM and 5:30 PM on Thursday, September 14, 2017, with an observed on-street parking occupancy of 40 percent. Table 4.68 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.68. Parking Availability – I-105/C Line Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Lincoln Ave	Garfield Ave	Center St	TU	28	TU	28
		Industrial Ave	Hoover Ave	TU	17	TU	17
		Hover Ave	Alley	TU	22	TU	24
	Florence Ave	Century Blvd	Center St	TU	26	TU	27
		Industrial Ave	Hoover Ave	TU	13	TU	11
		Hoover Ave	Alley	TU	23	TU	29
	Nevada Ave	Century Blvd	Center St	TU	10	TU	8
		Industrial Ave	Hoover Ave	TU	8	TU	7
		Hoover Ave	End	TU	8	TU	11
	Century Blvd	Garfield Ave	Racine Ave	TU	6	TU	6
		Racine Ave	Fairlock Ave	TU	6	TU	6
		Fairlock Ave	Florine Ave	TU	4	TU	7
		Florine Ave	Center St	TU	8	TU	5
		Center St	Industrial Blvd	TU	9	TU	10
	Mendy St	Garfield Ave	Racine Ave	TU	3	TU	7
		Racine Ave	Fairlock Ave	TU	5	TU	7
		Fairlock Ave	Florine Ave	TU	5	TU	7
		Florine Ave	Facade Ave	TU	4	TU	8
	Happy St	Garfield Ave	Facade Ave	TU	30	TU	17
North/ South	Hoover Ave	Lincoln Ave	Florence Ave	TU	7	TU	7
		Florence Ave	Nevada Ave	TU	9	TU	10
		Nevada Ave	End	TU	10	TU	5
	Industrial Ave	Lincoln Ave	Florence Ave	TU	7	TU	10
		Florence Ave	Nevada Ave	TU	11	TU	10
		Nevada Ave	Century Blvd	TU	6	TU	10
	Facade Ave	Grove St	Mendy St	TU	13	TU	12
		Mendy St	Happy St	TU	6	TU	5
	Center Street	Lincoln Ave	Florence Ave	TU	4	TU, NP8-5	9
		Florence Ave	Nevada Ave	TU	7	NP	0
		Nevada Ave	Century Blvd	TU	3	NP	0
	Florine Ave	Century Blvd	Grove St	TU	16	TU	22

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
		Beginning	Mendy St	TU	12	TU	10
	Fairlock Ave	Century Blvd	End	TU	17	TU	17
		Beginning	Mendy St	TU	10	TU	9
	Racine Ave	Century Blvd	End	TU	24	TU	25
		Beginning	Mendy St	TU	9	TU	7
	Garfield Ave	Lincoln Ave	Century Blvd	TU	2	TU	2

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; EB = eastbound; I- = Interstate; NB = northbound; NP = No Parking; PM = afternoon; NP8-5 = No Parking 8 AM to 5 PM; SB = southbound; TU = Time-Unlimited; WB = westbound

Access to the proposed station would come mostly from north of I-105, which is largely residential, except for some industrial use property directly adjacent on the east and west of the proposed corridor. Industrial Avenue, and the neighborhood to the east (along Nevada Avenue, Florence Avenue, Lincoln Avenue and Hoover Avenue) has time-unlimited parking. Century Boulevard and the neighborhood to the north (along Nevada Avenue, Florence Avenue, Lincoln Avenue, Garfield Avenue and Center Street) have time-unlimited parking, except for the west side of Center Street between Nevada Avenue and Florence Avenue, where there is no parking. The neighborhood south of Century Boulevard (along Grove Street, Florine Avenue, Fairlock Avenue and Racine Avenue) has time-unlimited parking.

Access to the proposed station from south of I-105 would be restricted to the Grove Street bridge. South of the overcrossing, Grove Street becomes Facade Avenue. Facade Avenue and the neighborhood to the west (along Mendy Street, Happy Street, Racine Avenue, Fairlock Avenue and Florine Avenue) have time-unlimited parking.

There were no public off-street parking lots observed near the proposed station area.

Table 4.69 summarizes the overall on-street parking observed in the I-105/C Line Station parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited.

Table 4.69. Parking Summary – I-105/C Line Station

Total Spaces	Occupied	Observed Field Utilization	Metered Spaces	Permit Spaces	Time-Limited Spaces	Time-Unlimited Spaces
818	349	40%	0	0	0	818
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017
Note: I- = Interstate

4.5.1.12 Paramount/Rosecrans Station (Alternatives 1, 2, 3, and 4)

Observations of parking around the proposed Paramount/Rosecrans Station were made between 2:00 PM and 3:30 PM on Thursday, September 14, 2017, with an observed on-street parking occupancy of 70 percent. Table 4.70 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.70. Parking Availability – Paramount/Rosecrans Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Howe St	Arthur Ave	Laredo Ave	TU	6	TU	4
		Laredo Ave	McClure Ave	TU	6	TU	5
		McClure Ave	Paramount Blvd	TU	10	TU	10
	Rose St	Arthur Ave	Laredo Ave	TU	5	TU	7
		Laredo Ave	McClure Ave	TU	5	TU	6
		McClure Ave	Colorado Ave	TU	8	TU	8
		Colorado Ave	Paramount Blvd	TU	5	NP	0
		Paramount Blvd	Orizaba Ave	NP	0	TU	15
	Rosecrans Ave	Railroad	Bianchi Way	TU	15	NP	0
		Bianchi Way	Paramount Blvd	TU	15	TU-NP3-6	6
		Paramount Blvd	Orizaba Ave	TU	8	TU	10
North/ South	Orizaba Ave	Rose St	Rosecrans Ave	NP	0	TU	16
	Paramount Blvd	Howe St	Rose St	TU	15	TU	14
		Rose St	Rosecrans Ave	TU	12	TU	14
	Colorado Ave	Rose St	End	TU	10	TU	10
	McClure Ave	Howe St	Rose St	TU	16	TU	15
		Rose St	End	TU	6	TU	6
	Laredo Ave	Howe St	Rose St	TU	15	TU	17
	Arthur Ave	Howe St	Rose St	TU	14	TU	16

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; EB = eastbound; NB = northbound; NP = No Parking; NP8-5 = No Parking 8 AM to 5 PM;
SB = southbound
TU = Time-Unlimited; WB = westbound

Both sides of Paramount Boulevard north of Rosecrans Avenue have time-unlimited parking, except for 30-minute restricted parking on the northwest corner of Rosecrans Avenue and Paramount Boulevard. The neighborhood to the east of Paramount Boulevard (along Howe Street, Rose Street, Laredo Avenue, McClure Avenue and Colorado Avenue) has time-unlimited parking. The south side of Rose Street has time-unlimited parking east of

Paramount Boulevard, while the north side of the street has no parking. The west side of Orizaba Avenue has time-unlimited parking between Rose Street and Rosecrans Avenue, while the east side of the street has no parking. Paramount Boulevard south of Rosecrans Avenue has no parking.

The north side of Rosecrans Avenue has time-unlimited parking west of Paramount Avenue. The south side of Rosecrans Avenue between Paramount Avenue and Bianchi Way has no parking between 3:00 PM and 6:00 PM, and there is no parking west of Bianchi Way. America City Way and Bianchi Way have no parking. There is time-unlimited parking on Rosecrans Avenue east of Paramount Boulevard.

There were no public off-street parking lots observed near the proposed station area. There are approximately 10 acres of private off-street parking west of Paramount Boulevard between All America City Way and Rosecrans Avenue. There is additional private off-street parking at the schools located to the southeast of Paramount Boulevard and the proposed corridor.

Table 4.71 summarizes the overall on-street parking observed in the Paramount parking analysis area. Nearly all the on-street parking observed near the proposed station is time-unlimited.

Table 4.71. Parking Summary – Paramount/Rosecrans Station

Total Spaces	Occupied	Observed Field Utilization	Metered Spaces	Permit Spaces	Time-Limited Spaces	Time-Unlimited Spaces
350	231	70%	0	0	0	350
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017

4.5.1.13 Bellflower Station (Alternatives 1, 2, 3, and 4)

Observations of parking around the proposed Bellflower Station were made between 11:00 AM and 1:30 PM on Thursday, September 14, 2017, with an observed on-street parking occupancy of 30 percent. Table 4.72 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.72. Parking Availability – Bellflower Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	Alondra Blvd	Ryon Ave	Orchard Ave	M2H	18	M2H	3
		Orchard Ave	Bellflower Blvd	M2H	5	TU	16
	Harvard St	Ryon Ave	Orchard Ave	TU	9	TU	8
		Orchard Ave	Bellflower Blvd	TU	20	TU, NP	7
	Flora Vista St	Bellflower Blvd	Eucalyptus Ave	TU	6	TU	28
	Pacific Ave	Ardmore Ave	Orchard Ave	TU	5	TU	9
		Orchard Ave	Olive St	TU	6	NP	0

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
		Olive St	Bellflower Blvd	TU	2	TU	16
	Olive St	Ardmore Ave	Orchard Ave	TU	9	TU	13
		Orchard Ave	Bellflower Blvd	TU	3	TU	4
	Mayne St	Ardmore Ave	Orchard Ave	TU	12	TU	14
		Orchard Ave	Bellflower Blvd	TU, M2H	8	TU	12
	Oak St	Ardmore Ave	Orchard Ave	TU	12	TU	12
		Orchard Ave	Bellflower Blvd	TU, TL20, M2H	6, 1, 8	TU, M2H	6, 9
		Bellflower Blvd	Adenmoor Ave	TU	6	TU	8
	Belmont St	Ardmore Ave	Orchard Ave	TU	12	TU	8
		Orchard Ave	Bellflower Blvd	TU	9	TU	8
		Bellflower Blvd	Adenmoor Ave	TU	6	TU	9
	Laurel St	Orchard Ave	Bellflower Blvd	TU	10	TU, M2H	10
North/ South	Bellflower Blvd	Alondra Blvd	Flora Vista St	TU	11	M2H	14
		Flora Vista St	Pacific Ave	NP	0	NP	0
		Pacific Ave	Oak St	M2H	5	M2H	5
		Oak St	Belmont St	M2H	7	M2H	7
		Belmont St	Laurel St	M2H	5	M2H	6
	Orchard Ave	Alondra Blvd	Harvard	TU	8	TU	7
		Pacific Ave	Olive St	NP	0	TU	3
		Olive St	Mayne St	NP	0	TU	6
		Mayne St	Oak St	TU	7	TU	8
		Oak St	Belmont St	TU	7	TU	7
		Belmont St	Laurel St	TU	8	TU	9
	Ryon Ave	Alondra Blvd	Harvard St	TU	2	TU	7
	Ardmore Ave	Pacific Ave	Los Angeles St	TU	1	TU	1
		Los Angeles St	Olive St	TU	9	TU	8
		Olive St	Mayne St	TU	7	TU	8
		Mayne St	Oak St	TU	7	TU	7
		Oak St	Belmont St	TU	9	TU	4

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; M2H = Metered 2 Hour; TU = Time-Unlimited; NB = northbound; NP = No Parking; SB = southbound
TL20 = Time-Limited 20 Minutes; WB = westbound

This area is largely residential to the west of Bellflower Boulevard, and commercial to the east. Bellflower Boulevard has 2-hour restricted parking between Laurel Street and Alondra Boulevard, except for a section between Flora Vista Street and Alondra Boulevard, where the east side of Bellflower Boulevard has time-unlimited parking. In the north, west of Bellflower Boulevard, Alondra Boulevard is also restricted to 2-hour parking. The neighborhood to the southwest of Alondra Boulevard and Bellflower Boulevard (along Ryon Avenue, Orchard Avenue and Harvard Street) has time-unlimited parking. Flora Vista Street has time-unlimited parking between Bellflower Boulevard and Eucalyptus Avenue, except for a portion on the north side of the street, which has no parking.

The first half-block west of Bellflower Boulevard (along Mayne Street, Oak Street and Laurel Street) has 2-hour and 30-minute restricted parking. Belmont Street and Oak Street have similar restrictions on the first half block east of Bellflower Boulevard. The remainder of the parking in the neighborhood to the southwest of Bellflower Boulevard and Pacific Avenue is time-unlimited.

There are four public off-street parking lots just east and west of Bellflower Boulevard, off Mayne Street, Oak Street, Belmont Street and Laurel Street, adjacent to Pirate Park. The lots provide free parking for between 2 and 72 hours. Two additional public off-street parking lots, with 2-hour parking limits, are located to the east of Bellflower Boulevard, along Oak Street and Belmont Street.

Table 4.73 summarizes the overall on-street parking observed in the Bellflower parking analysis area. Of the on-street parking observed near the proposed station, over 80 percent is time-unlimited.

Table 4.73. Parking Summary – Bellflower Station

Total Spaces	Occupied	Observed Field Utilization	Metered Spaces (2 Hours)	Permit Spaces	Time-Limited Spaces (20 Minutes)	Time-Unlimited Spaces
576	202	30%	97	0	1	478
			17%	0%	0%	83%

Source: Jacobs Field Observations, September 2017

4.5.1.14 Pioneer Station (Alternatives 1, 2, 3, and 4)

Observations of parking around the proposed Pioneer Station were made between 11:00 AM and 1:30 PM on Tuesday, September 12, 2017, with an observed on-street parking occupancy of 20 percent. Table 4.74 summarizes the field review of parking availability in the vicinity of the station. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.74. Parking Availability – Pioneer Station

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/ West	184th St	Alburtis St	Corby Ave	P	7	P	6
	186th St	Jersey Ave	Alburtis St	P	13	P	14
		Alburtis St	Corby Ave	P	6	P	10
		Corby Ave	Pioneer Blvd	M2H	7	M2H, P	2, 4
		Pioneer Blvd	Arline Ave	M2H	9	M2H, P	17
		Arline Ave	Clarkdale Ave	P	8	P	9
	187th St	Wright Pl	Jersey Ave	P	8	P	7
		Jersey Ave	Alburtis St	P	10	P	10
		Alburtis St	Corby Ave	P	12	P	9
		Corby Ave	Pioneer Blvd	M2H, P	3, 3	M2H, TL30	3, 4
		Pioneer Blvd	Arline Ave	M2H, P	4, 3	M2H, P	3, 3
		Arline Ave	Clarkdale Ave	P	9	P	9
	188th St	Jersey Ave	Alburtis St	TU	9	TU	9
		Alburtis St	Corby Ave	TU	8	TU	8
		Corby Ave	Pioneer Blvd	TU	7	TU	4
	South St	Jersey Ave	Alburtis St	NP	0	NP	0
		Alburtis St	Corby Ave	NP	0	NP	0
		Corby Ave	Pioneer Blvd	NP	0	NP	0
		Pioneer Blvd	Arline Ave	NP	0	NP	0
		Arline Ave	Clarkdale Ave	TU	12	NP	0
North/ South	Clarkdale Ave	186th St	187th St	P	15	P	15
		187th St	Park Ave	TU	17	TU	16
		Park Ave	South St	TU	8	NP	0
	Arline St	184th Ardine St	186th St	P	17	P	15
		186th St	187th St	P	15	P	15
		187th St	End	P	7	P	7
	Pioneer Blvd	185th St	186th St	M2H	8	M2H	6
		186th St	187th St	M2H	16	M2H	20
		187th St	188th St	M2H	6	M2H	14
		188th St	South St	M2H	7	NP	0

Roadway Direction	Location	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
	Corby Ave	184th St	186th St	MTU, P	6, 12	P	17
		186th St	187th St	P	15	P	11
		187th St	188th St	P	8	P	8
		188th St	South St	TU	11	TU	11
	Alburtis St	184th St	186th St	P	16	P	16
		186th St	187th St	P	6	P	8
		187th St	188th St	TU	15	TU	15
		188th St	South St	TU	11	TU	10
	Jersey Ave	186th St	187th St	TU	12	TU	17
		187th St	188th St	TU	14	TU	13
		188th St	South St	TU	11	TU	10

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; P = Permit Only; M2H = Metered 2 Hour; MTU = Metered Time-Unlimited; NB = northbound; NP = No Parking; SB = southbound; TL30 = Time-Limited 30 Minutes; TU = Time-Unlimited; WB = westbound

Street parking along Pioneer Boulevard between 185th Street and South Street is limited to 2-hour metered parking. The first half block directly east and west of Pioneer Boulevard, along 186th Street and 187th Street, is also metered, but with no time limits. Farther east, along 186th and 187th Streets, parking is permit-only between the hours of 8:00 AM and 8:00 PM. Arline Avenue has similar permit-only parking north and south of 187th Street. Clarkdale Avenue has permit-only parking north of 187th Street and has time-unlimited parking south of 187th Street. Adjacent to Clarkdale Avenue, there is permit-only parking along Park Avenue.

There is no parking along South Street to the west of Pioneer Boulevard. There is also no parking along South Street east of Pioneer Boulevard, except for the north side of the street, between Arline Avenue and Clarkdale Avenue, which has time-unlimited parking. Additional time-unlimited parking is available north of South Street, along Arline Avenue.

One block north of the proposed station, along 186th Street between Corby Avenue and Pioneer Boulevard, the City of Artesia operates a public parking lot with 80 paid parking spaces. Located directly east of the proposed station, at the Little India Village Food Court, there is a private parking lot with customer-only parking. While there is little on-street parking along South Street, there is private off-street parking along both sides of the street at various businesses and restaurants.

Table 4.75 summarizes the overall on-street parking observed in the Pioneer Station area. Most of the permit-only spaces are located north and along 187th Street, while most of the time-unlimited spaces are located south of 187th Street.

Table 4.75. Parking Summary – Pioneer Station

Total Space	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
785	168	20%	131	372	4	278
			17%	47%	1%	35%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.2 Parking Availability Along the Alignment

There are several locations where the proposed track alignment would affect parking supply. Generally, parking impacts that would be the result of the proposed track alignment are located north of Florence Avenue. The existing conditions of each impact area are described below.

Table 4.76 provides a summary of the mid-station locations by areas along the Project. Specific locations, and the options where they are included, are described below.

Table 4.76. Parking Assessment: Mid-Station Locations by Areas along the Project

Areas Along the Project	Occupied Spaces	Occupied
North of Florence Avenue	446	65%
South of Florence Avenue	2	17%

Source: Jacobs Field Observations, September 2017

4.5.2.1 Long Beach Avenue Between Olympic Boulevard and 14th Street

Observations of parking were made between 8:00 AM and 9:00 AM on Tuesday, September 19, 2017, with an observed on-street parking occupancy of 90 percent. Table 4.77 summarizes the field review of parking availability in the vicinity. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.77. Parking Availability – Long Beach Avenue Between Olympic Boulevard and 14th Street

Roadway Direction	Street	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/South	Long Beach Ave	Olympic Blvd	14th St	NP	0	TU	20

Source: Jacobs Field Observations, September 2017
Notes: NB = northbound; EB = eastbound; NP = No Parking; SB = southbound; TU = Time-Unlimited; WB = westbound

The proposed alignment is an underground configuration south along Long Beach Avenue. The alignment then curves westbound just north of 8th Street and ascends to a grade separation over I-10. Table 4.78 summarizes the overall parking observed for the Long Beach Avenue parking analysis area.

Table 4.78. Parking Summary – Long Beach Avenue Between Olympic Boulevard and 14th Street

Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
20	18	90%	0	0	0	20
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.2.2 Long Beach Avenue Between Vernon Avenue and 24th Street

Observations of parking around the proposed Long Beach Avenue alignment were made between 9:00 AM and 9:30 AM on Tuesday, September 19, 2017, with an observed on-street parking occupancy of 20 percent. Table 4.79 summarizes the field review of parking availability in the vicinity. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.79. Parking Availability – Long Beach Avenue Between Vernon Avenue and 24th Street

Roadway Direction	Street	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
North/South	Long Beach Avenue	Vernon Ave	43rd St	TL1H8-6	6	TU	7
		43rd St	42nd St	TL1H9-6	7	TU	6
		42nd St	41st Pl	TL1H9-6	9	TU	12
		41st Pl	41st St	TL1H9-6	3	TU	8
		41st St	24th St	NP	0	TU	51

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; NB = northbound; NP = No Parking; SB = southbound; TL1H8-6 = Time-Limited 1 Hour, 8 AM to 6 PM TL1H9-6 = Time-Limited 1 Hour, 9 AM to 6 PM; TU = Time-Unlimited; WB = westbound

It is proposed the alignment to be in an aerial configuration along Long Beach Avenue adjacent to the Metro A (Blue) Line. The aerial alignment along Long Beach Avenue between Vernon Avenue and 24th Street would require single columns placed near or within the northbound direction of Long Beach Avenue. To accommodate this alignment, travel lanes would be modified and on-street parking might be removed, so this area was evaluated for existing conditions. Table 4.80 summarizes the overall parking observed for the Long Beach Avenue parking analysis area.

Table 4.80. Parking Summary – Long Beach Avenue Between Vernon Avenue and 24th Street

Total Spaces	Occupied Spaces	Occupied	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
109	23	20%	0	0	25	84
			0%	0%	23%	77%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.2.3 Randolph Street

Observations of parking around the proposed Randolph Street alignment were made between 9:30 AM and 10:00 AM on Tuesday, September 19, 2017, with an observed on-street parking occupancy of 70 percent. Table 4.81 summarizes the field review of parking availability in the vicinity. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.81. Parking Availability – Randolph Street

Roadway Direction	Street	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/West	Randolph St	Holmes Ave	State St	TU	280	TU	270

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; TU = Time-Unlimited; NB = northbound; SB = southbound; WB = westbound

It is proposed to use the existing railroad ROW along the median of Randolph Street, also known as the La Habra Branch. Between Regent Street and Albany Street, there is angled median parking adjacent to the tracks in the eastbound direction of Randolph Street (0.12 mile). To accommodate the proposed alignment and the existing freight tracks, there is the potential that these parking spaces would be removed, so this area was evaluated for existing conditions. Table 4.82 summarizes the overall parking observed for the Randolph Street parking analysis area.

Table 4.82. Parking Summary – Randolph Street

Total Spaces	Occupied Spaces	Occupied	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
550	405	70%	0	0	0	550
			0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.2.4 Main Street Grade Crossing

Observations of parking around the proposed Main Street Grade Crossing alignment were made between 9:30 AM and 12:00 PM on Friday September 15, 2017, with an observed on-street parking occupancy of 20 percent. Table 4.83 summarizes the field review of parking availability in the vicinity. The number and type of parking spaces in each block around the location, along with an assessment of available spaces (based on the field observation), are provided.

Table 4.83. Parking Availability – Main Street

Roadway Direction	Street	From	To	Parking Type and Number of Existing Spaces			
				NB/WB	Spaces	SB/EB	Spaces
East/West	Main Street	Center St	Dakota Ave	TU	3	TU	1
		Dakota Ave	Industrial Ave	TU	4	TU	4

Source: Jacobs Field Observations, September 2017
Notes: EB = eastbound; NB = northbound; SB = southbound; TU = Time-Unlimited; WB = westbound

To accommodate the proposed alignment and existing freight tracks along the San Pedro Branch, Dakota Avenue would become a one-way street resulting in a reconfiguration of the Main Street Grade Crossing. The reconfiguration, which includes gates, wider sidewalks, sidewalk bulb-outs, curb ramps, and a raised median, removes time-unlimited parking along Main Street between Center Street and Industrial Avenue, so this area was evaluated for existing conditions. Table 4.84 summarizes the overall parking observed for the Main Street Grade Crossing parking analysis area.

Table 4.84. Parking Summary: Main Street Grade Crossing

Location	Total Spaces	Occupied Spaces	Observed Field Utilization	Metered Spaces	Permit-Only (8:00 AM to 8:00 PM)	Time-Limited Spaces	Time-Unlimited Spaces
Pacific Boulevard	12	2	20%	0	0	0	12
				0%	0%	0%	100%

Source: Jacobs Field Observations, September 2017
Notes: AM = morning; PM = afternoon

4.5.3 Parking Policies

The cities in the corridor have a wide range of parking strategies and policies that have been developed and implemented in consideration of the transportation systems and economies of the respective jurisdictions. Parking policies are developed at the city level but implemented locally. For example, the City of Los Angeles manages on-street parking and 118 public parking lots and structures. Certain parts of the city are designated as preferential parking districts and overnight parking districts. Many other cities (e.g., Artesia, Bellflower, Downey, Paramount, South Gate, Vernon) have defined permit programs. Also, some cities (e.g., Bell, Cerritos, Cudahy, Maywood, South Gate) do not allow overnight parking without a temporary permit.

On-street parking requirements are specific to individual streets. Most streets in commercial areas (and some residential areas) have defined parking time limits. These limits may be controlled with meters (for paid parking). Changing the hours of parking limits generally increases turnover but can have secondary effects as longer-term parking moves to other nearby areas. Parking enforcement also affects utilization and availability, especially in areas with time limits, to ensure that parking is being used as intended.

The parking inventory utilization observations reported earlier in this section were based on the policies and procedures in place at the time of the observations. These policies will evolve over time, as individual cities refine and enhance their programs. Also, the details of the parking management strategies at specific locations will evolve as land use, transportation, and demand change.

5 ENVIRONMENTAL IMPACTS/ENVIRONMENTAL CONSEQUENCES

This section presents the environmental impacts and consequences of the Build Alternatives as they relate to traffic and transportation. The baseline for the No Build analysis is the existing conditions assessment described in Section 4. The analysis of Build Alternatives, in turn, is based on the No Build Alternative assessment.

Where impacts are not relevant to all Build Alternatives generally, the relevant impacts for each section are described separately. The northern end consists of at-grade, tunnel and aerial LRT alignments across two alternatives with design options that would potentially have different circumstances and conditions for traffic and the transportation system. As such, the discussion of impacts and consequences in the northern end includes the two alternatives and two design options with commonalities identified as applicable. The southern end includes at-grade and aerial LRT alignments.

5.1 Traffic Operations

Traffic operations are evaluated to assess how vehicular circulation would be affected by the Project. The assessment focuses on operations at the affected intersections due to at-grade crossings, increased vehicular demand at stations, and changes in the roadway network.

The traffic operations impact analysis for the Build Alternatives focuses on analyzing Alternative 2, the Build Alternative with the highest ridership. Each Build Alternative would have similar service frequencies (i.e., similar train headways) and the train crossings would be the same. Therefore, there would be similar traffic operational changes at the at-grade crossings.

Therefore, the analysis for Alternative 2 is used for Alternatives 1, 3, 4, and design options because of the vehicle trip demand associated with park-and-ride and kiss-and-ride. Alternatives 1 and 2 would have similar trip demand associated with park-and-ride and kiss-and-ride. The Alternative 2 analysis was used for Alternatives 3 and 4 because the ridership demand for Alternative 2 is slightly higher. The analysis approach minimizes the discussion of repetitive analysis with similar results.

Analysis of the traffic operations impacts for the Build Alternatives is provided in Sections 5.1.2 to 5.1.5. Appendix A - Attachment 5 has detailed turning movement traffic volumes for the 2042 Build Alternatives AM and PM peak hours for each intersection. The section also includes details of the traffic volume assignment process as traffic patterns change because of the Build Alternatives.

5.1.1 No Build Alternative

The No Build Alternative includes existing transportation networks along with transportation improvements that have been committed and identified in constrained plans of the (LRTP) (Metro 2009) and the RTP/SCS (SCAG 2016). The service features include transit, freeway, and arterial operations within and around the Study Area. These projects are described in Section 2.1 (Table 2.1). Planned projects would be subject to separate environmental analysis to evaluate transportation impacts. Project Measures TR PM-1 through TR PM-10, described in Section 8.1, were considered not to be in place as these are implemented as part of the Project.

Table 5.1 is a summary of the future (2042) No Build traffic operations at the Affected Area intersections. The LOS assessment is compared to existing conditions, as summarized in Section 4.2.2. In general, operations would be worse in 2042, consistent with traffic growth in a congested corridor.

Table 5.1. Comparison of Existing (2017) and Future (2042) No Build Intersection Operations

Scenario	Intersections	LOS C or Worse	LOS E or Worse
Existing (2017)	101	51%	13%
Future No Build (2042)		53%	23%

Source: Compiled by Jacobs in 2020
Note: LOS = level-of-service

Table 5.2 provides more detailed information on the 101 intersections. Details include jurisdiction, control type, and intersection delay/LOS for the No Build Alternative in 2042. Appendix A - Attachment 4 has detailed turning movement traffic volumes for the 2042 No Build AM and PM peak hours for each intersection. LOS is based on operation of the overall intersection, which considers delay for all movements at that intersection.

Under the No Build Alternative (2042), 53 percent of the intersections (52 intersections) operate at LOS C or worse, and 23 percent (24 intersections) are LOS E or worse. Operations are similar in the AM and PM peak periods. Under the No Build Alternative (2042), 11 intersections that operated at LOS A or B under existing (2017) conditions would deteriorate to LOS C or worse. Additionally, nine intersections that operated at LOS C or D under existing (2017) conditions would operate at LOS E or worse under the No Build Alternative (2042). Some intersections are projected to experience improvements in overall intersection delay under the No Build Alternative (2042) compared to existing (2017) conditions, even though traffic volumes are forecasted to increase. It is assumed that traffic signal timing at signalized intersections would be optimized between 2017 and 2042, which could result in changes to traffic flow and overall improvements in delay to the intersection where the signal is optimized as well as to adjacent intersections. Based on this assumption, 12 intersections that would operate at LOS C or worse under existing (2017) conditions are projected to operate at LOS A or B under the No Build Alternative (2042) and 2 intersections that would operate at LOS E or worse under existing (2017) conditions would operate at LOS C or D under the No Build Alternative (2042).

Table 5.2. 2042 No Build Operations

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
1	Alameda St/1st St	Los Angeles	Traffic Signal	10/A-AM 11/B-PM	36/D-AM 18/B-PM
2	Alameda St/2nd St	Los Angeles	Traffic Signal	12/B-AM 19/B-PM	121/F-AM 65/E-PM
3	Alameda St/Traction Ave	Los Angeles	Two-Way Stop	12/B-AM 12/B-PM	82/F-AM 79/F-PM
4	Alameda St/3rd St	Los Angeles	Traffic Signal	20/C-AM 15/B-PM	61/E-AM 69/E-PM

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
5	Alameda St/6th St	Los Angeles	Traffic Signal	11/B-AM 13/B-PM	16/B-AM 19/B-PM
6	Alameda St/7th St	Los Angeles	Traffic Signal	17/B-AM 14/B-PM	69/E-AM 136/F-PM
7	7th St/Flower St	Los Angeles	Traffic Signal	16/B-AM 22/C-PM	17/B-AM 9/B-PM
8	8th St/Figueroa St	Los Angeles	Traffic Signal	21/C-AM 25/C-PM	13/B-AM 17/B-PM
9	8th St/Flower St	Los Angeles	Traffic Signal	28/C-AM 32/C-PM	9/A-AM 14/B-PM
10	8th St/Hope St	Los Angeles	Traffic Signal	16/B-AM 15/B-PM	19/B-AM 21/C-PM
11	9th St/Flower St	Los Angeles	Traffic Signal	20/B-AM 26/C-PM	15/B-AM 17/B-PM
12	7th St/Main St	Los Angeles	Traffic Signal	13/B-AM 16/B-PM	16/B-AM 19/B-PM
13	7th St/Los Angeles St	Los Angeles	Traffic Signal	18/B-AM 13/B-PM	15/B-AM 23/C-PM
14	7th St/Maple Ave	Los Angeles	Traffic Signal	10/A-AM 8/A-PM	10/B-AM 16/B-PM
15	9th St/Main St/Spring St	Los Angeles	Traffic Signal	14/B-AM 16/B-PM	19/B-AM 20/C-PM
16	9th St/Los Angeles St	Los Angeles	Traffic Signal	18/B-AM 17/B-PM	12/B-AM 15/B-PM
17	9th St/Santee St	Los Angeles	Traffic Signal	5/B-AM 6/A-PM	7/A-AM 16/B-PM
18	9th St/Maple St	Los Angeles	Traffic Signal	19/B-AM 20/C-PM	13/B-AM 20/C-PM
19	8th St/Broadway	Los Angeles	Traffic Signal	24/C-AM 24/C-PM	21/C-AM 19/B-PM
20	8th St/Spring St	Los Angeles	Traffic Signal	23/C-AM 24/C-PM	9/A-AM 11/B-PM
21	8th St/Main St	Los Angeles	Traffic Signal	27/C-AM 30/C-PM	10/A-AM 12/B-PM
22	8th St/Los Angeles St	Los Angeles	Traffic Signal	9/A-AM 12/B-PM	13/B-AM 17/B-PM
23	8th St/Santee St	Los Angeles	Two-Way Stop	17/C-AM 21/C-PM	11/B-AM 84/F-PM
24	8th St/Maple Ave	Los Angeles	Traffic Signal	5/A-AM 5/A-PM	11/B-AM 17/B-PM

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
25	8th St/Wall St	Los Angeles	Traffic Signal	14/B-AM 14/B-PM	12/B-AM 15/B-PM
26	Alameda St/Center St	Los Angeles	Traffic Signal	2/A-AM 5/A-PM	6/A-AM 14/B-PM
27	Alameda St/Bay St	Los Angeles	Traffic Signal	13/B-AM 12/B-PM	10/A-AM 12/B-PM
28	Alameda St/8th St	Los Angeles	Traffic Signal	1/A-AM 1/A-PM	11/B-AM 12/B-PM
29	Alameda St/Olympic Blvd	Los Angeles	Traffic Signal	16/B-AM 19/B-PM	29/C-AM 85/F-PM
30	Randolph St/Wilmington Ave	Huntington Park	All-Way Stop	21/C-AM 12/B-PM	33/D-AM 12/B-PM
31	Randolph St/Alameda St (West)	Huntington Park	Traffic Signal	48/D-AM 24/C-PM	50/D-AM 61/E-PM
32	Randolph St/Alameda St (East)	Huntington Park	Two-Way Stop	9/A-AM 10/A-PM	13/B-AM 14/B-PM
33	Randolph St/Regent St	Huntington Park	Two-Way Stop	15/C-AM 13/B-PM	10/B-AM 12/B-PM
34	Randolph St/Albany St	Huntington Park	Two-Way Stop	29/D-AM 24/C-PM	18/C-AM 17/C-PM
35	Randolph St/Santa Fe Ave	Huntington Park	Traffic Signal	23/C-AM 19/B-PM	30/C-AM 30/C-PM
36	Randolph St/Malabar St	Huntington Park	Traffic Signal	21/C-AM 20/C-PM	23/C-AM 22/C-PM
37	Randolph St/Rugby Ave	Huntington Park	Two-Way Stop	62/F-AM 14/B-PM	7/A-AM 4/A-PM
38	Pacific Blvd/Belgrave Ave	Huntington Park	Traffic Signal	7/A-AM 8/A-PM	13/B-AM 12/B-PM
39	Pacific Blvd/Clarendon Ave	Huntington Park	Traffic Signal	9/A-AM 7/A-PM	11/B-AM 9/A-PM
40	Pacific Blvd/Randolph St	Huntington Park	Traffic Signal	30/C-AM 37/D-PM	26/C-AM 33/C-PM
41	Randolph St/Rita Ave	Huntington Park	Two-Way Stop	25/C-AM 48/E-PM	20/C-AM 48/E-PM
42	Randolph St/Seville Ave	Huntington Park	Traffic Signal	35/C-AM 30/C-PM	38/D-AM 35/C-PM
43	Randolph St/Miles Ave	Huntington Park	Traffic Signal	34/C-AM 28/C-PM	37/D-AM 36/D-PM
44	Randolph St/Arbutus Ave	Huntington Park	All-Way Stop	18/C-AM 10/B-PM	33/D-AM 6/A-PM

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
45	Randolph St/State St	Huntington Park	Traffic Signal	21/C-AM 13/B-PM	44/D-AM 19/B-PM
46	Randolph St/Bissell Pl	Huntington Park	Two-Way Stop	14/B-AM 13/B-PM	7/A-AM 5/A-PM
47	Randolph St/ Maywood Ave	Huntington Park	Traffic Signal	13/B-AM 13/B-PM	14/B-AM 13/B-PM
48	Gage Ave/California Ave	Bell	Traffic Signal	16/B-AM 19/C-PM	20/B-AM 98/F-PM
49	Gage Ave/Salt Lake Ave (West)	Bell	Traffic Signal	16/B-AM 28/C-PM	16/B-AM 34/C-PM
50	Bell Ave/California Ave	Huntington Park	All-Way Stop	18/C-AM 14/B-PM	12/B-AM 9/A-PM
51	Bell Ave/Bissell St	Bell	Traffic Signal	9/A-AM 9/A-PM	5/A-AM 6/A-PM
52	Bell Ave/Salt Lake Ave	Huntington Park	All-Way Stop	63/F-AM 47/E-PM	89/F-AM 88/F-PM
53	Florence Ave/California Ave (West)	Huntington Park	Traffic Signal	34/C-AM 38/D-PM	37/D-AM 42/D-PM
54	Florence Ave/California Ave (East)	Huntington Park	Traffic Signal	53/D-AM 29/C-PM	65/E-AM 44/D-PM
55	Otis Ave/Salt Lake Ave (West)	Bell	All-Way Stop	37/E-AM 45/E-PM	189/F-AM 165/F-PM
56	Otis Ave/Salt Lake Ave (East)	Cudahy	All-Way Stop	75/E-AM 64/F-PM	83/F-AM 104/F-PM
57	Otis Ave/Elizabeth St	Cudahy	Two-Way Stop	35/D-AM 47/E-PM	1452/F-AM 1473/F-PM
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	Two-Way Stop	41/E-AM 36/E-PM	1478/F-AM 1574/F-PM
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	All-Way Stop	43/E-AM 48/E-PM	219/F-AM 265/F-PM
60	Ardine St/Salt Lake Ave	Cudahy	All-Way Stop	30/D-AM 24/C-PM	24/C-AM 20/C-PM
61	Atlantic Ave/Salt Lake Ave	Cudahy	Traffic Signal	53/D-AM 65/E-PM	51/D-AM 81/F-PM
62	Atlantic Ave/Azalea West	South Gate	Traffic Signal	4/A-AM 8/A-PM	5/A-AM 9/A-PM
63	Firestone Blvd/Atlantic Ave	South Gate	Traffic Signal	53/D-AM 46/D-PM	139/F-AM 90/F-PM
64	Firestone Blvd/Mason St	South Gate	Traffic Signal	7/A-AM 8/A-PM	19/B-AM 12/B-PM

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
65	Firestone Blvd/Firestone Pl	South Gate	Traffic Signal	8/A-AM 8/A-PM	59/E-AM 24/C-PM
66	Firestone Blvd/Rayo Ave	South Gate	Traffic Signal	116/F-AM 95/F-PM	49/D-AM 40/D-PM
67	Southern Ave/Salt Lake Ave	South Gate	Two-Way Stop	9/A-AM 9/A-PM	4/A-AM 4/A-PM
68	Gardendale St/Center St	South Gate	Two-Way Stop	19/C-AM 17/C-PM	24/C-AM 17/C-PM
69	Gardendale St/Dakota Ave	South Gate	All-Way Stop	28/D-AM 13/B-PM	29/D-AM 11/B-PM
70	Gardendale St/Industrial Ave	South Gate	Two-Way Stop	35/D-AM 22/C-PM	76/F-AM 29/D-PM
71	Main St/Center St	South Gate	Two-Way Stop	15/B-AM 13/B-PM	8/A-AM 7/A-PM
72	Main St/Dakota Ave	South Gate	Two-Way Stop	10/B-AM 10/B-PM	3/A-AM 5/A-PM
73	Main St/Arizona Ave/ Industrial Ave	South Gate	Two-Way Stop	18/C-AM 19/C-PM	13/B-AM 7/A-PM
74	Century Blvd/Center St	South Gate	Two-Way Stop	10/A-AM 9/A-PM	2/A-AM 1/A-PM
75	Century Blvd/Florence Ave	South Gate	Two-Way Stop	9/A-AM 9/A-PM	2/A-AM 2/A-PM
76	Rosecrans Ave/Paramount Blvd	Paramount	Traffic Signal	55/D-AM 48/D-PM	68/E-AM 23/C-PM
77	Rosecrans Ave/Bianchi Way	Paramount	Traffic Signal	2/A-AM 13/B-PM	6/A-AM 23/C-PM
78	Somerset Blvd/Hayter Ave	Paramount	Two-Way Stop	29/D-AM 32/D-PM	16/C-AM 18/C-PM
79	Somerset Blvd/Lakewood Blvd	Bellflower	Two-Way Stop	32/C-AM 30/C-PM	43/D-AM 47/D-PM
80	Paseo St/Lakewood Blvd	Bellflower	Traffic Signal	4/A-AM 3/A-PM	5/A-AM 5/A-PM
81	Flora Vista St/Clark Ave	Bellflower	Two-Way Stop	14/B-AM 18/C-PM	8/A-AM 22/C-PM
82	Alondra Blvd/Clark Ave	Bellflower	Traffic Signal	47/D-AM 48/D-PM	46/D-AM 69/E-PM
83	Alondra Blvd/Pacific Ave	Bellflower	Traffic Signal	5/A-AM 12/B-PM	6/A-AM 13/B-PM
84	Alondra Blvd/Flora Vista St	Bellflower	Two-Way Stop	37/E-AM 32/D-PM	53/F-AM 41/E-PM

No	Intersection Name	Jurisdiction	Control Type	Existing (2017) Delay/LOS/Period*	No Build (2042) Delay/LOS/Period*
85	Alondra Blvd/Stevens Ave	Bellflower	Two-Way Stop	51/F-AM 30/D-PM	33/D-AM 16/C-PM
86	Bellflower Blvd/Flora Vista St	Bellflower	Traffic Signal	7/A-AM 14/B-PM	7/A-AM 19/B-PM
87	Bellflower Blvd/Mayne St	Bellflower	Traffic Signal	11/B-AM 10/B-PM	2/A-AM 3/A-PM
88	Bellflower Blvd/Oak St	Bellflower	Traffic Signal	22/C-AM 25/C-PM	18/B-AM 20/C-PM
89	Artesia Blvd/Dumont Ave	Cerritos	Traffic Signal	18/B-AM 9/A-PM	15/B-AM 22/C-PM
90	Artesia Blvd/Studebaker Rd	Cerritos	Traffic Signal	85/F-AM 61/E-PM	48/D-AM 100/F-PM
91	Business Cir/Studebaker Rd	Cerritos	Two-Way Stop	15/B-AM 16/C-PM	8/A-AM 8/A-PM
92	186th St/Jersey Ave	Artesia	All-Way Stop	9/A-AM 9/A-PM	3/A-AM 2/A-PM
93	187th St/Alburtis Ave	Artesia	Two-Way Stop	10/A-AM 9/A-PM	4/A-AM 2/A-PM
94	187th St/Corby Ave (West)	Artesia	Two-Way Stop	9/A-AM 10/A-PM	4/A-AM 4/A-PM
95	187th St/Corby Ave (East)	Artesia	Two-Way Stop	9/A-AM 9/A-PM	4/A-AM 4/A-PM
96	186th St/Pioneer Blvd	Artesia	Traffic Signal	7/A-AM 5/A-PM	7/A-AM 6/A-PM
97	187th St/Pioneer Blvd	Artesia	Traffic Signal	7/A-AM 5/A-PM	7/A-AM 8/A-PM
98	188th St/Pioneer Blvd	Artesia	Two-Way Stop	11/B-AM 13/B-PM	5/A-AM 6/A-PM
99	South St/Pioneer Blvd	Cerritos	Traffic Signal	34/C-AM 41/D-PM	25/C-AM 38/D-PM
100	South St/Clarkdale Ave	Artesia	Traffic Signal	18/B-AM 12/B-PM	16/B-AM 18/B-PM
101	South St/Elaine Ave	Artesia	Traffic Signal	11/B-AM 12/B-PM	10/B-AM 9/A-PM

Source: Compiled by Jacobs in 2020
Notes: * This column shows the peak hour delay in seconds per vehicle, followed by the LOS for the AM peak hour, and then for the PM peak hour. For example, "21/C-AM 13/B-PM" means a 21-second/vehicle delay, which is LOS C in the AM peak hour, and a 13-second/vehicle delay, which is LOS B in the PM peak hour under the No Build condition. Some intersections have not been assessed for 2042 No Build operations, pending decisions on the alignment.
AM = morning; LOS = level of service; PM = afternoon

5.1.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Traffic impacts associated with the at-grade crossings and stations within the limits of Alternative 1 would be equal to or less than those at the same facilities for Alternative 2. Because the northern terminus station would be further away from the commercial and residential areas, there would be a reduced ridership demand for stations within the shared limits of Alternatives 1 and 2. As summarized in Table 5.3, there would be a reduced ridership demand of approximately 20 percent under Alternative 1 compared to Alternative 2. The reduction in total ridership associated with Alternative 1 would also result in a reduced number of park-and-ride and kiss-and-ride trips at the Alternative 1 stations (between the Slauson/A Line and Pioneer Stations, the common stations between the Build Alternatives). The number of kiss-and-ride trips generated by the Project would be 13 to 38 percent lower than that of Alternative 2 across the stations. Service frequencies would not be reduced (i.e., train headways would remain the same), so the number of at-grade crossing events, associated impacts, and effect determinations discussed in Section 5.1.3 would not change.

Table 5.3. Build Alternatives 1 and 2 Comparison – Daily Ridership and Station Vehicular Demand

		Build Alternative 2	Build Alternative 1
Daily ridership		47,836	38,286
Build Alternative 1 ridership demand change vs. Build Alternative 2		-20%	
Park-and-ride and kiss-and-ride demand change by station	Slauson/A Line*	-38%	
	Randolph/Pacific*	-34%	
	Florence/Salt Lake*	-22%	
	Firestone	-15%	
	Gardendale*	-18%	
	I-105/C Line	-17%	
	Paramount/Rosecrans	-16%	
	Bellflower	-13%	
	Pioneer	-13%	

Source: Metro 2018f
Notes: * Kiss-and-ride only
Gray-shaded cells indicate analysis is not applicable.
I- = Interstate

5.1.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Table 5.4 is a summary of the projected 2042 operations for Alternative 2. Delay and LOS under Alternative 2 were compared to the No Build Alternative, and impacts were assessed using the methodology described in Section 1.5. The highlighted cells (in yellow and bold text) indicate the intersections where adverse effects were identified. Compared to No Build, intersection delay is reduced at some of the intersections under Alternative 2 because of multiple factors: optimized signal timing, reconfiguration of lanes, or at-grade crossings that change traffic flow patterns. These adverse effects may occur in either the AM peak period, the PM peak period, or during both peak periods; cells in the table are highlighted for the time period(s) during which Alternative 2 would result in adverse effects.

Table 5.4. 2042 Build Alternative 2 Operations

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
1-4	(not applicable to Alternative 2)			
5	Alameda St/6th St	Los Angeles	16/B-AM 19/B-PM	16/B-AM 24/C-PM
6	Alameda St/7th St	Los Angeles	69/E-AM 136/F-PM	63/E-AM 121/F-PM
7	7th St/Flower St	Los Angeles	17/B-AM 19/B-PM	17/B-AM 18/B-PM
8	8th St/Figueroa St	Los Angeles	13/B-AM 17/B-PM	12/B-AM 17/B-PM
9	8th St/Flower St	Los Angeles	9/A-AM 14/B-PM	9/A-AM 13/B-PM
10	8th St/Hope St	Los Angeles	19/B-AM 21/C-PM	19/B-AM 21/C-PM
11	9th St/Flower St	Los Angeles	15/B-AM 17/B-PM	15/B-AM 17/B-PM
12	7th St/Main St	Los Angeles	16/B-AM 19/B-PM	16/B-AM 18/B-PM
13	7th St/Los Angeles St	Los Angeles	15/B-AM 23/C-PM	14/B-AM 20/C-PM
14	7th St/Maple Ave	Los Angeles	10/B-AM 16/B-PM	10/A-AM 15/B-PM
15	9th St/Main St/Spring St	Los Angeles	19/B-AM 20/C-PM	17/B-AM 22/C-PM
16	9th St/Los Angeles St	Los Angeles	12/B-AM 15/B-PM	12/B-AM 15/B-PM
17	9th St/Santee St	Los Angeles	7/A-AM 16/B-PM	7/A-AM 15/B-PM
18	9th St/Maple St	Los Angeles	13/B-AM 20/C-PM	13/B-AM 18/B-PM
19	8th St/Broadway	Los Angeles	21/C-AM 19/B-PM	21/C-AM 18/B-PM
20	8th St/Spring St	Los Angeles	9/A-AM 11/B-PM	8/A-AM 11/B-PM
21	8th St/Main St	Los Angeles	10/A-AM 12/B-PM	9/A-AM 11/B-PM
22	8th St/Los Angeles St	Los Angeles	13/B-AM 17/B-PM	12/B-AM 16/B-PM

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
23	8th St/Santee St	Los Angeles	11/B-AM 84/F-PM	11/B-AM 84/F-PM
24	8th St/Maple Ave	Los Angeles	11/B-AM 17/B-PM	11/B-AM 16/B-PM
25	8th St/Wall St	Los Angeles	12/B-AM 15/B-PM	11/B-AM 14/B-PM
26	Alameda St/Center St	Los Angeles	6/A-AM 14/B-PM	5/A-AM 14/B-PM
27	Alameda St/Bay St	Los Angeles	10/A-AM 12/B-PM	9/A-AM 12/B-PM
28	Alameda St/8th St	Los Angeles	11/B-AM 12/B-PM	11/B-AM 12/B-PM
29	Alameda St/Olympic Blvd	Los Angeles	29/C-AM 85/F-PM	33/C-AM 58/E-PM
30	Randolph St/Wilmington Ave	Huntington Park	33/D-AM 12/B-PM	34/F-AM 13/A-PM
31	Randolph St/Alameda St (West)	Huntington Park	50/D-AM 61/E-PM	**143/F-AM** **140/F-PM**
32	Randolph St/Alameda St (East)	Huntington Park	13/B-AM 14/B-PM	**-[c]-AM** **-[c]-PM**
33	Randolph St/Regent St	Huntington Park	10/B-AM 12/B-PM	5/A-AM 6/A-PM
34	Randolph St/Albany St	Huntington Park	18/C-AM 17/C-PM	8/A-AM 8/A-PM
35	Randolph St/Santa Fe Ave	Huntington Park	30/C-AM 30/C-PM	**115/F-AM** **141/F-PM**
36	Randolph St/Malabar St	Huntington Park	23/C-AM 22/C-PM	**82/F-AM** **52/D-PM**
37	Randolph St/Rugby Ave	Huntington Park	7/A-AM 4/A-PM	4/A-AM 6/A-PM
38	Pacific Blvd/Belgrave Ave	Huntington Park	13/B-AM 12/B-PM	17/B-AM 15/B-PM
39	Pacific Blvd/Clarendon Ave	Huntington Park	11/B-AM 9/A-PM	**51/D-AM** 14/B-PM
40	Pacific Blvd/Randolph St	Huntington Park	26/C-AM 33/C-PM	**90/F-AM** **73/E-PM**
41	Randolph St/Rita Ave	Huntington Park	20/C-AM 48/E-PM	8/A-AM 5/A-PM

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
42	Randolph St/Seville Ave	Huntington Park	38/D-AM 35/C-PM	**111/F-AM** **129/F-PM**
43	Randolph St/Miles Ave	Huntington Park	37/D-AM 36/D-PM	**92/F-AM** **122/F-PM**
44	Randolph St/Arbutus Ave	Huntington Park	33/D-AM 6/A-PM	35/D-AM 18/B-PM
45	Randolph St/State St	Huntington Park	44/D-AM 19/B-PM	**144/F-AM** **76/E-PM**
46	Randolph St/Bissell Pl	Huntington Park	7/A-AM 5/A-PM	2/A-AM 5/A-PM
47	Randolph St/Maywood Ave	Huntington Park	14/B-AM 13/B-PM	17/B-AM 11/B-PM
48	Gage Ave/California Ave	Bell	20/B-AM 98/F-PM	**69/E-AM** **120/F-PM**
49	Gage Ave/Salt Lake Ave (West)	Bell	16/B-AM 34/C-PM	**64/E-AM** **114/F-PM**
50	Bell Ave/California Ave	Huntington Park	12/B-AM 9/A-PM	13/B-AM 8/A-PM
51	Bell Ave/Bissell St	Bell	5/A-AM 6/A-PM	13/B-AM **22/C-PM**
52	Bell Ave/Salt Lake Ave	Huntington Park	89/F-AM 88/F-PM	53/D-AM 19/B-PM
53	Florence Ave/California Ave (West)	Huntington Park	37/D-AM 42/D-PM	**103/F-AM** **80/F-PM**
54	Florence Ave/California Ave (East)	Huntington Park	65/E-AM 44/D-PM	**143/F-AM** 31/C-PM
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	189/F-AM 165/F-PM	122/F-AM 135/F-PM
56	Otis Ave/Salt Lake Ave (East)	Cudahy	83/F-AM 104/F-PM	36/E-AM 93/F-PM
57	Otis Ave/Elizabeth St	Cudahy	1452/F-AM 1473/F-PM	342/F-AM 366/F-PM
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	1478/F-AM 1574/F-PM	823/F-AM 747/F-PM
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	219/F-AM 265/F-PM	146/F-AM 100/F-PM
60	Ardine St/Salt Lake Ave	Cudahy	24/C-AM 20/C-PM	25/D-AM 16/C-PM

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
61	Atlantic Ave/Salt Lake Ave	Cudahy	51/D-AM 81/F-PM	53/D-AM 81/F-PM
62	Atlantic Ave/Azalea West	South Gate	5/A-AM 9/A-PM	10/B-AM 18/B-PM
63	Firestone Blvd/Atlantic Ave	South Gate	139/F-AM 90/F-PM	140/F-AM 91/F-PM
64	Firestone Blvd/Mason St	South Gate	19/B-AM 12/B-PM	10/B-AM 14/B-PM
65	Firestone Blvd/Firestone Pl	South Gate	59/E-AM 24/C-PM	44/D-AM 27/C-PM
66	Firestone Blvd/Rayo Ave	South Gate	49/D-AM 40/D-PM	42/D-AM 43/D-PM
67	Southern Ave/Salt Lake Ave	South Gate	4/A-AM 4/A-PM	6/A-AM 4/A-PM
68	Gardendale St/Center St	South Gate	24/C-AM 17/C-PM	**48/E-AM** **41/E-PM**
69	Gardendale St/Dakota Ave	South Gate	29/D-AM 11/B-PM	8/A-AM 9/A-PM
70	Gardendale St/Industrial Ave	South Gate	76/F-AM 29/D-PM	**594/F-AM** **50/F-PM**
71	Main St/Center St	South Gate	8/A-AM 7/A-PM	10/A-AM 7/A-PM
72	Main St/Dakota Ave	South Gate	3/A-AM 5/A-PM	4/A-AM 7/A-PM
73	Main St/Arizona Ave/Industrial Ave	South Gate	13/B-AM 7/A-PM	17/C-AM 11/B-PM
74	Century Blvd/Center St	South Gate	2/A-AM 1/A-PM	2/A-AM 1/A-PM
75	Century Blvd/Florence Ave	South Gate	2/A-AM 2/A-PM	2/A-AM 2/A-PM
76	Paramount Blvd/Rosecrans Ave	Paramount	68/E-AM 23/C-PM	69/E-AM 26/C-PM
77	Rosecrans Ave/Bianchi Way	Paramount	6/A-AM 23/C-PM	9/A-AM 8/A-PM
78	Somerset Blvd/Hayter Ave	Paramount	16/C-AM 18/C-PM	13/B-AM 17/C-PM
79	Somerset Blvd/Lakewood Blvd	Bellflower	43/D-AM 47/D-PM	44/D-AM 38/D-PM

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
80	Paseo St/Lakewood Blvd	Bellflower	5/A-AM 5/A-PM	12/B-AM 7/A-PM
81	Flora Vista St/Clark Ave	Bellflower	8/A-AM 22/C-PM	**172/F-AM** **389/F-PM**
82	Alondra Blvd/Clark Ave	Bellflower	46/D-AM 69/E-PM	**61/E-AM** **83/F-PM**
83	Alondra Blvd/Pacific Ave	Bellflower	6/A-AM 13/B-PM	9/A-AM 6/A-PM
84	Alondra Blvd/Flora Vista St	Bellflower	53/F-AM 41/E-PM	**420/F-AM** 37/E-PM
85	Alondra Blvd/Stevens Ave	Bellflower	33/D-AM 16/C-PM	36/E-AM 20/C-PM
86	Bellflower Blvd/Flora Vista St	Bellflower	7/A-AM 19/B-PM	18/B-AM 25/C-PM
87	Bellflower Blvd/Mayne St	Bellflower	2/A-AM 3/A-PM	18/B-AM 24/C-PM
88	Bellflower Blvd/Oak St	Bellflower	18/B-AM 20/C-PM	23/C-AM 34/C-PM
89	Artesia Blvd/Dumont Ave	Cerritos	15/B-AM 22/C-PM	24/C-AM 58/E-PM
90	Artesia Blvd/Studebaker Rd	Cerritos	48/D-AM 100/F-PM	49/D-AM 82/F-PM
91	Business Cir/Studebaker Rd	Cerritos	8/A-AM 8/A-PM	3/A-AM 15/C-PM
92	186th St/Jersey Ave	Artesia	3/A-AM 2/A-PM	5/A-AM 8/A-PM
93	187th St/Alburtis Ave	Artesia	4/A-AM 2/A-PM	2/A-AM 2/A-PM
94	187th St/Corby Ave (West)	Artesia	4/A-AM 4/A-PM	1/A-AM 3/A-PM
95	187th St/Corby Ave (East)	Artesia	4/A-AM 4/A-PM	1/A-AM 1/A-PM
96	186th St/Pioneer Blvd	Artesia	7/A-AM 6/A-PM	11/B-AM 8/A-PM
97	187th St/Pioneer Blvd	Artesia	7/A-AM 8/A-PM	5/A-AM 4/A-PM
98	188th St/Pioneer Blvd	Artesia	5/A-AM 6/A-PM	-[d]-AM -[d]-PM

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 2 Peak Hour Delay/LOS[b]
99	South St/Pioneer Blvd	Cerritos	25/C-AM 38/D-PM	26/C-AM 40/D-PM
100	South St/Clarkdale Ave	Cerritos	16/B-AM 18/B-PM	9/A-AM 18/B-PM
101	South St/Elaine Ave	Cerritos	10/B-AM 9/A-PM	11/A-AM 9/A-PM

Source: Jacobs 2020

Notes: [a] This column shows the peak hour delay in seconds per vehicle, followed by the LOS for the AM peak hour, and then for the PM peak hour. For example, "21/C-AM 13/B-PM" means a 21-second/vehicle delay, which is LOS C in the AM peak hour, and a 13-second/vehicle delay, which is LOS B in the PM peak hour under the No Build condition. Some intersections have not been assessed for 2042 No Build operations, pending decisions on the alignment.

[b] This column shows the peak hour delay in seconds per vehicle, followed by the LOS. Yellow and bolded cells are those intersections where adverse impacts were identified.

[c] The traffic signal installation improvements for the intersection are considered to be tied to the Randolph St/Alameda St (West) traffic signal operations. Therefore, the Randolph St/Alameda St (West) peak hour delay summary considers the operations at Randolph St/Alameda St (West).

AM = morning; LOS = level-of-service; PM = afternoon

Based on these evaluations, the intersection impacts identified here result in adverse effects in Alternative 2. Mitigation measures, described in Section 8 are proposed to address these impacts. The mitigation measures may not fully mitigate impacts at all intersections.

Alternative 2 could result in operational changes to the length of vehicle queues from nearby intersections back to train crossings. These queues arise when vehicles wait at red signals, and the spacing from intersections to the upstream train crossing is not sufficient to store all of the vehicles. The result could be vehicles stopped on the tracks, unless other measures are taken, such as placing signs to indicate that stopping on the tracks is not permitted. Table 5.5 illustrates the projected vehicle queues for the 2042 AM and PM peaks. Queues are calculated based on the 95th percentile value, a standard traffic engineering assessment. On average, 95th percentile queues occur on 1 out of 20 signal cycles. In the table, the yellow cells with bold text indicate where the 95th percentile queue exceeds the storage capacity to the upstream at-grade crossing.

Table 5.5. 2042 Build Alternative 2 95th Percentile Queues from Upstream Crossing to Intersection

Crossing[a, b]	Intersection to the North/East of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)	Intersection to the South/West of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)
Pacific	Pacific Blvd/ Belgrave Ave	435	273	Pacific Blvd/ Clarendon Ave	585	183
Gage	Gage Ave/ California Ave	435	421	Gage Ave/ Salt Lake Ave (West)[d]	Intersection operations coordinated with the adjacent crossing	

Crossing[a, b]	Intersection to the North/East of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)	Intersection to the South/West of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)
Bell	Bell Ave/ California Ave	350	81	Bell Ave/ Salt Lake Ave	Intersection operations coordinated with the adjacent crossing	
Florence	**Florence Ave/ California Ave (East)**	140	**184**	**Florence Ave/ California Ave (West)**	90	**142**
Otis	Otis Ave/ Salt Lake Ave (East)	Intersection operations coordinated with the adjacent crossing		Otis Ave/ Salt Lake Ave (West)	Intersection operations coordinated with the adjacent crossing[e]	
Santa Ana	Santa Ana St/ Salt Lake Ave (East)	Intersection operations coordinated with the adjacent crossing		Santa Ana St/ Salt Lake Ave (West)	Intersection operations coordinated with the adjacent crossing	
Ardine[f]	Ardine St/ Salt Lake Ave	Intersection operations coordinated with the adjacent crossing		N/A	N/A	
Southern[f]	N/A	N/A		Southern Ave/ Salt Lake Ave	Intersection operations coordinated with the adjacent crossing	
Gardendale	Gardendale St/ Industrial Ave	290	206	**Gardendale St/ Center St**	175	**264**
Main	Main St/ Arizona Ave/ Industrial Ave	150	74	Main St/ Center St	165	51
Century[f]	N/A			Century Blvd/ Center St	255	0
Somerset	Somerset Blvd/ Lakewood Blvd	880	390	Paseo St/ Lakewood Blvd	Intersection operations coordinated with the adjacent crossing	
Lakewood	**Somerset Blvd/ Lakewood Blvd**	525	**545**	Paseo St/ Lakewood Blvd	Intersection operations coordinated with the adjacent crossing	
Clark	Flora Vista St/ Clark Ave	Intersection operations coordinated with the adjacent crossing		**Alondra Blvd/ Clark Ave**	210	**318**

Crossing[a, b]	Intersection to the North/East of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)	Intersection to the South/West of Train Crossing	Distance from Intersection Back to Rail Crossing (feet)	Build Alternatives 95th Percentile Queue[c] (feet)
Alondra	Alondra Blvd/ Stevens Ave	635	24	**Alondra Blvd/ Clark Ave[d]**	395	**456**
Bellflower	**Flora Vista St/ Bellflower Blvd**	155	**195**	**Oak St/ Bellflower Blvd**	240	**248**
Artesia	**Artesia Blvd/ Studebaker Rd**	765	**851**	Artesia Blvd/ Dumont Ave	Intersection operations coordinated with the adjacent crossing[e]	
Studebaker[d]	Business Cir/ Studebaker Rd	10	0	N/A[d]	N/A	N/A
186th[d]	186th St/ Pioneer Blvd	1160	807	N/A[d]	N/A	N/A
Pioneer	187th St/ Pioneer Blvd	240	112	N/A[d]	N/A	N/A

Source: Compiled by Jacobs in 2020

Notes: [a] There are no signalized intersections in proximity to the signalized crossings at Alameda, Santa Fe, Malabar, Seville, Miles, Arbutus, State Crossings, Ardine, Rayo, Southern, or Century. Therefore, queuing evaluation was not conducted at these crossings.

[b] The Atlantic, Firestone, Imperial, Garfield, Rosecrans, Downey, Flower, Woodruff, and 183rd/Gridley crossings will be grade-separated. Therefore, queuing evaluation was not conducted at these crossings.

[c] AM or PM peak (whichever is higher).

[d] There are no signalized intersections to the south/west in proximity to the train crossings at Studebaker Road or 186th Street or Pioneer Boulevard.

[e] Milestone 2 queuing analysis indicates insufficient storage and identifies safety enhancement elements.

[f] There are no signalized intersections to the north/east or south/west in proximity to the train crossings at Ardine, Southern, or Century.

The yellow cells with bold text indicate where the 95th percentile queue exceeds the storage capacity to the upstream at-grade crossing.

AM = morning; PM = afternoon

To minimize the potential for vehicles queuing onto at-grade crossings, design features would be added at the respective crossings. They include the use of pre-signals or queue-cutter signals to prevent vehicles from stopping on tracks. Pre-signals and queue-cutter signals prevent queuing across the tracks with a directional signal before the tracks. They are activated (turned red) when the system detects an approaching queue on the other side of the tracks, or in coordination with the downstream signal. With these design features, the vehicles in the queue would be prevented from stopping on the tracks, thus eliminating potential conflicts from queues for Alternative 2. More detailed engineering regarding these features and their corresponding applicability will be completed in future project development phases.

5.1.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Traffic impacts associated with the at-grade crossings and stations within the limits of Alternative 3 would be equal to or less than those at the same facilities for Alternative 2. Because there would be no new transit service associated with Alternative 3 for stations north of the Slauson/A Line Station, there would be a reduced ridership demand for stations within the limits of Alternative 3. As summarized in Table 5.6, compared to Alternative 2, there would be a reduced ridership demand of 35 percent for stations within Alternative 3. The reduction in total ridership associated with Alternative 3 would also result in a reduced number of park-and-ride and kiss-and-ride trips at the Alternative 3 stations (between the Slauson/A Line and Pioneer Stations). The number of kiss-and-ride trips generated by the Project would be 37 to 88 percent lower than that of Alternative 2 across the stations. Service frequencies would not be reduced (i.e., train headways would remain the same), so the number of at-grade crossing events, associated impacts, and effect determinations already discussed in Section 5.1.2 would not change.

Table 5.6. Build Alternatives 2 and 3 Comparison - Daily Ridership and Station Vehicular Demand

		Build Alternative 2	Build Alternative 3
Daily Ridership		47,836	30,715
Build Alternative 3 Ridership Demand Change vs. Build Alternative 1 and 2		-35%	N/A
Park-and-Ride and Kiss-and-Ride Demand Change by Station	Slauson/A Line*	-88%	N/A
	Pacific/Randolph*	-71%	N/A
	Florence/Salt Lake*	-52%	N/A
	Firestone	-42%	N/A
	Gardendale*	-55%	N/A
	I-105/C Line	-49%	N/A
	Paramount/Rosecrans	-45%	N/A
	Bellflower	-36%	N/A
	Pioneer	-37%	N/A

Source: Metro 2019a
Notes: * Kiss-and-Ride only; I- = Interstate

Intersections with impacts related to at-grade crossing events would remain the same for those intersections that are part of the area affected by Alternative 3. There would be a minor reduction in traffic impacts associated with station trips (park-and-ride and kiss-and-ride) with Alternative 3.

Table 5.7 is a summary assessment of the intersections between the Slauson/A Line and Pioneer Stations with the anticipated effects of Alternative 3. There are 20 intersections where Alternative 3 would have adverse effects (similar to Alternative 2) associated with the nearby at-grade crossings.

Table 5.7. Alternative 3 Intersection Adverse Effects Assessment

Intersections with Adverse Effects		Intersections without Adverse Effects	
No. 31: Randolph St/Alameda St (West)	No. 68: Gardendale St/Center St	No. 31: Randolph St/Wilmington Ave	No. 71: Main St/Center St
No. 35: Randolph St/Santa Fe Ave	No. 70: Gardendale St/Industrial Ave	No. 33: Randolph St/Regent St	No. 72: Main St/Dakota Ave
No. 36: Randolph St/Malabar St	No. 81: Flora Vista St/Clark Ave	No. 34: Randolph St/Albany St	No. 73: Main St/Arizona Ave/Industrial Ave
No. 39: Pacific Blvd/Clarendon Ave	No. 82: Alondra Blvd/Clark Ave	No. 37: Randolph St/Rugby Ave	No. 74: Century Blvd/Center St
No. 40: Pacific Blvd/Randolph St	No. 84: Alondra Blvd/Flora Vista St	No. 38: Pacific Blvd/Belgrave Ave	No. 75: Century Blvd/Florence Ave
No. 42: Randolph St/Seville Ave	No. 89: Artesia Blvd/Dumont Ave	No. 41: Randolph St/Rita Ave	No. 76: Paramount Blvd/Rosecrans Ave
No. 43: Randolph St/Miles Ave	No. 91: Business Cir/Studebaker Rd	No. 44: Randolph St/Arbutus Ave	No. 77: Rosecrans Ave/Bianchi Way
No. 45: Randolph St/State St		No. 46: Randolph St/Bissell Pl	No. 78: Somerset Blvd/Hayter Ave
No. 48: Gage Ave/California Ave		No. 47: Randolph St/Maywood Ave	No. 79: Somerset Blvd/Lakewood Blvd
No. 49: Gage Ave/Salt Lake Ave (West)		No. 50: Bell Ave/California Ave	No. 80: Paseo St/Lakewood Blvd
No. 51: Bell Ave/Bissell St		No. 52: Bell Ave/Salt Lake Ave	No. 83: Alondra Blvd/Pacific Ave
No. 53: Florence Ave/California Ave (West)		No. 55: Otis Ave/Salt Lake Ave (West)	No. 85: Alondra Blvd/Stevens Ave
No. 54: Florence Ave/California Ave (East)		No. 56: Otis Ave/Salt Lake Ave (East)	No. 86: Bellflower Blvd/Flora Vista St
		No. 57: Otis Ave/Elizabeth St	No. 87: Bellflower Blvd/Mayne St
		No. 58: Santa Ana St/Salt Lake Ave (West)	No. 88: Bellflower Blvd/Oak St
		No. 59: Santa Ana St/Salt Lake Ave (East)	No. 90: Artesia Blvd/Studebaker Rd
		No. 60: Ardine St/Salt Lake Ave	No. 92: 186th St/Jersey Ave
		No. 61: Atlantic Ave/Salt Lake Ave	No. 93: 187th St/Alburtis Ave
		No. 62: Atlantic Ave/Azalea West	No. 94: 187th St/Corby Ave (West)
		No. 63: Firestone Blvd/Atlantic Ave	No. 95: 187th St/Corby Ave (East)
		No. 64: Firestone Blvd/Mason St	No. 96: 186th St/Pioneer Blvd
		No. 65: Firestone Blvd/Firestone Pl	No. 97: 187th St/Pioneer Blvd
		No. 66: Firestone Blvd/Rayo Ave	No. 98: 188th St/Pioneer Blvd
		No. 67: Southern Ave/Salt Lake Ave	No. 99: South St/Pioneer Blvd
		No. 69: Gardendale St/Dakota Ave	No. 100: South St/Clarkdale Ave
			No. 101: South St/Elaine Ave

Source: Compiled by Jacobs in 2020

5.1.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

Similar to Alterative 3, traffic impacts associated with the at-grade crossings and stations within the limits of Alternative 4 would be equal to or less than those at the same facilities for the Build Alternatives 1 and 2. Because there would be no new LRT service associated with Alternative 4 for stations north of the I-105/C Line Station, there would be a reduced ridership demand for stations within the limits of Alternative 4. As summarized in Table 5.8, ridership would be 37 percent lower for stations within Alternative 4 than for Alternative 2. The reduction in total ridership associated with Alternative 4 would result in a reduced number of park-and-ride and kiss-and-ride trips at the Alternative 4 stations (between the I-105/C Line and Pioneer Stations). The number of park-and-ride and kiss-and-ride trips generated by the Project would be between 54 and 80 percent lower than that of Alternative 2 across the stations. Service frequencies would not be reduced (i.e., train headways would remain the same), so the number of at-grade crossing events, associated impacts, and effect determinations discussed in Section 1.1 would not change.

Table 5.8. Build Alternative 1, 2, and 4 Comparison - Daily Ridership, Station Vehicular Demand

		Build Alternative 2	Build Alternative 4
Daily Ridership		17,731	11,189
Build Alternative 4 Ridership Demand Change vs. Build Alternatives 1 and 2		-37%	
Park-and-Ride and Kiss-and-Ride Demand Change by Station	I-105/C Line	-80%	
	Paramount/Rosecrans	-61%	
	Bellflower	-54%	
	Pioneer	-54%	

Source: Metro 2019a
Notes: Gray-shaded cells indicate analysis is not applicable. I- = Interstate

Similar to Alternative 3, the adverse impacts and effect determinations of traffic operations (described in Section 5.1.4) for Alternative 4 are related to station trips and at-grade crossing events. Intersections with impacts related to at-grade crossing events would remain the same for those intersections within the limits of Alternative 4 (i.e., south of I-105). There would be a minor reduction in traffic impacts associated with station trips (park-and-ride and kiss-and-ride) with Alternative 4. Table 5.9 is a summary assessment of the intersections between the I-105/C Line and Pioneer Stations with the anticipated impacts of Alternative 4. Alternative 4 would have adverse effects (similar to Alternative 2) on the nearby at-grade crossings at five intersections.

Table 5.9. Alternative 4 Intersection Adverse Effects Assessment

Intersections with Adverse Effects	Intersections without Adverse Effects	
No. 81: Flora Vista St/Clark Ave	No. 69: Gardendale St/Dakota Ave	No. 87: Bellflower Blvd/Mayne St
No. 82: Alondra Blvd/Clark Ave	No. 71: Main St/Center St	No. 88: Bellflower Blvd/Oak St
No. 84: Alondra Blvd/Flora Vista St	No. 72: Main St/Dakota Ave	No. 90: Artesia Blvd/Studebaker Rd
No. 89: Artesia Blvd/Dumont Ave	No. 73: Main St/Arizona Ave/ Industrial Ave	No. 92: 186th St/Jersey Ave
No. 91: Business Cir/Studebaker Rd	No. 74: Century Blvd/Center St	No. 93: 187th St/Alburtis Ave
	No. 75: Century Blvd/Florence Ave	No. 94: 187th St/Corby Ave (West)
	No. 76: Paramount Blvd/Rosecrans Ave	No. 95: 187th St/Corby Ave (East)
	No. 77: Rosecrans Ave/Bianchi Way	No. 96: 186th St/Pioneer Blvd
	No. 78: Somerset Blvd/Hayter Ave	No. 97: 187th St/Pioneer Blvd
	No. 79: Somerset Blvd/Lakewood Blvd	No. 98: 188th St/Pioneer Blvd
	No. 80: Paseo St/Lakewood Blvd	No. 99: South St/Pioneer Blvd
	No. 83: Alondra Blvd/Pacific Ave	No. 100: South St/Clarkdale Ave
	No. 85: Alondra Blvd/Stevens Ave	No. 101: South St/Elaine Ave
	No. 86: Bellflower Blvd/Flora Vista St	

Source: Compiled by Jacobs in 2020

5.1.6 Design Options

The design options will only affect Alternative 1, so the analysis focuses on the intersections associated with this alternative.

5.1.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

Similar to Alternative 1, traffic impacts associated with the at-grade crossings and stations within the limits of Design Option 1: LAUS at the Metropolitan Water District would be equal to or less than those at the same facilities for Alternative 2. Because the northern terminus station would be further away from the commercial and residential areas, there would be a reduced ridership demand for stations within the shared limits of Design Option 1 and Alternative 2. As summarized in Table 5.10, there would be a reduced ridership demand of approximately 14 percent under Alternative 1 with Design Option 1 compared to Alternative 2. The reduction in total ridership associated with Design Option 1 would also result in a reduced number of park-and-ride and kiss-and-ride trips at the Design Option 1 stations (between the Slauson/A Line and Pioneer Stations, the common stations between the Build Alternatives). The number of kiss-and-ride trips generated by the Project would be 11 to 30 percent lower than that of Alternative 2 across the stations. Service frequencies would not be reduced (i.e., train headways would remain the same), so the number of at-grade crossing events, associated impacts, and effect determinations discussed in Section 5.1.2 would not change.

Table 5.10. Build Alternatives 1 with Design Options 1 and 2 Comparison – Daily Ridership and Station Vehicular Demand

		Build Alternative 2	Build Alternative 1 with Design Option 1 (MWD)
Daily ridership		47,836	41,043
Build Alternative 1 with Design Option 1 (MWD) ridership demand change vs. Build Alternative 2		-14%	
Park-and-ride and kiss-and-ride demand change by station	Slauson/A Line*	-30%	
	Randolph/Pacific*	-29%	
	Florence/Salt Lake*	-19%	
	Firestone	-13%	
	Gardendale*	-15%	
	I-105/C Line	-14%	
	Paramount/Rosecrans	-13%	
	Bellflower	-11%	
	Pioneer	-11%	

Source: Metro 2018f
Notes: * Kiss-and-ride only
Gray-shaded cells indicate analysis is not applicable.
I- = Interstate

5.1.6.2 Design Option 2: Add Little Tokyo Station

Similar to Alternative 1, traffic impacts associated with the at-grade crossings and stations within the limits of Design Option 2: Add Little Tokyo Station would be equal to or less than those at the same facilities for Alternative 2. Because the northern terminus station would be further away from the commercial and residential areas, there would be a reduced ridership demand for stations within the shared limits of Design Option 2 and Alternative 2. As summarized in Table 5.11, there would be a reduced ridership demand of approximately 14 percent under Design Option 2 compared to Alternative 2. The reduction in total ridership associated with Design Option 2 would also result in a reduced number of park-and-ride and kiss-and-ride trips at the Design Option 2 stations (between the Slauson/A Line and Pioneer Stations, the common stations between the Build Alternatives).

Design Option 2 would include additional intersections in the Downtown Los Angeles area; however, similar to Alternative 1 and Design Option 1, the intersections located in the Downtown Los Angeles area would not have adverse impacts because the alignment is either aerial or underground. The movement of vehicular traffic would not be disrupted by the train traveling through at-grade crossings in this area. Table 5.12 shows the additional intersections and projected 2042 operations. If Design Option 1 is included with Design Option 2, additional key intersections would not be added to the traffic Affected Area and the key intersections analysis results associated with the inclusion of Design Option 2 do not change. The number of kiss-and-ride trips generated by the Project would be 11 to 29 percent lower than that of Alternative 2 across the stations. Service frequencies would not be reduced (i.e., train headways would remain the same), so the number of at-grade crossing events, associated impacts, and effect determinations discussed in Section 5.1.2 would not change.

Table 5.11. Build Alternatives 1 and 2 with Design Option 2 Comparison – Daily Ridership and Station Vehicular Demand

		Build Alternative 2	Build Alternative 1 with Design Option 2
Daily ridership		47,836	41,054
Build Alternative 1 with Design Option 2 ridership demand change vs. Build Alternative 2		-14%	
Park-and-ride and kiss-and-ride demand change by station	Slauson/A Line*	-29%	
	Randolph/Pacific*	-28%	
	Florence/Salt Lake*	-17%	
	Firestone	-12%	
	Gardendale*	-15%	
	I-105/C Line	-14%	
	Paramount/Rosecrans	-14%	
	Bellflower	-11%	
	Pioneer	-11%	

Source: Metro 2018f
Notes: * Kiss-and-ride only
Gray-shaded cells indicate analysis is not applicable.
I- = Interstate

Table 5.12. 2042 Build Alternative 1 with Design Option 2 Operations (Design Option Specific)

No	Intersection Name	Jurisdiction	No Build Peak Hour Delay/LOS[a]	Alternative 1 with Design Option 2 Peak Hour Delay/LOS[b]
1	1st St/Alameda St	Los Angeles	36/D-AM 18/B-PM	35/D-AM 19/B-PM
2	2nd St/Alameda St	Los Angeles	121/F-AM 65/E-PM	123/F-AM 65/E-PM
3	Traction Ave/Alameda St	Los Angeles	82/F-AM 79/F-PM	82/F-AM 77/F-PM
4	3rd St/Alameda St	Los Angeles	61/E-AM 69/E-PM	57/E-AM 68/E-PM

Source: Metro 2020t
Notes: [a] This column shows the peak hour delay in seconds per vehicle, followed by the LOS for the AM peak hour, and then for the PM peak hour. For example, “21/C-AM 13/B-PM” means a 21-second/vehicle delay, which is LOS C, in the AM peak hour, and a 13-second/vehicle delay, which is LOS B, in the PM peak hour under the No Build condition. Some intersections have not been assessed for 2042 No Build operations, pending decisions on the alignment.
[b] This column shows the peak hour delay in seconds per vehicle, followed by the LOS. Yellow-shaded and bolded cells are those intersections where adverse effects are identified.
LOS = level-of -service

5.1.7 Maintenance and Storage Facility

Two potential sites for the MSF have been identified and evaluated: one in the City of Bellflower and one in the City of Paramount. Only one MSF would be constructed as part of the Project.

5.1.7.1 Paramount MSF Site Option

The Paramount MSF site option traffic impacts assessment considered the street network, traffic in the affected Cities of Paramount and South Gate, and the facility's peak hour trip generation. A summary of the surrounding area assessment is as follows:

- **Local street network:** The Paramount MSF site's major street is to the north at Rosecrans Avenue. The streets adjacent to the Paramount MSF site option mainly serve industrial/commercial facilities. Access to major streets is limited through Bianchi Way. To the east of the site, Paramount Boulevard (south of Rosecrans Avenue) and residential streets restrict commercial vehicle traffic. Access to the nearby I-710 and I-105 freeways is through Rosecrans Avenue, Garfield Avenue, and Paramount Boulevard. Trains entering and exiting the MSF would have to use the existing at-grade rail crossing on Rosecrans Avenue (between the signalized intersection at Garfield Avenue and Bianchi Way). The timing and frequency of these crossing events are unknown, but it is anticipated that they would occur during the off-peak traffic hours. These impacts would be not be substantial.
- **Traffic:** Traffic density around the site and on the local roadway network is moderate, with the peak periods heavily traveled. The area is heavily traveled to the west by commercial vehicles.
- **Truck routes:** The area near the Paramount MSF site option has Rosecrans Avenue, Garfield Avenue, and Paramount Boulevard (north of Rosecrans Avenue) as designated truck routes.

To assess potential impacts, traffic volumes from the MSF site option were evaluated. A peak hour trip generation rate was determined from driveway traffic counts at the Metro Division 22 LRT maintenance facility serving the Metro C (Green) Line (at 14724 Aviation Boulevard in Lawndale). Metro Division 22 serves 39 LRVs. Because the Paramount MSF is expected to serve 80 LRVs, a proportional factor of 2.05 (99/39) was calculated using the number of LRVs served. The factor was applied to the Division 22 traffic count data, including both passenger cars and trucks, to calculate trip generation for the proposed Paramount MSF. A passenger car equivalency factor of 2.0 was used to convert truck trips into passenger car equivalents.

As summarized in Table 5.13 the projected traffic to and from the Paramount MSF is 23 vehicle trips in the AM peak hour and 26 vehicle trips in the PM peak hour. These values are below LADOT's 2016 *Transportation Impact Study Guidelines* threshold for new developments (43 vehicle trips during the AM/PM peak hours). Because the projected peak hour vehicular trips generated by the proposed MSF are substantially lower than LADOT's thresholds, the effect on traffic would not be adverse.

Table 5.13. Paramount MSF Peak Hour Trip Generation

Peak Hour	Enter	Exit	Total
AM	10	13	23
PM	15	11	26

Source: Compiled by Jacobs in 2020
Note: MSF = maintenance storage facility

5.1.7.2 Bellflower MSF Site Option

The Bellflower MSF site option traffic impacts assessment considered the street network, traffic in the affected Cities of Bellflower and Paramount, and the facility's peak hour trip generation. A summary of the surrounding area assessment is as follows:

- **Local street network:** The main street for access to the Bellflower MSF site is immediately north at Somerset Boulevard. The streets adjacent to the site mainly serve residential areas. Commercial vehicle traffic in the area is restricted to Somerset Boulevard. Access to the nearby I-105 freeway is through Somerset Boulevard, Lakewood Boulevard, Downey Avenue, and Clark Avenue. There are no at-grade crossings between the proposed MSF and the mainline rail; therefore, no additional at-grade crossing impacts are anticipated.
- **Traffic:** Traffic density around this site and the local roadway network is moderate, with the peak periods heavily traveled. The area is lightly traveled by commercial vehicles.
- **Truck routes:** Somerset Boulevard and Clark Avenue are designated as truck routes near the Bellflower MSF site option.

Similar to the Paramount MSF site option, Bellflower MSF site option traffic volumes were determined based on driveway traffic counts at the Metro Division 22 LRT maintenance facility. To assess potential impacts, traffic volumes from the MSF were evaluated. A peak hour trip generation rate was determined from driveway traffic counts at the Metro Division 22 LRT maintenance facility serving the Metro C (Green) Line (at 14724 Aviation Boulevard in Lawndale). Metro Division 22 serves 39 LRVs. The Bellflower MSF would be somewhat larger and is expected to serve 80 LRVs. Therefore, trip generation for the Bellflower MSF was estimated by calculating a proportional factor (80/39) of the number of LRVs served. The resulting factor of 2.05 was applied to the Division 22 traffic count data, including both passenger cars and trucks, to calculate trip generation for the proposed Bellflower MSF. A passenger car equivalency factor of 2.0 was used to convert truck trips into passenger car equivalents.

As summarized in Table 5.14, the projected traffic to and from the Bellflower MSF is 23 vehicle trips in the AM peak hour and 26 vehicle trips in the PM peak hour. LADOT's 2016 *Transportation Impact Study Guidelines* (LADOT 2016) (application guidelines referenced for the traffic analysis) set a threshold for new developments at 43 vehicle trips during the AM/PM peak hours. Because the projected peak hour vehicular trips generated by the proposed MSF are substantially lower than LADOT's thresholds, the effect on traffic would not be adverse.

Table 5.14. Bellflower MSF Peak Hour Trip Generation

Peak Hour	Enter	Exit	Total
AM	10	13	23
PM	15	11	26

Source: Compiled by Jacobs in 2020
Note: MSF = maintenance storage facility

5.2 Transit

This section describes the horizon year 2042 transit operating conditions for the No Build Alternative and each Build Alternative to identify any potential impacts of the Project on transit service. Travel demand forecasts for the horizon year 2042 were developed using Metro's Corridors Base Model. Because transit services (e.g., bus routes and rail lines) are not confined to specific locations, the evaluation in this section is conducted for the Study Area as a whole.

In addition to systemwide metrics, the transit analysis considered the change in boardings on each of the connecting rail and bus lines. The analysis also considered the change in transit travel times with and without the Project.

In general, the Build Alternatives would improve transit service and accessibility because the light rail would operate in exclusive right-of-way and travel times with the LRT would be shorter than existing transit service in the corridor. Reliability would also improve.

5.2.1 No Build Alternative

Section 4.3 provides a detailed description of the affected transit service in the Study Area. These services include Metro Rail (six lines), Metrolink (three lines), Metro Rapid (six routes), Metro Express (two routes), shuttle bus (two routes), local bus (nine routes), municipal operators (seven routes), and local operators.

The No Build Alternative represents transit service in the Study Area in the year 2042 if the Project is not built. The No Build Alternative includes funded transportation improvements specified in the RTP/SCS (SCAG 2016) and the financially constrained element of the LRTP (Metro 2009) except for the Project. The No Build Alternative transit network includes the bus and rail system programmed in Measure M by 2042 without the Project. Transit improvements included in the No Build Alternative are Metro Eastside Transit Corridor Phase 2, Metro Regional Connector, East San Fernando Valley Transit Corridor, and Sepulveda Transit Corridor. Assumptions made may not reflect actual alignment and operating scenarios as planning work advances on future projects. The opening of the Regional Connector would result in a change to Metro rail operations with the creation of a North-South Line (current Metro A [Blue] Line and Metro L [Gold] Line) and an East-West Line (current Metro E [Expo] Line and Metro L [Gold] Line Eastside Extension). Table 5.15 is a summary of the alignment and headway assumptions used for the No Build Alternative for urban rail lines and BRT. Table 5.16 is a similar summary for the major bus lines within the Study Area (over 10,000 daily boardings).

Table 5.15. No Build Alignment and Headway Assumptions for Urban Rail and BRT Lines

Urban Rail Line	Alignment	Weekday Headways		Daily Number of Boardings
		Peak	Off-Peak	
Metro D (Purple) Line	Union Station – VA Hospital	4	10	214,457
Metro B (Red) Line	Union Station – North Hollywood	4	10	122,074
Metro C (Green) Line	Norwalk – Metro E (Expo) Line/Crenshaw	5	10	112,600
	LAX 96th St – Torrance	5	10	
North-South Line (current Metro B [Red] and L [Gold] Lines)	Long Beach – Claremont	10	10	212,478
	Willow St – Azusa	10	-	
East-West Line (current Metro E [Expo] and L [Gold] Lines)	Santa Monica – Lambert	10	10	135,297
	Santa Monica – Peck Rd	10	-	
	Pomona/Atlantic – Peck Rd	-	10	
East San Fernando Valley Line	Sylmar – Metro G (Orange) Line (Van Nuys)	5	10	76,940
Sepulveda Line (HRT)	Metro G (Orange) Line Van Nuys – Metro E (Expo) Line	4	10	118,108
Metro G (Orange) Line BRT	Del Mar – Chatsworth	8	16	89,934
	Del Mar – Canoga	8	16	
Vermont BRT	Sunset Blvd – 120th Street	5	10	65,215

Source: Metro 2019a
Notes: BRT = bus rapid transit; HRT = heavy rail transit; VA = Veterans Administration

Table 5.16. No Build Headway Assumptions for Major Bus Routes within Study Area

Metro Bus Route	Alignment	Weekday Headways		Daily Number of Boardings
		Peak	Off-Peak	
60	Artesia – Downtown Los Angeles	8	12	18,959
18	W 6th Street – Whittier Boulevard	11	16	21,754
18	W 6th Street/Vermont – Montebello	15	20	
40	South Bay Galleria – Downtown Los Angeles	20	15	19,240
40	Hawthorne/111th – Union Station	20	-	
66	Montebello – Wilshire/Western	26	30	10,822
66	Soto – 8th Street/Western	11	-	
66	Olympic/Downey – 8th Street/Western	60	45	
108	Slauson Avenue	16	24	20,179
108	Slauson Avenue (Palawan/Washington)	16	24	

Metro Bus Route	Alignment	Weekday Headways		Daily Number of Boardings
		Peak	Off-Peak	
111	Florence Avenue	20	28	20,435
115	Manchester/Sepulveda	15		20,068
115	Manchester – Firestone	15	28	
115	Manchester/Sepulveda – Norwalk		28	
260	Atlantic – Fair Oaks	45	120	14,472
260	Atlantic – Fair Oaks	20	28	
720	Eastbound Santa Monica – Commerce	18	19	51,218
720	Westbound Commerce – Santa Monica	6	19	
720	Eastbound Westwood – 6th (Central)	18	19	
720	Westbound 6th Central – Westwood	6	19	

Source: Metro 2019a

5.2.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 largely assume the same transit operating conditions as the No Build Alternative but also include the addition of the Project. Off-street bus bays will be provided at select stations in the event that local transit providers decide to serve these stations in the future. Metro and/or the provider will do the necessary public outreach at the time route changes are made. Headways for all rail and bus lines, with the exception of the Project, will be the same under the No Build and Alternative 1. The alignments and headways for Alternative 1 are summarized in Table 5.17. Alternative 1 will operate about 22 hours daily, 7 days per week, from about 4:00 AM to 1:30 AM or 2:00 AM. Because the evaluation of transit conditions is broad, the evaluation in this section is conducted for the Study Area as a whole without specific analyses for the various areas of the Project.

Table 5.17. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 1	Union Station (Forecourt)—Pioneer	5	10

Source: Metro 2019a

5.2.2.1 Regional Transit Performance

The transit analysis considers the following metrics to assess the impact of the Alternative 1 on the regional transit network:

- **Daily linked fixed-guideway trips:** A trip from origin to destination on the Metro Rail or BRT system, or the Metrolink commuter rail system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip.
- **Daily linked bus trips:** A trip from origin to destination on the countywide bus system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the countywide bus system.

- **Daily linked transit trips:** A trip from origin to destination on the countywide transit system (includes bus and rail modes). Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the countywide transit system.
- **Daily linked trips:** A trip from origin to destination utilizing any travel mode. Even if a person uses multiple modes or transfers within (bus to bus) or between modes (car to rail), the trip is counted as one linked trip on the system.
- **Total transit mode share:** The percentage share that transit has in relation to all modes of travel.
- **New transit trips:** The number of daily trips shifted from another mode (e.g., automobile) to transit with the implementation of the Project compared to the No Build Alternative.

Table 5.18 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 1 based on forecasts from Metro's Corridors Base Model for the year 2042. Because the data are presented for the whole of LA County, the opening of the Project has a relatively small impact on overall transit ridership as it only serves a portion of the county.

Table 5.18. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 1
Daily linked fixed-guideway trips	781,687	803,831
Daily linked bus trips	965,231	961,462
Daily linked transit trips	1,746,918	1,765,293
Daily Linked Trips (Total All Modes)	77,653,003	77,653,002
Total transit mode share	2.25%	2.27%
Daily New Transit Trips	N/A	18,375

Source: Metro 2019a

Conditions under the No Build Alternative provide a basis of comparison for transit usage for Alternative 1 because the No Build Alternative includes all planned improvements for the year 2042 except the Project. Under the No Build Alternative, daily transit trips are projected to exceed 1.7 million in the year 2042, which would account for 2.25 percent of the 77.7 million daily trips in the region.

Under Alternative 1, the number of countywide transit trips would increase compared to the No Build Alternative. As shown in Table 5.18, 1.77 million daily transit trips are projected under the alternative. With Alternative 1, 18,000 more new daily transit trips are projected than would occur under the No Build Alternative. The overall transit mode share would increase to 2.27 percent for the alternative. Because Alternatives 1 would increase transit's mode share, the alternative would have a beneficial impact on the transit system.

5.2.2.2 Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.19.

Table 5.19. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	60,839	N/A
North-South	212,478	201,084	-5.4%
East-West	135,297	133,079	-1.6%
Metro D (Purple) Line	214,457	216,629	1.0%
Metro B (Red) Line	122,074	122,277	0.2%
Metro C (Green) Line	112,600	110,620	-1.8%

Source: Metro 2019a
Notes: WSAB = West Santa Ana Branch; N/A = not applicable

Table 5.20 presents the projected bus ridership data by line within the Study Area. The data indicate that the number of bus trips made systemwide would decrease slightly under Alternative 1. Table 5.20 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.20. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	18,614	-1.8%
Metro 62	5,804	5,921	2.0%
251-Long Bch Bl-Av28/Id	8,276	7,906	-4.5%
751-Soto St Nb	2,725	2,587	-5.1%
760-Long Beach Bl. NB	5,691	5,161	-9.3%
460-5th/La-Disney La Sb	6,742	6,369	-5.5%
611-Huntington Pk	899	827	-8.0%
612-Florence Bl-MLK/Atl	526	584	11.0%
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	22,252	2.3%
30-Little Tokyo-Pico-Rim	9,705	9,612	-1.0%
40-So.Bay Gal-LACBD	19,240	19,249	0.0%
66-Montebello-Wil/Westr	10,822	10,792	-0.3%

Route	No Build	Alternative 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
105-Vernon-La Cienega	9,464	9,439	-0.3%
108-Slauson Av (Mesm)	20,179	20,450	1.3%
110-Gage Av	5,656	5,271	-6.8%
111-Florence Av	20,435	20,995	2.7%
115-Manch Sepu-Stonewd	20,068	20,327	1.3%
117-Century Boulevard	9,587	9,044	-5.7%
120-Imperial Hw	4,442	4,418	-0.5%
125-Rosecrans Av	6,507	6,281	-3.5%
127-Comptn Bl-Bellflo	111	104	-6.3%
128-Alondra Bl	1,555	1,258	-19.1%
130-Artesia Blvd	3,580	3,234	-9.7%
254-Wlmg/Imperial-Lac/U	181	182	0.6%
258-Main/Garf-Frstn/Ga	552	532	-3.6%
260-Atlantic-Fair Oaks	14,472	15,276	5.6%
265-Lkwd Mall-Bevly/Dur	263	268	1.9%
266-Lakewood/D Amo-Smv	6,100	5,674	-7.0%
577-L.Beach-El Monte Nb	200	205	2.5%
705-Vernon-La Cienega S	6,075	6,039	-0.6%
720-Eb-Sm-Com	51,218	51,423	0.4%
762-Atlantic SB	1,369	1,328	-3.0%
OCTA			
30-Orangethorpe Ave	2,063	4,099	98.7%
38-La Palma Eb	5,859	5,821	-0.6%
701-Hntngtn Beach-LA N	161	141	-12.4%
721-Fullerton-La Sb	71	57	-19.7%
91-1St/Locst-Alndr/Blfl (E-W)	604	575	-4.8%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,723	-2.6%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,054	-4.8%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,288	-6.8%
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,733	2.7%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,415	3.2%
929-DASH Southeast/Pueb	2,072	2,048	-1.2%

Route	No Build	Alternative 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
929-DASH Southeast	577	457	-20.8%
911-DASH Chesterfield	1,121	865	-22.8%
919-DASH King-East	758	712	-6.1%
South Gate East	82	132	61.0%
South Gate West	35	36	2.9%
Huntington Park Express	89	74	-16.9%
50-Beaudry-Adel/Sgertru	4,189	4,063	-3.0%
30 - Garfield Avenue	506	497	-1.8%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downtown Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.21 provides the number of daily boardings anticipated at each of the project stations under Alternative 1.

Table 5.21. Station Boardings

Station	Alternative 1
Union Station	20,376
Little Tokyo	N/A
Arts/Industrial District (Alternative 1)	2,175
7th Street/Metro Center	N/A
South Park/Fashion District	N/A
Arts/Industrial District (Alternative 2)	N/A
Slauson/A Line	8,438
Pacific/Randolph	3,096
Florence/Salt Lake	4,144
Firestone	4,941
Gardendale	1,272
I-105/C Line	5,797
Paramount/Rosecrans	2,245
Bellflower	2,649
Pioneer	5,706
Total Daily Boardings	**60,839**

Source: Metro 2019a
Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.22 presents the average station mode of access for Alternative 1. For the alternative, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.22. Mode of Access

	Alternative 1
Walk	45%
Bus Transit	27%
Park-and-Ride	21%
Kiss-and-Ride	7%

Source: Metro 2019a

Overall, impacts from Alternative 1 would be beneficial because increased levels of transit service would be provided by a new LRT line. No impacts were identified, so no adverse effects would result.

With the Alternative 1, boardings on the North-South Line (the current Metro B [Red] and L [Gold] Lines with Regional Connector) would decrease as the Project provides parallel north-south service into downtown Los Angeles. By providing parallel service, Alternative 1 may help to alleviate some of the overcrowding currently experienced on the Metro A (Blue) Line. Similarly, boardings on the Metro C (Green) Line would slightly decrease. The impacts of Alternative 1 to boardings on the East-West (current Metro E (Expo) and L (Gold) Lines), and Metro B (Red) and D (Purple) Lines depend on the route selected into downtown Los Angeles. With the alternative, boardings on the East-West Line would increase as passengers would transfer to the line to reach the downtown business core. The Slauson/A Line Station also has a high number of boardings because it would serve as the transfer point to the Metro A (Blue) Line (future North-South Line).

In addition to changing demand for bus service, the Project has the potential to affect bus service at-grade crossings and station areas, where there is the potential for traffic impacts or changes to the street design. Where bus service operates in mixed-flow traffic, impacts to traffic operations have the potential to delay bus service and increase unreliability. Section 5.1.2 identifies traffic operations impacts and Section 8.2 identifies proposed mitigation measures. Most identified traffic impacts would be mitigated. However, impacts to several intersections are expected to remain adverse with mitigation. Locations where traffic impacts would remain adverse with mitigation are identified in Section 8.2. Local bus service schedules would be reviewed and adjusted, if necessary, to reflect modified traffic conditions.

5.2.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The transit operating conditions described in Section 5.2.2 are also applicable to Alternative 2. The alignments and headways for Alternative 2 are summarized in Table 5.23. Alternative 2 is the only Alternative to have 2.5-minute headways proposed during one hour of weekday peak periods for the section between the 7th St/Metro Center Station and the Slauson/A (Blue) Line Station.

Table 5.23. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 2	7th Street/Metro Center—Pioneer	2.5[a] - 5	10

Source: Metro 2019a
Notes: [a] 2.5-minute headways proposed for Alternative 2 during one hour of weekday peak periods for the section between the 7th Street/Metro Center Station and the Slauson/A (Blue) Line Station.

5.2.3.1 Regional Transit Performance

The regional transit performance analysis described in Section 5.2.2 applies to Alternative 2.

Table 5.24 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 2 based on forecasts from Metro's Corridors Base Model for the year 2042.

Table 5.24. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 2
Daily linked fixed-guideway trips	781,687	806,202
Daily linked bus trips	965,231	960,940
Daily linked transit trips	1,746,918	1,767,142
Daily Linked Trips (Total All Modes)	77,653,003	77,653,009
Total transit mode share	2.25%	2.28%
Daily New Transit Trips	N/A	20,224

Source: Metro 2019a
Note: N/A = not applicable

Under Alternative 2, the number of countywide transit trips would increase compared to the No Build Alternative. As shown in Table 5.18, 1.77 million daily transit trips are projected under the alternative. Alternative 2 is projected to result in 20,000 more new daily transit trips than would occur under the No Build Alternative. The overall transit mode share would increase to 2.27 percent for the alternative. Because Alternative 2 would increase transit's mode share, the alternative would have a beneficial impact on the transit system.

5.2.3.2 Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.25.

Table 5.25. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	82,826	N/A
North-South	212,478	194,863	-8.3%
East-West	135,297	134,537	-0.6%
Metro D (Purple) Line	214,457	223,060	4.0%
Metro B (Red) Line	122,074	126,391	3.5%
Metro C (Green) Line	112,600	109,073	-3.1%

Source: Metro 2019a
Notes: N/A = not applicable; WSAB = West Santa Ana Branch

Table 5.26 presents the projected bus ridership data by line within the Study Area. The data indicates that the number of bus trips made systemwide would decrease slightly under Alternative 2. Table 5.26 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.26. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	18,399	-3.0%
Metro 62	5,804	5,838	0.6%
251-Long Bch Bl-Av28/Id	8,276	7,730	-6.6%
751-Soto St Nb	2,725	2,650	-2.8%
760-Long Beach Bl. NB	5,691	5,403	-5.1%
460-5th/La-Disney La Sb	6,742	6,355	-5.7%
611-Huntington Pk	899	813	-9.6%
612-Florence Bl-MLK/Atl	526	600	14.1%
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	21,788	0.2%
30-Little Tokyo-Pico-Rim	9,705	9,728	0.2%
40-So.Bay Gal-LACBD	19,240	19,220	-0.1%
66-Montebello-Wil/Westr	10,822	10,854	0.3%
105-Vernon-La Cienega	9,464	9,413	-0.5%
108-Slauson Av (Mesm)	20,179	20,287	0.5%

Route	No Build	Alternative 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
110-Gage Av	5,656	5,233	-7.5%
111-Florence Av	20,435	21,057	3.0%
115-Manch Sepu-Stonewd	20,068	20,491	2.1%
117-Century Boulevard	9,587	8,995	-6.2%
120-Imperial Hw	4,442	4,444	0.0%
125-Rosecrans Av	6,507	6,233	-4.2%
127-Comptn Bl-Bellflo	111	103	-7.2%
128-Alondra Bl	1,555	1,289	-17.1%
130-Artesia Blvd	3,580	3,193	-10.8%
254-Wlmg/ Imperial-Lac/U	181	180	-0.6%
258-Main/ Garf-Frstn/Ga	552	532	-3.6%
260-Atlantic-Fair Oaks	14,472	15,299	5.7%
265-Lkwd Mall-Bevly/Dur	263	279	6.1%
266-Lakewood/D Amo-Smv	6,100	5,731	-6.0%
577-L.Beach-El Monte Nb	200	204	2.0%
705-Vernon-La Cienega S	6,075	6,036	-0.6%
720-Eb-Sm-Com	51,218	51,553	0.7%
762-Atlantic SB	1,369	1,340	-2.1%
OCTA			
30-Orangethorpe Ave	2,063	4,154	101.4%
38-La Palma Eb	5,859	5,853	-0.1%
701-Hntngtn Beach-LA N	161	135	-16.1%
721-Fullerton-La Sb	71	55	-22.5%
91-1St/Locst-Alndr/Blfl (E-W)	604	576	-4.6%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,720	-2.7%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,075	-2.9%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,283	-6.9%
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,691	2.1%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,418	3.3%
929-DASH Southeast/Pueb	2,072	2,010	-3.0%
929-DASH Southeast	577	431	-25.3%
911-DASH Chesterfield	1,121	837	-25.3%
919-DASH King-East	758	719	-5.1%
South Gate East	82	129	57.3%

Route	No Build	Alternative 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
South Gate West	35	36	2.9%
Huntington Park Express	89	69	-22.5%
50-Beaudry-Adel/Sgertru	4,189	3,969	-5.3%
30 - Garfield Avenue	506	507	0.2%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downtown Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.27 provides the number of daily boardings anticipated at each of the project stations.

Table 5.27. Station Boardings

Station	Alternative 2
Union Station	N/A
Little Tokyo	N/A
Arts/Industrial District (Alternative 1)	N/A
7th Street/Metro Center	30,905
South Park/Fashion District	1,972
Arts/Industrial District (Alternative 2)	2,110
Slauson/A Line	15,135
Pacific/Randolph	3,473
Florence/Salt Lake	4,655
Firestone	5,473
Gardendale	1,371
I-105/C Line	6,414
Paramount/Rosecrans	2,400
Bellflower	2,819
Pioneer	6,099
Total Daily Boardings	**82,826**

Source: Metro 2019a
Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.28 presents the average station mode-of-access breakdown for each line. For Alternative 2, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.28. Mode of Access

	Alternative 2
Walk	47%
Bus Transit	26%
Park-and-Ride	20%
Kiss-and-Ride	8%

Source: Metro 2019a

Overall, impacts from Alternative 2 would be beneficial because increased levels of transit service would be provided by a new LRT line. No impacts were identified, so no adverse effects would result.

With Alternative 2, boardings on the North-South Line (the current Metro B [Red] and L [Gold] Lines with Regional Connector) would decrease because the Project provides parallel north-south service into downtown Los Angeles. By providing parallel service, the alternative may help to alleviate some of the overcrowding currently experienced on the Metro A (Blue) Line. Similarly, boardings on the Metro C (Green) Line would slightly decrease. The impacts of Alternative 2 to boardings on the East-West (current Metro E [Expo] and L [Gold] Lines) and Metro B (Red) and D (Purple) Lines depend on the route selected into downtown Los Angeles. Alternative 2 would provide the greatest decrease in boardings on the North-South Line because it provides the most direct parallel service into the downtown business core. With the alternative, boardings on the Metro B (Red) and D (Purple) Lines would increase slightly, and boardings on the East-West Line would decrease slightly.

With Alternative 2, the 7th Street/Metro Center Station would have the highest number of boardings, followed by the Slauson/A Line Station. The 7th Street/Metro Center Station would provide direct access to the downtown business core and serve as a transfer point to the North-South, East-West, and Metro B (Red) and D (Purple) Lines.

In addition to changing demand for bus service, the Project has the potential to affect bus service at-grade crossings and station areas, where there is the potential for traffic impacts or changes to the street design. Where bus service operates in mixed-flow traffic, impacts to traffic operations have the potential to delay bus service and increase unreliability. Section 5.1.3 identifies traffic operations impacts, and Section 8.2 identifies proposed mitigation measures. Most identified traffic impacts would be mitigated; however, impacts to several intersections are expected to remain adverse with mitigation. Locations where traffic impacts would remain adverse with mitigation are identified in Section 8.2. Local bus service schedules would be reviewed and adjusted, if necessary, to reflect modified traffic conditions.

5.2.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The transit operating conditions described in Section 5.2.2 are also applicable to Alternative 3. The alignments and headways for Alternative 3 are summarized in Table 5.29.

Table 5.29. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 3	Slauson/A (Blue) Line—Pioneer	5	10

Source: Metro 2019a

5.2.4.1 Regional Transit Performance

The regional transit performance analysis described in Section 5.2.2 is also applicable to Alternative 3.

Table 5.30 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 3 based on forecasts from Metro's Corridors Base Model for the year 2042.

Table 5.30. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 3
Daily linked fixed-guideway trips	781,687	793,125
Daily linked bus trips	965,231	962,999
Daily linked transit trips	1,746,918	1,756,124
Daily Linked Trips (Total All Modes)	77,653,003	77,652,994
Total transit mode share	2.25%	2.26%
Daily New Transit Trips	N/A	9,206

Source: Metro 2019a
Note: N/A = not applicable

Under Alternative 3, the number of countywide transit trips would increase compared to the number of trips under the No Build Alternative, but there would be fewer transit trips than under Alternatives 1 and 2. Alternative 3 is projected to result in 1.76 million daily transit trips, 9,200 of which would be new transit trips compared to the No Build Alternative. Alternative 4 is projected to result in 1.75 million daily transit trips, 4,700 of which would be new transit trips compared to the No Build Alternative. Although Alternative 3 would result in half the number of new transit trips compared to the number of trips under Alternatives 1 and 2, the alternative would increase the overall transit mode share compared to the No Build Alternative and would have a beneficial impact on the transit system.

5.2.4.2 Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.31.

Table 5.31. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 3	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	30,964	N/A
North-South	212,478	213,941	0.7%
East-West	135,297	134,129	-0.9%
Metro D (Purple) Line	214,457	215,692	0.6%
Metro B (Red) Line	122,074	122,513	0.4%
Metro C (Green)Line	112,600	111,338	-1.1%

Source: Metro 2019a
Notes: N/A = not applicable; WSAB = West Santa Ana Branch

Table 5.32 presents the projected bus ridership data by line within the Study Area. The data indicates that the number of bus trips made systemwide would decrease slightly under Alternative 3. Table 5.32 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.32. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 3	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	18,870	-0.5%
Metro 62	5,804	5,918	2.0%
251-Long Bch Bl-Av28/Id	8,276	8,000	-3.3%
751-Soto St Nb	2,725	2,730	0.2%
760-Long Beach Bl. NB	5,691	5,630	-1.1%
460-5th/La-Disney La Sb	6,742	6,487	-3.8%
611-Huntington Pk	899	845	-6.0%
612-Florence Bl-MLK/Atl	526	563	7.0%
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	21,816	0.3%
30-Little Tokyo-Pico-Rim	9,705	9,693	-0.1%
40-So.Bay Gal-LACBD	19,240	19,232	0.0%
66-Montebello-Wil/Westr	10,822	10,830	0.1%

Route	No Build	Alternative 3	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
105-Vernon-La Cienega	9,464	9,424	-0.4%
108-Slauson Av (Mesm)	20,179	19,209	-4.8%
110-Gage Av	5,656	5,294	-6.4%
111-Florence Av	20,435	20,562	0.6%
115-Manch Sepu-Stonewd	20,068	20,009	-0.3%
117-Century Boulevard	9,587	9,118	-4.9%
120-Imperial Hw	4,442	4,395	-1.1%
125-Rosecrans Av	6,507	6,270	-3.6%
127-Comptn Bl-Bellflo	111	107	-3.6%
128-Alondra Bl	1,555	1,284	-17.4%
130-Artesia Blvd	3,580	3,282	-8.3%
254-Wlmg/ Imperial-Lac/U	181	200	10.5%
258-Main/ Garf-Frstn/Ga	552	557	0.9%
260-Atlantic-Fair Oaks	14,472	15,167	4.8%
265-Lkwd Mall-Bevly/Dur	263	257	-2.3%
266-Lakewood/D Amo-Smv	6,100	5,753	-5.7%
577-L.Beach-El Monte Nb	200	205	2.5%
705-Vernon-La Cienega S	6,075	6,031	-0.7%
720-Eb-Sm-Com	51,218	51,231	0.0%
762-Atlantic SB	1,369	1,376	0.5%
OCTA			
30-Orangethorpe Ave	2,063	3,615	75.2%
38-La Palma Eb	5,859	5,838	-0.4%
701-Hntngtn Beach-LA N	161	151	-6.2%
721-Fullerton-La Sb	71	61	-14.1%
91-1St/Locst-Alndr/Blfl (E-W)	604	578	-4.3%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,703	-3.3%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,070	-3.3%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,294	-6.7%
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,569	0.5%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,415	3.2%
929-DASH Southeast/Pueb	2,072	2,061	-0.5%

Route	No Build	Alternative 3	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
929-DASH Southeast	577	465	-19.4%
911-DASH Chesterfield	1,121	895	-20.2%
919-DASH King-East	758	733	-3.3%
South Gate East	82	117	42.7%
South Gate West	35	31	-11.4%
Huntington Park Express	89	72	-19.1%
50-Beaudry-Adel/Sgertru	4,189	4,136	-1.3%
30 - Garfield Avenue	506	510	0.8%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downtown Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.33 provides the number of daily boardings anticipated at each of the project stations.

Table 5.33. Station Boardings

Station	Alternative 3
Union Station	N/A
Little Tokyo	N/A
Arts/Industrial District (Alternative 1)	N/A
7th Street/Metro Center	N/A
South Park/Fashion District	N/A
Arts/Industrial District (Alternative 2)	N/A
Slauson/A Line	7,987
Pacific/Randolph	2,153
Florence/Salt Lake	3,132
Firestone	3,834
Gardendale	1,013
I-105/C Line	4,477
Paramount/Rosecrans	1,752
Bellflower	2,187
Pioneer	4,432
Total Daily Boardings	**30,964**

Source: Metro 2019a
Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.34 presents the average station mode-of-access breakdown for each line. For Alternative 3, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.34. Mode of Access

	Alternative 3
Walk	47%
Bus Transit	25%
Park-and-Ride	23%
Kiss-and-Ride	6%

Source: Metro 2019a

Overall, impacts from Alternative 3 would be beneficial because increased levels of transit service would be provided by a new LRT line, although the alternative's benefits would be less than those provided by Alternatives 1 and 2. No impacts were identified, so no adverse effects would result.

Compared to the No Build Alternative, both Alternative 3 would result in a slight increase in boardings on the North-South and Metro D (Purple) and B (Red) Lines. The alternative would result in a decrease in boardings on both the East-West Line and the Metro C (Green) Line. Because Alternative 3 continues north past the Metro C (Green) Line to the North-South Line, passengers would not be forced to transfer at the Metro C (Green) Line as with Alternative 4. Unlike Alternatives 1 and 2, Alternative 3 increase ridership on the North-South Line because passengers would transfer to this line to reach destinations north, including downtown Los Angeles. Therefore, Alternative 3 would not help to alleviate overcrowding on the North-South Line.

As shown in Table 5.32, the number of bus trips made systemwide would decrease slightly under Alternative 3, but not by as much under Alternatives 1 and 2 because the alternative provides less new transit service. Table 5.32 indicates which bus lines within the Study Area would experience changes in boardings under Alternative 3. The changes to boardings would be less than the changes anticipated under Alternatives 1 and 2.

As shown in Table 5.33, total station boardings for Alternative 3 are 31,000 daily, which is less than half of the boardings projected for Alternative 1 and more than a third of the boardings projected for Alternative 2. The station with the highest number of boardings is Slauson/A Line Station, where passengers would transfer to the North-South Line.

The mode-of-access breakdown for Alternative 3 is similar to the mode-of-access distribution for Alternatives 1 and 2. Alternative 3 does not include the proposed stations in the north (those stations would not have parking facilities and are more likely to be accessed via walking or transit).

In addition to changing demand for bus service, the Project has the potential to affect bus service at-grade crossings and station areas, where there is the potential for traffic impacts or changes to the street design. Where bus service operates in mixed-flow traffic, impacts to traffic operations have the potential to delay bus service and increase unreliability. Section 5.1.2 identifies traffic operations impacts and Section 8.2 identifies proposed mitigation measures.

Most identified traffic impacts would be mitigated. However, impacts to several intersections are expected to remain adverse with mitigation. Locations where traffic impacts would remain adverse with mitigation are identified in Section 8.2. Local bus service schedules would be reviewed and adjusted, if necessary, to reflect modified traffic conditions.

5.2.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The transit operating conditions described in Section 5.2.2 are also applicable to Alternative 4. The alignments and headways for Alternative 4 are summarized in Table 5.35.

Table 5.35. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 4	I-105/C (Green) Line—Pioneer	5	10

Source: Metro 2019a

5.2.5.1 Regional Transit Performance

The regional transit performance analysis described in Section 5.2.2 is also applicable to Alternative 4.

Table 5.36 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 4 based on forecasts from Metro's Corridors Base Model for the year 2042.

Table 5.36. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 4
Daily linked fixed-guideway trips	781,687	787,517
Daily linked bus trips	965,231	964,150
Daily linked transit trips	1,746,918	1,751,667
Daily Linked Trips (Total All Modes)	77,653,003	77,653,006
Total transit mode share	2.25%	2.26%
Daily New Transit Trips	N/A	4,749

Source: Metro 2019a
Note: N/A = not applicable

Under Alternative 4, the number of countywide transit trips would increase compared to the number of trips under the No Build Alternative, but there would be fewer transit trips than under Alternatives 1 and 2. Alternative 4 is projected to result in 1.75 million daily transit trips, 4,700 of which would be new transit trips compared to the No Build Alternative. Although Alternative 4 would result in one-quarter of the number of new transit trips compared to the number of trips under the Build Alternatives, the alternative would increase the overall transit mode share compared to the No Build Alternative and would have a beneficial impact on the transit system.

5.2.5.2 Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.37.

Table 5.37. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 4	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	11,119	N/A
North-South	212,478	213,271	0.4%
East-West	135,297	135,320	0.0%
Metro D (Purple) Line	214,457	214,870	0.2%
Metro B (Red) Line	122,074	122,230	0.1%
Metro C (Green) Line	112,600	117,030	3.9%

Source: Metro 2019a
N/A = not applicable; WSAB = West Santa Ana Branch

Table 5.38 presents the projected bus ridership data by line within the Study Area. The data indicates that the number of bus trips made systemwide would decrease slightly under Alternative 4. Table 5.38 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.38. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 4	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	19,071	0.6%
Metro 62	5,804	5,939	2.3%
251-Long Bch Bl-Av28/Id	8,276	8,292	0.2%
751-Soto St Nb	2,725	2,718	-0.3%
760-Long Beach Bl. NB	5,691	5,659	-0.6%
460-5th/La-Disney La Sb	6,742	6,535	-3.1%
611-Huntington Pk	899	900	0.1%
612-Florence Bl-MLK/Atl	526	530	0.8%
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	21,811	0.3%
30-Little Tokyo-Pico-Rim	9,705	9,705	0.0%

Route	No Build	Alternative 4	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
40-So.Bay Gal-LACBD	19,240	19,237	0.0%
66-Montebello-Wil/Westr	10,822	10,822	0.0%
105-Vernon-La Cienega	9,464	9,447	-0.2%
108-Slauson Av (Mesm)	20,179	20,091	-0.4%
110-Gage Av	5,656	5,654	0.0%
111-Florence Av	20,435	20,445	0.0%
115-Manch Sepu-Stonewd	20,068	20,083	0.1%
117-Century Boulevard	9,587	9,596	0.1%
120-Imperial Hw	4,442	4,448	0.1%
125-Rosecrans Av	6,507	6,430	-1.2%
127-Comptn Bl-Bellflo	111	107	-3.6%
128-Alondra Bl	1,555	1,339	-13.9%
130-Artesia Blvd	3,580	3,333	-6.9%
254-Wlmg/ Imperial-Lac/U	181	186	2.8%
258-Main/ Garf-Frstn/Ga	552	556	0.7%
260-Atlantic-Fair Oaks	14,472	14,403	-0.5%
265-Lkwd Mall-Bevly/Dur	263	262	-0.4%
266-Lakewood/D Amo-Smv	6,100	5,922	-2.9%
577-L.Beach-El Monte Nb	200	205	2.5%
705-Vernon-La Cienega S	6,075	6,079	0.1%
720-Eb-Sm-Com	51,218	51,170	-0.1%
762-Atlantic SB	1,369	1,373	0.3%
OCTA			
30-Orangethorpe Ave	2,063	3,302	60.1%
38-La Palma Eb	5,859	5,820	-0.7%
701-Hntngtn Beach-LA N	161	154	-4.3%
721-Fullerton-La Sb	71	59	-16.9%
91-1St/Locst-Alndr/Blfl (E-W)	604	590	-2.3%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,742	-1.9%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,081	-2.3%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,416	-4.5%
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,539	0.1%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,367	1.2%
929-DASH Southeast/Pueb	2,072	2,076	0.2%

Route	No Build	Alternative 4	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
929-DASH Southeast	577	581	0.7%
911-DASH Chesterfield	1,121	1,122	0.1%
919-DASH King-East	758	762	0.5%
South Gate East	82	78	-4.9%
South Gate West	35	36	2.9%
Huntington Park Express	89	90	1.1%
50-Beaudry-Adel/Sgertru	4,189	4,175	-0.3%
30 - Garfield Avenue	506	499	-1.4%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downtown Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.39 provides the number of daily boardings anticipated at each of the project stations.

Table 5.39. Station Boardings

Station	Alternative 4
Union Station	N/A
Little Tokyo	N/A
Arts/Industrial District (Alternative 1)	N/A
7th Street/Metro Center	N/A
South Park/Fashion District	N/A
Arts/Industrial District (Alternative 2)	N/A
Slauson/A Line	N/A
Pacific/Randolph	N/A
Florence/Salt Lake	N/A
Firestone	N/A
Gardendale	N/A
I-105/C Line	4,529
Paramount/Rosecrans	1,412
Bellflower	1,792
Pioneer	3,388
Total Daily Boardings	**11,119**

Source: Metro 2019a
Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.40 presents the average station mode-of-access breakdown for each line. For Alternative 4, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.40. Mode of Access

	Alternative 4
Walk	44%
Bus Transit	12%
Park-and-Ride	37%
Kiss-and-Ride	8%

Source: Metro 2019a

Overall, impacts from Alternative 4 would be beneficial because increased levels of transit service would be provided by a new LRT line, although the alternative's benefits would be less than those provided by Alternatives 1 and 2. No impacts were identified, so no adverse effects would result.

Compared to the No Build Alternative, Alternative 4 would result in a slight increase in boardings on the North-South and Metro D (Purple) and B (Red) Lines. Unlike Alternatives 1 and 2, Alternative 4 would increase ridership on the North-South Line because passengers would transfer to this line to reach destinations north, including downtown Los Angeles. Therefore, Alternative 4 would not help to alleviate overcrowding on the North-South Line.

As shown in Table 5.38, the number of bus trips made systemwide would decrease slightly under Alternative 4, but not by as much as it would under Alternatives 1 and 2 because the Alternative 4 provides less new transit service. Table 5.38 indicates which bus lines within the Study Area would experience changes in boardings under Alternative 4. The changes to boardings under Alternative 4 would be less than the changes anticipated under Alternatives 1 and 2.

As shown in Table 5.39, total station boardings for Alternative 4 are 11,100 daily, which is less than one-sixth of the boardings projected for Alternative 1 and one-eighth of the boardings projected for Alternative 2. The stations with the highest boardings for Alternative 4 are the two terminus stations: C Line/I-105 on the north and Pioneer on the south.

The mode-of-access breakdown for Alternative 4 is similar to the mode-of-access distribution for Alternatives 1 and 2. However, the park-and-ride access makes up 37 percent of access trips for Alternative 4, which is higher than for the other Build Alternatives. This higher percentage of access trips occurs because all the proposed stations along Alternative 4 would have parking facilities. As a result, the proportion of bus access is lower and park-and-ride access is higher under Alternative 4 than under Alternatives 1 and 2.

In addition to changing demand for bus service, the Project has the potential to affect bus service at-grade crossings and station areas, where there is the potential for traffic impacts or changes to the street design. Where bus service operates in mixed-flow traffic, impacts to traffic operations have the potential to delay bus service and increase unreliability. Section 5.1.2 identifies traffic operations impacts and Section 8.2 identifies proposed mitigation measures. Most identified traffic impacts would be mitigated; however, impacts to several intersections are expected to remain adverse with mitigation. Locations where traffic impacts would remain adverse with mitigation are identified in Section 8.2. Local bus service schedules would be reviewed and adjusted, if necessary, to reflect the demand.

5.2.6 Design Options

5.2.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The transit operating conditions described in Section 5.2.2 are also applicable to Alternative 1 with Design Option 1. The alignments and headways for Alternative 1 with Design Option 1 are summarized in Table 5.41.

Table 5.41. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 1 with Design Option 1	Union Station (MWD)—Pioneer	5	10

Source: Metro 2019a
Note: MWD = Metropolitan Water District

Regional Transit Performance

The regional transit performance analysis described in Section 5.2.2 is also applicable to Alternative 1 with Design Option 1.

Table 5.42 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 1 with Design Option 1, based on forecasts from Metro's Corridors Base Model for the year 2042.

Table 5.42. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 1 with Design Option 1
Daily linked fixed-guideway trips	781,687	804,748
Daily linked bus trips	965,231	961,459
Daily linked transit trips	1,746,918	1,766,207
Daily Linked Trips (Total All Modes)	77,653,003	77,653,002
Total transit mode share	2.25%	2.27%
Daily New Transit Trips	N/A	19,289

Source: Metro 2019a
Note: N/A = not applicable

Under Alternative 1, if the Union Station entrance is located near the MWD Building (Design Option 1), the number of new transit trips is expected to be 900 more than at the forecourt location, with 19,200 new daily transit trips. The total transit mode share would remain the same as the mode share under Alternative 1, at 2.27 percent. Design Option 1 may increase transit usage more than Alternative 1 because the transfer at Union Station between the Project and the Metro B (Red) and D (Purple) Lines would be shorter than under the LAUS Forecourt Station. Because Design Option 1 would still increase the overall transit mode share, it would have a beneficial impact on the transit system.

Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.43.

Table 5.43. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 1 with Design Option 1 (Union Station at MWD)	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	65,158	N/A
North-South	212,478	205,888	-3.1%
East-West	135,297	137,181	1.4%
Metro D (Purple) Line	214,457	213,679	-0.4%
Metro B (Red) Line	122,074	119,621	-2.0%
Metro C (Green) Line	112,600	110,803	-1.6%

Source: Metro 2019a
Note: N/A = not applicable

Table 5.44 presents the projected bus ridership data by line within the Study Area. The data in Table 5.42 indicate that the number of bus trips made systemwide would decrease slightly under Alternative 1 with Design Option 1. Table 5.44 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.44. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 1 with Design Option 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	18,648	-1.6%
Metro 62	5,804	5,874	1.2%
251-Long Bch Bl-Av28/Id	8,276	7,726	-6.6%
751-Soto St Nb	2,725	2,584	-5.2%
760-Long Beach Bl. NB	5,691	5,142	-9.6%
460-5th/La-Disney La Sb	6,742	6,372	-5.5%
611-Huntington Pk	899	821	-8.7%
612-Florence Bl-MLK/Atl	526	599	13.9%

Route	No Build	Alternative 1 with Design Option 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	21,952	0.9%
30-Little Tokyo-Pico-Rim	9,705	9,735	0.3%
40-So.Bay Gal-LACBD	19,240	19,251	0.1%
66-Montebello-Wil/Westr	10,822	10,789	-0.3%
105-Vernon-La Cienega	9,464	9,450	-0.1%
108-Slauson Av (Mesm)	20,179	20,726	2.7%
110-Gage Av	5,656	5,235	-7.4%
111-Florence Av	20,435	21,072	3.1%
115-Manch Sepu-Stonewd	20,068	20,416	1.7%
117-Century Boulevard	9,587	9,025	-5.9%
120-Imperial Hw	4,442	4,465	0.5%
125-Rosecrans Av	6,507	6,249	-4.0%
127-Comptn Bl-Bellflo	111	101	-9.0%
128-Alondra Bl	1,555	1,307	-15.9%
130-Artesia Blvd	3,580	3,239	-9.5%
254-Wlmg/ Imperial-Lac/U	181	185	2.2%
258-Main/ Garf-Frstn/Ga	552	521	-5.6%
260-Atlantic-Fair Oaks	14,472	15,106	4.4%
265-Lkwd Mall-Bevly/Dur	263	286	8.7%
266-Lakewood/D Amo-Smv	6,100	5,607	-8.1%
577-L.Beach-El Monte Nb	200	199	-0.5%
705-Vernon-La Cienega S	6,075	6,047	-0.5%
720-Eb-Sm-Com	51,218	51,355	0.3%
762-Atlantic SB	1,369	1,307	-4.5%
OCTA			
30-Orangethorpe Ave	2,063	4,158	101.6%
38-La Palma Eb	5,859	5,846	-0.2%
701-Hntngtn Beach-LA N	161	139	-13.7%
721-Fullerton-La Sb	71	56	-21.1%
91-1St/Locst-Alndr/Blfl (E-W)	604	575	-4.8%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,724	-2.5%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,060	-4.2%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,291	-6.7%

Route	No Build	Alternative 1 with Design Option 1	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,774	3.2%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,431	3.9%
929-DASH Southeast/Pueb	2,072	2,020	-2.5%
929-DASH Southeast	577	442	-23.4%
911-DASH Chesterfield	1,121	854	-23.8%
919-DASH King-East	758	711	-6.2%
South Gate East	82	126	53.7%
South Gate West	35	36	2.9%
Huntington Park Express	89	73	-18.0%
50-Beaudry-Adel/Sgertru	4,189	3,974	-5.1%
30 - Garfield Avenue	506	510	0.8%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downton Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.45 provides the number of daily boardings anticipated at each of the project stations.

Table 5.45. Station Boardings

Station	Alternative 1 with Design Option 1
Union Station	20,632
Little Tokyo	N/A
Arts/Industrial District (Alternative 1)	2,238
7th Street/Metro Center	N/A
South Park/Fashion District	N/A
Arts/Industrial District (Alternative 2)	N/A
Slauson/A Line	11,087
Pacific/Randolph	3,356
Florence/Salt Lake	4,412
Firestone	5,196
Gardendale	1,325
I-105/C Line	5,981
Paramount/Rosecrans	2,320
Bellflower	2,714
Pioneer	5,897
Total Daily Boardings	**65,158**

Source: Metro 2019a
Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.46 presents the average station mode-of-access breakdown for each line. With Design Option 1, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.46. Mode of Access

	Alternative 1 with Design Option 1
Walk	45%
Bus Transit	29%
Park-and-Ride	20%
Kiss-and-Ride	7%

Source: Metro 2019a

Under Design Option 1, the effect of the Project on Metro rail lines and bus lines within the Study Area is similar to effects under Alternative 1. Similarly, if the Union Station entrance is shifted to the MWD Building instead of the forecourt, the number of boardings at Union Station are similar because under both scenarios there isn't a Little Tokyo Station. The effect of Design Option 1 on bus lines within the Study Area would be similar to effects under Alternative 1. Design Option 1 would be underground, so it would not introduce any new traffic impacts that were not already identified under Alternative 1 and, therefore, would not have any additional impacts to bus operations in mixed-flow traffic. Mode of access would be similar to Alternative 1 under Design Option 1. Overall, impacts from Design Option 1 would be beneficial because increased levels of transit service would be provided by a new LRT line.

In addition to changing demand for bus service, the Project has the potential to affect bus service at-grade crossings and station areas, where there is the potential for traffic impacts or changes to the street design. Where bus service operates in mixed-flow traffic, impacts to traffic operations have the potential to delay bus service and increase unreliability. Section 5.1.2 identifies traffic operations impacts and Section 8.2 identifies proposed mitigation measures. Most identified traffic impacts would be mitigated; however, impacts to several intersections are expected to remain adverse with mitigation. Locations where traffic impacts would remain adverse with mitigation are identified in Section 8.2. Local bus service schedules would be reviewed and adjusted, if necessary, to reflect the demand.

5.2.6.2 Design Option 2: Add Little Tokyo Station

The transit operating conditions described in Section 5.2.2 are also applicable to Alternative 1 with Design Option 2. The alignments and headways for Alternative 1 with Design Option 2 are summarized in Table 5.47.

Table 5.47. Proposed Build Alternative Headways by Time Period

Alternative	Alignment	Weekday Headways	
		Peak	Off-Peak
Alternative 1 with Design Option 2	Union Station (Forecourt)—Pioneer	5	10

Source: Metro 2019a

Regional Transit Performance

The regional transit performance analysis described in Section 5.2.2 is also applicable to Alternative 1 with Design Option 1.

Table 5.48 is a summary of the projected number of countywide trips for the No Build Alternative and Alternative 1 with Design Option 1 based on forecasts from Metro's Corridors Base Model for the year 2042.

Table 5.48. Regional Transit Performance Metrics – Los Angeles County

	No Build	Alternative 1 with Design Option 2
Daily linked fixed-guideway trips	781,687	801,951
Daily linked bus trips	965,231	961,974
Daily linked transit trips	1,746,918	1,763,925
Daily Linked Trips (Total All Modes)	77,653,003	77,653,008
Total transit mode share	2.25%	2.27%
Daily New Transit Trips	N/A	17,007

Source: Metro 2019a
Note: N/A = not applicable

If the Little Tokyo Station is included in Alternative 1 (Design Option 2), the number of new transit trips is expected to increase by 1,400 daily trips to 17,000 new daily transit trips. The overall transit mode share would still increase to 2.27 percent. Because Design Option 2 would still increase the overall transit mode share, it would have a beneficial impact on the transit system.

Metro Rail and Bus Service Performance

The projected number of daily boardings on each of the Metro rail lines that serve the WSAB Transit Corridor Study Area is presented in Table 5.49.

Table 5.49. Project Boardings and Metro Rail Daily Boardings by Line (within Study Area)

Line	No Build	Alternative 1 with Design Option 2 (with Little Tokyo)	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
WSAB	N/A	68,785	N/A
North-South	212,478	209,668	-1.3%
East-West	135,297	142,759	5.5%
Metro D (Purple) Line	214,457	214,182	-0.1%
Metro B (Red) Line	122,074	119,937	-1.7%
Metro C (Green) Line	112,600	110,479	-1.9%

Source: Metro 2019a
Notes: N/A = not applicable; WSAB = West Santa Ana Branch

Table 5.50 presents the projected bus ridership data by line within the Study Area. The data indicates that the number of bus trips made systemwide would decrease slightly under Alternative 1 with Design Option 2. Table 5.50 indicates which lines within the Study Area would experience the greatest decrease. Most of the lines that run parallel to the Project would experience a slight decrease in boardings because the Project would provide faster and more reliable service. However, many of the routes that cross the corridor may experience a slight increase in boardings as passengers use these routes to access stations along the Project.

Table 5.50. Bus Boardings by Line (within Study Area)

Route	No Build	Alternative 1 with Design Option 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
Bus Lines along Corridor			
Metro 60	18,959	18,680	-1.5%
Metro 62	5,804	5,864	1.0%
251-Long Bch Bl-Av28/Id	8,276	7,782	-6.0%
751-Soto St Nb	2,725	2,579	-5.4%
760-Long Beach Bl. NB	5,691	5,145	-9.6%
460-5th/La-Disney La Sb	6,742	6,388	-5.3%
611-Huntington Pk	899	819	-8.9%
612-Florence Bl-MLK/Atl	526	588	11.8%
Bus Lines across Corridor			
18-W 6th St-Whittier Bl	21,754	21,867	0.5%
30-Little Tokyo-Pico-Rim	9,705	9,684	-0.2%
40-So.Bay Gal-LACBD	19,240	19,268	0.1%
66-Montebello-Wil/Westr	10,822	10,787	-0.3%
105-Vernon-La Cienega	9,464	9,452	-0.1%
108-Slauson Av (Mesm)	20,179	20,525	1.7%
110-Gage Av	5,656	5,250	-7.2%
111-Florence Av	20,435	20,982	2.7%
115-Manch Sepu-Stonewd	20,068	20,413	1.7%
117-Century Boulevard	9,587	9,033	-5.8%
120-Imperial Hw	4,442	4,432	-0.2%
125-Rosecrans Av	6,507	6,271	-3.6%
127-Comptn Bl-Bellflo	111	100	-9.9%
128-Alondra Bl	1,555	1,288	-17.2%
130-Artesia Blvd	3,580	3,246	-9.3%

Route	No Build	Alternative 1 with Design Option 2	
	Number of Daily Boardings	Number of Daily Boardings	Change from No Build
254-Wlmg/ Imperial-Lac/U	181	186	2.8%
258-Main/ Garf-Frstn/Ga	552	528	-4.3%
260-Atlantic-Fair Oaks	14,472	15,131	4.6%
265-Lkwd Mall-Bevly/Dur	263	281	6.8%
266-Lakewood/D Amo-Smv	6,100	5,625	-7.8%
577-L.Beach-El Monte Nb	200	201	0.5%
705-Vernon-La Cienega S	6,075	6,049	-0.4%
720-Eb-Sm-Com	51,218	51,411	0.4%
762-Atlantic SB	1,369	1,320	-3.6%
OCTA			
30-Orangethorpe Ave	2,063	4,081	97.8%
38-La Palma Eb	5,859	5,834	-0.4%
701-Hntngtn Beach-LA N	161	138	-14.3%
721-Fullerton-La Sb	71	55	-22.5%
91-1St/Locst-Alndr/Blfl (E-W)	604	575	-4.8%
92-1St/Locus-Wdrf/Alndr (E-W)	2,795	2,718	-2.8%
93-1St/Locst-Alndr/Blfl (E-W)	1,107	1,073	-3.1%
172-1St/Lcst-Nrwlk Gl (E-W)	5,673	5,272	-7.1%
173-1St/Lcst-Nwlk Glsta (E-W)	7,530	7,751	2.9%
192-Trnst Ml-South/Grdl (E-W)	2,340	2,424	3.6%
929-DASH Southeast/Pueb	2,072	2,021	-2.5%
929-DASH Southeast	577	446	-22.7%
911-DASH Chesterfield	1,121	861	-23.2%
919-DASH King-East	758	712	-6.1%
South Gate East	82	131	59.8%
South Gate West	35	37	5.7%
Huntington Park Express	89	68	-23.6%
50-Beaudry-Adel/Sgertru	4,189	3,976	-5.1%
30 - Garfield Avenue	506	504	-0.4%

Source: Metro 2019a
Notes: The red-shaded cells with red text indicate a decrease in boardings under the Build condition compared to No Build.
DASH = Downtown Area Short Hop; OCTA = Orange County Transportation Authority

Table 5.51 provides the number of daily boardings anticipated at each of the project stations.

Table 5.51. Station Boardings

Station	Alternative 1 with Design Option 2
Union Station	9,610
Little Tokyo	16,002
Arts/Industrial District (Alternative 1)	2,119
7th Street/Metro Center	N/A
South Park/Fashion District	N/A
Arts/Industrial District (Alternative 2)	N/A
Slauson/A Line	10,406
Pacific/Randolph	3,279
Florence/Salt Lake	4,314
Firestone	5,084
Gardendale	1,303
I-105/C Line	5,893
Paramount/Rosecrans	2,285
Bellflower	2,677
Pioneer	5,814
Total Daily Boardings	**68,786**

Source: Metro 2019a; Notes: N/A = not applicable; I- = Interstate

Mode-of-access data demonstrate the way in which passengers access the project stations, such as via transit, walking, driving and parking, or dropping off (kiss-and-ride). Table 5.52 presents the average station mode-of-access breakdown for each line. With Design Option 2, walking would comprise the highest mode share for station access followed by bus transit, park-and-ride, and kiss-and-ride.

Table 5.52. Mode of Access

	Alternative 1 with Design Option 2
Walk	45%
Bus Transit	28%
Park-and-Ride	20%
Kiss-and-Ride	7%

Source: Metro 2019a

If the Little Tokyo Station is constructed, boardings on the East-West Line would increase, and boardings on the Metro B (Red) and D (Purple) Lines would decrease because passengers would have to transfer at Little Tokyo instead of Union Station to the Metro B or D (Purple) Line to reach the downtown business core. The Little Tokyo Station would provide an earlier transfer point than having to travel to Union Station, reducing overall travel time to destination points in the central business district. As a result, project boardings at Union Station would decrease with the addition of Little Tokyo Station compared to Alternative 1. The effect of Design Option 2 on bus lines within the Study Area would be similar to effects under Alternative 1. Mode of access would be similar to Alternative 1 under Design Option 2. Overall, impacts from Design Option 2 would be beneficial because increased levels of transit service would be provided by a new LRT line.

5.2.7 Maintenance and Storage Facility

5.2.7.1 Paramount MSF Site Option

Regional Transit Performance

The Paramount MSF site option would not affect regional transit performance.

Metro Rail and Bus Service Performance

The Paramount MSF site option would not affect Metro rail and bus transit services because it would not relocate transit stops or routes. Therefore, no impacts related to transit services are anticipated, and no resulting adverse effects would occur.

5.2.7.2 Bellflower MSF Site Option

Regional Transit Performance

The Bellflower MSF site option would not affect regional transit performance.

Metro Rail and Bus Service Performance

The Bellflower MSF site option would not affect Metro rail and bus transit services because it would not relocate transit stops or routes. Therefore, no impacts related to transit services are anticipated, and no resulting adverse effects would occur.

5.3 Active Transportation

5.3.1 No Build Alternative

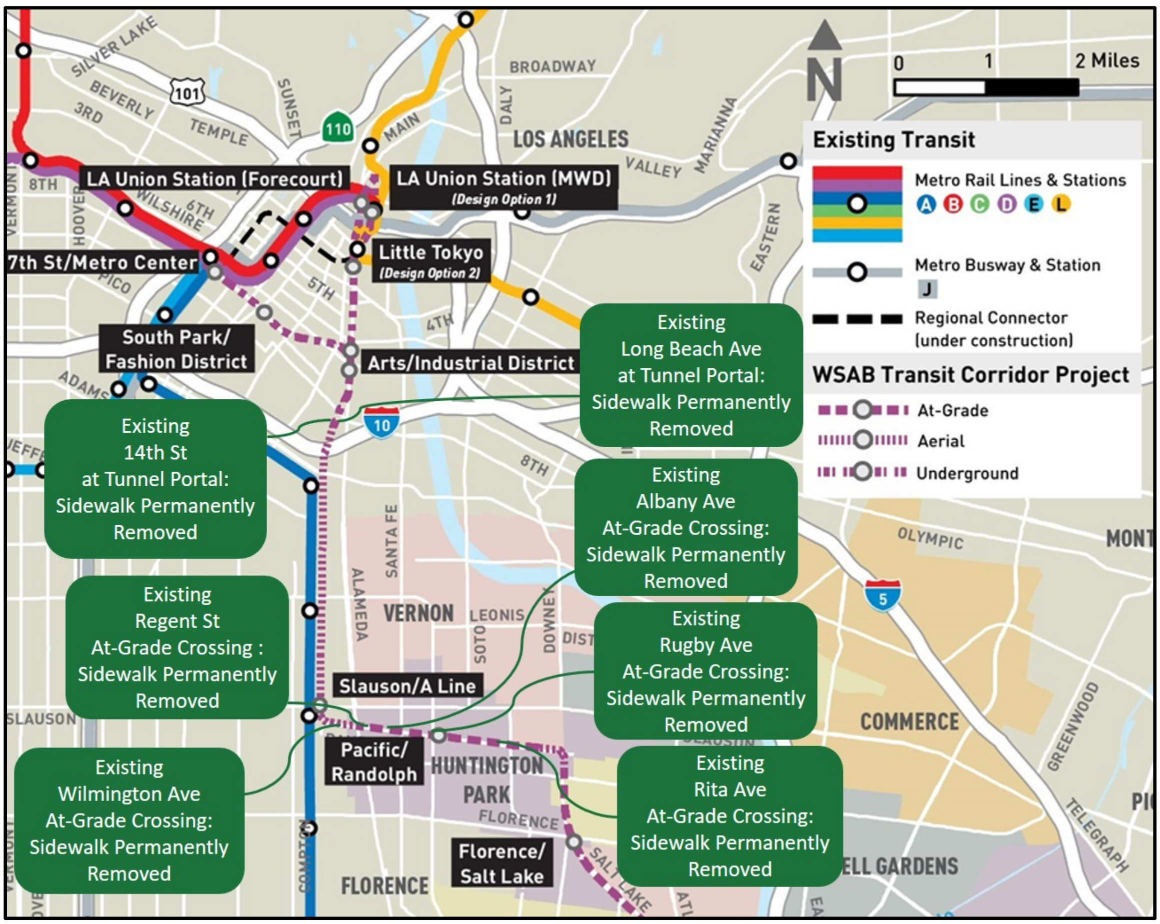
The No Build Alternative, as defined in Section 2 reflects the transportation system in 2042 and includes the existing network along with planned and committed improvements identified in the LRTP (Metro 2009) and the RTP/SCS (SCAG 2016) as well as additional projects funded by Measure M. These committed and planned projects may include potential impacts to and/or incorporation of active transportation elements to stand-alone or integrated projects (see Table 2.1). However, these projects and their potential impacts to active transportation elements would be subject to their own independent environmental review and approval process, which would identify and address potential impacts.

5.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

In general, impacts to active transportation (pedestrians and bicyclists) facilities would occur if Alternative 1 would remove or degrade a bike facility or sidewalk. In addition, beneficial impacts can occur where new facilities are added, or existing facilities are upgraded. The potential for pedestrian and bicycle impacts are evaluated in the areas adjacent to stations and along the alignment. Because the evaluation of active transportation is broad, the evaluation in this section is conducted for the Study Area as a whole without specific analyses for the various areas along the alignment of Alternative 1.

The bicycle and pedestrian system with Alternative 1 would generally be the same as with the No Build Alternative. Where features associated with Alternative 1 would encroach on existing bicycle facilities or sidewalks, these facilities would be realigned or reconstructed, so the potential for permanent impacts would be avoided. Figure 5-1 and Figure 5-2 show the locations where the Alternative 1 would remove or relocate existing pedestrian and bicycle facilities. These impacts are summarized as follows.

Figure 5-1. Active Transportation Facilities Removed or Relocated by the Project – Los Angeles to Huntington Park



Source: Metro 2020t

Figure 5-2. Active Transportation Facilities Removed or Relocated by the Project – Huntington Park to Artesia

Source: Metro 2020t

Alternative 1 would require closure of several existing at-grade crossings as well as a street closure to accommodate the tunnel portal. In these locations, the sidewalks would also be removed as they would no longer be required. Five of the at-grade crossing closures would occur along Randolph Street at Wilmington Avenue, Regent Street, Albany Avenue, Rugby Avenue, and Rita Avenue. The other at grade crossing closure would occur at 187th Street in Artesia. The street closure to accommodate the tunnel portal would occur along Long Beach Avenue between Olympic Boulevard and 14th Street. A portion of 14th Street just west of Long Beach Avenue would be closed as well.

Alternative 1 would be adjacent to the Paramount Bike Trail and Bellflower Bike Trail, located parallel along and partially within the PEROW in the Cities of Paramount and Bellflower. The Paramount Bike Trail is located south and adjacent to the rail ROW. Currently, the Paramount Bike Trail is between Somerset Boulevard and Lakewood

Boulevard, ultimately planned to extend from the Los Angeles River Bike Trail and connecting to the Bellflower Bike Trail at Lakewood Boulevard. The Bellflower Bike Trail is located within the existing PEROW between Lakewood Boulevard and Ruth R. Caruthers Park and connects to the San Gabriel River Bike Trail.

Operation of Alternative 1 within segments of the PEROW extending south from the intersection of Rosecrans Avenue and Paramount Boulevard to Lakewood Boulevard may not have sufficient room to accommodate the project alignment, which may require a realignment of the Paramount Bike Trail. Specifically, the Paramount Bike Trail segment between Somerset Boulevard and Lakewood Boulevard is located within the PEROW. Alternative 1 would install tracks along the southwest side of the PEROW along this segment. To accommodate the track alignment, Alternative 1 would require the removal of an approximately 930-foot-long segment of the existing Paramount Bike Trail between Somerset Boulevard and Lakewood Boulevard. As part of Mitigation Measure LU-1 (Consistency with Bike Plans), described in the *West Santa Ana Branch Transit Corridor Project Final Land Use Impact Analysis Report (Metro 2021b),* this segment of the existing bike trail would be realigned to the north side of the PEROW.

The relocation of this segment of the Paramount Bike Trail would require users of the bike trail to cross the railroad tracks at Lakewood Boulevard to access the bike trail across the street. Although segments of the Paramount Bike Trail would be realigned, the bike trail would remain operational. The existing segment east of Lakewood Boulevard would remain.

Under Alternative 1, the Bellflower Station platform and tracks would conflict with an approximately 350-foot-long segment of the existing Bellflower Bike Trail east of Bellflower Boulevard. As part of Mitigation Measure LU-1 (Consistency with Bike Plans), this segment of the existing bike trail would be realigned to the south side of the PEROW. The existing segment west of Bellflower Boulevard would remain.

Overall, although segments of the Paramount Bike Trail and Bellflower Bike Trail would be realigned with implementation of Mitigation Measure LU-1 (Consistency with Bike Plans), the bike trails would remain operational within the PEROW and the function of the bike trail would be maintained. Therefore, continuity with other segments of the Paramount Bike Trail and Bellflower Bike Trail would be maintained and with mitigation, there would not be adverse effects to these facilities.

The Alternative 1 alignment has been developed in consideration of the planned bike trail extension north of Somerset Boulevard to Paramount Park as identified in the *Bellflower-Paramount Active Transportation Plan* (City of Bellflower and City of Paramount 2019).

Alternative 1 includes a wide range of features to enhance active transportation facilities for the benefit of users, as detailed in Section 5.1.2 of the *West Santa Ana Branch Transit Corridor Project Final Safety and Security Impact Analysis Report* (Metro 2021c). These enhancements include physical improvements (e.g., barriers and gates), channelization and signing, illumination and other design improvements that would enhance user experience and security.

Where new pedestrian trips would occur between stations and parking areas, pedestrian facilities would be enhanced with improved signing and lighting as part of Alternative 1. Additional sidewalks and bicycle facilities implemented as part of Alternative 1 would result in a beneficial impact, both for active transportation users accessing the stations and for the broader community. Additional detail regarding design improvements are provided in Sections 5.1.2.2 and 5.2.2.2 of the Final Safety and Security Impact Analysis Report (Metro 2021c).

Based on this evaluation, Alternative 1 would result in adverse effects related to the Paramount and Bellflower Bike Trails. With implementation of Mitigation Measure LU-1 (Consistency with Bike Plans), these existing active transportation facilities would be realigned to maintain continuity. Therefore, there would not be adverse effects to these facilities with mitigation.

5.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 5.3.2 is also applicable to Alternative 2.

5.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 5.3.2 is also applicable to Alternative 3.

5.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 5.3.2 is also applicable to Alternative 4.

5.3.6 Design Option

5.3.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 5.3.2 is also applicable to Design Option 1.

5.3.6.2 Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 5.3.2 is also applicable to Design Option 2.

5.3.7 Maintenance and Storage Facility

5.3.7.1 Paramount MSF Site Option

The Paramount MSF site option would not affect active transportation facilities because it would not result in the closure of sidewalks or bicycle facilities. Therefore, no impacts related to active transportation are anticipated and no resulting adverse effects would occur.

5.3.7.2 Bellflower MSF Site Option

The Bellflower MSF site option would not affect active transportation facilities because it would not result in the closure of sidewalks or bicycle facilities. Therefore, no impacts related to active transportation are anticipated, and no resulting adverse effects would occur.

5.4 Parking

Effects to Parking were assessed considering how the Build Alternatives would affect on- and off street parking supplies, and whether the demand for transit parking would exceed the available parking supply, resulting in spillover. The evaluation considered parking availability from field observation, the expected demand for park-and-ride trips at each station, and the addition (through a new dedicated transit park-and-ride lot) or reduction (parking permanently removed to accommodate a Build Alternative) of parking spaces.

5.4.1 No Build Alternative

The No Build Alternative (Section 2.2 and Table 2.1) reflects the transportation network in 2042 and includes the existing network along with planned improvements committed to and identified in the LRTP (Metro 2009) and the RTP/SCS (SCAG 2016) as well as additional projects funded by Measure M These committed and planned projects may include potential impacts to parking through removal, modification, or reductions to existing parking resources. However, these projects and their potential parking impacts would be subject to their own independent and required environmental approval process, which would identify and address potential impacts.

5.4.2 Alternative 1: Los Angeles Union Station to Pioneer Station

The following sections summarize the permanent physical loss of on- and off-street parking that would occur with implementation of Alternative 1. Additionally, spillover parking impacts associated with the demand for transit parking is also evaluated. As summarized in Table 5.53 and Table 5.54, Alternative 1 would result in the permanent loss of approximately 136 on-street and 133 off-street parking spaces. Alternative 1 would add 2,779 parking spaces at five of the proposed new transit stations.

On- and Off-Street Parking Impacts

The results of the on-street parking impact analysis are summarized in Table 5.53. As shown, under Alternative 1, on-street parking would remain unchanged along the majority of the proposed project alignment. On-street parking would be removed at four locations (two in the City of Los Angeles, one in Huntington Park, and one in South Gate). Implementation of Alternative 1 would require the removal of all on-street parking spaces at two of the four locations (one in the City of Los Angeles and one in South Gate), which could result in an adverse effect. The loss of parking at these locations is described further in the text that follows.

Alternative 1 would remove all 20 on-street parking spaces along Long Beach Avenue, between Olympic Street and 14th Street in the City of Los Angeles, as the Alternative 1 alignment transitions from underground to aerial. As shown in Table 5.53, these spaces were 90 percent utilized (i.e., 18 spaces were occupied at the time of the survey). The land uses adjacent to the street closure are light industrial and warehouse with off-street parking. While the loss of the 20 on-street parking spaces would not affect the function of the adjacent land uses, changes in the location and availability of parking could result in local concern because the destination of those utilizing on-street parking is unknown. A potential consequence of this change in parking is increased traffic circulation on streets near the lost parking as existing drivers utilizing those spaces search for new places to park. This could cause an increase in localized traffic and delay along roadways and at intersections, including a corresponding increase in idling and vehicular emissions, and could result in an adverse effect. Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]), described in Section 8.2.1, are proposed to reduce these impacts. Nevertheless, because parking demand, the subsequent strategies that may be utilized, and the community response are unknown, it is possible that adverse effects would remain after mitigation.

Alternative 1 would remove all 12 on-street parking spaces at the Main Street grade crossing location in the City of South Gate. As shown in Table 5.53, these spaces were 20 percent utilized (i.e., 2 spaces were occupied at the time of the survey). The land uses for the properties adjacent to this location include light industrial, warehouse, and a church. The properties to the northeast, southeast, and southwest of the Main Street grade crossing have off-street parking lots that would not be affected by Alternative 1. Additionally, on-street parking is available on adjacent streets to accommodate parking demand, and any circulation on local roads to find parking would be minimal. Therefore, because the loss of the on-street parking spaces on Main Street would not affect the function of the properties and drivers utilizing these spaces would be able to find available on-street parking with minimal circulation, Alternative 1 would not result in an adverse effect.

Table 5.53. On-Street Parking Impacts

Location	Jurisdiction	Existing On-Street Parking Spaces	Observed Field Utilization[a]	Parking Spaces Added/ Removed[b]	Alternative(s) Affected	Description of Effect
Los Angeles Union Station	Los Angeles	47	90%	0	1	No change.
Little Tokyo Station	Los Angeles	1,803	90%	0	1	No change.
Arts/Industrial District Station	Los Angeles	980	90%	0	1, 2	No change.
South Park/Fashion District	Los Angeles	888	70%	0	2	No change.
7th Street/Metro Center Station	Los Angeles	465	90%	0	2	No change.
Long Beach Avenue between Olympic Street and 14th Street (between Arts/Industrial District and Slauson/A Line Stations)	Los Angeles	20	90%	-20	1, 2	LRT track would displace all of the on-street parking along this segment.
Long Beach Avenue between Vernon Avenue and 24th Street (between Arts/Industrial District and Slauson/A Line Stations)	Los Angeles	109	20%	-25	1, 2	LRT track would remove approximately 23% of the existing on-street parking supply.
Slauson/A Line Station	Los Angeles	729	80%	0	1, 2, 3	No change.
Randolph Street between Holmes Avenue and State Street (between	Huntington Park	550	70%	-79	1, 2, 3	LRT track would remove approximately 14% of the

Location	Jurisdiction	Existing On-Street Parking Spaces	Observed Field Utilization[a]	Parking Spaces Added/ Removed[b]	Alternative(s) Affected	Description of Effect
Slauson/A Line Station – through Pacific/Randolph – and Florence/Salt Lake Stations)						existing on-street parking supply.
Pacific/Randolph Station	Huntington Park	1,624	60%	0	1, 2, 3	No change.
Florence/Salt Lake Station	Huntington Park	1,106	30%	0	1, 2, 3	No change.
Firestone Station	South Gate	461	50%	+600	1, 2, 3	Alternatives 1, 2, and 3 would add off-street transit parking.
Gardendale Station	Downey	688	40%	0	1, 2, 3	No change.
Main Street Grade Crossing (between Gardendale and I-105/C Line Stations)	South Gate	12	20%	-12	1, 2, 3	LRT track would displace all of the on-street parking along this segment.
I-105/C Line Station	Paramount	818	40%	+326	1, 2, 3, 4	Alternatives 1, 2, 3, and 4 would add off-street transit parking.
Paramount/Rosecrans Station	Paramount	350	70%	+490	1, 2, 3, 4	Alternative s 1, 2, 3, and 4 would add off-street transit parking.
Bellflower Station	Bellflower	576	30%	+263	1, 2, 3, 4	Alternative s 1, 2, 3, and 4 would add off-street transit parking.
Pioneer Station	Artesia	785	20%	+1,100	1, 2, 3, 4	Alternative s 1, 2, 3, and 4 would add off-street transit parking.

Source: Metro 2021s
Notes: [a] Observations made during peak parking periods.
[b] Based on engineering plans included in Appendix B.
LRT = light rail transit

At the other two locations, the loss of parking would not result in the supply decreasing below the observed utilization. Therefore, it is anticipated that parking demand would be accommodated despite the loss of parking and there would not be adverse effects. While adverse effects are unlikely, the physical loss of parking could contribute to local concern. Mitigation Measure TRA-22 (Parking Mitigation Program [Permanent]) would be implemented at all locations with a physical loss of on-street parking.

Off-street parking effects were analyzed for properties where Alternative 1 would require a permanent property acquisition that would result in the permanent loss of off-street parking spaces. The analysis did not include properties where the permanent acquisition resulted in the loss of all off-street parking and the corresponding business(es) that utilized that supply. This is because the business(es) would no longer exist, and, consequently, the associated parking demand would be eliminated. The loss of off-street parking spaces would, therefore, have no effect on the function of the properties on these site(s).

The off-street parking impacts analysis considered whether the loss of off-street parking spaces would result in the supply for that property to fall below the requirement as per the parking code from the applicable city[2]. Table 5.54 summarizes the impacts at each location. Metro would provide compensation as required under the Uniform Act at properties where off-street parking is removed. Governmental institutions are not required to comply with parking code requirements. These properties are included in the table for completeness but were not assessed further. Metro would enter into an agreement with each of these properties for the use of the existing off-street parking.

Table 5.54. Off-Street Parking Impacts

Location	Jurisdiction	Project Element	Alternative(s) Affected	Number of Lost Spaces	Approximate % of Total Parking	Remaining Spaces Within Code Requirements?
Parking lot on northeast corner of South Figueroa Street and West 8th Street	Los Angeles	Station Entrance – 7th St/Metro Center Station	2	22	10%	n/a
Bus parking lot on southeast corner of East 7th Street and South Alameda Street	Los Angeles	Station Entrance – Arts/Industrial District Station	2	7	5%	yes

2 City of Los Angeles Municipal Code: Chapter 1 Planning and Zoning Code, Section 12.21 General Provisions; City of South Gate Municipal Code: Chapter 11.33 Parking Standards; City of Huntington Park Municipal Code: Chapter 3 General Regulations Article 8 Off-Street Parking Standards. City of Vernon Zoning Ordinance: Article V. Sec. 26.5.1. Off-Street Parking and Loading Facilities; City of Downey Municipal Code: Chapter 7 Section 9712. Nonresidential Parking Requirements; City of Bellflower Municipal Code: Chapter 17.88 Off-Street Parking Requirements.

Location	Jurisdiction	Project Element	Alternative(s) Affected	Number of Lost Spaces	Approximate % of Total Parking	Remaining Spaces Within Code Requirements?
Office building on southwest corner of East 7th Street and South Alameda Street	Los Angeles	Station Entrance – Arts/Industrial District Station	2	12	5%	no
US Post Office between Bauchet Street and North Vignes Street	Los Angeles	Ventilation Shaft	Design Option 1	20	10%	n/a governmental facility
USPS building on the northeast corner of North Alameda Street and East Cesar E Chavez Avenue	Los Angeles	Ventilation Shaft	1	5	10%	n/a governmental facility
Industrial building on the southeast corner of East 6th Street and South Alameda Street	Los Angeles	Station Entrance – Arts/Industrial District Station	1	5	5%	yes
Industrial building on the east side of South Alameda Street between East 6th Street and Industrial Street	Los Angeles	Station Entrance – Arts/Industrial District Station	1	2	<5%	yes
Strip mall north of the Randolph Street and Rita Avenue intersection	Huntington Park	TPSS Site 15	1, 2, 3	32	10%	yes
Strip mall at the southwest corner of State Street and Randolph Street	Huntington Park	Grade Crossing	1, 2, 3	4	15%	yes

Location	Jurisdiction	Project Element	Alternative(s) Affected	Number of Lost Spaces	Approximate % of Total Parking	Remaining Spaces Within Code Requirements?
San Antonio Elementary School and Magnet Center on the southeast corner of State Street and Randolph Street	Huntington Park	Grade Crossing	1, 2, 3	15	25%	n/a governmental facility
Industrial building at the northeast corner of State Street and Randolph Street	Vernon	Grade Crossing	1, 2, 3	18	5%	yes
Strip mall on the northeast corner of Walnut Street and California Avenue	Huntington Park	TPSS Site 13(E)	1, 2, 3	13	30%	yes
South Gate City Office south of Santa Ana Street and Salt Lake Avenue intersection	South Gate	Grade Crossing	1, 2, 3	4	5%	n/a governmental facility
Medical building on the northwest corner of South Atlantic Avenue and Wright Place	South Gate	Grade Crossing	1, 2, 3	1	<5%	yes
Los Angeles County Agriculture building at the southern end of Vulcan Street	Downey	Track	1, 2, 3	32	20%	n/a governmental facility

Location	Jurisdiction	Project Element	Alternative(s) Affected	Number of Lost Spaces	Approximate % of Total Parking	Remaining Spaces Within Code Requirements?
Paramount Bilingual SDA Church at the southeast corner of Pacific Avenue and Alondra Boulevard	Bellflower	Grade Crossing	1, 2, 3, 4	2	5%	yes

Source: Metro 2021s
Notes: n/a = not applicable; TPSS = traction power substation; USPS = United States Postal Service

Under Alternative 1, there are 12 locations where off-street parking would be removed permanently with a total of 133 parking spaces affected, of which 4 locations and 56 parking spaces are governmental institutions. These properties are located in the Cities of Los Angeles, Huntington Park, Vernon, South Gate, Downey, and Bellflower. The loss of parking would result from the addition of Alternative 1 elements, including ventilation shafts, station entrances, TPSS sites, grade crossing modifications, and the LRT track. The removal of off-street parking spaces would not cause the off-street parking supply to decrease below the respective city parking code requirements and, therefore, would not result in an adverse effect.

Spillover Parking Impacts

Dedicated transit parking would be provided at the Firestone, I-105/C Line, Paramount/Rosecrans Bellflower, and Pioneer Stations. Project Measure TR PM-10 (Pioneer Station Parking Access) would be implemented at the Pioneer Station to limit vehicles accessing the parking structure through the adjacent residential streets. Table 5.55 summarizes the parking demand at each station where transit parking would be provided added Alternative 1. A spillover parking analysis was deemed unnecessary for stations north of the Firestone Station and at the Gardendale Station because no transit parking would be added at these stations; therefore, it is unlikely passengers would attempt to access these stations via driving. As shown in Table 4.46, there is limited parking supply and/or availability around the LAUS, Arts/Industrial District, and Slauson/A Line Stations. Additionally, on- and off-street parking near the stations in downtown Los Angeles are regulated with metered and paid and/or private (reserved) lots. Consequently, if transit passengers attempt to drive and park at the stations, the parking demand would adjust based on the willingness of the drivers to pay the associated parking fees, with those drivers utilizing existing parking lots. On-street parking around the Pacific/Randolph, Florence/Salt Lake, and Gardendale Stations is largely time unlimited and was 60 percent or less utilized at the time of surveys. While it is not anticipated that transit passengers would access these stations via car because dedicated parking is not provided, on-street parking capacity is available to accommodate those who may try to do so without passengers displacing others using the spaces. Therefore, adverse effects from spillover parking would not occur.

Table 5.55. Station Parking Facility Demand – Alternative 1

Station	Proposed Station Parking Spaces	Projected 2042 Parking Demand*	Excess Transit Parking Demand	Existing Unused On-Street Parking Capacity	Parking Supply Projected to be Exceeded?
Firestone	600	960	360	230	yes
I-105/C Line	326	380	56	490	no
Paramount/Rosecrans	490	450	-40	105	no
Bellflower	263	560	297	400	no
Pioneer	1,100	1,450	350	630	no

Source: Metro 2021s
Notes: * Projected parking demand rounded to nearest tenth

As shown in Table 5.55, dedicated transit parking provided under Alternative 1 would not accommodate projected demand at the I-105/C Line, Bellflower, and Pioneer Stations. However, unutilized on-street parking is available to meet the excess parking demand. At the Paramount/Rosecrans Station, the projected demand would be lower than the proposed transit parking. Based on the results of the analysis, spillover parking impacts would not occur at these four stations.

Alternative 1 would include 600 transit parking spaces at the Firestone Station. A daily parking demand for 960 spaces is projected at this station in the 2042 horizon year, which is greater than the number of dedicated transit parking spaces provided. Transit passengers may utilize adjacent on-street parking once the park-and-ride lot reaches capacity. As shown in Table 5.53, approximately 50 percent of the existing on-street parking is unutilized under existing conditions. As such, approximately 230 spaces could be available for transit passengers. However, even with the available on-street parking, the demand would still exceed the combined total of dedicated transit and available on-street parking spaces by approximately 130 spaces. If the parking demand reaches the full projection at peak hours, adverse effects could occur as a result of drivers circulating along roads adjacent to the station as they attempt to find available parking. This would cause an increase in localized traffic and delay on roadways and at intersections, including idling and increased vehicular emissions. Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]), described in Section 8.2.1, are proposed to reduce these impacts. Nevertheless, because parking demand, the subsequent strategies that may be utilized, and the community response are unknown, it is possible that adverse effects would remain after mitigation.

While adverse effects are unlikely at the stations north of the Firestone Station, as well as the I-105/C Line, Paramount/Rosecrans, Bellflower, and Pioneer Stations, Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]) would be implemented. Mitigation would be implemented to the system as a whole and would apply to all proposed stations.

5.4.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Implementation of Alternative 2 would have the same effect on on-street parking as Alternative 1, as the number of on-street parking spaces affected are identical. The two station locations unique to Alternative 2, South Park/Fashion District and 7th Street/Metro Center Stations, would not remove any additional on-street parking. Similarly, Alternative 2 would require the removal of all on-street parking spaces at one location in the City of Los Angeles and one location in the City of South Gate. In the City of Los Angeles, the removal of the 20 on-street parking spaces along Long Beach Avenue would not affect the function of the adjacent land uses. However, changes in the location and availability of parking could result in local concern because the destination of those utilizing on-street parking is unknown. A potential consequence of this change in parking is increased traffic circulation on streets near the lost parking as existing drivers utilizing those spaces search for new places to park. This could cause an increase in localized traffic and delay along roadways and at intersections, including a corresponding increase in idling and vehicular emissions, and could result in an adverse effect. Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]), described in Section 8.2.1, are proposed to reduce these impacts. Nevertheless, because parking demand, the subsequent strategies that may be utilized, and the community response are unknown, it is possible that adverse effects would remain after mitigation.

In the City of South Gate, the removal all 12 on-street parking spaces at the Main Street grade crossing location would not affect the function of the property. On-street parking is available directly adjacent to this location, and drivers utilizing these spaces would be able to find alternate parking with minimal circulation. Alternative 2 would not result in an adverse effect at this location.

At the other two locations where the removal of on-street parking is required, the loss of parking space would not result in the supply decreasing below the observed utilization. Therefore, the effects and impact conclusions described for on-street parking under Alternative 1 would also apply to Alternative 2, and Alternative 2 would not result in an adverse effect. While adverse effects are unlikely at these locations, the physical loss of parking could contribute to local concern. Mitigation Measure TRA-22 (Parking Mitigation Program [Permanent]) would be implemented at all locations with a physical loss of on-street parking.

Under Alternative 2, there are 12 locations where off-street parking would be removed permanently with a total of 162 parking spaces affected, of which 3 locations and 51 parking spaces are governmental institutions. These properties are located in the Cities of Los Angeles, Huntington Park, Vernon, South Gate, Downey, and Bellflower. Table 5.54 summarizes the results of the impact analysis at each location. Metro would provide compensation as required under the Uniform Act at properties where off-street parking is removed.

Similar to Alternative 1, governmental institutions are not required to comply with parking codes. Metro would enter into an agreement with each of these properties for the use of the existing off-street parking. Additionally, the public parking lot at South Figueroa Street and West 8th Street is not subject to parking code requirements; however, removal of parking at this location would be subject to the Uniform Act. The removal of off-street parking spaces under Alternative 2 would not cause the off-street parking supply to decrease below the respective city parking code requirements and, therefore, would not result in an adverse effect.

Spillover Parking Impacts

Alternative 2 would provide dedicated transit parking at the same five stations as Alternative 1, shown in Table 5.56. Project Measure TR PM-10 (Pioneer Station Parking Access) would be provided at Pioneer Station to limit vehicles accessing the parking structure through the adjacent residential streets. Compared to Alternative 1, while the number of proposed station parking spaces would be the same, the parking demand for Alternative 2 was projected to be higher at all five stations. This is because the Alternative 2 northern terminus station is more centrally located to the downtown Los Angeles business district core, an important activity center and destination. As such, compared to Alternative 1, Alternative 2 would have a higher ridership projection, and the corresponding higher parking demand.

Table 5.56. Station Parking Facility Demand – Alternative 2

Station	Proposed Station Parking Spaces	Projected 2042 Parking Demand*	Excess Transit Parking Demand	Existing Unused On-Street Parking Capacity	Parking Supply Projected to be Exceeded?
Firestone	600	1,120	520	230	yes
I-105/C Line	326	450	124	490	no
Paramount/Rosecrans	490	530	40	105	no
Bellflower	263	640	377	400	no
Pioneer	1,100	1,650	550	630	no

Source: Metro 2021s
Notes: * Projected parking demand rounded to nearest tenth

Similar to Alternative 1, spillover parking is not anticipated at the stations north of the Firestone Station or at the Gardendale Station as dedicated parking would not be provided at these stations. Similar to Alternative 1, on-street parking near the 7th St/Metro Center, Arts/Industrial, and South Park/Fashion District Stations is limited in supply and/or availability (Table 4.46). Additionally, on- and off-street parking around these stations is regulated with metered and paid and/or private (reserved) lots. Consequently, if transit passengers attempt to drive and park at these stations, the parking demand would adjust based on the willingness of the drivers to pay the associated parking fees, with those drivers utilizing existing parking lots. The analysis presented for the Pacific/Randolph, Florence/Salt Lake, and Gardendale Stations for Alternative 1 would also apply to these stations under Alternative 2. Therefore, adverse effects from spillover parking would not occur at these stations.

The transit parking provided for all five locations under Alternative 2 would not accommodate the projected demand at each station. However, unutilized on-street parking is available at the I-105/C Line, Paramount/Rosecrans, Bellflower, and Pioneer Stations to meet the excess parking demand. Therefore, spillover parking impacts would not occur at these four stations.

At the Firestone Station, daily parking demand is projected to be 1,120 in the 2042 horizon year, which is greater than the 600 dedicated transit parking spaces provided. As shown in Table 5.56, even with the available on-street parking, the demand would still exceed the combined total of dedicated transit and available on-street parking spaces. If the parking demand reaches the full projection at peak hours, adverse effects could occur as a result of drivers circulating along roads adjacent to the station as they attempt to find available parking. This would cause an increase in localized traffic and delay on roadways and at intersections, including idling and increased vehicular emissions. Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]), described in Section 8.2.1, are proposed to reduce these impacts. Nevertheless, because parking demand, the subsequent strategies that may be utilized, and the community response are unknown, it is possible that adverse effects would remain after mitigation.

While adverse effects are unlikely at the stations north of the Firestone Station, as well as the I-105/C Line, Paramount/Rosecrans, Bellflower, and Pioneer Stations, Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]) would be implemented. Mitigation would be implemented to the system as a whole and would apply to all proposed stations.

5.4.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The following sections summarize the results of the parking analysis for Alternative 3 based on the evaluation of permanent physical loss of on- and off-street parking and spillover parking impacts associated with the demand for transit parking. As summarized in Table 5.53 and Table 5.54, Alternative 3 would result in the permanent loss of approximately 91 on-street and 89 off-street parking spaces. Alternative 3 would add 2,779 parking spaces at five of the proposed new transit stations.

On- and Off-Street Parking Impacts

Alternative 3 would have a shorter alignment than Alternatives 1 and 2 and would require the removal of fewer on- and off-street parking spaces. Similar to Alternatives 1 and 2, Alternative 3 would require the removal of all 12 on-street parking spaces at the Main Street grade crossing location in the City of South Gate, as summarized in Table 5.53. However, the removal of the 12 on-street parking spaces would not affect the function of the property. On street parking is available directly adjacent to this location, and drivers utilizing these spaces would be able to find parking with minimal circulation. Alternative 3 would not result in an adverse effect at this location.

At the other locations where the removal of on-street parking is required, the loss of parking space would not result in the supply decreasing below the observed utilization. Therefore, the effects and impact conclusions described for on-street parking under Alternative 1 would also apply to Alternative 3, and Alternative 3 would not result in an adverse effect. While adverse effects are unlikely at these locations, the physical loss of parking could contribute to local concern. Mitigation Measure TRA-22 (Parking Mitigation Program [Permanent]) would be implemented at all locations with a physical loss of on-street parking.

Under Alternative 3, there are nine locations where off-street parking would be removed permanently with a total of 121 parking spaces affected, of which 3 locations and 51 parking spaces are governmental institutions. These properties are located in the Cities of Huntington Park, Vernon, South Gate, Downey, and Bellflower. Table 5.54 summarizes the impacts at each location. Metro would provide compensation as required under the Uniform Act at properties where off-street parking is removed. Similar to Alternatives 1 and 2, the removal of off-street parking spaces at these locations would not cause the off-street parking supply to decrease below the respective city parking code requirements and, therefore, would not result in an adverse impact.

Spillover Parking Impacts

Alternative 3 would provide dedicated transit parking at the same five stations as Alternatives 1 and 2. Project Measure TR PM-10 (Pioneer Station Parking Access) would be provided at Pioneer Station to limit vehicles accessing the parking structure through the adjacent residential streets. Table 5.57 summarizes the parking demand at each station with dedicated transit parking. Alternative 3 would have a shorter alignment than Alternatives 1 and 2, and a reduction in the projected ridership and corresponding parking demand is expected. The transit parking provided under Alternative 3 would accommodate projected demand at the I-105/C Line, Paramount/Rosecrans, and Pioneer Stations. Therefore, spillover parking impacts would not occur at these stations. Similar to the analysis presented for Alternatives 1 and 2, it is not anticipated that transit passengers would access stations without dedicated transit parking. Parking supply and availability is limited around the Slauson/A Line Station (Table 4.46). On-street parking supply is more available around the Pacific/Randolph, Florence/Salt Lake, and Gardendale Stations; therefore, if transit passengers access these stations via car, on-street parking capacity would likely be available to accommodate drivers without displacing others using the spaces.

Table 5.57. Station Parking Facility Demand – Alternative 3

Station	Proposed Station Parking Spaces	Projected 2042 Parking Demand*	Excess Transit Parking Demand	Existing Unused On-Street Parking Capacity	Parking Supply Projected to be Exceeded?
Firestone	600	670	70	230	no
I-105/C Line	326	240	-86	490	no
Paramount/Rosecrans	490	300	-190	105	no
Bellflower	263	420	157	400	no
Pioneer	1,100	1,090	-10	630	no

Source: Metro 2021s
Notes: * Projected parking demand rounded to nearest tenth

The transit parking provided under Alternative 3 would not accommodate projected demand at the Firestone and Bellflower Stations. However, as shown in Table 5.57, unutilized on-street parking is available at both stations to meet the excess parking demand. Therefore, spillover parking impacts would not occur at these stations and Alternative 3 would not result in adverse effects related to spillover parking. While adverse effects are unlikely at all proposed stations, Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]) would be implemented.

5.4.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The following sections summarize the results of the parking analysis for Alternative 4 based on the evaluation of permanent physical loss of on- and off-street parking and spillover parking impacts associated with the demand for transit parking. As summarized in Table

5.53 and Table 5.54, Alternative 4 would result in the permanent loss of approximately two off-street parking spaces and would not result in the permanent loss of on-street parking spaces. Alternative 4 would add 2,179 parking spaces at four of the proposed new transit stations.

On- and Off-Street Parking Impacts

Implementation of Alternative 4 would not require the removal of on-street parking and, therefore, would not result in an adverse effect related to on-street parking.

Alternative 4 would remove two off-street parking spaces at the Paramount Bilingual SDA Church in the City of Bellflower. Table 5.54 summarizes the results of the impact analysis at this location. Metro would provide compensation as required under the Uniform Act. The loss of parking at this location would not cause the off-street parking supply to decrease below the City of Bellflower parking code requirements and, therefore, Alternative 4 would not result in adverse effect related to off-street parking.

Spillover Parking Impacts

Dedicated transit parking would be provided at the I-105/C Line, Paramount/Rosecrans, Bellflower, and Pioneer Stations. All stations along the alignment would have dedicated transit parking. Project Measure TR PM-10 (Pioneer Station Parking Access) would be provided at Pioneer Station to limit vehicles accessing the parking structure through the adjacent residential streets Table 5.58 summarizes the parking demand at each station. Alternative 4 would have a shorter alignment than Alternatives 1, 2, and 3, and a reduction in the projected parking demand is expected. The transit parking provided under Alternative 4 would accommodate projected demand at the I-105/C Line, Paramount/Rosecrans, and Pioneer Stations. Therefore, spillover parking impacts would not occur at these stations.

Table 5.58. Station Parking Facility Demand – Alternative 4

Station	Proposed Station Parking Spaces	Projected 2042 Parking Demand*	Excess Transit Parking Demand	Existing Unused On-Street Parking Capacity	Parking Supply Projected to be Exceeded?
I-105/C Line	326	95	-231	490	no
Paramount/Rosecrans	490	210	-280	105	no
Bellflower	263	300	37	400	no
Pioneer	1,100	790	-310	630	no

Source: Metro 2021s
Notes: * Projected parking demand rounded to nearest tenth

The transit parking provided under Alternative 4 would not accommodate projected demand at the Bellflower Station. However, as shown in Table 5.58, unutilized on-street parking is available at the station to meet the excess parking demand. Therefore, spillover parking impacts would not occur at the Bellflower Station, and Alternative 4 would not result in adverse effects related to spillover parking. While adverse effects are unlikely at all proposed stations, Mitigation Measures TRA-21 (Parking Monitoring and Community Outreach) and TRA-22 (Parking Mitigation Program [Permanent]) would be implemented.

5.4.6 Design Option

Design Option 1: LAUS at MWD and Design Option 2: Add Little Tokyo Station

Design Option 1 would not require the removal of on-street parking and, therefore, would not result in an adverse effect. Implementation of Design Option 1 would result in the loss of 20 off-street parking spaces at the U.S. Post Office between Bauchet Street and North Vignes Street in the City of Los Angeles. As governmental institutions are not required to comply with parking codes, this property is included in Table 5.54 for completeness but was not assessed further. Design Option 1 would not result in adverse effects related to on- or off-street parking.

Design Option 2 would not result in the loss of on- or off-street parking. Therefore, Design Option 2 would not result in adverse effects related to on- or off-street parking.

Under Design Options 1 or 2, because no dedicated transit parking would be provided, it is unlikely passengers would attempt to access these stations via driving. Therefore, a spillover parking analysis was deemed unnecessary.

5.4.7 Maintenance and Storage Facility

5.4.7.1 Paramount and Bellflower MSF Site Options

The Paramount and MSF site options would not require the removal of on- or off-street parking and, therefore, would not result in adverse effects.

A spillover parking analysis was unnecessary for the Paramount MSF or the Bellflower MSF site options as these are not ridership-generating facilities, and spillover parking from transit users is not expected.

6 CALIFORNIA ENVIRONMENTAL QUALITY ACT DETERMINATION

To satisfy CEQA requirements, transportation impacts would also be analyzed in accordance with Appendix G of the CEQA Guidelines.

6.1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, and bicycle and pedestrian facilities?

6.1.1 No Project Alternative

Under the No Project Alternative, the Build Alternatives would not be introduced, and no changes would occur to the existing conditions within the Affected Area for operation of transit, roadway, bicycle, and pedestrian facilities. Therefore, conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system would not occur and impacts would be less than significant.

6.1.1.1 Mitigation Measures

No mitigation required.

6.1.1.2 Impacts Remaining after Mitigation

No impacts.

6.1.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Regionally, Alternative 1 comprises of 1 of 17 transit projects funded by Measure R, a one-half cent sales tax approved by LA County voters in November 2008, and by Measure M, an extension of Measure R and an additional one-half cent sales tax approved by voters in November 2016. The Project is identified in the LRTP (Metro 2009). Alternative 1 would provide expanded transit service, via a new LRT line consistent with adopted policies, plans, and programs related to public transit.

Table 6.1 summarizes an evaluation of general plans or transportation/traffic study guidelines for 15 cities, plus Metro and LA County within the Study Area. As shown, Alternative 1 would be consistent with plans, ordinances, and policies addressing the circulation system for transit, roadway, bicycle, and pedestrian facilities.

Table 6.1. Alternative 1 Consistency with Circulation System Policy, by Study Area Jurisdiction

No.	City/Agency	Circulation System				Source	Web Site
		Transit	Roadway[1]	Bicycle	Pedestrian		
1	Los Angeles	yes	yes	yes	yes	*Transportation Impact Study Guidelines* (LADOT 2016)	http://ladot.lacity.org/sites/g/files/wph266/f/COLA-TISGuidelines-010517.pdf
2	Vernon	yes	yes	yes	yes	*General Plan* (City of Vernon 2013)	http://www.cityofvernon.org/images/community-services/Zoning/Circulation%20&%20Infrastructure%20Element%202015.pdf
3	Huntington Park	yes	yes	yes	yes	*General Plan* (City of Huntington Park 1991)	http://www.hpca.gov/DocumentCenter/View/407
4	Maywood	yes	yes	yes	yes	*General Plan* (City of Maywood no date)	https://evogov.s3.amazonaws.com/media/100/media/35350.pdf
5	Bell	yes	yes	yes	yes	*General Plan* (City of Bell 1996)	http://www.cityofbell.org/home/showdocument?id=714
6	Cudahy	yes	yes	yes	yes	*General Plan* (City of Cudahy 2016)	http://www.cityofcudahy.com/uploads/5/3/9/9/53994499/cudahy_existing_conditions_report_2-2016_final.pdf
7	South Gate	yes	yes	yes	yes	*General Plan* (City of South Gate 2009)	http://www.cityofsouthgate.org/DocumentCenter/View/147
8	Bell Gardens	yes	yes	yes	yes	*General Plan* (City of Bell Gardens 2016)	http://www.bellgardens.org/GOVERNMENT/CityDepartments/CommunityDevelopment/Planning/GeneralPlan.aspx
9	Lynwood	yes	yes	yes	yes	*General Plan* (City of Lynwood 2003)	http://lynwood.ca.us/wp-content/uploads/2016/07/2003-08CityofLynwoodGeneralPlan.pdf
10	Downey	yes	yes	yes	yes	*General Plan* (City of Downey 2005)	http://www.downeyca.org/civicax/filebank/blobdload.aspx?BlobID=3490

No.	City/Agency	Circulation System				Source	Web Site
		Transit	Roadway[1]	Bicycle	Pedestrian		
11	Paramount	yes	yes	yes	yes	*General Plan* (City of Paramount 2007)	http://cdm16255.contentdm.oclc.org/cdm/ref/collection/p266301ccp2/id/714
12	Bellflower	yes	yes	yes	yes	*General Plan* (City of Bellflower 1997)	https://www.bellflower.org/civicax/filebank/blobdload.aspx?BlobID=28088
13	Lakewood	yes	yes	yes	yes	*General Plan* (City of Lakewood 2009)	http://www.lakewoodcity.org/civicax/filebank/blobdload.aspx?BlobID=22728
14	Artesia	yes	yes	yes	yes	*General Plan* (City of Artesia 2010)	http://www.cityofartesia.us/DocumentCenter/View/101
15	Cerritos	yes	yes	yes	yes	*General Plan* (City of Cerritos 2004)	http://www.cerritos.us/GOVERNMENT/_pdfs/Chapter04.Circulation.pdf
16	Metro Congestion Management Program	yes	yes	yes	yes	*Congestion Management Program* (Metro 2010)	http://media.metro.net/docs/cmp_final_2010.pdf
17	LA County	yes	yes	yes	yes	*Traffic Impact Analysis Report Guidelines* (LA County 1997)	http://dpw.lacounty.gov/traffic/traffic%20impact%20analysis%20guidelines.pdf

Source: Compiled by Jacobs in 2020
Notes:[1] LOS was not considered when determining environmental impacts.
LA = Los Angeles; LADOT = Los Angeles Department of Transportation; LOS = level-of-service

Alternative 1 would include some physical changes to local streets within the roadway circulation system. Modifications would vary throughout the corridor and could include new train at-grade crossings, modified access near grade separations, new driveways to provide access to parking and stations, realignment of existing bike crossings, modification of existing pedestrian crossings, elimination of some left-turn movements, and some realignment of local streets. These modifications have been engineered to improve operations and safety for drivers, bicyclists, and pedestrians. The location and nature of the modifications are consistent with the programs, plans, ordinances, and policies of the affected jurisdictions, as summarized in Table 6.1. The guidance in those documents was reviewed to confirm that there are no inconsistencies. Additionally, implementation of Alternative 1 would not preclude construction of a roadway project identified in approved plans. The new facilities (tracks, stations, and supporting infrastructure) would be designed consistent with Metro Rail Design Criteria and with the local city General Plan Circulation Elements (e.g., City of Bellflower Circulation Element, Section 6.3 – Goal 3: Provide residents and business occupants in the City of Bellflower with a convenient and viable public transportation system).

Alternative 1 would improve transit service and accessibility, which is a broad goal of most plans. Because Alternative 1 would operate in exclusive right-of-way, travel times with the LRT would be shorter than existing transit service in the corridor. Reliability would also improve. Existing transit services in the Study Area include Metro Rail (six lines), Metrolink (three lines), Metro Rapid (six routes), Metro Express (two routes), shuttle bus (two routes), local bus (nine routes), municipal operators (seven routes), and local operators. For all of these transit services, there is the potential for positive and negative changes to individual routes and stops/stations. New service on Alternative 1 would result in shifts in transit riders away from some services but could also increase ridership on feeder routes and on transit service in general.

Changes to active transportation (pedestrians and bicyclists) facilities where Alternative 1 would remove or limit the functionality of a bike facility or sidewalk. These changes would be addressed because new facilities would be added, or existing facilities would be upgraded, and overall function maintained. Impacts (both beneficial and significant) could occur in the areas adjacent to stations and along the alignment. Where construction would encroach on existing bike facilities or sidewalks, such as the Paramount Bike Trail and Bellflower Bike Trail, Mitigation Measure LU-1, described in the *West Santa Ana Branch Transit Corridor Final Land Use Impact Analysis Report* (Metro 2021b) would require realignment of these segments so the overall function would be maintained and operational and there would not be permanent significant impacts. Alternative 1 could also preempt the future development and implementation of several proposed bicycle paths including the Class I bicycle path along Salt Lake Avenue (Cities of Huntington Park, Bell, and Cudahy) and Class I bicycle path north of Rayo Avenue and south of the LA River (City of South Gate). However; while planned, the bike facilities are unfunded and not scheduled for implementation. As further discussed in the *West Santa Ana Branch Transit Corridor Final Land Use Impact Analysis Report* (Metro 2021b), sufficient space would be available to develop a Class II or Class III bicycle path along the street, which would maintain the connectivity identified in the bicycle master plans. However, the reclassification of the bike paths is considered a conflict with the current bike plans and a significant impact would occur.

Section 5.1.2 of the *West Santa Ana Branch Transit Corridor Project Final Safety and Security Impact Analysis Report* (Metro 2021c) addresses pedestrian and bicycle safety at individual station locations near the guideway and at grade crossings. Potential conflicts have been identified, and measures to address safety are provided. The net effect is that the bicycle system with Alternative 1 would generally be the same as with the No Project Alternative. Additional sidewalks and bicycle facilities would provide a beneficial impact, both for active transportation users accessing the stations and the broader community.

The Alternative 1 design would also comply with ADA requirements. Alternative 1 would improve nonmotorized/active transportation facilities by replacing and upgrading the existing ones removed during construction and ensuring those facilities (crosswalks, sidewalks, paths, and mid-block crossings) are retained and/or replaced to meet the required continuity and performance. Under Mitigation Measure LU-1(Consistency with Bike Plans), Metro would continue coordination efforts with the Cities of Huntington Park, Bell, Cudahy, and South Gate to minimize potential impacts to the future implementation of the planned bike trails identified in their bike master plans. As part of this effort, Metro, as appropriate, would support preparation of amended language for each affected bicycle plan demonstrating that planned bicycle facilities could still achieve an individual city's mobility and connectivity goals. However, because the process to amend bike plans is a local process, including public participation, the ultimate outcome and resolution of plan elements cannot be predicted. As such, despite Metro's best efforts and coordination and with the implementation of mitigation, Alternative 1 may still conflict with bike master plans. Therefore, even with implementation of mitigation, Alternative 1 would result in a significant and unavoidable impact.

6.1.2.1 Mitigation Measures

Mitigation Measure LU-1.

6.1.2.2 Impacts Remaining after Mitigation

Significant and unavoidable.

6.1.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 6.1.2 is applicable to Alternative 2. The alternative would have similar proposed improvements to the public transit system as Alternative 1. Alternative 2 could preempt the future development and implementation of several proposed bicycle paths. Under Mitigation Measure LU-1, Metro would continue coordination efforts with the Cities of Huntington Park, Bell, Cudahy, and South Gate to minimize potential impacts to the future implementation of the planned bike trails identified in their bike master plans. However, the reclassification of the bike paths is considered a conflict with the current bike plans and a significant impact would occur. Therefore, even with implementation of mitigation, Alternative 2 would result in a significant and unavoidable impact.

6.1.3.1 Mitigation Measures

Mitigation Measure LU-1.

6.1.3.2 Impacts Remaining after Mitigation

Significant and unavoidable.

6.1.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 6.1.2 is applicable to Alternative 3. The alternative would have similar proposed improvements to the public transit system as Alternative 1. Alternative 3 could preempt the future development and implementation of several proposed bicycle paths. Under Mitigation Measure LU-1, Metro would continue coordination efforts with the Cities of Huntington Park, Bell, Cudahy, and South Gate to minimize potential impacts to the future implementation of the planned bike trails identified in their bike master plans. However, the reclassification of the bike paths is considered a conflict with the current bike plans and a significant impact would occur. Therefore, even with implementation of mitigation, Alternative 3 would result in a significant and unavoidable impact.

6.1.4.1 Mitigation Measures

Mitigation Measure LU-1.

6.1.4.2 Impacts Remaining after Mitigation

Significant and unavoidable.

6.1.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 6.1.2 is applicable to Alternative 4. The alternative would have similar proposed improvements to the public transit system as Alternative 1 Alternative 4 could preempt the future development and implementation of several proposed bicycle paths. Under Mitigation Measure LU-1, Metro would continue coordination efforts with the Cities of Huntington Park, Bell, Cudahy, and South Gate to minimize potential impacts to the future implementation of the planned bike trails identified in their bike master plans. However, the reclassification of the bike paths is considered a conflict with the current bike plans and a significant impact would occur. Therefore, even with implementation of mitigation, Alternative 4 would result in a significant and unavoidable impact.

6.1.5.1 Mitigation Measures

Mitigation Measure LU-1.

6.1.5.2 Impacts Remaining after Mitigation

Significant and unavoidable.

6.1.6 Design Options

6.1.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 6.1.2 is applicable to Design Option 1. Design Option 1 would have similar proposed improvements to the public transit system as the Build Alternatives. Therefore, less-than-significant impacts would occur.

6.1.6.2 Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 6.1.2 is applicable to Design Option 2. Design Option 2 would have similar proposed improvements to the public transit system as the Build Alternatives which would add a station. Therefore, less-than-significant impacts would occur.

6.1.6.3 Mitigation Measures

No mitigation required.

6.1.6.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.1.7 Maintenance and Storage Facility

6.1.7.1 Paramount MSF Site Option

The impact analysis described in Section 6.1.2 also applies to the Paramount MSF site option. The MSF site option would be consistent with adopted policies, plans or programs. Therefore, less-than-significant impacts would occur.

6.1.7.2 Bellflower MSF Site Option

The realignment of the segment of the Bellflower Bike Trail located within the PEROW may preempt future development and implementation of the Bellflower Bike Trail to the west of the Bellflower MSF site option. Implementation of Mitigation Measure LU-1 would be effective to demonstrate that modifications to the bicycle facilities would maintain continuity with other segments of the Paramount Bike Trail and Bellflower Bike Trail. The Bellflower MSF site option would not result in inconsistencies with the *Bellflower-Paramount Active Transportation Plan*. Therefore, less-than-significant impacts would occur.

6.1.7.3 Mitigation Measures

Mitigation Measure LU-1.

6.1.7.4 Impacts Remaining after Mitigation

Significant and unavoidable.

6.2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Section 15064.3(b) addresses both land use and transportation projects, and broadly describes the methodology (including the potential for qualitative analysis used to assess VMT). The overall guidance for transportation projects is that they have will have a less-than-significant project impact if they reduce VMT. Agencies are given “broad discretion” to select the methodology for analysis, or even apply a qualitative approach. The assessment for this CEQA requirement is focused on the projected change in VMT with the Project.

6.2.1 No Project Alternative

Under the No Project Alternative, the Build Alternatives would not be introduced and there would be no change to the existing conditions within the Affected Area. Therefore, there would be no change in VMT associated with the Project, and there would not be any significant impacts.

6.2.1.1 Mitigation Measures

No mitigation measures required.

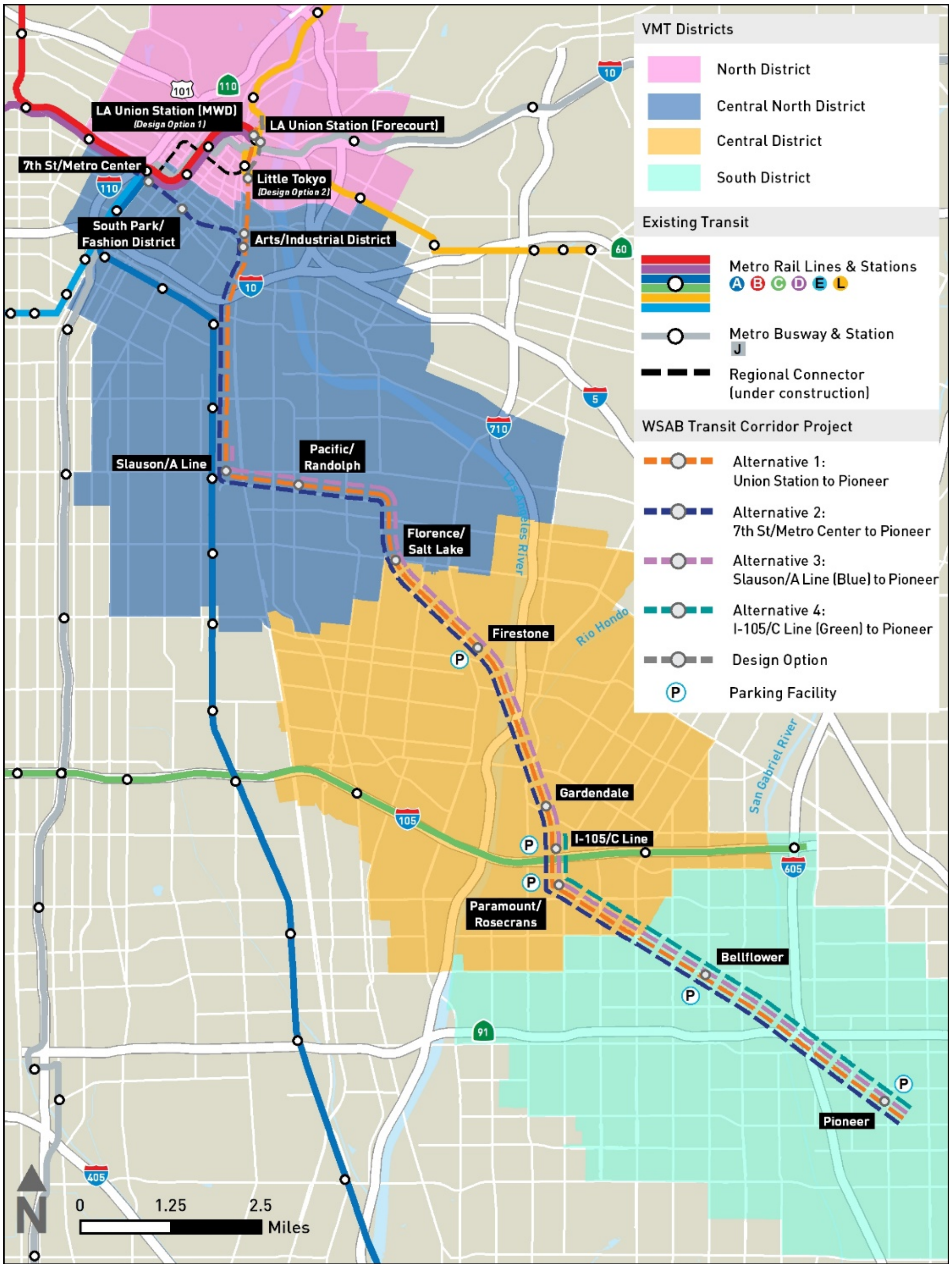
6.2.1.2 Impacts Remaining after Mitigation

No impacts.

6.2.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Using the regional travel demand model, VMT were assessed for Alternative 1 within the Study Area (Figure 6-1). The six-county SCAG region was used as the basis for the geographic evaluation of VMT. Table 6.2 is a summary of the VMT measure for Alternative 1 versus the existing conditions. The VMT for Alternative 1 region (Figure 6-1) is 463 million VMT per day. Under existing conditions, Alternative 1 results in a reduction in VMT of 0.05 percent.

Figure 6-1. Study Area VMT Map



Source: Prepared by Jacobs in 2020

Table 6.2. Existing Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 1	463,029,700	216,100	-0.05%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.3 is a summary of the VMT measure for Alternative 1 compared to the No Build Alternative, which shows a lower VMT for Alternative 1 than for the No Build Alternative. The VMT for Alternative 1 is 605.9 million VMT per day. Under future condition, Alternative 1 results in a reduction in VMT of 0.06 percent.

Table 6.3. 2042 Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 1	605,938,400	391,500	-0.06%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

The conclusion is that Alternative 1 would have a less-than-significant impact because VMT are reduced in the existing and future year scenarios. This conclusion is reinforced by guidance published by OPR in December 2018. CEQA Guidelines Section 15064.3(b)(2) provides that "[t]ransportation projects that reduce, or have no impact on [VMT] should be presumed to cause a less-than-significant transportation impact." Similarly, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) notes that "Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation."

6.2.2.1 Mitigation Measures

No mitigation required.

6.2.2.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.2.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 6.2.2 is applicable to Alternative 2. Table 6.4 is a summary of the VMT measure for Alternative 2 compared to existing conditions. The VMT for the Alternative 2 region (shown on Figure 6-1) is 463 million VMT per day. Under existing conditions, Alternative 2 results in a reduction in VMT of 0.05 percent.

Table 6.4. Existing Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 2	463,030,800	215,000	-0.05%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.5 is a summary of the VMT measure for Alternative 2 compared to the No Build Alternative, which shows a lower VMT for Alternative 2 than for the No Build Alternative. The VMT for Alternative 2 is 605.9 million VMT per day. Under future condition, Alternative 2 results in a reduction in VMT of 0.06 percent.

Table 6.5. 2042 Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 2	605,952,500	377,400	-0.06%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

The conclusion is that Alternative 2 would have a less-than-significant impact because VMT are reduced in the existing and future year scenarios. This conclusion is reinforced by guidance published by OPR in December 2018. CEQA Guidelines Section 15064.3(b)(2) provides that “[t]ransportation projects that reduce, or have no impact on [VMT] should be presumed to cause a less-than-significant transportation impact." Similarly, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) notes that “transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation."

6.2.3.1 Mitigation Measures

No mitigation required.

6.2.3.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.2.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 6.2.2 is applicable to Alternative 3. Table 6.6 is a summary of the VMT measure for Alternative 3 compared to existing conditions. The VMT for Alternative 2 region (shown on Figure 6-1) is 463.1 million VMT per day. Under existing conditions, Alternative 3 results in a reduction in VMT of 0.02 percent.

Table 6.6. Existing Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 3	463,174,000	71,800	-0.02%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.7 is a summary of the VMT measure for Alternative 3 compared to the No Build Alternative, which shows a lower VMT for Alternative 3 than for the No Build Alternative. The VMT for Alternative 3 is 606.2 million VMT per day. Under future condition, Alternative 3 results in a reduction in VMT of 0.02 percent.

Table 6.7. 2042 Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 3	606,199,000	130,900	-0.02%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

The conclusion is that Alternative 3 would have a less-than-significant impact because VMT are reduced in the existing and future year scenarios. This conclusion is reinforced by guidance published by OPR in December 2018. CEQA Guidelines Section 15064.3(b)(2) provides that "[t]ransportation projects that reduce, or have no impact on [VMT] should be presumed to cause a less-than-significant transportation impact." Similarly, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) notes that "transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation."

6.2.4.1 Mitigation Measures

No mitigation required.

6.2.4.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.2.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 6.2.2 is applicable to Alternative 4. Table 6.8 is a summary of the VMT measure for Alternative 4 compared to existing conditions. The VMT for the Alternative 4 region (shown on Figure 6-1) is 463.2 million VMT per day. Under existing conditions, Alternative 4 results in a reduction in VMT of 0.01 percent.

Table 6.8. Existing Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 4	463,209,500	36,300	-0.01%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.9 is a summary of the VMT measure for Alternative 3 compared to the No Build Alternative, which shows a lower VMT for Alternative 4 than for the No Build Alternative. The VMT for Alternative 4 is 606.2 million VMT per day. Under the future condition, Alternative 4 results in a reduction in VMT of 0.02 percent.

Table 6.9. 2042 Build Alternatives Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 4	606,259,100	70,800	-0.01%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

The conclusion is that Alternative 4 would have a less-than-significant impact because VMT are reduced in the existing and future year scenarios. This conclusion is reinforced by guidance published by OPR in December 2018. CEQA Guidelines Section 15064.3(b)(2) provides that "[t]ransportation projects that reduce, or have no impact on [VMT] should be presumed to cause a less-than-significant transportation impact." Similarly, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) notes that "transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation."

6.2.5.1 Mitigation Measures

No mitigation required.

6.2.5.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.2.6 Design Options

6.2.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The VMT analysis for Design Option 1 included the same geographic area as the Build Alternatives. As seen in Table 6.10, Alternative 1 with Design Option 1 results in a reduction in VMT of 0.05 percent compared to existing conditions. As seen in Table 6.11, Alternative 1 with Design Option 1 results in a reduction in VMT of 0.07 percent compared to the No Build Alternative. Therefore, the less-than-significant impact determination described in Section 6.2.2 would also apply to Design Option 1.

Table 6.10. Existing Build Alternatives with Design Options Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 1 with Design Option 1	463,009,500	236,300	-0.05%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.11. 2042 Build Alternatives with Design Options Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 1 with Design Option 1	605,892,100	437,800	-0.07%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

6.2.6.2 Design Option 2: Add Little Tokyo Station

The VMT analysis for Design Option 2 included the same geographic area as the Build Alternatives. As seen in Table 6.12, Alternative 1 with Design Option 2 results in a reduction in VMT of 0.05 percent compared to existing conditions. As seen in Table 6.13, Alternative 1 with Design Option 2 results in a reduction in VMT of 0.07 percent compared to the No Build Alternative. Therefore, the less-than-significant impact determination described in Section 6.2.2 would also apply to Design Option 2.

Table 6.12. Existing Build Alternatives with Design Options Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the Existing) in VMT (Miles)	Reduction
Existing	463,245,800	-	-
Alternative 1 with Design Option 2	463,009,500	236,300	-0.05%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

Table 6.13. 2042 Build Alternatives with Design Options Daily Vehicle Miles Traveled

Alternative	Daily Regional VMT	Reduction (over the No Build) in VMT (Miles)	Reduction
No Build	606,329,900	-	-
Alternative 1 with Design Option 2	605,931,500	398,400	-0.07%

Source: Metro 2019a
Note: VMT = vehicle miles traveled

6.2.6.3 Mitigation Measures

No mitigation required.

6.2.6.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.2.7 Maintenance and Storage Facility

The assessment for the Paramount and Bellflower MSF site option project features of the Build Alternatives described in the prior sections. There is an overall VMT reduction associated with the Build Alternatives, and the MSF site options are integral elements of the Build Alternatives. The two MSF site options support the WSAB improvements that ultimately reduce VMT. Therefore, the MSF site options would have less-than-significant impacts and mitigation would not be required.

6.2.7.1 Paramount MSF Site Option

The assessment for the Paramount MSF site option would contribute to the VMT reduction in the Build Alternatives referenced in this section because the ultimate site selected would be a project feature. Therefore, the MSF site options would have less-than-significant impacts.

6.2.7.2 Bellflower MSF Site Option

The assessment for the Bellflower MSF site option would contribute to the VMT reduction in the Build Alternatives referenced in this section because the ultimate site selected would be a project feature. Therefore, the MSF site options would have less-than-significant impacts.

6.2.7.3 Mitigation Measures

No mitigation required.

6.2.7.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

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

6.3.1 No Project Alternative

Under the No Project Alternative, the Build Alternatives would not be introduced and there would be no change in the existing conditions within the Affected Area. Therefore, there would be no change in hazards.

6.3.1.1 Mitigation Measures

No mitigation measures required.

6.3.1.2 Impacts Remaining after Mitigation

No impacts.

6.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

This impact is discussed thoroughly in the Final Safety and Security Impact Analysis Report (Metro 2021c), Section 7.3, where a similar question, "Would the Project Substantially Increase Hazards Due to a Design Feature or Incompatible Uses?" has been presented and analyzed. As shown in that section, impacts from the Build Alternatives would be less than significant after mitigation (SAF-1).

Additionally, operational changes to the lengths of vehicle queues from nearby intersections back to train crossings could result in vehicle delays. The result could be vehicles stopped on the tracks, unless other measures are taken, such as placing signs to indicate that stopping on the tracks is not permitted. To minimize the potential for vehicles queuing onto at-grade crossings, Project Measures TR PM-1 though TR PM-9 will be implemented. The crossings will be designed with safety measures, and safety requirements would be established in accordance with FTA and California Public Utilities Commission requirements, along with coordination with the freight operators. Metro design criteria will also be followed, and the at-grade crossings will be operated in accordance with Metro system safety plans, policies, and procedures. These strategies will reduce the potential for hazards between other users and the new LRT service to a less-than-significant level after mitigation.

6.3.2.1 Mitigation Measures

Mitigation Measure SAF-1 (introducing intrusion crash walls and intrusion detection systems), and discussed thoroughly in the Final Safety and Security Impact Analysis Report, to deploy encroachment detection system to detect unauthorized entry into Metro right-of-way to reduce the potential safety impacts associated with the operation of freight and LRT in a shared right-of-way to less-than-significant levels.

6.3.2.2 Impacts Remaining after Mitigation

With implementation of Mitigation Measure SAF-1, and discussed thoroughly in the Final Safety and Security Impact Analysis Report, impacts associated with the introduction of LRT vehicle operations along the corridor and the corresponding safety hazards that would result from these operations, as well as the corresponding interface with vehicular, bicycle, pedestrian, and freight rail operations, would be less than significant.

6.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 6.3.2 is also applicable to Alternative 2. The strategies will reduce the potential for hazards between other users and the new LRT service to a less-than-significant level after mitigation.

6.3.3.1 Mitigation Measures

The mitigation measures described in Section 6.3.2 are also applicable to Alternative 2.

6.3.3.2 Impacts Remaining after Mitigation

The impacts remaining after mitigation in Section 6.3.2 are also applicable to Alternative 2. Therefore, impacts would be less than significant.

6.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 6.3.2 is also applicable to Alternative 3. The strategies will reduce the potential for hazards between other users and the new LRT service to a less-than-significant level after mitigation.

6.3.4.1 Mitigation Measures

The mitigation measures described in Section 6.3.2 are also applicable to Alternative 3.

6.3.4.2 Impacts Remaining after Mitigation

The impacts remaining after mitigation in Section 6.3.2 are also applicable to Alternative 3. Therefore, impacts would be less than significant.

6.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 6.3.2 is also applicable to Alternative 4. The strategies will reduce the potential for hazards between other users and the new LRT service to a less-than-significant level after mitigation.

6.3.5.1 Mitigation Measures

The mitigation measures described in Section 6.3.2 are also applicable to Alternative 4.

6.3.5.2 Impacts Remaining after Mitigation

The impacts remaining after mitigation in Section 6.3.2 are also applicable to Alternative 4. Therefore, impacts would be less than significant.

6.3.6 Design Options

6.3.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

Design Option 1 (LAUS MWD) would not introduce design elements that could increase hazards (e.g., new at-grade crossings, unsafe pedestrian crossings). The impact analysis discussed thoroughly in the Final Safety and Security Impact Analysis Report (Metro 2021c) for the design option is applicable. Therefore, Design Option 1 would have less-than-significant impacts.

6.3.6.2 Design Option 2: Add Little Tokyo Station

Design Option 2 (Add Little Tokyo Station) would result in the addition of a station and the corresponding design features; however, these changes would not result in the introduction of new hazards associated with geometric design or incompatible uses. The impact analysis discussed thoroughly in the Final Safety and Security Impact Analysis Report (Metro 2021c) for the design option is applicable. Therefore, Design Option 1 would have less-than-significant impacts.

6.3.6.3 Mitigation Measures

No mitigation measures required.

6.3.6.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.3.7 Maintenance and Storage Facility

6.3.7.1 Paramount MSF Site Option

The Paramount MSF site option would not introduce any design elements that could increase hazards (e.g., new at-grade crossings, pedestrian crossings with safety issues). The MSF site option would be located on a site with fencing, preventing public access. Therefore, the MSF site option would not introduce design features that could result in hazards, and the MSF site option would have less-than-significant impacts.

6.3.7.2 Bellflower MSF Site Option

The Bellflower MSF site option would not introduce any design elements that could increase hazards (e.g., new at-grade crossings, pedestrian crossings with safety issues). The MSF site option would be located on a site with fencing, preventing public access. Therefore, the MSF site option would not introduce design features that could result in hazards, and the MSF site option would have less-than-significant impacts.

6.3.7.3 Mitigation Measures

No mitigation measures required.

6.3.7.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4 Result in inadequate emergency access?

6.4.1 No Project Alternative

Under the No Project Alternative, the Build Alternatives would not be introduced and there would be no change to the existing conditions within the Affected Area. Therefore, there would be no changes that would result in inadequate emergency access and no impacts would occur.

6.4.1.1 Mitigation Measures

No mitigation measures required.

6.4.1.2 Impacts Remaining after Mitigation

No impacts.

6.4.2 Alternative 1: Los Angeles Union Station to Pioneer Station

As described in Sections 5.1 and 5.2 of the Final Safety and Security Impact Analysis Report (Metro 2021c), the potential for significant impacts would be less than significant because Alternative 1 would not interfere with adopted emergency response or evacuation plans, emergency service providers, or otherwise increase the demand for emergency response services. Alternative 1 would not remove access routes used by existing emergency service providers. Delays in emergency response services or evacuation plans due to at-grade crossings gate down times would also be less than significant because these plans would not typically involve crossing active rail corridors.

6.4.2.1 Mitigation Measures

No mitigation measures required.

6.4.2.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 6.4.2 is also applicable to Alternative 2 because of their similar project elements and impact minimization strategies. The alternative would not be expected to interfere with emergency response plans or increase the demand for emergency response services. Therefore, less-than-significant impacts would occur.

6.4.3.1 Mitigation Measures

No mitigation required.

6.4.3.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 6.4.2 is also applicable to Alternative 3 because of their similar project elements and impact minimization strategies. The alternative would not be expected to interfere with emergency response plans or increase the demand for emergency response services. Therefore, less-than-significant impacts would occur.

6.4.4.1 Mitigation Measures

No mitigation required.

6.4.4.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 6.4.2 is also applicable to Alternative 4 because of their similar project elements and impact minimization strategies. The alternative would not be expected to interfere with emergency response plans or increase the demand for emergency response services. Therefore, less-than-significant impacts would occur.

6.4.5.1 Mitigation Measures

No mitigation required.

6.4.5.2 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4.6 Design Options

6.4.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 6.1.2 would also apply to Design Option 1 because of their similar project elements and impact minimization strategies. The design option would not be expected to interfere with emergency response plans or increase the demand for emergency response services. Therefore, the design option would result in less-than-significant impacts.

6.4.6.2 Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 6.1.2 would also apply to Design Option 2 because of the similar project elements and impact minimization strategies. The design option would not be expected to interfere with emergency response plans or increase the demand for emergency response services. Therefore, the design option would result in less-than-significant impacts.

6.4.6.3 Mitigation Measures

No mitigation required.

6.4.6.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

6.4.7 Maintenance and Storage Facility

6.4.7.1 Paramount MSF Site Option

The impact analysis described in Section 6.1.2 also applies to the Paramount MSF site option. The MSF site option would have similar impacts as described above because of trains crossing the at-grade crossing to access the MSF site option. The Paramount MSF site option would include a connection track that uses the existing Garfield Avenue at-grade crossing to connect the remote MSF site option to the rest of the LRT track network. Train crossing frequency related to the MSF site option would be less compared to the Build Alternatives. The MSF site option would not remove access routes used by existing emergency service providers. Therefore, the MSF site option would not interfere with local jurisdictions' emergency response plans or overtax existing emergency service providers. Emergency response services could experience delays during gate down times at the at-grade crossing associated with each site, but those delays would result in less-than-significant impacts.

6.4.7.2 Bellflower MSF Site Option

The impact analysis described in Section 6.1.2 also applies to the Bellflower MSF site options. The MSF site option would have similar impacts as described above because of trains crossing the at-grade crossing to access the MSF site option. The Bellflower MSF would add train crossing events, specifically to the adjacent proposed Lakewood Boulevard at-grade crossing used for daily train operations, as trains leave or arrive the MSF site option as part adding/removing trains for daily operations or for maintenance purposes. Train crossing frequency related to the MSF site option would be less compared to the Build Alternatives. The MSF site option would not remove access routes used by existing emergency service providers. Therefore, the MSF site option would not interfere with local jurisdictions' emergency response plans or overtax existing emergency service providers. Emergency response services could experience delays during gate downtimes at the at-grade crossing associated with each site, but those delays would result in less-than-significant impacts.

6.4.7.3 Mitigation Measures

No mitigation required.

6.4.7.4 Impacts Remaining after Mitigation

Less-than-significant impacts.

7 CONSTRUCTION IMPACTS

7.1 Construction Activities

Construction of the Build Alternatives would include track and station construction at-grade through and adjacent to local streets with live traffic, underground track and station construction, overhead/aerial track and station construction, at-grade station parkway construction, and street closure/turning movement restrictions. The following summarizes Metro's current assumptions regarding construction activities. The analysis conservatively assumes longer durations of closures and more peak hour, weekday, and full street closures than are likely to be required.

The construction of the Build Alternatives' tracks would be located within active and inactive rail corridors, depending on the location. In the San Pedro Subdivision, which is currently used for active freight, a temporary shoo-fly track would be constructed to allow for the construction of new freight tracks. The freight rail would be redirected to the temporary shoo-fly while new freight tracks are constructed. After the construction of the new freight tracks is complete, freight rail services would be transferred to the newly constructed freight tracks. The new LRT tracks would be constructed after the existing freight track service is switched to the relocated track. Coordination with the existing freight operator would be required.

Construction of an LRT aerial guideway would begin with the installation of piles for columns and piers that support the structure and loads that would be carried on it. Pile-supported columns would be constructed in two main stages. In the first stage, piles made from steel or concrete, typically about 12 to 15 inches in diameter, would be driven into the ground by vibratory or pile-driving equipment or, alternatively, cast-in-drilled-hole (CIDH) piles. The second stage joins the piles with the construction of the pile cap, typically a 4- to 5-foot slab of reinforced concrete. The pile cap would be constructed to distribute the structural load to two or more piles. Large diameter CIDH pile construction consists of drilling shafts that are up to 8 feet in diameter, or larger, with the placement of a rebar cage inside the shaft, and then filling it with concrete. The diameter of the CIDH piles would depend on the structural load limit to be supported. Driven piles and regular CIDH piles require a pile cap. Large diameter CIDH piles do not require a pile cap and can be as large, or larger than, the column supporting them. At a few locations along Long Beach Avenue, straddle bents would be used when a singular column supporting the aerial guideway is not feasible. These would occur, for example, to maintain an existing left-hand turn lane. Straddle bents consist of two large diameter columns, offset from the row of typical columns, with a beam between them, and the aerial guideway on top of the beam.

Tunnels would be constructed using tunnel boring machines (TBMs) to control ground and groundwater inflows into the tunnel that can potentially lead to surface settlement if not mitigated. In addition, this technology allows the tunnel lining to be installed concurrently, which also prevents groundwater from entering the tunnel behind the TBM. The TBM would be launched from a portal located on a property adjacent to Long Beach Avenue between E 14th and Newton Streets. The TBM would be retrieved at a designated end point, through a crossover cavern. The extraction of the TBMs would occur at the station box at the terminus locations for Build Alternative 2 in the Downtown Transit Core or Build Alternative 1 at Union Station. In-street work areas would only be used when there is no viable off-street alternative.

At-grade crossings would use embedded tracks. The construction method for embedded tracks would begin with the demolition of existing median or roadway where the LRT would be built, the preparation of the rail track bed, installation of the supporting track slab and laying of the rail tracks. Grade crossings would be constructed using pre-fabricated panels that incorporate the rails and roadway surface. To accommodate the guideway, street sections may require widening or reconstruction. Street reconstruction activities would be required at proposed at-grade crossing locations and within the affected street right-of-way. Street reconstruction would allow for track slab placement, crossing gates, traffic signals, and rails.

Construction of the at-grade stations would involve cast-in-place concrete or pre-cast panels to construct a platform along with ramps and stairs. Station furnishings would then be installed, including canopies, railings, lighting, seating, signage, artwork, bike racks, and fare vending equipment.

The Build Alternatives would require cut-and-cover construction for underground stations and track crossover caverns from the ground surface. This construction entails a construction shoring system with a temporary deck over the excavated area, constructing the underground facilities beneath the deck, and then backfilling and restoring the surface once the facilities are complete. Underground stations would be constructed using TBM or cut-and-cover construction method. Temporary concrete decking can be placed over the cut immediately following the first lift of excavation (at 12 to 15 feet below ground surface) to allow traffic to pass above. Construction of underground stations may also require the support of existing underground utilities that cannot be relocated.

Construction of the surface parking facilities would involve initial demolition of each site where existing structures and pavement are present, subgrade preparation of the parking area, paving, and striping. Concrete curbs, lighting, driveways, sidewalks, and landscaping would be installed as necessary.

One MSF would be constructed as part of the Project, although the specific location is still unknown. Two site options are currently under consideration: Bellflower MSF and Paramount MSF. The construction of an MSF on either site would involve the following construction phases:

- Demolition and site preparation and grading
- Installation of foundations
- Erection of buildings
- Installation of track work, utility lines, and roadway and parking facilities
- Site aesthetic improvements such as landscaping

Table 7.1 is a summary of the anticipated road, sidewalk, and bicycle facility closures, and affected transit routes, as a result of construction activities.

Table 7.2 is a summary of the potential staging and laydown area options. It also lists the construction staging areas with associated highways and streets where haul routes would operate. Multiple construction staging areas will be used throughout construction of the Build Alternatives, and temporary easements will be required on sidewalks, streets, and private property in proximity to some of these construction staging areas and work areas. The haul routes were selected on the basis of safety and travel time, while minimizing the potential effects on traffic, residences, and businesses. Highway haul routes would include I-10, I-105, I-110, I-605, I-710, SR-91, US-101, and others as appropriate. Major arterial streets will be used for the haul routes. These haul routes will need approval from the local jurisdiction city or agency.

Table 7.1. Anticipated Construction-related Closures

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
City of Los Angeles									
1	1, Design Option 2	Road	Little Tokyo Station	Temporary	Alameda St	1st St and Traction Ave	24-48	-	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
2	1, Design Option 2	Sidewalk	Little Tokyo Station	Temporary	Alameda St	1st St and Traction Ave	24-48	-	Half of west sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
3	1	Road	Arts/Industrial District Station	Temporary	Alameda St	6th St and Industrial St	24-48	-	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
4	1	Sidewalk	Arts/Industrial District Station	Temporary	Alameda St	6th St and Industrial St	24-48	-	Half of west sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
5	1, 2	Road	Tunnel Portal	Permanent	Long Beach Ave	Olympic Blvd and Newton St	N/A	-	-
6	1, 2	Sidewalk	Tunnel Portal	Permanent	Long Beach Ave	Olympic Blvd and 14th St	N/A	-	At tunnel portal only.
7	1, 2	Sidewalk	Tunnel Portal	Temporary	Long Beach Ave	Olympic Blvd and Newton St	24-48	-	Sidewalks on either side of street leading to portal.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
8	1, 2	Road	Tunnel Portal	Permanent	14th St	Compton Ave and Long Beach Ave	N/A	-	-
9	1, 2	Sidewalk	Tunnel Portal	Permanent	14th St	Compton Ave and Long Beach Ave	N/A	-	-
10	2	Road, Bicycle	7th Street/Metro Center Station Pedestrian Tunnel	Temporary	Figueroa St	7th St and 8th St	24-48	Metro 493, 495, 497, 498, 499, 699; DASH 423, F	Two traffic lanes closed during construction.
11	2	Sidewalk	7th Street/Metro Center Station Pedestrian Tunnel	Temporary	Figueroa St	7th St and 8th St	24-48	Metro 493, 495, 497, 498, 499, 699; DASH 423, F	East side full sidewalk closure (typically intermittently during nighttime or off-peak periods).
12	2	Road	7th Street/Metro Center Station	Temporary	8th St	Francisco St to Figueroa Ave	24-48	Metro 66	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
13	2	Sidewalk	7th Street/Metro Center Station	Temporary	8th St	Francisco St to Figueroa Ave	24-48	Metro 66	North half of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
14	2	Road	7th Street/Metro Center Station	Temporary	8th St	Figueroa Ave to Flower St	24-48	Metro 66	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
15	2	Sidewalk	7th Street/Metro Center Station	Temporary	8th St	Figueroa Ave to Flower St	24-48	Metro 66	Southern half of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
16	2	Road	7th Street/Metro Center Station	Temporary	8th St	Flower St to Hope St	24-48	Metro 66	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
17	2	Sidewalk	7th Street/Metro Center Station	Temporary	8th St	Flower St to Hope St	24-48	Metro 66	Southern half of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
18	2	Road	South Park/ Fashion District Station	Temporary	8th St	Main St to Los Angeles St	24-48	Metro 66	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
19	2	Sidewalk	South Park/ Fashion District Station	Temporary	8th St	Main St to Los Angeles St	24-48	Metro 66	Southern half of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
20	2	Road	South Park/ Fashion District Station	Temporary	8th St	Los Angeles St to Santee St	24-48	Metro 66	Half of temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
21	2	Sidewalk	South Park/ Fashion District Station	Temporary	8th St	Los Angeles St to Santee St	24-48	Metro 66	Southern half of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
22	2	Road	Arts/Industrial District Station	Temporary	8th St	Alameda St to Naomi St	24-48	-	Half of street temporarily; full street closure (typically intermittently during nighttime or off-peak periods).
23	2	Sidewalk	Arts/Industrial District Station	Temporary	8th St	Alameda St to Naomi St	24-48	-	Both sides of sidewalk temporarily; full sidewalk closure (typically intermittently during nighttime or off-peak periods).
24	1, 2	Road	I-10 Bridge	Temporary	I-10	-	12-24	-	Intermittent nighttime closures.
25	1, 2	Road	Long Beach Ave Viaduct	Temporary	Long Beach Ave; NB Lanes	Washington Blvd to Slauson Blvd	24-48	Metro A (Blue) Line	Half of northbound road temporarily closed; intersections closed (typically intermittently during nighttime or off-peak periods).
City of Huntington Park									
26	1, 2, 3	Road	Grade Crossing	Permanent Grade Crossing	Randolph St	Wilmington Ave, Regent St, Albany St, Rugby Ave, Rita Ave	N/A	-	Cross street closed to crossing railroad right-of-way; access to Randolph St limited to right-in and right-out turning movements.
27	1, 2, 3	Sidewalk	Grade Crossing	Permanent grade crossing	Randolph St	Wilmington Ave, Regent St, Albany St, Rugby Ave, Rita Ave	N/A	-	Cross street closed to crossing railroad ROW; access to Randolph St limited to right-in and right-out turning movements
28	1, 2, 3	Road	Pacific/Randolph Station	Permanent	Randolph St	Rugby Ave to Arbutus Ave	N/A	-	Loss of street parking on both sides of street (due to Pacific/Randolph Station).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
29	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Randolph St	Santa Fe Ave, Malabar St, Seville Ave, Miles Ave, Pacific Blvd, Arbutus St, State St, Alameda St	1	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
30	1, 2, 3	Road	Grade Crossing	Temporary	Randolph St	State St	3-6	Metro 254	Temporary lane closures and relocations during grade crossing construction.
31	1, 2, 3	Road	Grade Crossing	Temporary	Gage Ave	-	1	Metro 110	Temporary lane closures and relocations during grade crossing construction; full closures (typically intermittently during nighttime).
32	1, 2, 3	Road	Grade Crossing	Temporary	Otis Ave	-	1	-	Temporary lane closures and relocations during grade crossing construction; full closures (typically intermittently during nighttime).
33	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Gage Ave	-	1	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
34	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Otis Ave	-	1	Metro 612	Close sidewalks during reconstruction and integration of new grade crossing equipment.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
City of Bell									
35	1, 2, 3	Road	Grade Crossing	Temporary	Bell Ave	-	1	-	Temporary lane closures and relocations during grade crossing construction; intermittent nighttime closures.
36	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Bell Ave	-	1	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
City of Huntington Park/Bell/Cudahy									
37	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Florence Ave	-	1-3	Metro 111, 612	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
38	1, 2, 3	Road	Grade Crossing	Temporary	Florence Ave	-	1-3	Metro 111, 612	Close sidewalks during reconstruction and integration of new grade crossing equipment.
City of Huntington Park/Cudahy/South Gate									
39	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Santa Ana St	Salt Lake Ave	1-3	Metro 611	Close sidewalks during reconstruction and integration of new grade crossing equipment.
40	1, 2, 3	Road	Grade Crossing	Temporary	Santa Ana St	Salt Lake Ave	1-3	Metro 611	Temporary lane closures and relocations during grade crossing and median construction; intermittent nighttime closures.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
City of Cudahy									
41	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Ardine St	Salt Lake Ave	1-3	-	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
42	1, 2, 3	Road	Grade Crossing	Temporary	Ardine St	Salt Lake Ave	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
City of South Gate									
43	1, 2, 3	Road	Firestone Grade Separation	Temporary	Atlantic Ave and Firestone Blvd	-	12-24	Metro 115, 260, 762	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
44	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Southern Ave, Rayo Ave	-	1-3	Metro 115	Close sidewalks during reconstruction and integration of new grade crossing equipment.
45	1, 2, 3	Road, Bicycle	Grade Crossing	Temporary	Southern Ave, Rayo Ave	-	1-3	Metro 115	Temporary lane closures and relocations during grade crossing construction; full closures (typically intermittently during nighttime).
46	1, 2, 3	Road	I-710 Undercrossing	Temporary	I-710	-	6-12	-	Full lane closures (typically intermittently during nighttime).
47	1, 2, 3	Road	Grade Crossing	Permanent Grade Crossing	Frontage Rd and Miller Way	-	1-3	-	Closure of private driveway grade crossings.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
48	1, 2, 3	Road	Grade Separation	Temporary	Imperial Blvd and Garfield Ave	-	12-24	Metro 117, 120, 258	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
49	1, 2, 3	Sidewalk	Grade Separation	Temporary	Imperial Blvd and Garfield Ave	-	12-24	-	Close sidewalks during reconstruction.
50	1, 2, 3	Road	Grade Crossing	Temporary	Main St	-	1-3	-	Temporary lane closures and relocations during grade crossing construction; full closures (typically intermittently during nighttime).
51	1, 2, 3	Sidewalk	Grade Crossing	Temporary	Main St	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
52	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Century Blvd	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
53	1, 2, 3, 4	Road	Grade Crossing	Temporary	Century Blvd	-	1-3	-	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
City of South Gate/Cudahy									
54	1, 2, 3, 4	Road	Grade Crossing	Temporary	Gardendale St	-	1 - 3	-	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
55	1, 2, 3, 4	Road	Grade Crossing	Permanent	Gardendale St	-	-	-	Westbound left-turn lane closed.
56	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Gardendale St	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
City of Paramount									
57	1, 2, 3, 4	Road	Grade Separation	Temporary	N. Somerset Ranch Rd	-	12-24	-	Full closures (typically intermittently during nighttime).
58	1, 2, 3, 4	Road	Grade Separation	Temporary	I-105	-	12-24	Metro C (Green) Line	Full closures (typically intermittently during nighttime); potential lane width reduction.
59	1, 2, 3, 4	Road	Grade Separation	Temporary	S. Somerset Ranch Rd	-	12-24	-	Full closures (typically intermittently during nighttime).
60	1, 2, 3, 4	Road	Grade Separation	Temporary	Paramount Blvd	-	12-24	Metro 265	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
61	1, 2, 3, 4	Sidewalk	Grade Separation	Temporary	Paramount Blvd	-	12-24	Metro 265	Close sidewalks during reconstruction.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
62	1, 2, 3, 4	Road	Grade Separation	Temporary	Rosecrans Ave	-	12-24	Metro 125	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
63	1, 2, 3, 4	Sidewalk	Grade Separation	Temporary	Rosecrans Ave	-	12-24	Metro 125	Close sidewalks during reconstruction.
64	1, 2, 3, 4	Road	Grade Separation	Temporary	Downey Ave	-	12-24	LBT 22	Lane width reduction to accommodate construction of modified median and grade separation column; full road closures (typically intermittently during nighttime).
65	1, 2, 3, 4	Sidewalk	Grade Separation	Temporary	Downey Ave	-	12-24	LBT 22	Close sidewalks during reconstruction.
66	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Somerset Blvd	-	1-3	Metro 127	Close sidewalks during reconstruction and integration of new grade crossing equipment.
67	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Temporary	Somerset Blvd	-	1-3	Metro 127	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
68	1, 2, 3, 4	Road, Bicycle	Grade Separation	Temporary	Woodruff Ave and Flower St	-	12-24	NTS 1; LBT 92	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
69	1, 2, 3, 4	Sidewalk	Grade Separation	Temporary	Woodruff Ave and Flower St	-	12-24	NTS 1; LBT 92	Close sidewalks during reconstruction.
City of Bellflower									
70	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Lakewood Blvd	-	1-3	Metro 266	Close sidewalks during reconstruction and integration of new grade crossing equipment.
71	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Temporary	Lakewood Blvd	-	1-3	Metro 266	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
72	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Clark Ave	-	1-3	NTS 1	Close sidewalks during reconstruction and integration of new grade crossing equipment.
73	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Temporary	Clark Ave	-	1-3	NTS 1	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
74	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Permanent	Clark Ave	-	-	NTS 1	Lane width reduction.
75	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Alondra Blvd	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
76	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Temporary	Alondra Blvd	-	1-3	Metro 127, 128	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
77	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Permanent	Alondra Blvd	-	-	Metro 127, 128	Lane width reduction.
78	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Bellflower Blvd	-	1-3	LBT 91, 93	Close sidewalks during reconstruction and integration of new grade crossing equipment.
79	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Temporary	Bellflower Blvd	-	1-3	LBT 91, 93	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
80	1, 2, 3, 4	Road, Bicycle	Grade Crossing	Permanent	Bellflower Blvd	-	-	LBT 91, 93	Lane width reduction.
City of Cerritos									
81	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Artesia Blvd	-	1-3	Metro 130; COW 1B, 1C	Close sidewalks during reconstruction and integration of new grade crossing equipment.
82	1, 2, 3, 4	Road	Grade Crossing	Temporary	Artesia Blvd	-	1-3	Metro 130; COW 1B, 1C	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
83	1, 2, 3, 4	Road	Private Driveway	Permanent	Extra Space Storage	San Gabriel River and Artesia Blvd	-	-	Close private driveway.
84	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Studebaker Rd	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
85	1, 2, 3, 4	Road	Grade Crossing	Temporary	Studebaker Rd	-	1-3	Metro 130; COW 1B, 1C; LBT 172, 173; NTS 2	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
86	1, 2, 3, 4	Road	Grade Crossing	Permanent	South St	-	-	COW 1B, 1C; LBT 173; OCTA 30	Lane width reduction.
City of Cerritos/Artesia									
87	1, 2, 3, 4	Road	Grade Separation	Temporary	Gridley Rd and 183rd St	-	12-24	Metro 62; COW 1B, 1C; LBT 172, 173; NTS 2; OCTA 30	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
88	1, 2, 3, 4	Sidewalk	Grade Separation	Temporary	Gridley Rd and 183rd St	-	12-24	Metro 62; COW 1B, 1C; LBT 172, 173; NTS 2; OCTA 30	Close sidewalks during reconstruction.
89	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	Pioneer Blvd	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
90	1, 2, 3, 4	Road	Grade Crossing	Temporary	Pioneer Blvd	-	1-3	-	Temporary lane closures and relocations during grade crossing and median construction; full closures (typically intermittently during nighttime).
91	1, 2, 3, 4	Road	Grade Crossing	Permanent	Pioneer Blvd	-	-	-	Lane width reduction.

No.	Build Alternative	Closure Element	Project Element/Area	Closure Type	Street	Cross Street	Approximate Closure Duration (months)	Affected Transit Routes	Closure Details
City of Artesia									
92	1, 2, 3, 4	Road	Grade Crossing	Temporary	186th St	-	1-3	-	Temporary lane closures and relocations during grade crossing construction; full closures (typically intermittently during nighttime).
93	1, 2, 3, 4	Sidewalk	Grade Crossing	Temporary	186th St	-	1-3	-	Close sidewalks during reconstruction and integration of new grade crossing equipment.
94	1, 2, 3, 4	Road	Grade Crossing	Permanent	187th St	Corby Ave (West) to Corby Ave (East)	N/A	-	-
95	1, 2, 3, 4	Sidewalk	Grade Crossing	Permanent	187th St	Corby Ave (West) to Corby Ave (East)	N/A	-	-
96	1, 2, 3, 4	Road	Parking Structure	Permanent	188th St	Corby Ave (West) to Pioneer Blvd	N/A	-	-

Source: Metro 2021a
Notes: COW = Cerritos on Wheels; I- = Interstate; LBT = Long Beach Transit; N/A = not applicable; NTS = Norwalk Transit System; OCTA = Orange County Transportation Authority

Table 7.2. Construction Staging Areas and Haul Routes

No.	Build Alternative Affected	Location	Location Description	Private/Public Ownership	Project Component	Haul Route
1	1	Northeast Corner, Alameda St and Cesar Chavez Blvd	United States Postal Service Parking Lot	Private	LAUS – Forecourt	US-101, Alameda St, Commercial St, Los Angeles St
2	1	Northeast Corner, Alameda St and Los Angeles St	LAUS Parking Lot B	Public	LAUS – Forecourt	US-101, Alameda St, Commercial St, Los Angeles St
3	1	Southeast Corner, Alameda St and Los Angeles St	La Petite Academy of Los Angeles Parking Lot	Public	LAUS – Forecourt	US-101, Alameda St, Commercial St, Los Angeles St
4	1	Eastside of LAUS, North of US-101 freeway, West of Metro L (Gold) Line Platform	LAUS Parking Lot P and landscape	Public	LAUS – Forecourt	US-101, Alameda St, Commercial St, Los Angeles St
5	1, Design Option 2	Northeast Corner, E 1st St and Alameda St	Regional Connector Staging Site	Public	Little Tokyo Station	US-101, Alameda St, Arcadia St, Commercial St, Los Angeles St
6	1, Design Option 2	Northwest Corner, E. 2nd St and Alameda St	Office Depot Parking Lot	Public and Private	Little Tokyo Station	US-101, Alameda St, Arcadia St, Commercial St, Los Angeles St
7	1	Westside of Alameda St between 6th and 7th St	Bus Facility, partial sidewalk, and southbound lanes	Public and Metro-Owned	Arts/Industrial District Station	I-10, Alameda St, Newton St
8	1	Eastside of Alameda St between 7th St and Alameda St	Bus Facility, partial sidewalk, one northbound lane, commercial buildings	Permanent/Partial Take	Arts/Industrial District Station	I-10, Alameda St, Newton St
9	2	Northside of 8th St between Francisco St and Figueroa St	Located on vacant parcel between Target parking structure and 777 S Figueroa St, Los Angeles, CA 90017. Partial lane and sidewalk	Public and Private	7th St/Metro Center Station	I-110, 8th St, James M Wood Blvd/9th St

No.	Build Alternative Affected	Location	Location Description	Private/Public Ownership	Project Component	Haul Route
10	2	Southeast Corner, 8th St and S Figueroa St	Parking Lot	Private	7th St/Metro Center Station	I-110, 8th St, James M Wood Blvd/9th St
11	2	Northside of 8th St between Figueroa Flower St	Partial lane and sidewalk	Public	7th St/Metro Center Station	I-110, 8th St, James M Wood Blvd/9th St
12	2	Northside of 8th St between Flower St and Hope St	Partial lane and sidewalk	Public	7th St/Metro Center Station	I-110, 8th St, James M Wood Blvd/9th St, Hope St
13	2	Southside of 8th St between Main St and Los Angeles St	Partial westbound lane and sidewalk	Public	South Park/Fashion District Station	I-10, 8th St, 18th St, Main St, Los Angeles St
14	2	Southside of 8th St between Los Angeles St and Santee St	Partial lane street and sidewalk	Public	South Park/Fashion District Station	I-10, 8th St, 9th St, 18th St, Main St, Los Angeles St, Santee St
15	2	Northern end of Santee St, north of 8th St	End of local Street	Public	South Park/Fashion District Station	I-10, 8th St, 9th St, 18th St, Main St, Los Angeles St, Santee St
16	2	Southwest Corner, 8th St and Santee St	Parking Lot	Private	South Park/Fashion District Station	I-10, 8th St, 9th St, 18th St, Main St, Los Angeles St, Santee St
17	1, 2	Eastside and Westside of Long Beach Ave between Olympic Blvd and 14th St	Commercial/Industrial	Private	TBM Launch Portal	I-10, Long Beach Ave, 14th St, 16th St, 17th St, Alameda St, Newton St
18	1, 2	Long Beach Ave between Olympic Blvd and 14th St	Metro Bus Facility Partial strip of street and sidewalk	Public and Private	TBM Launch Portal	I-10, Long Beach Ave, 14th St, 16th St, 17th St, Alameda St, Newton St
19	1, 2	Long Beach Ave between Olympic Blvd and 14th St	Industrial/Commercial/street and sidewalk	Public and Private	TBM Launch Pit	I-10, Long Beach Ave, 14th St, 16th St, 17th St, Alameda St, Newton St

No.	Build Alternative Affected	Location	Location Description	Private/Public Ownership	Project Component	Haul Route
20	1, 2	Westside of Long Beach Ave between 14th and 15th St	Industrial/Commercial	Private	TBM Launch Pit	I-10, Long Beach Ave, 14th St, 16th St, 17th St, Alameda St, Newton St
21	1, 2	Westside of Long Beach Ave, below I-10 freeway	Freeway Underpass	Public and Private	TBM Staging Area	I-10, 14th St, 16th St, 17th St, Alameda St, Long Beach Ave, Newton St
22	1, 2	Northeast Corner, Long Beach Ave and Washington Blvd	Parking lot and industrial property 1700 Long Beach Ave, Los Angeles	Private	Long Beach Blvd Viaduct	I-10, 16th St, 17th St, Alameda St, Central Ave, Compton Ave, Washington Blvd
23	1, 2	Northwest Corner, Long Beach Ave and Washington Blvd	Industrial building	Private	Long Beach Blvd Viaduct	I-10, 16th St, 17th St, Alameda St, Central Ave, Long Beach Ave, Washington Blvd
24	1, 2	Northwest Corner, Long Beach Ave and 20th St	Fueling Facility	Private	Long Beach Blvd Viaduct	I-10, 16th St, 20th St, Alameda St, Compton Ave, Hooper Ave, Washington Blvd
25	1, 2	Northeast Corner, Long Beach Ave and Vernon Ave	Light Industrial	Public and Private	Long Beach Blvd Viaduct	I-10, Alameda St, Newton St, Vernon Ave
26	1, 2, 3	Northeast Corner, Long Beach Ave and Slauson Ave	Industrial	Private	Long Beach Blvd Viaduct	I-10, Alameda St, Newton St, Slauson Ave
27	1, 2, 3	Southeast Corner, Long Beach Ave and Slauson Ave	Industrial	Private	Long Beach Blvd Viaduct	I-10, Alameda St, Newton St, Slauson Ave
28	1, 2, 3	Southeast Corner, Slauson Ave and Randolph St	Industrial	Private (UPRR ROW)	Long Beach Blvd Viaduct	I-110, I-710, Alameda St, Atlantic Blvd, Florence Ave, Slauson Ave

No.	Build Alternative Affected	Location	Location Description	Private/Public Ownership	Project Component	Haul Route
29	1, 2, 3	Existing Railroad ROW at Bissell St and Randolph St	Railroad ROW	Private (UPRR ROW)	Randolph Grade Separation	I-710, Atlantic Blvd, Florence Ave, Randolph St
30	1, 2, 3	Southeast of Firestone Blvd between Patata St and Mason St along Railroad ROW	Warehousing/Logistics	Private	Firestone Station and Grade Separation	I-710, Firestone Blvd
31	1, 2, 3	West of Salt Lake Ave at end of Wood Ave	Vacant	Private	Los Angeles River Bridge	I-710, Firestone Blvd, Miller Way, Rayo Ave, Salt Lake Ave, Southern Ave
32	1, 2, 3	East of Salt Lake Ave between Duncan Way and Wood Ave	Vacant	Public and Private	Los Angeles River Bridge	I-710, Firestone Blvd, Miller Way, Rayo Ave, Salt Lake Ave, Southern Ave
33	1, 2, 3	South of Miller Way, adjacent to I-710	Light Industrial Storage	Public and Private	I-710 Undercrossing and Rio Hondo Channel Bridge	I-710, Firestone Blvd, Garfield Ave, Miller Way, Southern Ave
34	1, 2, 3	Northeast Corner, Railroad ROW and Garfield Ave, South of Imperial Hwy	Vacant	Private	LA River Bridge and I-170 Undercrossing	I-710, Imperial Hwy, Garfield Ave
35	1, 2, 3, 4	East of Center St and west of Industrial Ave between Lincoln and Nevada	Parking Lot/ Commercial/Recycling	Public (Permanent/Full Take for Project Facility)	I-105/C Line Station	I-105, Century Blvd, Center St
36	1, 2, 3, 4	North of Rosecrans Ave, South of San Pedro Sub Division Railroad ROW	Railroad ROW	Private (Rail ROW)	Paramount/Rosecrans Station and Grade Separation	I-105, I-710, Rosecrans Ave, Paramount Blvd, Garfield Ave

No.	Build Alternative Affected	Location	Location Description	Private/Public Ownership	Project Component	Haul Route
37	1, 2, 3, 4	North of Rosecrans Ave, South of San Pedro Sub Division Railroad ROW	Commercial and Industrial GCR Tires & Service 7801 E Rosecrans, Paramount	Public and Private	Paramount/Rosecrans Station and Grade Separation	I-105, I-710, Rosecrans Ave, Paramount Blvd, Garfield Ave
38	1, 2, 3, 4	Northwest Corner, Bellflower Blvd and Railroad ROW	Commercial and Parking Lot	Permanent/Full Take (Project Parking Facility)	Bellflower Station	SR-91, Bellflower Blvd
39	1, 2, 3, 4	Southwest Corner, San Gabriel River and SR-91	Vacant	Metro-Owned Right-of-Way	San Gabriel River Bridge	I-605, SR-91, Alondra Blvd, Artesia Blvd, Bellflower Blvd, South St, Studebaker Rd
40	1, 2, 3, 4	Northwest and Southwest Corner, 188th and Pioneer Blvd	Commercial	Permanent/Full Take (Project Parking Facility)	Pioneer Station Parking Structure	I-605, South St

Source: Metro 2021a

Notes: I = Interstate; LA = Los Angeles; LAUS = Los Angeles Union Station; ROW = right-of-way; SR = State Route; TBM = tunnel boring machine; UPRR = Union Pacific Railroad; US = U.S. Highway

In general, the types of activities associated with MSF construction would be similar to those listed in Table 7.2. The MSF sites would generally involve initial demolition of the site where existing structures and pavement are present with subsequently preparing and grading the site. The construction of buildings would involve laying concrete foundations and erecting the build with steel framing, masonry blocks, and building aesthetic materials. The LRT storage area would involve the preparation of the rail track bed, installation of the supporting track slab and laying of the rail tracks. Parking areas would have concrete curbs, lighting, driveways, sidewalks and landscaping would be installed as necessary.

The staging, laydown and haul routes are based on the latest information as identified at this stage of project development, and they are currently in review. All are subject to change, based on coordination with the applicable local cities/agencies and optimization by the contractor during construction. Once the contractor has developed a detailed construction staging approach in coordination with the applicable local cities and/or agencies, Metro will review the approach for consistency with the project approval and Record of Decision. Based on the review, FTA and Metro will complete additional environmental documentation if any is necessary.

7.2 Construction Methodology

Section 1.5.7 discusses the approach to assessing the impacts to the transportation system. The evaluation considered the locations, the number of lanes, and the duration of closures for traffic and parking.

Section 1.5.6 discusses the methodology applied to the CEQA Evaluation. To satisfy CEQA requirements, Transportation impacts are analyzed in accordance with Appendix G of the CEQA Guidelines and considered significant if the Project has the potential to:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, and bicycle and pedestrian facilities?
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

7.3 Construction Impacts

7.3.1 No Project Alternative

The No Build Alternative includes other planned projects. The construction activities associated with the other planned projects include temporary street closures/turning restrictions, temporary lane closures, and road detours. These other planned projects will undergo the required environmental approval process, which will disclose adverse construction impacts to the public if any are identified and unable to be fully mitigated.

7.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

7.3.2.1 Railroad Freight Effects

Table 7.3 summarizes the miles of existing freight tracks Alternative 1 would share with the rail ROW under active freight operations. Figure 7-1 illustrates areas of relocation. After construction, freight operations would be accommodated by Alternative 1. Metro would coordinate with rail operators to help maintain freight operations during construction activities for Alternative 1 to the extent feasible. In some cases, the LRT tracks would be designed with sufficient space that would separate Alternative 1 from existing freight. The spacing between LRT tracks and freight tracks would follow safety standards set by the governing jurisdiction. Currently, this exists on the Metro A (Blue) Line along the Wilmington Branch where it shares ROW with freight tracks. Doing so would ensure that the freight mainline, storage tracks, loading docks/zones, and siding tracks would not be disrupted.

Table 7.3. Freight Shared Right-of-Way, Alternative 1

Rail ROW	Shared ROW with Freight (miles)	Shared ROW by Build Alternatives (miles)
		Alternative 1
Wilmington Branch	1.8	1.8
La Habra Branch	2.3	2.3
San Pedro Subdivision	6.1	6.1
Metro-owned PEROW	1.2	1.2
Total	**11.4**	**11.4**

Source: Metro 2021a
Note: ROW = right-of-way

In other areas of the Project, where the rail ROW is limited, the placement of Alternative 1 would require changes to the existing freight track alignment. Table 7.4 summarizes the miles of existing freight tracks Alternative 1 would require for relocation and reconstruction. Specifically, Alternative 1 would require relocation from Slauson Avenue and east along Randolph Street from Holmes Avenue to the San Pedro Subdivision ROW, along the San Pedro Subdivision ROW (Randolph to the PEROW), and along the PEROW from the San Pedro Subdivision ROW to Somerset Boulevard in the City of Paramount.

Table 7.4. Freight Shared Right-of-Way, Relocation, Alternative 1

Rail ROW	Total Relocation along ROW (miles)	Freight Relocation by Build Alternatives (miles)
		Alternative 1
Wilmington Branch	0.1	0.1
La Habra Branch	2.0	2.0
San Pedro Subdivision	5.4	5.4
Metro-owned PEROW	0.6	0.6
Total	8.1	8.1

Source: Metro 2021a; Note: ROW = right-of-way

Figure 7-1. Existing Rail Right-of-Way Ownership

Source: Prepared by WSP in 2020

To minimize disruptions and maintain active freight operations, the new freight, storage, and/or siding tracks would be constructed first. A temporary shoo-fly track would be constructed to allow for the construction of new freight tracks. The freight rail would be redirected to the temporary shoo-fly while new freight tracks are constructed. At the completion of the new freight infrastructure, existing freight operations would be transferred to the new freight track. The old freight track would be demolished to allow space for the construction of the new LRT tracks.

Traffic circulation disruptions around the freight track relocation construction activity would be minimized by staging construction to keep existing train crossings open (when feasible), providing detours with minimal additional delay, or conducting closure during nonpeak travel times (when feasible). Construction activities needing a closure of an existing train crossing could include installation of embedded tracks or installation of the Overhead Catenary System. Parking areas adjacent to the construction areas will be accommodated when feasible by employing the same construction strategies for vehicular circulation, including stage construction strategies to minimize impacts or setting nonpeak parking restrictions when parking demand is the lowest.

Staging/laydown areas would be adjacent or away from the railroad freight tracks not affecting freight operations. Haul routes that cross existing at-grade crossings will comply with all the warning devices, signage, and signaling when a freight train crosses. Therefore, no impacts to railroad freight associated with the staging/laydown areas or haul routes and no adverse effects would result.

7.3.2.2 Traffic Operations Effects

Construction activities would have temporary traffic effects associated with lane closures, reconfiguration of roads, detours, and traffic related to construction workers accessing and departing construction staging areas as summarized in Table 7.1. Temporary street and lane closures, width reductions, and reductions in the number of lanes would occur. In general, the traffic operations effects of restrictions would be increased delay for drivers where there are lane reductions, or increased travel distances because of detours, resulting in additional delay and traffic circulation. Where there is reduced capacity or where detours would be required for some construction activities, some travelers may choose alternate routes around the area to avoid construction activity and traffic delays. Detours would be identified to preserve circulation around temporary street closures or where turning movements are restricted. The detour route would be assessed to provide sufficient capacity. These enhancements could include adjusting traffic signal timing or installing temporary traffic signals.

In the northern end, Alternative 1 would cross existing freeways at US-101 and I-10. At the US-101 crossing, the alignment crosses in a tunnel configuration underneath the freeway. Construction would not affect the existing freeway infrastructure.

Alternatives 1 would cross over the I-10 freeway in an aerial configuration to avoid potential traffic impacts to 15th and 16th Streets. The alignment would pass over the I-10 freeway in an aerial viaduct structure and continue south, parallel to the existing Metro A (Blue) Line at Washington Boulevard. Construction would require temporary closure of the existing freeway infrastructure. These closures would occur during the off-peak travel hours to the extent feasible, including the overnight hours, to minimize the disruption to the traveling public. Detour routes would be identified accordingly. However, because of the impacts of the temporary closures and the identified detours, adverse effects would occur.

In the southern end, Alternatives 1 would cross existing freeways at I-710, I-105, SR-91, and I-605. At the SR-91 and I-605 freeway crossings, the existing bridge structures contain sufficient space to accommodate the LRT tracks. Construction would be below the existing bridges and would not result in adverse effects on the existing freeway travel lanes.

At I-710, there is insufficient horizontal clearance for the new LRT tracks, and the opening through the embankment would need to be widened. One solution would be to install a jacked box structure underneath the freeway. The construction is not anticipated to affect peak freeway operations, although ground improvements from the surface of the freeway may be needed to maintain support. The basic steps of a jacked box structure are as follows:

- Construct jacked box structure segments in line with and adjacent to the freeway embankment and a thrust block.
- Perform ground improvements and/or install structural ground support along the entire jacked tunnel alignment from either the surface and/or sides.
- Install a tunnel shield at the front end of the box with hydraulic jacks provided at the rear.
- Excavate ground from within the shield and jack the box forward.
- Repeat the preceding four steps until the new box structure is in the final position.

Excavation and jacking are typically carried out alternately in 2- to 4-foot increments. The I-710 freeway will require ground monitoring to measure potential settlement that may occur during the jacking and excavation operations. It is anticipated the freeway lanes would remain open during this process, although there may be temporary closures to install ground monitoring instruments and/or ground support infrastructure in the median. These closures would occur during the off-peak travel hours to the extent feasible, including the overnight hours, to minimize the disruption to the traveling public. Detour routes would be identified accordingly. Based on the timing of temporary closures and the implementation of detour routes, adverse effects would still occur.

During construction activity, freeway access that includes on-ramps and off-ramps will be maintained by not implementing long-term ramp closures. Short-term ramp closures would occur during the off-peak travel hours to the extent feasible to minimize the disruption to the traveling public. Detour routes would be identified accordingly.

All construction activity near or on freeway facilities, including ramp closures, would be coordinated with Caltrans.

There would be minor impacts to traffic operations associated with the staging/laydown areas and haul routes. Vehicles and trucks related to construction activities entering and exiting the staging/laydown areas would increase traffic on local streets. All construction trucks would use designated haul routes, as listed in Table 7.2, to access the regional freeway system. The construction-related traffic volumes would be minimal compared to overall background traffic volumes, and generally would occur during the off-peak periods when volumes and congestion are lower. Also, the additional traffic associated with these activities would be temporary. The impacts would be further minimized with the implementation of a Transportation Management Plan (TMP), Mitigation Measure TRA-20. The TMP will address construction impacts on transportation facilities under the jurisdiction of all involved cities and agencies, including Caltrans. The TMP will include specific strategies to address short-term, project-related construction effects on traffic, bicyclists, pedestrians, and area residents and businesses. More details on the TMP are provided in Section 8. With the implementation of the TMP, temporary construction-related impacts would be minimized, but adverse effects would occur resulting from construction activities on the street and highway system.

7.3.2.3 Transit Effects

Construction of Alternative 1 may require temporary rerouting of existing transit routes. Table 7.1 outlines the locations and anticipated duration where transit routes would be affected by the construction activities. Minor increases in travel time for transit vehicles would occur. However, coordination with the transit service operators would occur to maintain transit routes and schedules. A detour route around the work zone would be identified, and transit stops outside the work zone would be temporarily relocated. Transit stop access would be maintained while providing ADA-compliant access. With these elements, the temporary construction impacts would remain, and no adverse effects are anticipated.

There would be impacts to transit associated with the staging/laydown areas. Transit stops may need to be relocated in some cases, if there is a conflict with the traffic at the staging area, or with the physical constraints of the site itself. These impacts would be temporary and fully addressed by modifications (minor relocations) to transit stops. There would be impacts on transit associated with the haul routes, and adverse effects would result.

7.3.2.4 Active Transportation Effects

Construction of Alternative 1 may require temporary closures of sidewalks, crosswalks, and bicycle facilities to protect the safety of pedestrians, bicyclists, and construction workers. Table 7.1 outlines the locations and anticipated duration of effects on sidewalk and bicycle facilities by construction activity. As a result, pedestrian and bicycle access routes in the construction area would be temporarily disrupted during construction. Many sidewalks along the local streets in the vicinity of and/or crossed by improvements in the Build Alternatives are ADA-compliant. Because local streets, sidewalks, and crosswalks would be closed temporarily during construction, there could be alternative ADA accessibility routes identified during those closures to maintain access.

There would be impacts to active transportation associated with the staging/laydown areas. There may be localized conflicts between bicycle and pedestrian facilities at staging areas if local access requires modifications to sidewalks or bike lanes. These impacts would be temporary and fully mitigated by contractor requirements to provide alternate access. There would be impacts on active transportation associated with the haul routes.

Section 5.3.1 of the Final Safety and Security Impact Analysis Report (Metro 2021c) outlines the impacts of temporary construction-related activities/conditions on pedestrian, bicycle, and motorist safety. The Build Alternatives will include designation of detour routes and signage to address the potential for these temporary impacts. Also, a construction mitigation program will be developed during final design and implemented during construction. This program will be used for communicating traffic control measures, schedules of activities, appropriate detours, and durations of operations to the public and stakeholders. With these elements, the temporary construction impacts would remain, and adverse effects associated with the impacts described above are anticipated.

7.3.2.5 Parking Effects

Temporary parking losses would occur during construction. Most of the impacts would be associated with physical construction activities, including the temporary shifting of vehicle lanes onto existing on-street parking areas to maintain the number of lanes. Table 7.1 lists the locations where temporary road closures and shifting lanes are anticipated to occur.

Table 7.2 lists the potential staging and laydown area options that could have parking effects. Off-street parking would be temporarily removed where needed by the Project, specifically at parking lot locations. On-street parking adjacent to the staging areas could be temporarily removed during construction. There would also be effects on parking associated with the haul routes. Available open space for use as temporary parking is currently not available, resulting in the inability to accommodate any displaced parking areas by the construction activities. In summary, the temporary construction impacts from staging and laydown areas and haul routes would remain, and adverse effects are anticipated.

7.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

7.3.3.1 Railroad Freight Effects

The analysis described in Section 7.3.2.1 is also applicable to Alternative 2. Table 7.5 summarizes the miles of existing freight tracks Alternative 2 would share with the rail ROW under active freight operations.

Table 7.5. Freight Shared Right-of-Way, Alternative 2

Rail ROW	Shared ROW with Freight (miles)	Shared ROW by Build Alternatives (miles)
		Alternative 2
Wilmington Branch	1.8	1.8
La Habra Branch	2.3	2.3
San Pedro Subdivision	6.1	6.1
Metro-owned PEROW	1.2	1.2
Total	**11.4**	**11.4**

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

Table 7.6 summarizes the miles of existing freight tracks Alternative 2 would require for relocation and reconstruction.

Table 7.6. Freight Shared Right-of-Way, Relocation, Alternative 2

Rail ROW	Total Relocation along ROW (miles)	Freight Relocation by Build Alternatives (miles)
		Alternative 2
Wilmington Branch	0.1	0.1
La Habra Branch	2.0	2.0
San Pedro Subdivision	5.4	5.4
Metro-owned PEROW	0.6	0.6
Total	8.1	8.1

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

7.3.3.2 Traffic Operations Effects

The analysis described in Section 7.3.2.2 is also applicable to Alternative 2. Construction activities would have temporary traffic effects associated with lane closures, reconfiguration of roads, detours, and traffic related to construction workers accessing and departing construction staging areas, as summarized in Table 7.1. In addition, Alternative 2 tail tracks would partially cross I-110. The construction of similar project elements would involve implementing similar TMP (TRA-20) minimization strategies as Alternative 1. With the implementation of the TMP, temporary construction-related impacts would be minimized, but adverse effects would occur resulting from construction activities on the street and highway system.

7.3.3.3 Transit Effects

The analysis described in Section 7.3.2.3 is also applicable to Alternative 2. Similar temporary rerouting of existing transit routes strategies would be implemented as Alternative 1. With these elements, the temporary construction impacts would remain, and no adverse effects are anticipated.

Similar to Alternative 1, there would be impacts to transit associated with the staging and laydown areas. Transit stops may need to be relocated if there is a conflict with traffic at the staging area or with the physical constraints of the site itself. These impacts would be temporary and fully addressed by modifications (minor relocations) to transit stops. There would be impacts on transit associated with the haul routes, and adverse effects would result.

7.3.3.4 Active Transportation Effects

The analysis described in Section 7.3.2.4 is also applicable to Alternative 2. Construction activity may require temporary closures of sidewalks, crosswalks and bicycle facilities to protect the safety of pedestrians, bicyclists and construction workers as Alternative 1. With these elements, the temporary construction impacts would remain, and adverse effects associated with the impacts described above are anticipated.

7.3.3.5 Parking Effects

The analysis described in Section 7.3.2.5 is also applicable to Alternative 2. Similar temporary parking losses would occur during construction as Alternative 1. Therefore, TRA-23 would be implemented. Adverse effects would be reduced with implementation of this measure; however, adverse effects are likely to remain.

7.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

7.3.4.1 Railroad Freight Effects

The analysis described in Section 7.3.2.1 is also applicable to Alternative 3. Table 7.7 summarizes the miles of existing freight tracks Alternative 3 would share with the rail ROW under active freight operations.

Table 7.7. Freight Shared Right-of-Way, Alternative 3

Rail ROW	Shared ROW with Freight (miles)	Shared ROW by Build Alternatives (miles)
		Alternative 3
Wilmington Branch	1.8	0.5
La Habra Branch	2.3	2.3
San Pedro Subdivision	6.1	6.1
Metro-owned PEROW	1.2	1.2
Total	**11.4**	**10.1**

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

Table 7.8 summarizes the miles of existing freight tracks Alternative 3 would require for relocation and reconstruction.

Table 7.8. Freight Shared Right-of-Way, Relocation, Alternative 3

Rail ROW	Total Relocation along ROW (miles)	Freight Relocation by Build Alternatives (miles)
		Alternative 3
Wilmington Branch	0.1	0.1
La Habra Branch	2.0	2.0
San Pedro Subdivision	5.4	5.4
Metro-owned PEROW	0.6	0.6
Total	8.1	8.1

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

7.3.4.2 Traffic Operations Effects

The analysis described in Section 7.3.2.2 is also applicable to Alternative 3. However, Alternative 3's northern end begins at the Slauson/A Line Station. Therefore, Alternative 3 has fewer closures than Alternatives 1 and 2 as summarized in Table 7.1. In addition, freeway crossing at US-101 and I-10 would be eliminated for this alternative. The construction of similar project elements would involve implementing similar TMP (TRA-20) minimization strategies as Alternative 1. With the implementation of the TMP, temporary construction-related impacts would be minimized, but adverse effects would occur resulting from construction activities on the street and highway system.

7.3.4.3 Transit Effects

The analysis described in Section 7.3.2.3 is also applicable to Alternative 3. Similar temporary rerouting of existing transit routes strategies would be implemented as Alternative 1. With these elements, the temporary construction impacts would remain, and no adverse effects are anticipated.

Similar to Alternatives 1 and 2, there would be impacts to transit associated with the staging and laydown areas. Transit stops may need to be relocated if there is a conflict with traffic at the staging area or with the physical constraints of the site itself. These impacts would be temporary and fully addressed by modifications (minor relocations) to transit stops. There would be impacts on transit associated with the haul routes, and adverse effects would result.

7.3.4.4 Active Transportation Effects

The analysis described in Section 7.3.2.4 is also applicable to Alternative 3. Construction activity may require temporary closures of sidewalks, crosswalks and bicycle facilities to protect the safety of pedestrians, bicyclists and construction workers as Alternative 1. With these elements, the temporary construction impacts would remain, and adverse effects associated with the impacts described above are anticipated.

7.3.4.5 Parking Effects

The analysis described in Section 7.3.2.5 is also applicable to Alternative 3. Similar temporary parking losses would occur during construction as Alternative 1. Therefore, TRA-23 would be implemented. Adverse effects would be reduced with implementation of this measure; however, adverse effects are likely to remain.

7.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

7.3.5.1 Railroad Freight Effects

The analysis described in Section 7.3.2.1 is also applicable to Alternative 4. Table 7.9 summarizes the miles of existing freight tracks Alternative 4 would share with the rail ROW under active freight operations.

Table 7.9. Freight Shared Right-of-Way, Alternative 4

Rail ROW	Shared ROW with Freight (miles)	Shared ROW by Build Alternatives (miles)
		Alternative 4
Wilmington Branch	1.8	—
La Habra Branch	2.3	—
San Pedro Subdivision	6.1	0.8
Metro-owned PEROW	1.2	1.2
Total	**11.4**	**2.0**

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

Table 7.10 summarizes the miles of existing freight tracks Alternative 4 would require for relocation and reconstruction.

Table 7.10. Freight Shared Right-of-Way, Relocation, Alternative 4

Rail ROW	Total Relocation along ROW (miles)	Freight Relocation by Build Alternatives (miles)
		Alternative 4
Wilmington Branch	0.1	—
La Habra Branch	2.0	—
San Pedro Subdivision	5.4	0.7
Metro-owned PEROW	0.6	0.6
Total	8.1	1.3

Source: Metro 2021a
Notes: PEROW = Pacific Electric Right-of-Way; ROW = right-of-way

7.3.5.2 Traffic Operations Effects

The analysis described in Section 7.3.2.2 is also applicable to Alternative 4. However, Alternative 4's northern end begins at the I-105/C Line Station. Therefore, Alternative 4 has fewer closures than Alternatives 1, 2, and 3 as summarized in Table 7.1. In addition, there is no freeway crossing at US-101, I-10, and I-710 for this alternative. The construction of similar project elements would involve implementing similar TMP (TRA-20) minimization strategies as Alternative 1. With the implementation of the TMP, temporary construction-related impacts would be minimized, but adverse effects would occur resulting from construction activities on the street and highway system.

7.3.5.3 Transit Effects

The analysis described in Section 7.3.2.3 is also applicable to Alternative 4. Similar temporary rerouting of existing transit routes strategies would be implemented as Alternative 1. With these elements, the temporary construction impacts would remain, and no adverse effects are anticipated.

Similar to Alternatives 1, 2, and 3 there would be impacts to transit associated with the staging and laydown areas. Transit stops may need to be relocated if there is a conflict with traffic at the staging area or with the physical constraints of the site itself. These impacts would be temporary and fully addressed by modifications (minor relocations) to transit stops. There would be impacts on transit associated with the haul routes, and adverse effects would result.

7.3.5.4 Active Transportation Effects

The analysis described in Section 7.3.2.4 is also applicable to Alternative 4. Construction activity may require temporary closures of sidewalks, crosswalks and bicycle facilities to protect the safety of pedestrians, bicyclists and construction workers as Alternative 1. With these elements, the temporary construction impacts would remain, and adverse effects associated with the impacts described above are anticipated.

7.3.5.5 Parking Effects

The analysis described in Section 7.3.2.5 is also applicable to Alternative 4. Similar temporary parking losses would occur during construction as Alternative 1. Therefore, TRA-23 would be implemented. Adverse effects would be reduced with implementation of this measure; however, adverse effects are likely to remain.

7.3.6 Design Options

7.3.6.1 Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The analysis described in Section 7.3.2 is also applicable to Design Option 1. The design option includes similar project elements and impact minimization strategies as Alternative 1.

7.3.6.2 Design Option 2: Add Little Tokyo Station

The analysis described in Section 7.3.2 is also applicable to Design Option 2. Design Option 2 would in also add road and sidewalk closures on Alameda Street between 1st Street and Traction Avenue, as summarized in Table 7.1. The design option includes similar project elements and impact minimization strategies as Alternative 1.

7.3.7 Maintenance and Storage Facility

7.3.7.1 Paramount MSF Site Option

The impact analysis described in Section 7.3.2 is also applicable to the Paramount MSF site option. The MSF includes similar project elements and impact minimization strategies as Alternative 1.

7.3.7.2 Bellflower MSF Site Option

The impact analysis described in Section 7.3.2 is also applicable to the Bellflower MSF site option. The MSF includes similar project elements and impact minimization strategies as Alternative 1.

7.4 California Environmental Quality Act Determination

To satisfy CEQA requirements, transportation impacts would be analyzed in accordance with Appendix G of the CEQA Guidelines.

7.4.1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, and bicycle and pedestrian facilities?

7.4.1.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts to the existing conditions under the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

No impacts.

7.4.1.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Construction activities would not conflict with plans, policies, or ordinances associated with the transportation system. All modes of transportation would be accommodated within the construction areas when feasible. When closures would be needed, alternate routes would be provided to maintain connectivity for all modes of transportation. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

A TMP (TRA-20) will be used to further ensure that construction activities do not conflict with plans, policies, or ordinances associated with the transportation system. The TMP will include the following strategies: public information (press releases, public meetings), motorist information (portable changeable-message signs providing construction activity information), incident management (traffic management team observing and resolving traffic incidents), and construction temporary traffic control (off-peak work hours, reduced work speed zones, and detour routes). Section 8 provides more information on TRA-20.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.1.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 7.4.1.2 is also applicable to Alternative 2. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.1.2 are also applicable to Alternative 2.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.1.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 7.4.1.2 is also applicable to Alternative 3. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.1.2 are also applicable to Alternative 3.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.1.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 7.4.1.2 is also applicable to Alternative 4. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.1.2 are also applicable to Alternative 4.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.1.6 Design Options

Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 7.4.1.2 is also applicable to Design Option 1. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 7.4.1.2 is also applicable to Design Option 2. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.1.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.1.7 Maintenance and Storage Facility

Paramount MSF Site Option

The impact analysis described in Section 7.4.1.2 is also applicable to the Paramount MSF Site Option. The MSF construction activities would be consistent with adopted policies, plans or programs. Therefore, less-than-significant impacts from construction activities would occur.

Bellflower MSF Site Option

The impact analysis described in Section 7.4.1.2 is also applicable to the Bellflower MSF Site Option. The MSF construction activities would be consistent with adopted policies, plans or programs. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.1.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.2 Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

7.4.2.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts to the existing conditions under the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining after Mitigation

No impacts.

7.4.2.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Section 7.1 describes the construction activities anticipated for Alternative 1. Impacts during construction are identified for freight operations, traffic operations, transit, active transportation, and parking. VMT would be similar to the existing conditions within the

Study Area. Construction activity would be localized to the work area and would not significantly change the Study Area vehicle circulation as a whole. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

7.4.2.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 7.4.2.2 is also applicable to Alternative 2. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

7.4.2.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 7.4.2.2 is also applicable to Alternative 3. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

7.4.2.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 7.4.2.2 is also applicable to Alternative 4. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

7.4.2.6 Design Options

Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 7.4.2.2 is also applicable to Design Option 1. The design option would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 7.4.2.2 is also applicable to Design Option 2. The design option would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

7.4.2.7 Maintenance and Storage Facility

Paramount MSF Site Option

The impact analysis described in Section 7.4.2.2 is also applicable to the Paramount MSF Site Option. The MSF would be part of the construction activities. Therefore, construction would have less-than-significant impacts.

Bellflower MSF Site Option

The impact analysis described in Section 7.4.2.2 is also applicable to the Bellflower MSF Site Option. The MSF would be part of the construction activities. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

No mitigation required.

Impacts Remaining after Mitigation

Less-than-significant impact.

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

7.4.3.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts to the existing conditions under the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required.

Impacts Remaining after Mitigation

No impacts.

7.4.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Construction activity associated with Alternative 1 would require, as needed, the temporary modification of the existing transportation facilities. These temporary modifications would follow standard construction practices for temporary vehicle, freight, pedestrian, and bicycle handling that would minimize hazards. These standards would also include preparation of a detailed transportation/traffic management plan. While application of these standards would not completely eliminate hazards, the resulting impacts would be less than significant.

Mitigation Measures

TRA-20, a TMP, will be used to further reduce the hazards of construction activities. The TMP will include the following strategies: public information (press releases, public meetings), motorist information (portable changeable-message signs providing construction activity information), incident management (traffic management team observing and resolving traffic incidents, and construction temporary traffic control (off-peak work hours, reduced work speed zones, and detour routes). It is described further in Section 8.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 7.4.3.2 is also applicable to Alternative 2. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.3.2 are also applicable to Alternative 2.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 7.4.3.2 is also applicable to Alternative 3. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.3.2 are also applicable to Alternative 3.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 7.4.3.2 is also applicable to Alternative 4. The alternative would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.3.2 are also applicable to Alternative 4.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.3.6 Design Options

Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 7.4.3.2 is also applicable to Design Option 1. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 7.4.3.2 is also applicable to Design Option 2. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.3.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.3.7 Maintenance and Storage Facility

Paramount MSF Site Option

The impact analysis described in Section 7.4.3.2 is also applicable to the Paramount MSF Site Option. The MSF would be part of the construction activities. Therefore, less-than-significant impacts from construction activities would occur.

Bellflower MSF Site Option

The impact analysis described in Section 7.4.3.2 is also applicable to the Bellflower MSF Site Option. The MSF would be part of the construction activities. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.3.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20, impacts during construction will remain less than significant.

7.4.4 Result in inadequate emergency access?

7.4.4.1 No Project Alternative

Project-related construction activities would not occur under the No Project Alternative. Therefore, no construction-related impacts to the existing conditions under the No Project Alternative would occur, and no mitigation measures would be required.

Mitigation Measures

No mitigation measures required

Impacts Remaining after Mitigation

No impacts.

7.4.4.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Construction activity would require, as needed, the temporary modification of the existing transportation facilities. Coordination with emergency responders would occur to maintain emergency access or minimize delays in response times. However, the coordination would not completely eliminate interference with local jurisdictions' emergency response plans emergency service providers.

Mitigation Measures

Mitigation Measure TRA-20 will require development of a TMP. As part of the TMP, all closures and detours will be coordinated with the affected emergency service providers to address access and response time requirements during construction and operation, thereby reducing impacts to a less-than-significant level.

Section 5.1.2.4 of the Final Safety and Security Impact Analysis Report (Metro 2021c) describes the emergency preparedness plan that will be integrated with local jurisdictional emergency response plans. The emergency preparedness plan will be part of the Build Alternatives and will serve to reduce the impacts on emergency access by establishing the roles and responsibilities that will be carried out by emergency response agencies in the event of a fire, medical, or security emergency. Through this process and coordination with local jurisdictions, the construction and operation of the Build Alternatives would avoid interfering with emergency response plans, minimize scenarios where the emergency response services providers are overtaxed, and reduce the potential for significant delayed response times. Therefore, impacts related to emergency access would be less than significant after mitigation.

Impacts Remaining after Mitigation

With implementation of TRA-20, impacts related to emergency access during operation and construction would be less than significant.

7.4.4.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The impact analysis described in Section 7.4.4.2 is also applicable to Alternative 2. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

The mitigation measures described in Section 7.4.4.2 are also applicable to Alternative 2.

Impacts Remaining after Mitigation

With the implementation of TRA-20 and COM-1, impacts during construction will remain less than significant.

7.4.4.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The impact analysis described in Section 7.4.4.2 is also applicable to Alternative 3. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

The mitigation measures described in Section 7.4.4.2 are also applicable to Alternative 3.

Impacts Remaining after Mitigation

With the implementation of TRA-20 and COM-1, impacts during construction will remain less than significant.

7.4.4.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The impact analysis described in Section 7.4.4.2 is also applicable to Alternative 4. The alternative would have similar construction activities as Alternative 1. Therefore, construction would have less-than-significant impacts.

Mitigation Measures

The mitigation measures described in Section 7.4.4.2 are also applicable to Alternative 4.

Impacts Remaining after Mitigation

With the implementation of TRA-20 and COM-1, impacts during construction will remain less than significant.

7.4.4.6 Design Options

Design Option 1: Los Angeles Union Station at the Metropolitan Water District

The impact analysis described in Section 7.4.4.2 is also applicable to Design Option 1. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Design Option 2: Add Little Tokyo Station

The impact analysis described in Section 7.4.4.2 is also applicable to Design Option 2. The design option would have similar construction activities as Alternative 1. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.4.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20 and COM-1, impacts during construction will remain less than significant.

7.4.4.7 Maintenance and Storage Facility

Paramount MSF Site Option

The impact analysis described in Section 7.4.4.2 is also applicable to the Paramount MSF Site Option. The MSF would be part of the construction activities. Therefore, less-than-significant impacts from construction activities would occur.

Bellflower MSF Site Option

The impact analysis described in Section 7.4.4.2 is also applicable to the Bellflower MSF Site Option. The MSF would be part of the construction activities. Therefore, less-than-significant impacts from construction activities would occur.

Mitigation Measures

The mitigation measures described in Section 7.4.4.2 are also applicable to design options.

Impacts Remaining after Mitigation

With the implementation of TRA-20 and COM-1, impacts during construction will remain less than significant.

8 PROJECT MEASURES AND MITIGATION MEASURES

8.1 Project Measures

8.1.1 Operation

To minimize the potential for vehicles queuing onto at-grade crossings, design features would be added at the respective crossings. They include the use of pre-signals or queue-cutter signals to prevent vehicles from stopping on tracks. Pre-signals and queue-cutter signals prevent queuing across the tracks with a directional signal before the tracks. They are activated (turned red) when the system detects an approaching queue on the other side of the tracks, or in coordination with the downstream signal. Existing lane configurations near the at-grade crossings would be modified at the respective crossings to operate the pre-signals or queue-cutter signals as required by regulations. With these design features, the vehicles in the queue would be prevented from stopping on the tracks, eliminating potential conflicts from queues on the Build Alternatives. More detailed engineering regarding these features and their corresponding applicability will be completed in future project development phases. The following summarize the project measures considered to be part of the Project:

TR PM-1: Installation of pre-signals or queue-cutter signals to prevent vehicles from stopping on tracks. Pre-signals are traffic control devices that control traffic approaching a grade crossing in conjunction with the traffic control for the intersection(s) beyond the tracks. Pre-signals can be used to stop vehicular traffic before the railroad crossing. Queue-cutter signals only control traffic approaching a crossing and are operated independently of other traffic signals in the vicinity. The concept of operation of a queue-cutter is to hold traffic upstream from a crossing before a queue caused by a downstream traffic control signal or other roadway congestion can grow long enough to back up into the crossing.

TR PM-2: Existing lane configurations near the at-grade crossings would be modified at the respective crossings to operate the pre-signals or queue-cutter signals as required by regulations.

TR PM-3: Closing Long Beach Avenue north of the 14th Street and closing 14th Street west of Long Beach Avenue to accommodate the WSAB light rail portal tunnel (transition area between underground and aerial alignment).

TR PM-4: Intersection modifications along Randolph Avenue, closing access for vehicles to cross the existing train tracks, resulting in the removal of the existing at-grade train crossing at the following intersections:

- Wilmington Avenue
- Regent Street
- Albany Street
- Rugby Avenue
- Rita Avenue

TR PM-5: Randolph Avenue reduction to one lane in each direction from two lanes in each direction between Alameda Street (West) and State Street and providing left turn lanes along Randolph Avenue at each middle-of-intersection at-grade crossings to accommodate existing on-street parking.

TR PM-6: One-way street conversation to Dakota Avenue between Gardendale Street and Main Street to accommodate the LRT tracks.

TR PM-7: Intersection modifications on the adjacent intersections to the Alondra at-grade train crossing. The intersections are Alondra Boulevard at Flora Vista Street and Alondra Boulevard at Pacific Avenue. Right-turn access only entering and leaving Flora Vista Street and Pacific Avenue to accommodate crossing features required by regulations.

TR PM-8: Closing 187th Street between Corby Avenue (West) and Corby Avenue (East) to accommodate nearby station features required by regulations.

TR PM-9: Closing 188th Street between Corby Avenue (West) and Pioneer Boulevard to accommodate the station parking structure.

TR PM-10: Vehicle access to Pioneer Station parking structure to be primarily directed through signage to enter/exit from Pioneer Boulevard. Corby Avenue to serve as a secondary entrance/exit point as required, limiting vehicle access to/from adjacent residential streets.

8.1.2 Construction

Construction-related project measures have not been identified.

8.2 Mitigation Measures

8.2.1 Operation

This section presents mitigation measures to the environmental impacts and consequences of the Build Alternatives as they relate to traffic and transportation. The baseline for the No Build analysis is the existing conditions assessment described in Section 4. The analysis of Build Alternatives with mitigation measures is based on the No Build Alternative assessment.

8.2.1.1 Traffic Operations

This section addresses mitigation measures for the intersections identified in Section 5.1 as being substantially affected by the Build Alternatives. The intersections are evaluated with a structured assessment approach.

The assessment of mitigation measures for traffic operations involved a multi-step process:

1. Potential mitigation options were developed based on traffic operations requirements and analyzed with the SimTraffic traffic analysis software. The primary focus with this analysis was on eliminating delay/LOS impacts (where possible) and using a screening-level assessment of potential secondary impacts.
2. A preliminary set of mitigation options, based on traffic operations, was identified for each intersection. Traffic signal timing was optimized as part of the Build Alternatives analysis. Therefore, additional traffic signal timing adjustments were not considered when finding mitigation measures.
3. An engineering evaluation was conducted for the preliminary set of mitigation options. The focus of the engineering evaluation was to determine right-of-way

impacts, considering the physical requirements for each mitigation option. Part of that assessment considered the upstream and downstream effects of additional lanes.

4. Based on the engineering evaluation, some of the preliminary recommendations for mitigation options were deemed infeasible because of the potential right-of-way impacts.

A final set of recommended mitigation measures, based on the options evaluated, was determined, and the impact analysis was updated to determine which intersection impacts would be mitigated.

As described in Section 5.1, up to 20 intersections were identified that would have substantial impacts (related to LOS and delays) associated with the proposed Build Alternatives. For each of these intersections, potential mitigation measures, including strategies and improvement options, were identified and evaluated. The mitigation measures generally included three types of modifications:

- Signalizing intersections that are currently stop-controlled
- Adding lanes (right, through, and/or left)
- Extending turn bays (right or left)

In developing the mitigation options, consideration was given to the benefit of the mitigation (reducing delays); however, the potential for secondary impacts associated with mitigation measure implementation (typically right-of-way impacts to access areas, parking areas, or adjacent properties) was also taken into consideration.

Different options, including combinations of those options, were evaluated at each intersection. In some cases, the potential mitigation options would not result in effective relief. Combinations of options were evaluated for intersections with more severe impacts.

In numerous scenarios, the mitigation options evaluated at one intersection would also potentially result in an effective mitigation or an additional impact at nearby intersections. For example, adding a turn lane to an intersection where the queues extend back to the upstream intersection will generally have a positive effect on both intersections. However, adding a through lane to one intersection may allow more traffic to pass through to a downstream intersection, thereby increasing delay and resulting in a potential impact.

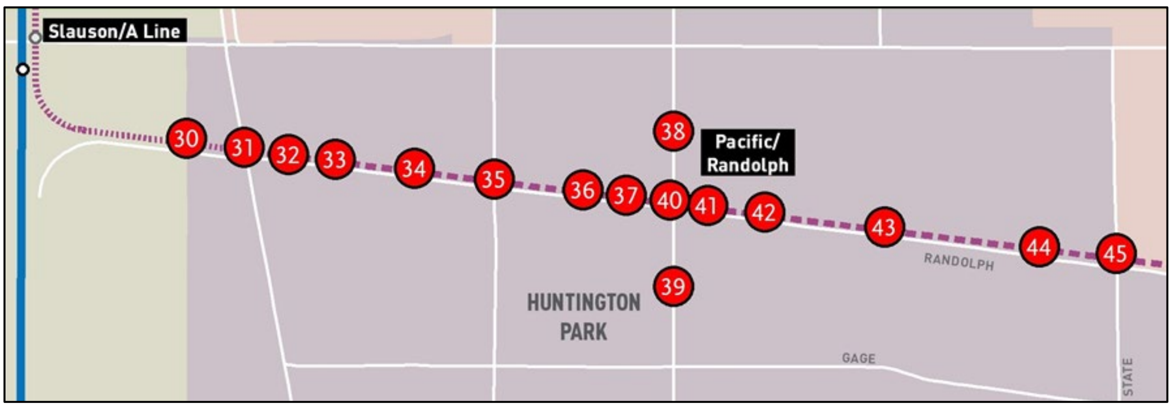
Appendix A – Attachment 6 contains a summary of the first-level evaluation of potential mitigation options to address traffic operations impacts. For the 20 intersections, 113 different mitigation options and combinations of options were developed and assessed. The discussion is organized by geographic section and groups of intersections with cross-effects between intersections (upstream or downstream). Six groups of intersections were assessed, along with two intersections that were analyzed independently. Engineering drawings with details on the assessments are provided in Appendix A – Attachment 7. A summary of the LOS after mitigation for each intersection is provided in Appendix A – Attachment 8.

Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45

This group is located on Randolph Street near the Pacific/Randolph Station (Figure 8-1) and includes eight intersections:

- No. 31 – Randolph Street and Alameda Street (West)
- No. 35 – Randolph Street and Santa Fe Avenue
- No. 36 – Randolph Street and Malabar Street
- No. 39 – Pacific Boulevard and Clarendon Avenue
- No. 40 – Randolph Street and Pacific Boulevard
- No. 42 – Randolph Street and Seville Avenue
- No. 43 – Randolph Street and Miles Avenue
- No. 45 – Randolph Street and State Street

Figure 8-1. Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel in the median of Randolph Street, passing through the listed intersections at-grade. Table 8.1 shows how traffic operations would be affected by the Build Alternatives, including all design options. The highlighted cells in green with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate the intersection was adversely affected.

Table 8.1. 2042 Operations Without Mitigation Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
31	Randolph Street/Alameda Street (West)	AM	49.9/D	1, 2, 3, Design Options 1 and 2	142.7/F	**Yes**
		PM	60.8/E	1, 2, 3, Design Options 1 and 2	140.4/F	**Yes**
35	Randolph Street/Santa Fe Avenue	AM	30.3/C	1, 2, 3, Design Options 1 and 2	114.8/F	**Yes**
		PM	30.1/C	1, 2, 3, Design Options 1 and 2	141.2/F	**Yes**

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
36	Randolph Street/Malabar Street	AM	22.5/C	1, 2, 3, Design Options 1 and 2	81.9/F	**Yes**
		PM	22.1/C	1, 2, 3, Design Options 1 and 2	52.3/D	**Yes**
39	Pacific Boulevard/ Clarendon Avenue	AM	10.8/B	1, 2, 3, Design Options 1 and 2	51.1/D	**Yes**
		PM	9.1/A	1, 2, 3, Design Options 1 and 2	14.2/B	No
40	Randolph Street/Pacific Boulevard	AM	26.0/C	1, 2, 3, Design Options 1 and 2	90.1/F	**Yes**
		PM	32.5/C	1, 2, 3, Design Options 1 and 2	73.2/E	**Yes**
42	Randolph Street/ Seville Avenue	AM	37.5/D	1, 2, 3, Design Options 1 and 2	111.3/F	**Yes**
		PM	34.9/C	1, 2, 3, Design Options 1 and 2	129.4/F	**Yes**
43	Randolph Street/Miles Avenue	AM	36.7/D	1, 2, 3, Design Options 1 and 2	91.5/F	**Yes**
		PM	36.2/D	1, 2, 3, Design Options 1 and 2	121.6/F	**Yes**
45	Randolph Street/State Street	AM	43.6/D	1, 2, 3, Design Options 1 and 2	144.1/F	**Yes**
		PM	19.4/B	1, 2, 3, Design Options 1 and 2	76.1/E	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects at the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; sec = seconds

Multiple potential mitigation measure options were considered, as summarized here (with additional details provided in Appendix A – Attachment 6). Based on the traffic operations analysis and mitigation measures considered, the preliminary recommendations include the improvements provided in Table 8.1. The highlighted cells in green with "No" text indicate the intersection was mitigated, and that no adverse effects would occur. The highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. The preliminary mitigation options would reduce most of the impacts, but all eight intersections would remain adversely affected. Intersections 34, 37, and 41 would be fully mitigated.

Based on the engineering assessment in Appendix A – Attachment 7, some of the preliminary recommendations for mitigation options will not be feasible. The mitigation impacts would require the acquisition of several properties on Randolph Street and also along the indicated cross streets (Table 8.2). The eastbound and westbound through lanes result in right-of-way impacts to several properties as indicated below:

- No. 39 – Pacific Boulevard/Clarendon Avenue
  - **East and west leg:** Parking on the south side would be removed.
- No. 40 – Randolph Street/Pacific Boulevard
  - **East and west leg:** Parking, landscaping would be removed and commercial buildings on both sides would be affected.
  - **North and south leg:** Parking on the west side would be removed.
- No. 42 – Randolph Street/Seville Avenue
  - **East and west leg:** Residential and commercial buildings on both sides would be affected.
- No. 43 – Randolph Street/Miles Avenue
  - **East and west leg:** Parking and residential buildings on both sides would be removed.
- No. 45 – Randolph Street/State Street
  - **East and south leg:** Existing on-street parking and landscaping on the southeast side would be removed.
  - **North leg:** Existing on-street parking on the east side would be removed.

Table 8.2. Preliminary Mitigation Options for Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
31	Randolph Street/Alameda Street (West)	Add northbound left-turn lane with 150-foot turn bay; convert eastbound and westbound left through lane to left-turn lanes	AM	49.9/D	1, 2, 3, Design Options 1 and 2	76.7/E	**Yes**
			PM	60.8/E	1, 2, 3, Design Options 1 and 2	46.0/D	No
35	Randolph Street/Santa Fe Avenue	Add northbound and southbound left-turn lane with 150-foot turn bays	AM	30.3/C	1, 2, 3, Design Options 1 and 2	95.2/F	**Yes**
			PM	30.1/C	1, 2, 3, Design Options 1 and 2	87.8/F	**Yes**

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
36	Randolph Street/Malabar Street	Add northbound and southbound left-turn lanes with 100-foot turn bays	AM	22.5/C	1, 2, 3, Design Options 1 and 2	68.4/E	**Yes**
			PM	22.1/C	1, 2, 3, Design Options 1 and 2	48.0/D	**Yes**
39	Pacific Boulevard/ Clarendon Avenue	Add eastbound and westbound left-turn lanes with 50-foot turn bays	AM	10.8/B	1, 2, 3, Design Options 1 and 2	24.3/C	**Yes**
			PM	9.1/A	1, 2, 3, Design Options 1 and 2	9.4/A	No
40	Randolph Street/Pacific Boulevard	Extend northbound, southbound, and eastbound left-turn lanes to 150-foot turn bays	AM	26.0/C	1, 2, 3, Design Options 1 and 2	65.2/E	**Yes**
			PM	32.5/C	1, 2, 3, Design Options 1 and 2	51.6/D	**Yes**
42	Randolph Street/Seville Avenue	Add northbound and southbound through lanes; add northbound and southbound left-turn lanes with 150-foot turn bay	AM	37.5/D	1, 2, 3, Design Options 1 and 2	86.5/F	**Yes**
			PM	34.9/C	1, 2, 3, Design Options 1 and 2	86.4/F	**Yes**
43	Randolph Street/Miles Avenue	Add northbound and southbound through lanes; extend northbound and southbound left-turn lanes to 150-foot turn bay	AM	36.7/D	1, 2, 3, Design Options 1 and 2	96.8/F	**Yes**
			PM	36.2/D	1, 2, 3, Design Options 1 and 2	72.8/E	**Yes**
45	Randolph Street/State Street	Add a northbound through lane and add a westbound right-turn lane with a 200-foot turn bay and left-turn lane with a 150-foot turn bay	AM	43.6/D	1, 2, 3, Design Options 1 and 2	113.6/F	**Yes**
			PM	19.4/B	1, 2, 3, Design Options 1 and 2	69.1/E	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with “No” text indicate there would not be an adverse effect after mitigation. The highlighted cells in red with bold “Yes” text indicate that adverse effects would still occur at the intersection after implementation of mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Based on an assessment that some of these measures could not be reasonably implemented, the list of mitigation options was revised and is summarized in Table 8.3. The highlighted cells in green with "No" text indicate the intersection was mitigated to less-than-significant impacts. The highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-2 illustrates the intersection lane configurations with the mitigation measures.

While delays associated with the Build Alternatives are reduced, impacts remain after the revised set of mitigation measures. Adding additional lanes or lane extensions would not provide substantial reduction in vehicle delay without the need to also acquire right-of-way. Therefore, impacts would remain adverse after mitigation.

Table 8.3. Mitigation Measures for Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45

No	Intersection	Mitigation Description	Peak	No Build Delay/ LOS[a]	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
31	Randolph Street/ Alameda Street (West)	TRA-12: Add northbound left-turn lane with 150-foot turn bay. Convert eastbound and westbound left-through lane to left-turn lanes. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	49.9/D	1, 2, 3, Design Options 1 and 2	142.7/F	71.9/E	**Yes**
			PM	60.8/E	1, 2, 3, Design Options 1 and 2	140.4/F	46.3/D	No
35	Randolph Street/Santa Fe Avenue	TRA-11: Add northbound and southbound left-turn lane with 150-foot turn bays. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	30.3/C	1, 2, 3, Design Options 1 and 2	114.8/F	95.1/F	**Yes**
			PM	30.1/C	1, 2, 3, Design Options 1 and 2	141.2/F	92.3/F	**Yes**

No	Intersection	Mitigation Description	Peak	No Build Delay/ LOS[a]	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
36	Randolph Street/ Malabar Street	TRA-10: Add northbound and southbound left-turn-only lanes with 100-foot turn bays. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	22.5/C	1, 2, 3, Design Options 1 and 2	81.9/F	58.6/E	**Yes**
			PM	22.1/C	1, 2, 3, Design Options 1 and 2	52.3/D	55.5/E	**Yes**
39	Pacific Boulevard/ Clarendon Avenue	TRA-9: Add eastbound and westbound left-turn lanes with 50-foot turn bays. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	10.8/B	1, 2, 3, Design Options 1 and 2	51.1/D	21.7/C	**Yes**
			PM	9.1/A	1, 2, 3, Design Options 1 and 2	14.2/B	8.9/A	No
40	Randolph Street/Pacific Boulevard	TRA-8: Extend northbound, southbound, and eastbound left-turn lanes to 150-foot turn bays. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	26.0/C	1, 2, 3, Design Options 1 and 2	90.1/F	60.3/E	**Yes**
			PM	32.5/C	1, 2, 3, Design Options 1 and 2	73.2/E	53.9/D	**Yes**

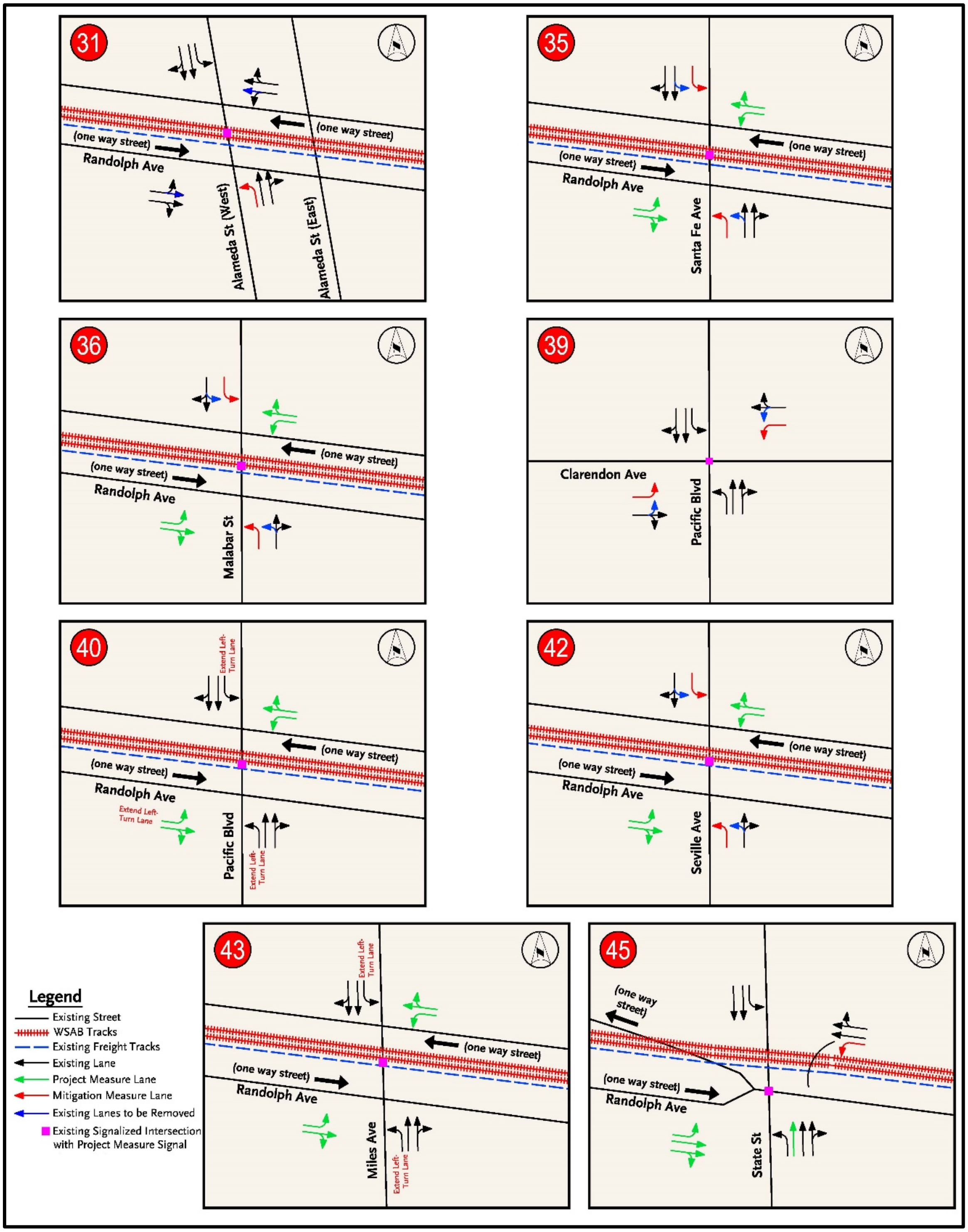
No	Intersection	Mitigation Description	Peak	No Build Delay/ LOS[a]	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
42	Randolph Street/Seville Avenue	TRA-7: Add northbound and southbound through lanes with 150-foot left-turn bays in each direction. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	37.5/D	1, 2, 3, Design Options 1 and 2	111.3/F	113.6/F	**Yes**
			PM	34.9/C	1, 2, 3, Design Options 1 and 2	129.4/F	102.8/F	**Yes**
43	Randolph Street/Miles Avenue	TRA-6: Extend northbound and southbound left-turn lanes to 150-foot turn bays. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	36.7/D	1, 2, 3, Design Options 1 and 2	91.5/F	120.0/F	**Yes**
			PM	36.2/D	1, 2, 3, Design Options 1 and 2	121.6/F	120.3/F	**Yes**
45	Randolph Street/State Street	TRA-5: Add a westbound left-turn lane with a 150-foot turn bay. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	43.6/D	1, 2, 3, Design Options 1 and 2	144.1/F	117.7/F	**Yes**
			PM	19.4/B	1, 2, 3, Design Options 1 and 2	76.1/E	73.4/E	**Yes**

Source: Compiled by Jacobs in 2020

Notes: The highlighted green cells with “No” text indicate there would not be an adverse effect after mitigation. The highlighted cells in red with bold “Yes” text indicate that adverse effects would still occur at the intersection after implementation of mitigation.

AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-2. Intersection Nos. 31, 35, 36, 39, 40, 42, 43, and 45 Lane Configuration with Mitigation Measures

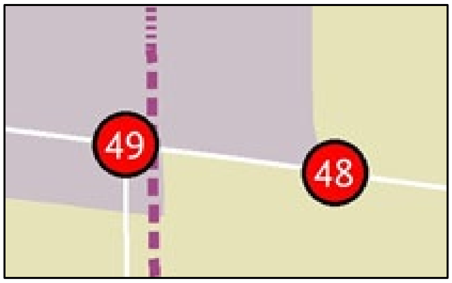


Source: Prepared by Jacobs in 2020

Intersection Nos. 49 and 48

This group is located adjacent to the Gage crossing (Figure 8-3) and includes the No. 48 – Gage Avenue/California Avenue and No. 49 – Gage Avenue/Salt Lake Avenue (West) intersections. Alternatives 1 (with and without Design Options 1 and 2), 2, and 3 are projected to result in adverse effects on these intersections during both peak periods.

Figure 8-3. Intersection Nos. 48 and 49



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing between the two intersections. Table 8.4 shows how traffic operations would be affected by the Build Alternatives, including all design options. The highlighted cells in green with “No” text indicate the intersection was not adversely affected. The highlighted cells in red with bold “Yes” text indicate there would be adverse effects on the intersection.

Multiple potential mitigation measures were considered, as summarized in Appendix A – Attachment 6. Based on the traffic operations analysis, the preliminary recommendation includes the improvements in Table 8.4. The highlighted cells in green with “No” text indicate the intersection was mitigated, and no adverse effects would occur. The highlighted cells in red with bold “Yes” text indicate the intersection was not mitigated, and adverse effects would occur. The preliminary mitigation options would address the impacts, except for both peak-period impacts at Intersection No. 49, where delays would be reduced but not fully addressed.

Table 8.4. 2042 Operations Without Mitigation Intersection Nos. 6 and 7

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
48	Gage Avenue/ California Avenue	AM	16.3/B	1, 2, 3, Design Options 1 and 2	64.9/E	**Yes**
		PM	34.2/C	1, 2, 3, Design Options 1 and 2	114.4/F	**Yes**
49	Gage Avenue/ Salt Lake Avenue (West)	AM	16.3/B	1, 2, 3, Design Options 1 and 2	64.9/E	**Yes**
		PM	34.2/C	1, 2, 3, Design Options 1 and 2	114.4/F	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted cells in red with bold “Yes” text indicate there would be adverse effects at the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Table 8.5 provides mitigation options for Intersection Nos. 48 and 49 under Alternatives 1 (with and without Design Options 1 and 2), 2, and 3.

Table 8.5. Preliminary Mitigation Options for Intersection Nos. 48 and 49

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
48	Gage Avenue/ California Avenue	Add a westbound through lane, which will continue through the west intersection	AM	19.6/B	1, 2, 3, Design Options 1 and 2	21.9/C	No
			PM	97.5/F	1, 2, 3, Design Options 1 and 2	36.1/D	No
49	Gage Avenue/ Salt Lake Avenue (West)	Add an eastbound and westbound through lane.	AM	16.3/B	1, 2, 3, Design Options 1 and 2	25.5/C	**Yes**
			PM	34.2/C	1, 2, 3, Design Options 1 and 2	72.7/E	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation. The highlighted cells in red with bold "Yes" text indicate that adverse effects would still occur at the intersection after implementation of mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Based on the engineering assessment in Appendix A – Attachment 7, some preliminary recommendations for mitigation measures provided in Table 8.5 would not be feasible. The mitigation impacts would require the acquisition of several properties on Gage Avenue from west of Salt Lake Avenue to east of California Avenue. The eastbound and westbound through lanes would result in right-of-way impacts to several properties:

- No. 48 – Gage Avenue/California Avenue
  - **East leg:** Retail buildings, parking, and landscaping on the north side
  - **West leg:** Retail buildings, parking, and landscaping on both sides
- No. 49 – Gage Avenue/Salt Lake Avenue (West)
  - **East leg:** Retail buildings, parking, and landscaping on both sides
  - **West leg:** Parking on the north side; retail buildings, residential buildings, parking and landscaping on the south side

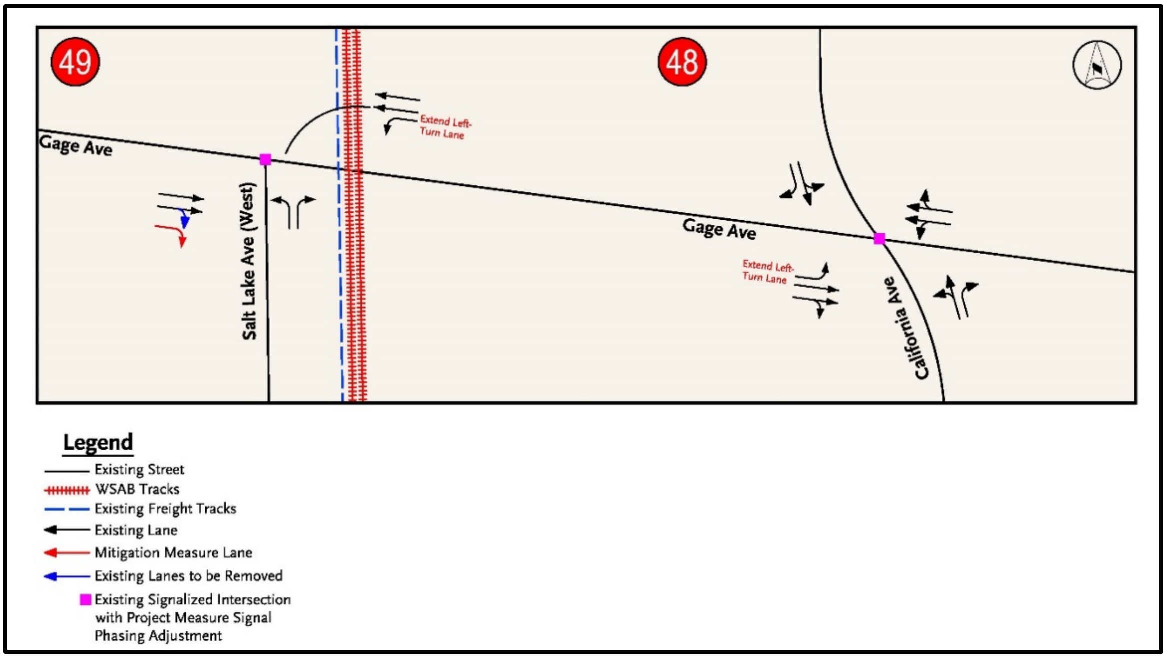
Based on the above evaluation, revised mitigations were considered, and the list of those mitigations was revised and is summarized in Table 8.6. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. The highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-4 illustrates the intersection lane configurations with the mitigation measures.

Table 8.6. Mitigation Measures for Intersection Nos. 48 and 49

No	Intersection	Mitigation Description	Peak	No Build Delay/LOS	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
48	Gage Avenue/ California Avenue	TRA-4: Extend eastbound left-turn lane with a 150-foot turn bay. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Bell).	AM	19.6/B	1, 2, 3, Design Options 1 and 2	69.4/E	63.1/E	**Yes**
			PM	97.5/F	1, 2, 3, Design Options 1 and 2	120.3/F	123.2/F	**Yes**
49	Gage Avenue/ Salt Lake Avenue (West)	TRA-3: Add eastbound right-turn lane with a 250-foot turn bay. Extend westbound left-turn lane with a 225-foot turn bay. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Bell).	AM	16.3/B	1, 2, 3, Design Options 1 and 2	64.9/E	33.8/C	**Yes**
			PM	34.2/C	1, 2, 3, Design Options 1 and 2	114.4/F	100.9/F	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted cells in red with bold "Yes" text indicate that adverse effects would still occur at the intersection after implementation of mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-4. Intersection Nos. 48 and 49 Lane Configuration with Mitigation Measures



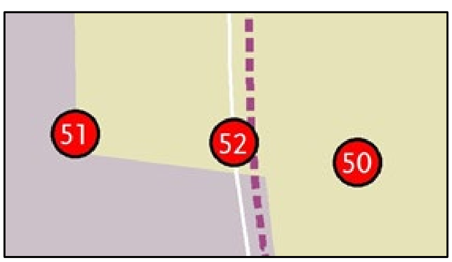
Source: Prepared by Jacobs in 2020

While the projected delays are reduced, impacts would remain after the revised set of mitigation measures. Adding additional lanes or lane extensions would not provide substantial reduction in vehicle delay without acquiring right-of-way. Therefore, adverse effects would remain after mitigation.

Intersection No. 51

This intersection is located west of the Bell crossing (Figure 8-5) and includes the No. 51 – Bell Avenue/Bissell Street intersection. Alternatives 1 (with and without Design Options 1 and 2), 2, and 3 are projected to result in adverse effects at these intersections during both peak periods.

Figure 8-5. Intersection No. 51



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing to the east of the intersection, and there would be additional traffic volumes associated with the projected kiss-and-ride peak hour trips from the Florence/Salt Lake Station traveling through the intersections. As shown in Table 8.7, traffic operations would be affected by the Build Alternatives, including all design options. The highlighted cells in green with “No” text indicate the intersection was not adversely affected. The highlighted cells in red with bold “Yes” text indicate there would be adverse effects on the intersection.

Table 8.7. 2042 Operations Without Mitigation Without Mitigation Intersection No. 51

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
51	Bell Avenue/ Bissell Street	AM	5.3/A	1, 2, 3, Design Options 1 and 2	13.9/B	No
		PM	5.7/A	1, 2, 3, Design Options 1 and 2	22.5/C	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects at the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

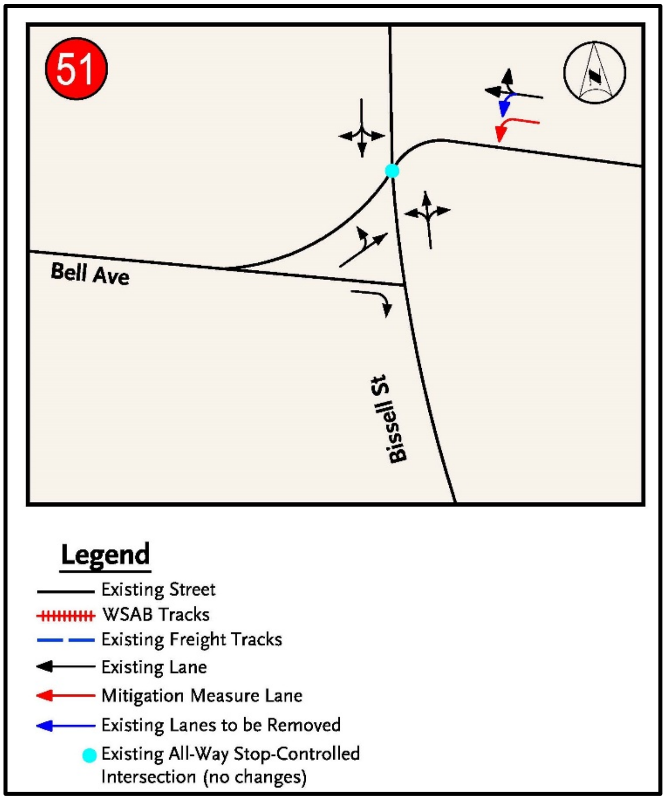
Multiple potential mitigation measures were considered, as summarized in Appendix A – Attachment 6. Based on the engineering assessment, also provided in Appendix A – Attachment 7, the preliminary recommendations for proposed mitigation measures will address the potential impacts. Additionally, no right-of-way acquisitions associated with these mitigations are anticipated. All the mitigation options can be accommodated within the existing right-of-way. The final set of mitigation measures, which eliminate impacts, is summarized in Table 8.8. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. Any highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and adverse effects would remain. Figure 8-6 illustrates the intersection lane configurations with the mitigation measures.

Table 8.8. Mitigation Measures for Intersection No. 51

No	Intersection	Mitigation Description	Peak	No Build Delay/ LOS	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
51	Bell Avenue/ Bissell Street	TRA-2: Add a westbound through-right lane. Convert westbound left-through-right lane into a left-turn lane. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Bell).	AM	5.3/A	1, 2, 3, Design Options 1 and 2	13.9/B	6.8/A	No
			PM	5.7/A	1, 2, 3, Design Options 1 and 2	22.5/C	9.6/A	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-6. Intersection No. 51 Lane Configuration with Mitigation Measures

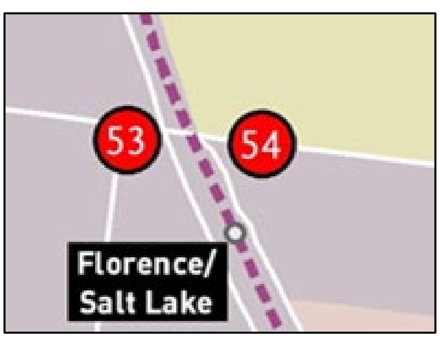


Source: Prepared by Jacobs in 2020

Intersection Nos. 53 and 54

This group is located north of the Florence/Salt Lake Station (Figure 8-7) and includes the No. 53 – Florence Avenue/California Avenue (West) and No. 54 – Florence Avenue/California Avenue (East) intersections. Alternatives 1 (with and without Design Options 1 and 2), 2, and 3 are projected to result in adverse effects on these intersections during one or both peak periods.

Figure 8-7. Intersection Nos. 53 and 54



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing between the two intersections, and additional traffic volumes would be associated with the projected kiss-and-ride peak hour trips at the Florence/Salt Lake Station. Table 8.9 shows how traffic operations will be affected by the Build Alternatives, including all design options. The highlighted cells in green with “No” text indicate the intersection was not adversely affected. The highlighted cells in red with bold “Yes” text indicate there would be adverse effects on the intersection.

Table 8.9. 2042 Operations Without Mitigation Intersection Nos. 53 and 54

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
53	Florence Avenue/ California Avenue (West)	AM	37.1/D	1, 2, 3, Design Options 1 and 2	103.2/F	**Yes**
		PM	42.3/D	1, 2, 3, Design Options 1 and 2	80.8/F	**Yes**
54	Florence Avenue/ California Avenue (East)	AM	65.2/E	1, 2, 3, Design Options 1 and 2	143.2/F	**Yes**
		PM	44.3/D	1, 2, 3, Design Options 1 and 2	31.4/C	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with “No” text indicate the intersection was not adversely affected. The highlighted cells in red with bold “Yes” text indicate there would be adverse effects at the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Multiple potential mitigation measures were considered, as summarized in Appendix A – Attachment 6. Based on the traffic operations analysis, the preliminary recommendation includes the improvements in Table 8.10. The highlighted cells in green with “No” text indicate the intersection was mitigated, and no adverse effects would occur. The highlighted cells in red with bold “Yes” text indicate the intersection was not mitigated, and that adverse effects would remain. The preliminary mitigation options would eliminate most impacts for Build Alternatives, including all design options, except for the PM peak period at intersection No. 2, where delays would be reduced but not fully addressed.

Table 8.10 Preliminary Mitigation Options for Intersection Nos. 53 and 54

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS	Build Alternatives	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
53	Florence Avenue/ California Avenue (West)	Add an eastbound through lane, which will continue through the east intersection.	AM	37.1/D	1, 2, 3, Design Options 1 and 2	37.1/D	No
			PM	42.3/D	1, 2, 3, Design Options 1 and 2	50.1/D	**Yes**
54	Florence Avenue/ California Avenue (East)	Extend the northbound left-turn lane to 300 feet. Add a westbound through lane, which will continue through the west intersection.	AM	65.2/E	1, 2, 3, Design Options 1 and 2	50.2/D	No
			PM	44.3/D	1, 2, 3, Design Options 1 and 2	38.2/D	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation. The highlighted cells in red with bold "Yes" text indicate that adverse effects would still occur at the intersection after implementation of mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Based on the engineering assessment conducted and described in detail in Appendix A – Attachment 7, some preliminary recommendations for mitigation options will not be feasible. The mitigation measures would require the acquisition of several properties on Florence Avenue from west of California Avenue (West) to east of California Avenue (East). At Intersection No. 54 – Florence Avenue/California Avenue (East), water storage facilities would need to be relocated. The preliminary mitigations, which would include eastbound and westbound through lanes, would result in right-of-way impacts to several properties as described below:

- No. 53 – Florence Avenue/California Avenue (West)
  - **East leg:** Streetscape and landscaping on the north side; retail parking and landscaping on the south side
  - **West leg:** Community park parking and landscaping on the north side; retail buildings, parking, and landscaping on the south side
- No. 54 – Florence Avenue/California Avenue (East)
  - **East leg:** Retail parking and building on the north side; water facility relocation, retail parking, and building on the south side

- **West leg:** Retail parking and building on the north side; water facility relocation on the south side

Based on that evaluation, the list of originally evaluated mitigation options was revised as summarized in Table 8.11. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would remain. The highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-8 illustrates the intersection lane configurations with the mitigation measures.

Table 8.11. Mitigation Measures for Intersection Nos. 53 and 54

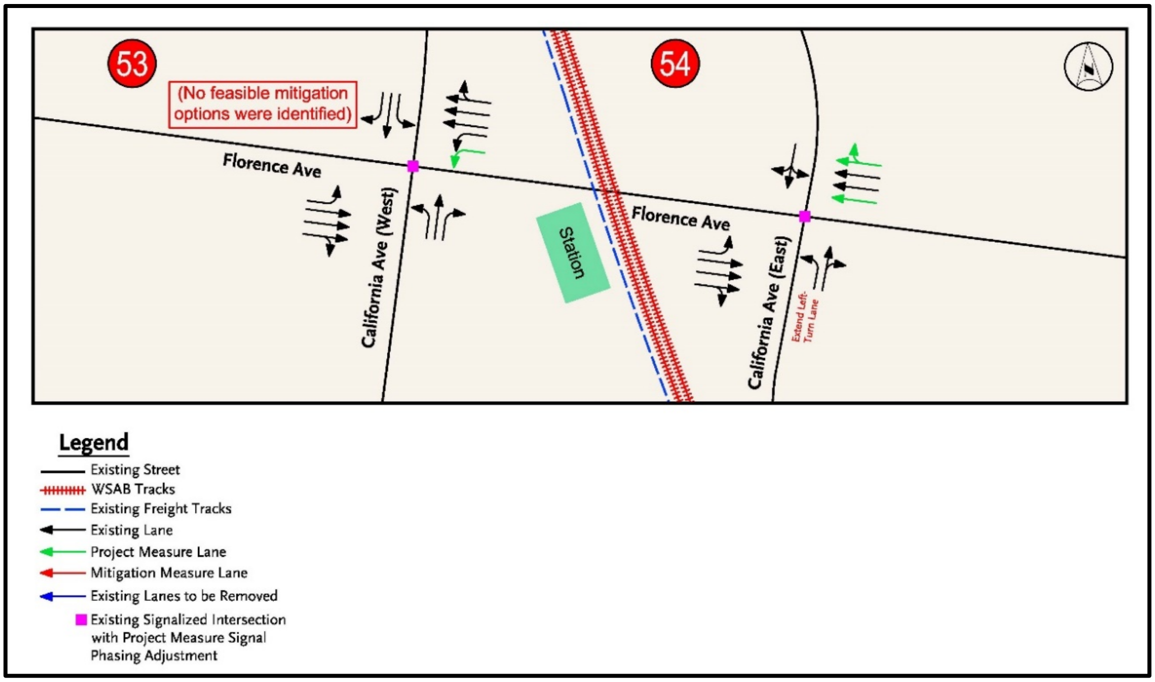
No	Intersection	Mitigation Description	Peak	No Build Delay/ LOS	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
53	Florence Avenue/ California Avenue (West)	No feasible mitigation options were identified.	AM	37.1/D	1, 2, 3, Design Options 1 and 2	103.2/F	101.7/F	**Yes**
			PM	42.3/D	1, 2, 3, Design Options 1 and 2	80.8/F	50.3/D	**Yes**
54	Florence Avenue/ California Avenue (East)	TRA-1: Extend the northbound left-turn lane to 300 feet. Metro would implement this measure subject to approval of the applicable jurisdiction (City of Huntington Park).	AM	65.2/E	1, 2, 3, Design Options 1 and 2	143.2/F	142.3/F	**Yes**
			PM	44.3/D	1, 2, 3, Design Options 1 and 2	31.4/C	31.8/C	No

Source: Compiled by Jacobs in 2020

Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation. The highlighted cells in red with bold "Yes" text indicate that adverse effects would still occur at the intersection after implementation of mitigation.

AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-8. Intersection Nos. 53 and 54 Lane Configuration with Mitigation Measures



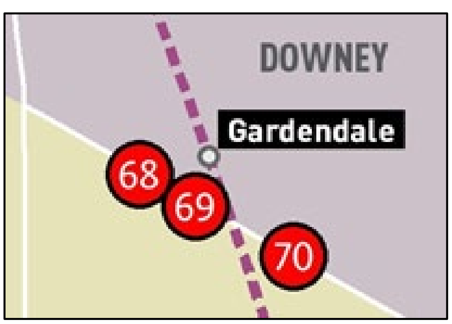
Source: Prepared by Jacobs in 2020

Based on the preliminary evaluation, adverse effects would remain at both intersections after the revised set of mitigation measures. Adding additional lanes or lane extensions would not provide substantial reduction in vehicle delay without acquiring right-of-way. Therefore, these impacts would be unmitigable and an adverse effect would remain.

Intersection Nos. 68 and 70

This group is located adjacent to the Gardendale Station/Crossing (Figure 8-9) and includes the No. 68 – Gardendale Street/Center Street and No. 70 – Gardendale Street/Industrial Avenue intersections. Alternatives 1 (with and without Design Options 1 and 2), 2, and 3 are projected to result in adverse effects on these intersections during both peak periods.

Figure 8-9. Intersection Nos. 68 and 70



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing between the two intersections, and there would be additional traffic volumes associated with the projected 53 park-and-ride and 56 kiss-and-ride peak hour trips traveling through the intersection. Table 8.12 shows how traffic operations would be affected by the Build Alternatives. The highlighted cells in green with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.

Table 8.12. 2042 Operations Without Mitigation Intersection Nos. 68 and 70

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
68	Gardendale Street/ Center Street	AM	23.5/C	1, 2, 3, Design Options 1 and 2	48.8/E	**Yes**
		PM	17.2/C	1, 2, 3, Design Options 1 and 2	41.0/E	**Yes**
70	Gardendale Street/ Industrial Avenue	AM	75.5/F	1, 2, 3, Design Options 1 and 2	594.2/F	**Yes**
		PM	28.9/C	1, 2, 3, Design Options 1 and 2	50.9/F	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

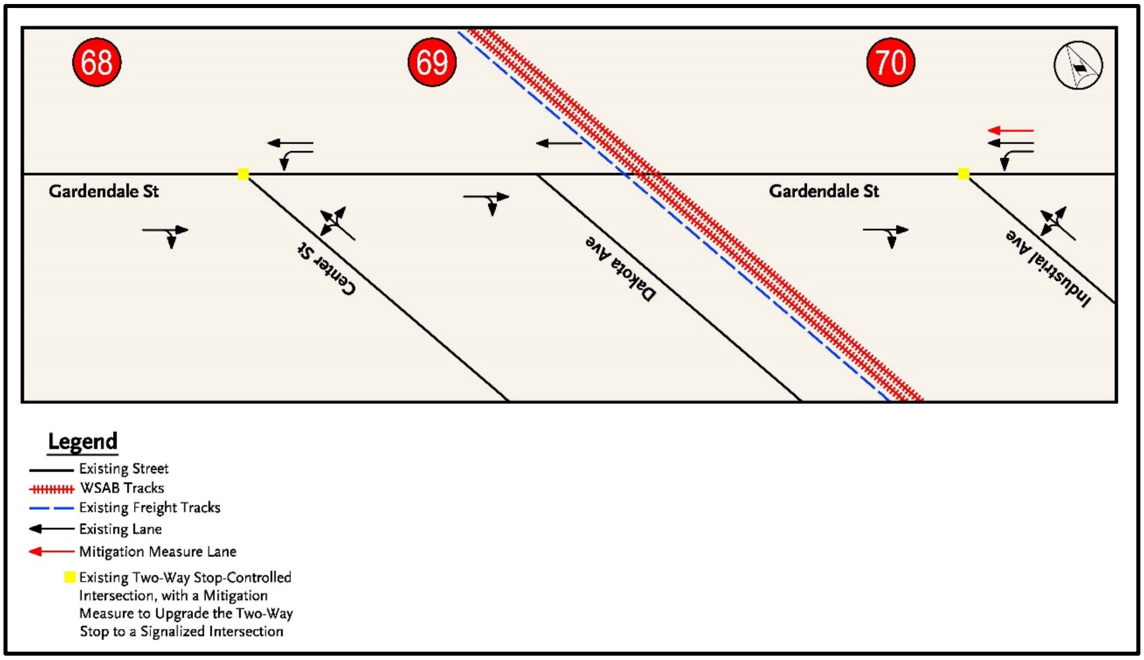
Multiple potential mitigation measures were considered, as summarized in Appendix A – Attachment 6. Based on the engineering assessment summarized here and provided in greater detail in Appendix A – Attachment 7, the preliminary recommendations for mitigation options would be feasible. No substantial right-of-way impacts are anticipated; however, there would be minor impacts to landscaping on the north side of both intersections. Otherwise, all mitigation measures would be accommodated within the existing right-of-way. The final set of mitigation measures, which will eliminate the anticipated impacts, are summarized in Table 8.13. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. The highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would occur. Figure 8-10 illustrates the intersection lane configurations with the mitigation measures.

Table 8.13. Mitigation Measures for Intersection Nos. 68 and 70

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Alternative	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
68	Gardendale Street/ Center Street	TRA-13: Convert the two-way stop-controlled intersection to a signalized intersection. Metro will implement this measure subject to approval of the applicable jurisdiction (City of South Gate).	AM	23.5/C	1, 2, 3, Design Options 1 and 2	48.8/E	7.8/A	No
			PM	17.2/C	1, 2, 3, Design Options 1 and 2	41.0/E	15.6/B	No
70	Gardendale Street/ Industrial Avenue	TRA-14: Convert the two-way stop-controlled intersection to a signalized intersection. Add a westbound through lane, the length of which would continue through the grade crossing. Metro will implement this measure subject to approval of the applicable jurisdiction (City of South Gate).	AM	75.5/F	1, 2, 3, Design Options 1 and 2	594.2/F	4.0/A	No
			PM	28.9/C	1, 2, 3, Design Options 1 and 2	50.9/F	5.9/A	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-10. Intersection Nos. 68 and 70 Lane Configuration with Mitigation Measures

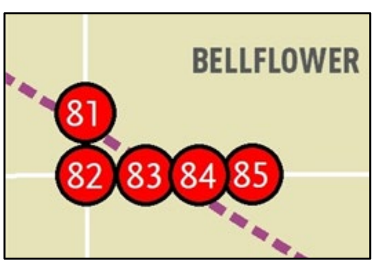


Source: Prepared by Jacobs in 2020

Intersection Nos. 81, 82, and 84

This group is located adjacent to the Alondra and Clark crossings (Figure 8-11) and includes the No. 81 – Flora Vista Street/Clark Avenue, No. 82 – Alondra Boulevard/Clark Avenue, and No. 84 – Alondra Boulevard/Flora Vista Street intersections. All Build Alternatives (with or without Design Options 1 and 2) are projected to result in adverse effects to these intersections during at least one peak period.

Figure 8-11. Intersection Nos. 81, 82, and 84



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing between the intersections, and there would be additional traffic volumes associated with the projected 20 park-and-ride and 7 kiss-and-ride peak hour trips traveling through the area. Table 8.14 shows how traffic operations would be affected by the Build Alternatives. The highlighted cells in green with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.

Table 8.14. 2042 Operations Without Mitigation Intersection Nos. 81, 82, and 84

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
81	Flora Vista Street/Clark Avenue	AM	7.6/A	1, 2, 3, 4, Design Options 1 and 2	172.1/F	**Yes**
		PM	22.4/D	1, 2, 3, 4, Design Options 1 and 2	389.0/F	**Yes**
82	Alondra Boulevard/Clark Avenue	AM	46.2/D	1, 2, 3, 4, Design Options 1 and 2	61.1/E	**Yes**
		PM	69.3/E	1, 2, 3, 4, Design Options 1 and 2	83.3/F	**Yes**
84	Alondra Boulevard/Flora Vista Street	AM	52.6/F	1, 2, 3, 4, Design Options 1 and 2	420.6/F	**Yes**
		PM	41.4/E	1, 2, 3, 4, Design Options 1 and 2	37.6/E	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Multiple potential mitigation measures were considered, as summarized here and as provided in greater detail in Appendix A – Attachment 6. Based on the corresponding engineering assessment in Appendix A – Attachment 7, the preliminary recommendations for mitigation options would be feasible, no right-of-way impacts are anticipated, and all mitigation options can be accommodated within the existing right-of-way. The final set of mitigation measures, which would address impacts, is summarized in Table 8.15. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. Any highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-12 illustrates the intersection lane configurations with the mitigation measures.

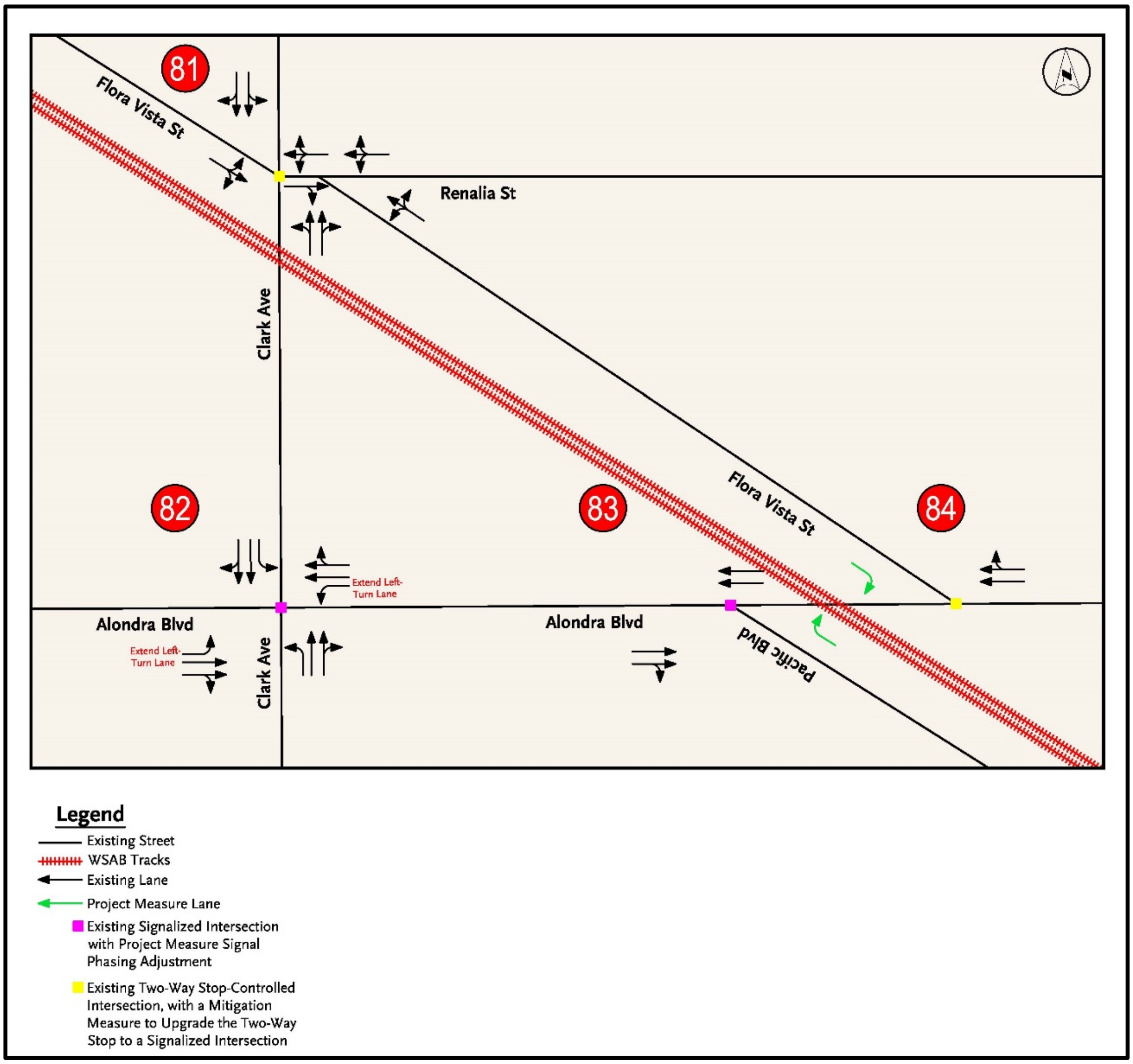
Table 8.15. Mitigation Measures for Intersection Nos. 81, 82, and 84

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
81	Flora Vista Street/Clark Avenue	TRA-15: Convert the two-way stop-controlled intersection to a signalized intersection. Metro will implement this measure subject to approval of the applicable jurisdiction (City of Bellflower).	AM	7.6/A	1, 2, 3, 4, Design Options 1 and 2	172.1/F	10.1/B	No
			PM	22.4/D	1, 2, 3, 4, Design Options 1 and 2	389.0/F	12.3/B	No
82	Alondra Boulevard/ Clark Avenue	TRA-16: Extend eastbound left-turn lane to 150 feet. Extend westbound left-turn lane to 200 feet. Metro will implement this measure subject to approval of the applicable jurisdiction (City of Bellflower).	AM	46.2/D	1, 2, 3, 4, Design Options 1 and 2	61.1/E	46.1/D	No
			PM	69.3/E	1, 2, 3, 4, Design Options 1 and 2	83.3/F	49.7/D	No
84	Alondra Boulevard/ Flora Vista Street	TRA-17: Convert the two-way stop-controlled intersection to a signalized intersection. Metro will implement this measure	AM	52.6/F	1, 2, 3, 4, Design Options 1 and 2	420.6/F	30.8/C	No
			PM	41.4/E	1, 2, 3, 4, Design Options 1 and 2	37.6/E	4.0/A	No

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
		subject to approval of the applicable jurisdiction (City of Bellflower).						

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-12. Intersection Nos. 81, 82, and 84 Lane Configuration with Mitigation Measures

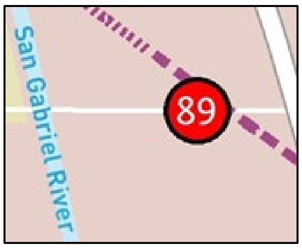


Source: Prepared by Jacobs in 2020

Intersection No. 89

This intersection is located adjacent to the Artesia crossing (Figure 8-13). No. 89 – Artesia Boulevard/Dumont Avenue was analyzed independently because there are no existing intersections nearby. All Build Alternatives (with and without Design Options 1 and 2) are projected to result in adverse effects to these intersections during both peak periods.

Figure 8-13. Intersection No. 89



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing east of the intersection. Table 8.16 shows how the traffic operations would be affected with the Build Alternatives. Any highlighted cells in green with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.

Table 8.16. 2042 Operations Without Mitigation Intersection No. 89

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Build Alternatives	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
35	Artesia Boulevard/ Dumont Avenue	AM	14.7/B	1, 2, 3, 4, Design Options 1 and 2	24.2/C	**Yes**
		PM	21.6/C	1, 2, 3, 4, Design Options 1 and 2	58.2/E	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

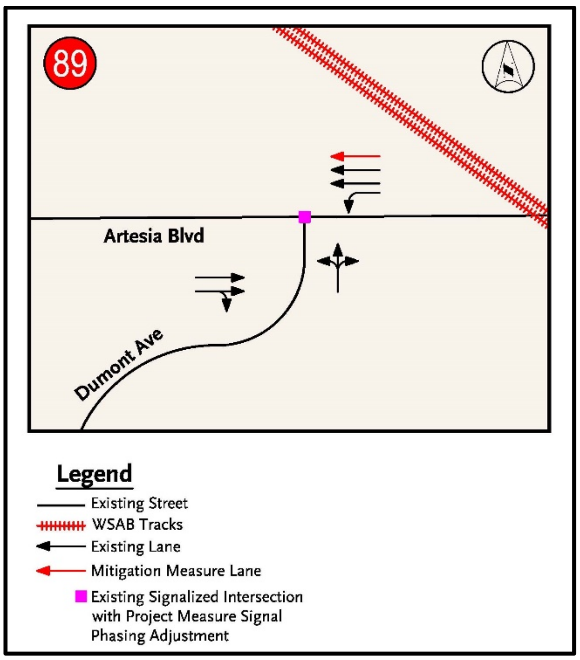
Multiple potential mitigation options were considered, as summarized here and as provided in greater detail in Appendix A – Attachment 6. Based on the corresponding engineering assessment in Appendix A – Attachment 7, the preliminary recommendations for mitigation options will be feasible, and minimal right-of-way impacts are anticipated. The necessary right-of-way acquisition would include property on Artesia Boulevard west of Dumont Avenue, but these acquisitions would be limited to the existing landscaped areas along this street. The final mitigation measure, which would address the projected impacts, is summarized in Table 8.17. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. Any highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-14 illustrates the intersection lane configurations with the mitigation measures.

Table 8.17. Mitigation Measures for Intersection No. 89

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect With Mitigation?
89	Artesia Boulevard/ Dumont Avenue	TRA-18: Add westbound through lane. Metro will implement this measure subject to approval of the applicable jurisdiction (City of Cerritos).	AM	14.7/B	24.2/C	15.9/B	No
			PM	21.6/C	58.2/E	26.4/C	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

Figure 8-14. Intersection No. 89 Lane Configuration with Mitigation Measures

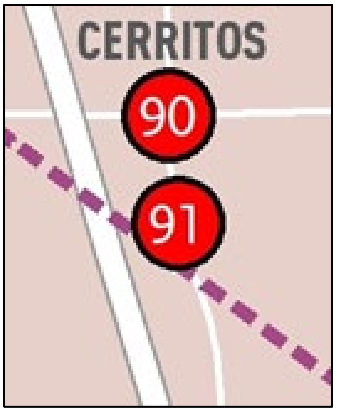


Source: Prepared by Jacobs in 2020

Intersection No. 91

This intersection is located adjacent to the Studebaker crossing (Figure 8-15). Intersection No. 91 – Business Circle/Studebaker Road was analyzed independently because there are no existing intersections nearby. All Build Alternatives (with and without Design Options 1 and 2) are projected to result in adverse effects to these intersections during the PM peak period.

Figure 8-15.
Intersection No. 37



Source: Prepared by Jacobs in 2020

With the proposed Build Alternatives, LRT would travel through the at-grade crossing south of the intersection. Table 8.18 shows how traffic operations would be affected by the Build Alternatives. The highlighted cells in green with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.

Table 8.18. 2042 Operations Without Mitigation Intersection No. 37

No	Intersection	Peak	No Build (Delay in Sec/LOS)	Without Mitigation (Delay in Sec/LOS)	Adverse Effect?
37	Business Circle/ Studebaker Road	AM	8.4/A	3.3/A	No
		PM	8.0/A	15.3/C	**Yes**

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate the intersection was not adversely affected. The highlighted cells in red with bold "Yes" text indicate there would be adverse effects on the intersection.
AM = morning; LOS = level-of-service; PM = afternoon; Sec = seconds

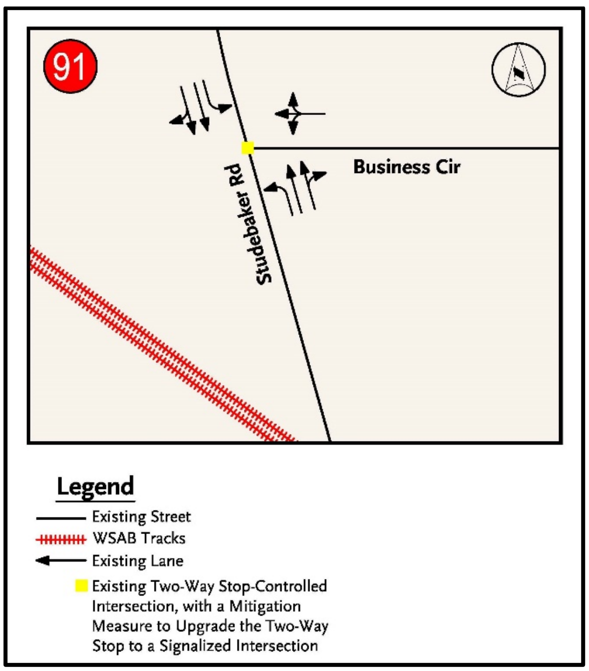
Multiple potential mitigation options were considered, as summarized here and as provided in greater detail in Appendix A – Attachment 6. Based on the corresponding engineering assessment in Appendix A – Attachment 7, the preliminary recommendations for mitigation options would be feasible, no right-of-way impacts are anticipated, and all the mitigation options can be accommodated within the existing right-of-way. The final mitigation measure, which would address the projected impacts, is summarized in Table 8.19. The highlighted cells in green with "No" text indicate the intersection was mitigated, and no adverse effects would occur. Any highlighted cells in red with bold "Yes" text indicate the intersection was not mitigated, and that an adverse effect would remain. Figure 8-16 illustrates the intersection lane configurations with the mitigation measures.

Table 8.19. Mitigation Measure for Intersection No. 91

No	Intersection	Mitigation Description	Peak	No Build (Delay in Sec/LOS)	Without Mitigation (Delay in Sec/LOS)	With Mitigation (Delay in Sec/LOS)	Adverse Effect?
91	Business Circle/ Studebaker Road	TRA-19: Convert the two-way stop-controlled intersection to a signalized intersection. Metro will implement this measure subject to approval of the applicable jurisdiction (City of Cerritos).	AM	8.4/A	3.3/A	6.3/A	No
			PM	8.0/A	15.3/C	8.9/A	No

Source: Compiled by Jacobs in 2020
Notes: The highlighted green cells with "No" text indicate there would not be an adverse effect after mitigation.
AM = morning; LOS = level-of-service; PM = afternoon: Sec = seconds

Figure 8-16. Intersection No. 91



Source: Prepared by Jacobs in 2020

8.2.1.2 Transit Conditions

As described in Section 5.2, the Build Alternatives would be beneficial to transit conditions in the Study Area because increased levels of transit service would be provided by a new LRT line. No substantial impacts have been identified, so no adverse effects would result, and no mitigation measures would be required.

Impacts to traffic operations, described in Section 5.1, have the potential to delay bus service and increase unreliability. While these impacts to traffic operations would affect bus operations, they would not result in adverse effects. They would be further minimized as local bus service schedules are reviewed and adjusted by regional and local transit agencies.

8.2.1.3 Active Transportation

The Build Alternatives would affect existing and planned bicycle and pedestrian facilities in several locations. In addition, the new transit service provided by the Build Alternatives will increase demand for bicycle and pedestrian facilities. However, these facilities will be improved as part of the Build Alternatives, and no adverse effects on these facilities are anticipated, so no mitigation measures would be required. If it is not feasible to use the property that is currently used as a nursery for the Bellflower-Paramount bike trail, Measure LU-01 (described in the *West Santa Ana Branch Transit Corridor Final Land Use Impact Analysis Report* [Metro 2021b]) includes specific provisions that would help to address modifying the proposed Paramount Bike Trail sections west of Somerset Boulevard into a Class II Bikeway.

8.2.1.4 Parking

Section 5.4 describes the expected parking impacts associated with the Build Alternatives. Parking impacts are associated with additional demand for new stations and the loss of parking from station, track construction, and facilities to support the LRT operations.

The Build Alternatives would result in the permanent loss of 794 existing parking spaces and the addition of 2,779 new spaces throughout the Study Area. However, the supply of new spaces is not being added to the locations where new station parking demand is highest (i.e., locations dedicated for transit use). Also, some spaces would be lost where the existing conditions parking demand is highest, and no new parking would be built. Therefore, mitigation would be required for several locations identified as impacts in Section 5.4.

Strategies would be needed to reduce the effects from the loss of off-street parking spaces, the loss of on-street parking spaces, and the station parking demand. For on-street parking (spaces lost and increased demand), Mitigation Measures TRA-21 and TRA-22 would be implemented.

Measure TRA-21: Parking Monitoring and Community Outreach

- Within the one-half mile area surrounding each WSAB station, an assessment would be conducted to monitor on-street and off-street parking activity resulting from project operation. The assessment would compare parking availability prior to the opening of service to the availability six months following the opening of service. Surveys would be conducted at each station area to identify where WSAB parking demand is at least 20 percent greater than the demand before opening of service (i.e., the new transit service has increased parking demand by 20 percent or more).
- Metro would work with the appropriate local jurisdiction, business owners, and affected communities for that station area to assess the need for an appropriate on- and off-street parking management program, considering the nearby community's and each proposed station’s parking needs.
- Specific parking management strategies could include: restriping, modifying parking restrictions, and adjusting the time limits for on-street parking. For off-street parking, signing and enforcement services could be included.
- Another element would be implementing or enhancing a residential permit parking program for the affected neighborhoods. Metro would coordinate with and support

jurisdictions in outreach meetings within the affected communities to gauge the interest of residents participating in a residential permit parking program (prior to the opening of the new light rail service), regardless of whether parking shortages have been identified.

Measure TRA-22: Loss of Parking (Permanent)

Metro would coordinate with local jurisdictions to address the physical loss of public parking spaces resulting from implementation of the Project. This could include, but not be limited to, restriping the existing street to allow for diagonal parking, reducing the number of restricted parking areas, and adjusting the time limits for on-street parking.

Implementation of TRA-21 and TRA-22 would reduce parking impacts and also provide direct and indirect mitigation for the increase in demand and loss of off-street parking by allowing additional on-street parking where appropriate and feasible. These measures would be implemented shortly before the WSAB opening. This timing will ensure that the parking, social, and economic conditions during that time are considered when identifying the most appropriate parking strategies to implement. Adverse effects would be reduced with implementation of this measure; however, adverse effects are likely to remain.

8.2.2 Construction

The following mitigation measures would address short-term transportation impacts during construction of the Build Alternatives:

Measure TRA-20: Transportation Management Plan(s) (TMP)

TMP(s) would be prepared to address construction impacts on transportation facilities as applicable under the jurisdiction of all involved cities and agencies.

The TMP(s) would address potential impacts from construction activities on vehicular, transit, pedestrian, and bicycle access and mobility, including but not limited to: temporary lane/roadway, sidewalk, bicycle facility, and freeway ramp closures; detours; increases in traffic volumes (including regular traffic and construction traffic, construction equipment, materials delivery vehicles, waste/haul vehicles, and employee commutes); construction parking; and emergency services (e.g., fire, police, ambulances).

The development of the TMP would be coordinated with Metro, local jurisdictions (cities and the county), agencies, and other potentially affected parties (e.g., school bus and transit operators and police, fire, emergency services providers). The TMP(s) would identify specific TMP strategies, the party/parties responsible for implementing those strategies, the agencies and parties the TMP strategies would be coordinated with, and implementation timing.

With the implementation of TRA-20, TMPs are a proven strategy for minimizing impacts during construction. Metro has successfully implemented TMPs on its sponsored projects to minimize short-term transportation impacts during construction. These plans have demonstrated to be effective at reducing potential transportation impacts during construction. Metro proactively follows the strategies identified in its TMPs, and makes adjustments during construction to best accommodate all vehicles and active transportation users.

The TMP will include specific strategies to address short-term, project-related construction effects on traffic, bicyclists, pedestrians, and area residents and businesses. The following list, which is part of this mitigation measure, identifies the types of TMP strategies that would be applicable:

- Public Information
  - Brochures and Mailers
  - Press Releases
  - Paid Advertising
  - Public Meetings/Speakers Bureau
  - Internet
  - Public Meeting Rooms
- Motorist Information
  - Portable Changeable-Message Signs
  - Ground-mounted Signs
- Incident Management
  - Traffic Management Team
- Construction
  - Lane Closure Chart
  - Reduced Speed Zone
  - Incentives and Disincentives (e.g., early completion payments and late re-opening penalties for contractors)
  - Movable Barrier
  - Temporary Pedestrian Walkways and Detour

The Resident Engineer will require the Construction Contractor to implement the strategies in the TMP prior to, during, and after construction activities, as required in the TMP.

Pedestrian and Bicycle Facility Closures: When sidewalks, crosswalks, and/or bicycle facilities are temporarily closed during construction, pedestrian and bicycle detours will be developed and clearly signed prior to closing those facilities.

With the implementation of the TMP, temporary construction-related impacts would be minimized, but adverse effects would occur resulting from construction activities on the street and highway system.

In addition to TRA-20, as described in the Final Safety and Security Impact Analysis Report (Metro 2021c), active transportation (bicycle and pedestrian) school users will be addressed. This provides a means to coordinate with school districts and communicate temporary improvements during construction activities.

Measure TRA-23: Loss of Parking (Construction)

Metro would coordinate with local jurisdictions to address the loss of public parking spaces during construction. This could include, but not be limited to, restriping the existing street to allow for diagonal parking, reducing the number of restricted parking areas, phasing construction activities in a way that minimizes parking disruption, and adjusting the time limits for on-street parking.

To address potential disruption to freight services during construction, a shoo-fly (alternate parallel track) will be constructed prior to any interruption of freight rail. This type of temporary alternative alignment is standard practice and will not require a separate mitigation measure.

Implementation of TRA-23 would reduce parking impacts and also provide indirect mitigation for the loss of off-street parking by allowing additional on-street parking where appropriate and feasible. Adverse effects would be reduced with implementation of this measure; however, adverse effects are likely to remain.

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APPENDIX A TRAFFIC DATA

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ATTACHMENT A1 EXISTING CONDITIONS INTERSECTION VOLUME AND LEVEL OF SERVICE (LOS)

Table A1.1. Existing Conditions Key Intersections Volumes and LOS

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
1	1st St/Alameda St	Los Angeles	AM	49	630	47	10	793	67	45	133	47	3	520	45	9.9	A
			PM	37	567	104	41	650	95	223	525	109	0	277	10	10.7	B
2	2nd St/Alameda St	Los Angeles	AM	78	841	44	36	856	74	51	89	-	150	229	67	12.2	B
			PM	105	321	71	50	699	47	98	287	-	106	156	27	19.2	B
3	Traction Ave/Alameda St	Los Angeles	AM	-	690	31	6	695	-	-	-	58	-	-	77	11.9	B
			PM	-	647	59	0	560	-	-	-	140	-	-	40	11.7	B
4	3rd St/Alameda St	Los Angeles	AM	122	574	0	1	758	168	-	-	-	143	2244	264	20.4	C
			PM	235	709	1	0	689	138	-	-	-	167	868	86	14.7	B
5	6th St/Alameda St	Los Angeles	AM	116	581	33	60	847	122	59	127	97	29	333	58	11.4	B
			PM	120	838	39	89	825	118	148	423	177	18	128	62	13.3	B
6	7th St/Alameda St	Los Angeles	AM	120	586	87	104	775	132	51	322	99	120	911	137	16.6	B
			PM	94	749	91	156	765	76	123	912	108	93	582	144	13.5	B
7	7th St/Flower St	Los Angeles	AM	-	-	-	65	813	68	-	324	150	101	468	-	15.6	B
			PM	-	-	-	68	1457	95	-	303	173	104	524	-	21.7	C
8	8th St/Figueroa St	Los Angeles	AM	369	1514	-	-	-	-	-	-	-	-	1102	188	21.2	C
			PM	156	1224	-	-	-	-	-	-	-	-	1535	323	25.2	C
9	8th St/Flower St	Los Angeles	AM	-	-	-	-	584	144	-	-	-	148	1074	-	27.6	C
			PM	-	-	-	-	1708	315	-	-	-	216	1225	-	32	C
10	8th St/Hope St	Los Angeles	AM	167	306	-	-	122	86	-	-	-	43	1035	171	16.3	B
			PM	107	289	-	-	366	143	-	-	-	145	1190	148	14.8	B
11	9th St/Flower St	Los Angeles	AM	-	-	-	157	479	-	-	938	132	-	-	-	19.7	B
			PM	-	-	-	270	1753	-	-	954	198	-	-	-	26.2	C
12	7th St/Main St	Los Angeles	AM	27	501	69	-	-	-	44	320	-	-	384	96	12.8	B
			PM	26	1045	111	-	-	-	90	401	-	-	318	106	16.1	B
13	7th St/Los Angeles St	Los Angeles	AM	19	407	56	43	707	71	-	293	107	-	398	125	17.9	B
			PM	26	783	116	24	750	88	-	414	75	-	392	74	12.8	B
14	7th St/Maple Ave	Los Angeles	AM	22	42	31	15	79	36	23	250	66	153	484	31	9.9	A
			PM	45	177	104	32	107	26	41	529	50	102	412	40	8.1	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
15	9th St/Main St/Spring St	Los Angeles	AM	-	561	116	129	-	353	72	735	48	-	-	-	14.4	B
			PM	-	864	88	74	-	519	196	878	60	-	-	-	16.1	B
16	9th St/Los Angeles St	Los Angeles	AM	-	414	67	95	609	-	122	721	102	-	-	-	17.6	B
			PM	-	585	82	73	731	-	221	707	61	-	-	-	16.9	B
17	9th St/Santee St	Los Angeles	AM	-	44	64	-	-	-	138	694	48	139	-	182	4.8	B
			PM	-	93	82	-	-	-	134	686	58	190	-	183	5.7	A
18	9th St/Maple St	Los Angeles	AM	6	153	62	16	143	28	36	707	28	48	284	42	19.2	B
			PM	19	177	96	20	233	42	37	660	64	84	317	37	20.2	C
19	8th St/Broadway	Los Angeles	AM	66	414	-	-	205	78	-	-	-	30	979	63	23.6	C
			PM	63	505	-	-	319	72	-	-	-	92	954	73	23.9	C
20	8th St/Spring St	Los Angeles	AM	-	-	-	-	489	143	-	-	-	60	938	-	23.2	C
			PM	-	-	-	-	492	158	-	-	-	136	965	-	23.8	C
21	8th St/Main St	Los Angeles	AM	87	535	-	-	-	-	-	-	-	-	955	65	26.9	C
			PM	123	1050	-	-	-	-	-	-	-	-	908	118	29.8	C
22	8th St/Los Angeles St	Los Angeles	AM	38	447	-	-	615	154	-	-	-	74	765	79	9.4	A
			PM	84	772	-	-	674	172	-	-	-	126	886	115	12.2	B
23	8th St/Santee St	Los Angeles	AM	191	5	109	8	-	31	-	-	-	-	725	9	17.3	C
			PM	287	7	158	4	-	16	-	-	-	-	817	16	20.7	C
24	8th St/Maple Ave	Los Angeles	AM	29	121	41	41	143	121	22	63	29	39	587	55	5.2	A
			PM	68	200	41	23	171	133	29	134	20	45	657	26	5.1	A
25	8th St/Wall St	Los Angeles	AM	28	64	32	28	55	73	10	116	20	29	609	51	13.8	B
			PM	37	201	105	16	72	29	19	223	25	20	616	28	13.9	B
26	Center St/Alameda St	Los Angeles	AM	4	779	60	50	883	70	9	0	7	36	0	38	2.4	A
			PM	3	863	5	10	855	12	11	0	9	3	0	14	5	A
27	Bay St/Alameda St	Los Angeles	AM	48	779	83	56	840	26	11	3	15	96	19	52	12.9	B
			PM	14	649	56	38	906	18	27	10	79	60	5	49	12.4	B
28	8th St/Alameda St	Los Angeles	AM	39	778	18	16	826	122	100	45	60	32	81	28	0.7	A
			PM	11	654	15	91	918	31	45	20	25	25	27	18	1.2	A
29	Olympic Blvd/Alameda St	Los Angeles	AM	79	644	39	105	676	149	58	646	64	96	1081	73	16.2	B
			PM	98	668	143	94	756	142	45	1214	41	86	1000	39	19.1	B
30	Randolph St/Wilmington Ave	Huntington Park	AM	134	173	106	30	51	7	58	326	77	78	209	23	20.5	C
			PM	26	33	68	62	106	14	17	261	17	82	248	6	11.5	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
31	Randolph St/Alameda St (West)	Huntington Park	AM	5	691	74	24	355	13	47	380	23	64	285	116	48.3	D
			PM	15	501	58	32	678	15	16	388	30	56	327	44	24.2	C
32	Randolph St/Alameda St (East)	Huntington Park	AM	11	2	20	1	1	9	26	423	15	12	444	5	8.8	A
			PM	22	1	48	10	0	10	8	426	36	15	334	1	9.6	A
33	Randolph St/Regent St	Huntington Park	AM	-	-	-	9	-	10	27	436	-	68	456	20	15	C
			PM	-	-	-	27	-	36	4	457	-	16	376	3	12.7	B
34	Randolph St/Albany St	Huntington Park	AM	56	20	69	2	7	5	37	451	4	44	426	8	29.1	D
			PM	9	4	24	13	23	8	23	462	15	43	392	5	23.7	C
35	Randolph St/Santa Fe Ave	Huntington Park	AM	25	1144	60	11	444	47	135	363	26	103	378	24	22.5	C
			PM	7	660	75	26	1001	37	92	367	37	114	303	27	19.1	B
36	Randolph St/Malabar St	Huntington Park	AM	11	236	27	13	124	41	104	438	21	33	415	23	21.4	C
			PM	10	61	31	45	240	42	32	445	24	67	329	19	20	C
37	Randolph St/Rugby Ave	Los Angeles	AM	41	138	94	11	-	23	50	419	-	7	428	21	62	F
			PM	15	46	103	17	-	39	23	508	-	0	323	18	14.2	B
38	Pacific Blvd/Belgrave Ave	Huntington Park	AM	36	798	59	41	372	40	81	140	26	32	109	58	6.6	A
			PM	37	486	35	112	704	63	47	146	44	51	91	48	8.2	A
39	Pacific Blvd/Clarendon Ave	Huntington Park	AM	35	901	68	21	321	20	24	149	55	35	113	64	9.1	A
			PM	33	491	59	42	615	24	28	126	39	20	70	46	7.4	A
40	Pacific Blvd/Randolph St	Huntington Park	AM	49	792	25	59	351	30	54	414	53	39	386	82	29.8	C
			PM	40	515	36	110	621	50	89	466	68	57	300	22	37.1	D
41	Randolph St/Rita Ave	Huntington Park	AM	-	-	-	19	30	15	35	434	70	96	506	42	24.9	C
			PM	-	-	-	56	143	64	58	496	72	75	315	68	47.7	E
42	Randolph St/Seville Ave	Huntington Park	AM	25	327	40	25	117	34	60	419	19	87	567	49	34.7	C
			PM	34	145	26	48	287	38	32	549	33	48	381	30	29.7	C
43	Randolph St/Miles Ave	Huntington Park	AM	45	595	58	49	394	56	184	355	35	66	475	109	34	C
			PM	36	357	53	86	869	35	58	502	54	63	364	40	28.1	C
44	Arbutus Ave/Randolph St	Huntington Park	AM	47	48	50	0	75	31	77	354	10	37	529	31	17.6	C
			PM	8	14	35	0	42	22	64	85	12	54	393	35	10.3	B
45	State St/Randolph St	Huntington Park	AM	119	1371	45	49	411	0	150	256	53	34	390	166	21	C
			PM	54	512	34	138	1093	6	89	351	91	42	233	72	13.1	B
46	Randolph St/Bissell Pl	Huntington Park	AM	2	0	3	-	-	-	-	339	5	11	532	-	13.5	B
			PM	0	2	10	-	-	-	-	514	7	3	345	-	13	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
47	Randolph Ave/Maywood Ave	Huntington Park	AM	46	403	8	5	242	5	79	223	49	11	281	23	13	B
			PM	27	276	13	18	374	18	4	341	84	9	203	4	13.1	B
48	Gage Ave/California Ave	Bell	AM	26	136	116	30	98	161	150	635	42	58	797	95	15.6	B
			PM	14	84	56	66	179	193	116	995	83	40	785	79	18.9	C
49	Gage Ave/Salt Lake Ave (West)	Bell	AM	403	0	157	-	-	-	-	579	122	189	714	-	16.2	B
			PM	173	0	156	-	-	-	-	1005	214	255	722	-	27.5	C
50	Bell Ave/California Ave	Huntington Park	AM	34	253	77	72	103	32	70	103	27	61	171	82	18.1	C
			PM	13	95	39	78	225	42	48	168	52	20	133	40	14.2	B
51	Bell Ave/Bissell St	Bell	AM	20	15	33	30	20	12	17	164	21	26	142	33	8.7	A
			PM	17	11	31	52	16	22	13	231	23	11	135	39	9	A
52	Bell Ave/Salt Lake Ave	Huntington Park	AM	75	462	102	14	272	35	44	93	80	68	103	66	62.5	F
			PM	69	255	75	53	403	27	36	169	113	68	104	36	47.4	E
53	Florence Ave/California Ave (West)	Huntington Park	AM	151	447	297	99	255	54	27	856	95	149	1270	147	33.9	C
			PM	129	276	229	106	403	62	32	1098	180	169	919	95	38	D
54	Florence Ave/California Ave (East)	Huntington Park	AM	353	142	3	46	131	47	49	995	191	0	1152	102	52.9	D
			PM	247	93	4	58	170	44	26	1077	297	1	897	46	28.9	C
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	AM	85	298	2	4	277	83	250	34	83	13	136	5	36.9	E
			PM	39	292	5	121	381	7	211	56	106	6	113	4	44.7	E
56	Otis Ave/Salt Lake Ave (East)	Cudahy	AM	43	383	140	43	305	0	5	136	45	13	187	34	74.5	E
			PM	26	371	103	50	371	0	10	195	103	31	130	43	63.7	F
57	Otis Ave/Elizabeth St	Cudahy	AM	3	311	108	62	305	4	1	31	0	56	64	80	34.9	D
			PM	0	332	79	60	343	3	5	38	0	79	52	57	46.5	E
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	AM	20	2	7	48	0	5	17	663	6	3	365	126	41.4	E
			PM	5	0	13	54	0	4	4	509	2	1	469	123	35.9	E
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	AM	217	188	5	26	284	1	1	359	259	3	309	55	43.2	E
			PM	211	140	21	52	286	6	4	365	217	4	372	43	48.2	E
60	Ardine St/Salt Lake Ave	Cudahy	AM	40	328	6	20	479	3	19	70	100	8	48	44	29.5	D
			PM	37	291	2	8	473	11	29	29	95	8	79	40	23.7	C
61	Atlantic Ave/Salt Lake Ave	Cudahy	AM	343	922	104	8	719	2	3	7	555	97	2	10	52.7	D
			PM	327	807	172	7	992	4	1	12	503	158	7	12	65	E
62	Atlantic Ave/Azalea West	South Gate	AM	10	1260	-	-	1222	85	64	-	14	-	-	-	3.7	A
			PM	68	1104	-	-	1306	322	223	-	127	-	-	-	8.3	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
63	Firestone Blvd/Atlantic Ave	South Gate	AM	125	769	48	759	630	126	153	1270	116	45	1156	212	53	D
			PM	165	507	83	655	583	147	137	1214	111	73	1178	229	45.9	D
64	Firestone Blvd/Mason St	South Gate	AM	-	-	-	11	-	7	-	1528	-	-	1357	239	7.3	A
			PM	-	-	-	29	-	24	-	1530	-	-	1392	275	7.5	A
65	Firestone Blvd/Firestone Pl	South Gate	AM	-	-	-	1	-	14	3	1549	-	-	1585	4	7.5	A
			PM	-	-	-	2	-	58	9	1551	-	-	1632	16	7.6	A
66	Firestone Blvd/Rayo Ave	South Gate	AM	2	16	954	32	2	5	11	1448	8	254	1557	73	116.1	F
			PM	14	26	844	101	21	3	16	1516	17	297	1563	56	95.2	F
67	Southern Ave/Salt Lake Ave	South Gate	AM	30	-	1	-	-	-	-	25	14	0	16	-	8.9	A
			PM	17	-	1	-	-	-	-	14	13	2	24	-	8.8	A
68	Gardendale St/Center St	South Gate	AM	9	-	34	-	-	-	-	511	2	18	871	-	18.5	C
			PM	11	-	39	-	-	-	-	585	9	49	462	-	17.2	C
69	Gardendale St/Dakota Ave	South Gate	AM	1	-	0	-	-	-	-	478	2	0	806	-	28.4	D
			PM	0	-	2	-	-	-	-	602	2	1	452	-	12.8	B
70	Gardendale St/Industrial Ave	South Gate	AM	25	-	8	-	-	-	-	531	10	4	863	-	34.8	D
			PM	20	-	11	-	-	-	-	578	36	10	493	-	21.5	C
71	Main St/Center St	South Gate	AM	7	5	32	27	3	12	10	190	9	38	266	23	14.6	B
			PM	6	5	50	30	7	13	8	165	9	39	133	24	12.7	B
72	Main St/Dakota Ave	South Gate	AM	-	-	-	0	-	4	1	252	-	-	315	0	10.2	B
			PM	-	-	-	1	-	2	2	244	-	-	200	0	10.2	B
73	Main St/Arizona Ave/Industrial Ave	South Gate	AM	30	16	38	10	11	57	38	218	28	23	323	8	17.5	C
			PM	19	3	49	12	20	12	39	190	37	21	217	8	19.4	C
74	Century Blvd/Center St	South Gate	AM	-	-	-	3	-	19	8	84	-	-	103	4	9.8	A
			PM	-	-	-	1	-	13	10	86	-	-	44	2	9.4	A
75	Century Blvd/Florence Ave	South Gate	AM	-	-	-	2	-	24	0	144	-	-	84	25	9	A
			PM	-	-	-	0	-	10	0	62	-	-	51	17	8.6	A
76	Rosecrans Ave/Paramount Blvd	Paramount	AM	176	510	252	91	674	337	171	732	205	174	817	100	54.6	D
			PM	121	693	199	153	588	199	231	972	189	140	633	163	47.7	D
77	Rosecrans Ave/Bianchi Wy	Paramount	AM	30	0	13	-	-	-	1	1226	132	24	1181	2	2.4	A
			PM	23	0	13	-	-	-	0	1378	39	10	842	4	12.9	B
78	Somerset Blvd/Hayter Ave	Paramount	AM	59	-	15	-	-	-	-	585	35	12	818	-	29	D
			PM	26	-	8	-	-	-	-	919	53	18	601	-	32.2	D

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
79	Somerset Blvd/Lakewood Blvd	Bellflower	AM	105	910	213	84	927	187	118	341	103	171	546	142	32.4	C
			PM	103	824	179	130	867	161	168	624	121	90	357	141	30.1	C
80	Paseo St/Lakewood Blvd	Bellflower	AM	35	1186	-	-	1180	22	32	-	48	-	-	-	4	A
			PM	48	1052	-	-	1186	27	10	-	19	-	-	-	2.6	A
81	Flora Vista St/Clark Ave	Bellflower	AM	22	621	5	11	620	2	2	0	21	9	0	71	14.1	B
			PM	27	583	26	17	797	3	2	1	11	13	4	67	18	C
82	Alondra Blvd/Clark Ave	Bellflower	AM	76	518	100	55	562	136	96	442	82	135	762	61	47.1	D
			PM	105	567	103	83	619	145	132	734	122	103	665	56	48.2	D
83	Alondra Blvd/Pacific Ave	Bellflower	AM	72	-	36	-	-	-	-	645	31	29	892	-	4.5	A
			PM	64	-	29	-	-	-	-	100	78	41	676	-	12.1	B
84	Alondra Blvd/Flora Vista St	Bellflower	AM	-	-	-	11	-	3	-	750	-	-	1010	69	37.2	E
			PM	-	-	-	18	-	3	-	955	-	-	785	74	32.1	D
85	Alondra Blvd/Stevens Ave	Bellflower	AM	-	-	-	41	-	27	12	682	-	-	1045	22	50.9	F
			PM	-	-	-	26	-	25	26	961	-	-	818	31	30.3	D
86	Flora Vista St/Bellflower Blvd	Bellflower	AM	3	575	45	59	485	8	1	0	0	84	1	107	7.1	A
			PM	3	691	91	75	603	7	6	0	14	71	0	82	14.2	B
87	Mayne St/Bellflower Blvd	Bellflower	AM	39	692	-	-	393	71	14	-	24	-	-	-	11	B
			PM	44	760	-	-	498	117	20	-	20	-	-	-	10.1	B
88	Oak St/Bellflower Blvd	Bellflower	AM	32	559	5	18	455	28	64	9	35	2	7	9	21.7	C
			PM	34	689	15	36	559	48	75	16	41	13	8	37	25	C
89	Artesia Blvd/Dumont Ave	Cerritos	AM	82	-	62	-	-	-	-	1130	121	69	1265	-	17.7	B
			PM	70	-	94	-	-	-	-	1284	78	54	1107	-	9.4	A
90	Artesia Blvd/Studebaker Rd	Cerritos	AM	117	470	59	147	569	431	469	470	160	142	593	248	85.3	F
			PM	217	897	174	161	675	380	561	733	142	134	622	143	60.8	E
91	Business Cir/Studebaker Rd	Cerritos	AM	-	558	30	13	654	-	-	-	-	16	-	38	14.6	B
			PM	-	764	10	7	697	-	-	-	-	7	-	16	16.2	C
92	186th St/Jersey Ave	Artesia	AM	15	0	9	-	-	-	-	31	35	18	31	-	9.1	A
			PM	22	0	21	-	-	-	-	10	16	51	28	-	9.2	A
93	187th St/Alburtis Ave	Artesia	AM	23	0	7	0	0	1	0	72	14	11	74	0	9.7	A
			PM	0	0	0	0	0	1	1	90	24	20	61	0	8.6	A
94	187th St/Corby Ave (West)	Artesia	AM	15	-	11	-	-	-	-	65	14	15	85	-	9.4	A
			PM	27	-	30	-	-	-	-	84	6	20	64	-	9.5	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
95	187th St/Corby Ave (East)	Artesia	AM	-	-	-	21	-	19	15	61	-	-	66	8	9.3	A
			PM	-	-	-	19	-	20	27	87	-	-	64	17	9.4	A
96	186th St/Pioneer Blvd	Artesia	AM	3	228	3	5	197	6	7	25	5	19	39	15	7.1	A
			PM	16	264	10	23	329	20	26	20	14	8	29	19	4.5	A
97	187th St/Pioneer Blvd	Artesia	AM	24	176	27	10	177	10	8	31	25	21	46	8	6.8	A
			PM	39	252	46	8	342	10	21	54	51	14	23	14	5.1	A
98	188th St/Pioneer Blvd	Artesia	AM	11	270	-	-	246	3	6	-	11	-	-	-	10.5	B
			PM	25	363	-	-	391	14	14	-	20	-	-	-	12.6	B
99	South St/Pioneer Blvd	Cerritos	AM	98	201	164	41	162	46	40	524	66	107	891	36	33.7	C
			PM	150	226	158	88	267	106	97	831	137	167	772	73	40.7	D
100	South St/Clarkdale Ave	Artesia	AM	-	-	-	35	-	39	96	637	-	-	955	83	18.1	B
			PM	-	-	-	50	-	45	76	1043	-	-	1020	68	11.5	B
101	South St/Elaine Ave	Artesia	AM	-	-	-	24	-	45	63	618	-	-	974	31	11.3	B
			PM	-	-	-	27	-	88	70	1016	-	-	1007	39	11.5	B

sec/veh = seconds per vehicle
LOS = level of service
NBL = northbound left
NBT = northbound through
NBR = northbound right
SBL = southbound left
SBT = southbound through
SBR = southbound right
EBL = eastbound left
EBT = eastbound through
EBR = eastbound right
WBL = westbound left
WBT = westbound through
WBR = westbound right
EB = eastbound

ATTACHMENT A2 AREAS SURVEYED FOR THE PARKING STUDY

Figure A2-1. Union Station Parking Survey Area

Figure A2-2. Little Tokyo Station Parking Survey Area

Little Tokyo Station Parking.kmz

Little Tokyo Station Parking

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

Figure A2-3. Arts/Industrial District Station Parking Survey Area

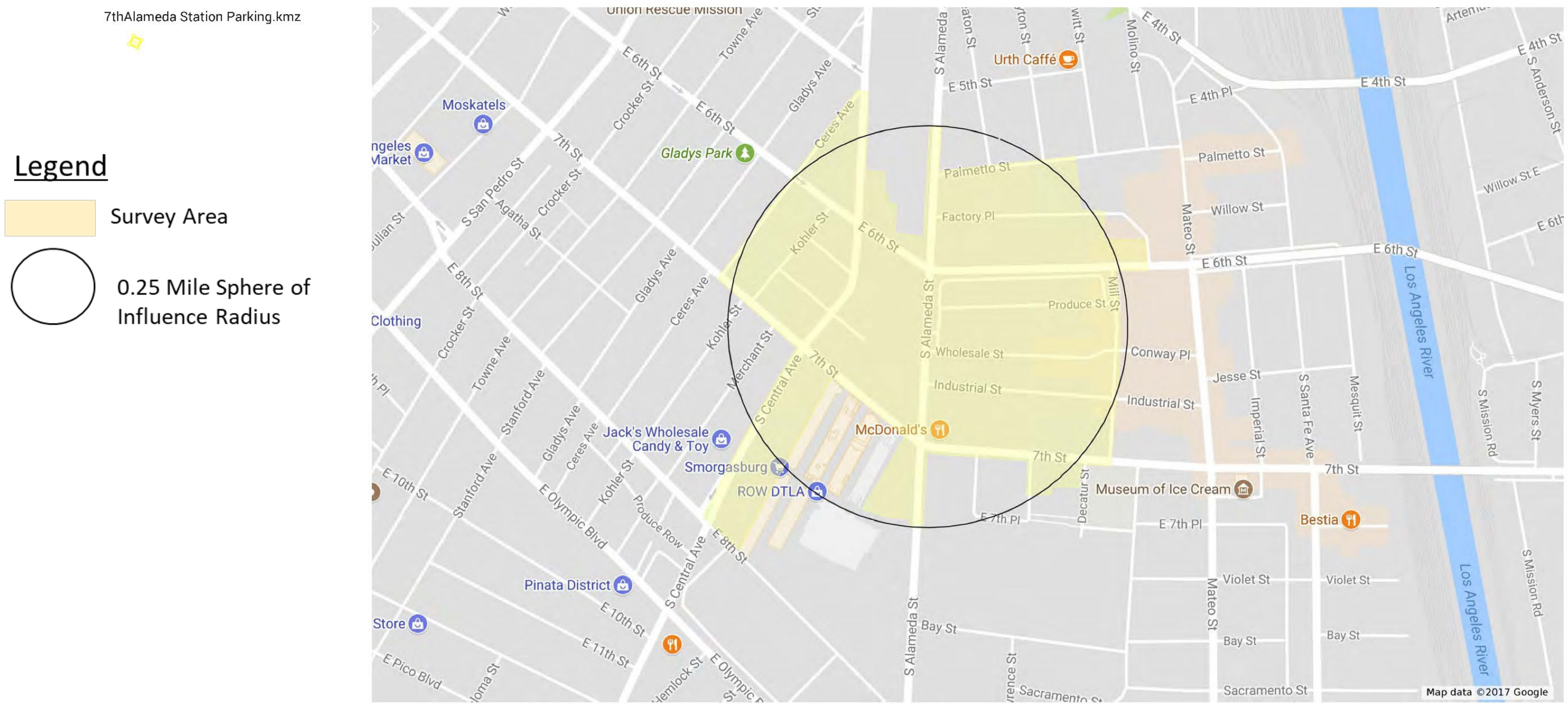

Figure A2-4. 7th Street/Metro Center Station Parking Survey Area

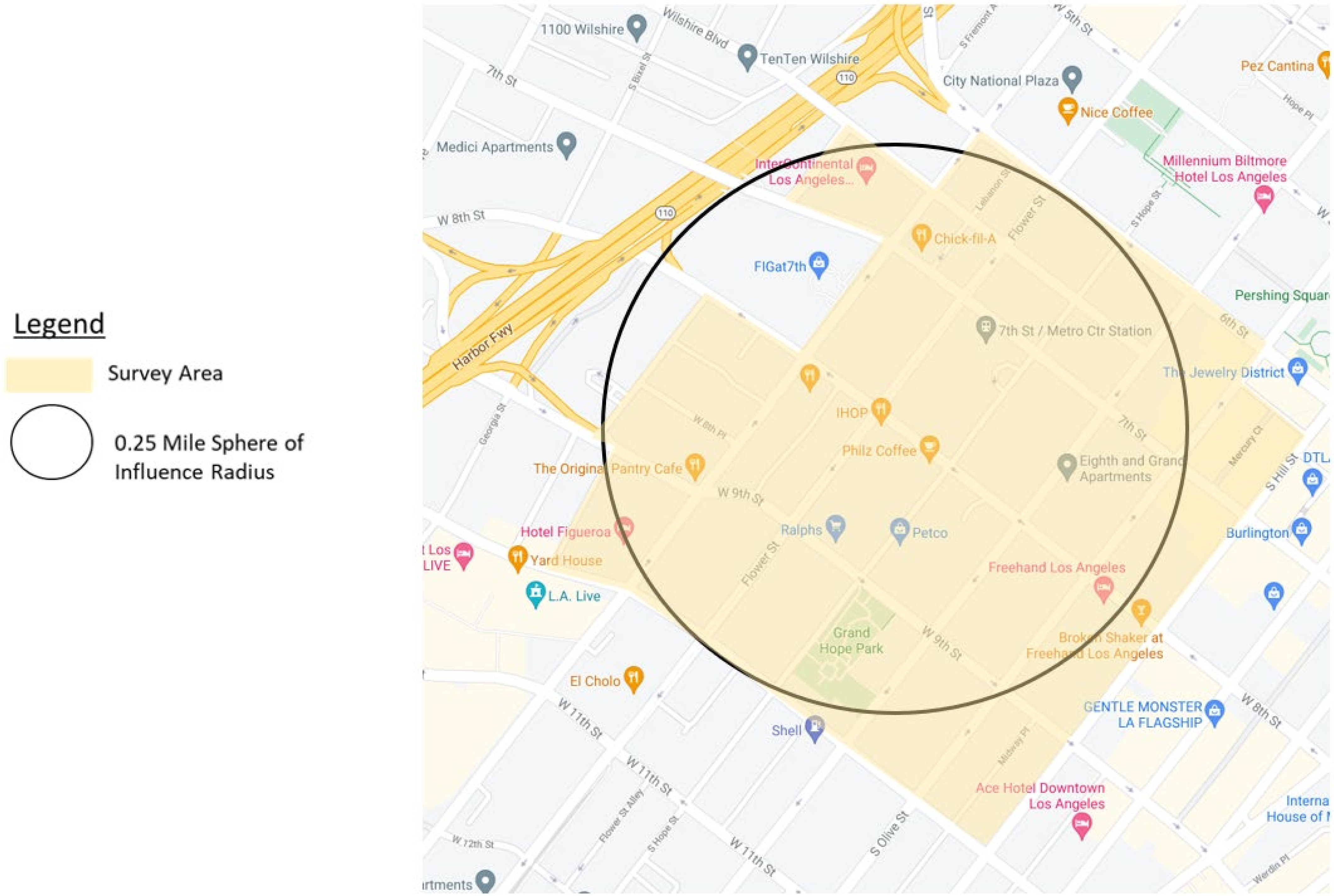

Figure A2-5. South Park/Fashion District Station Parking Survey Area

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

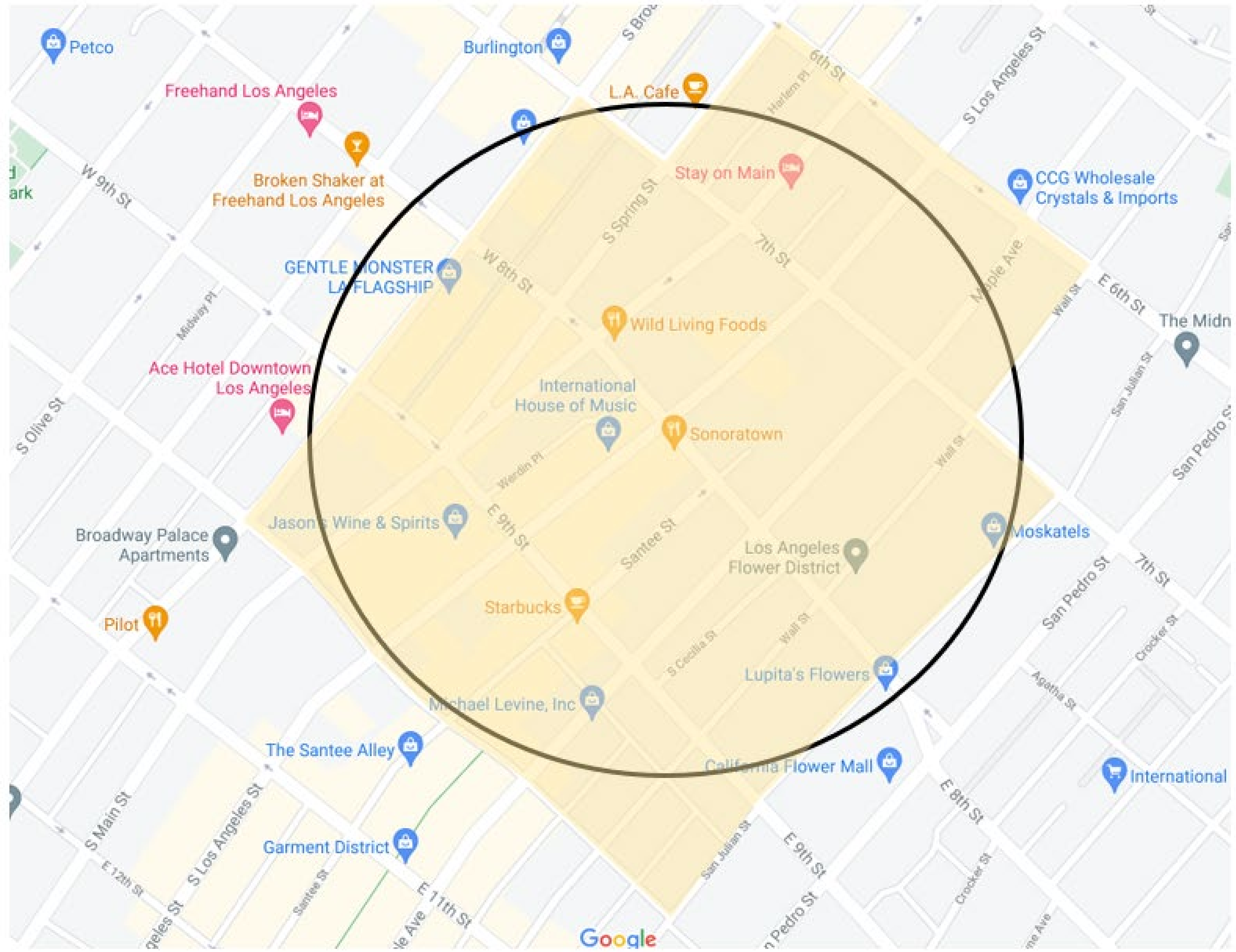

Figure A2-6. Pacific/Randolph Station Parking Survey Area

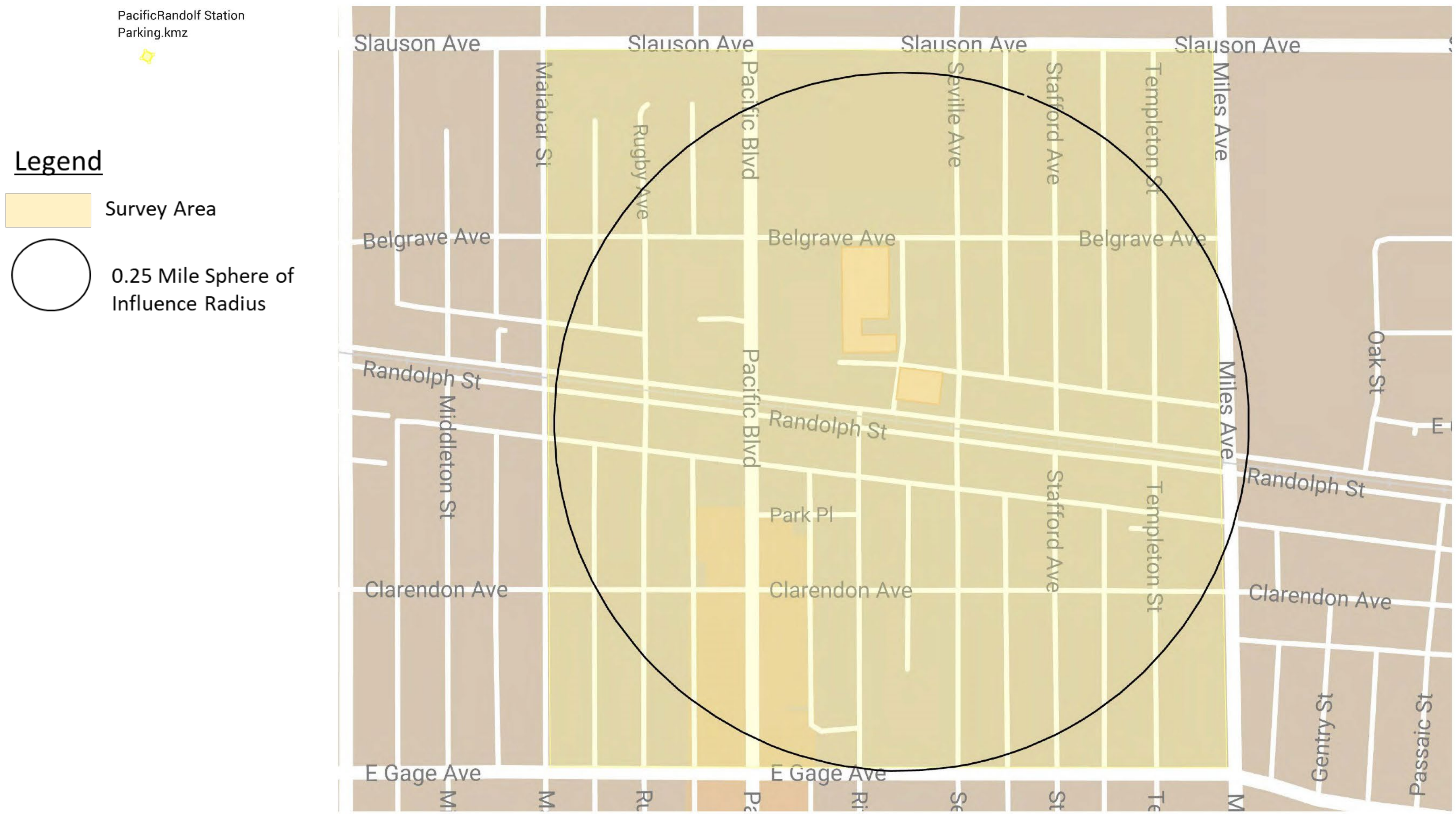

Figure A2-7. Florence/Salt Lake Station Parking Survey Area

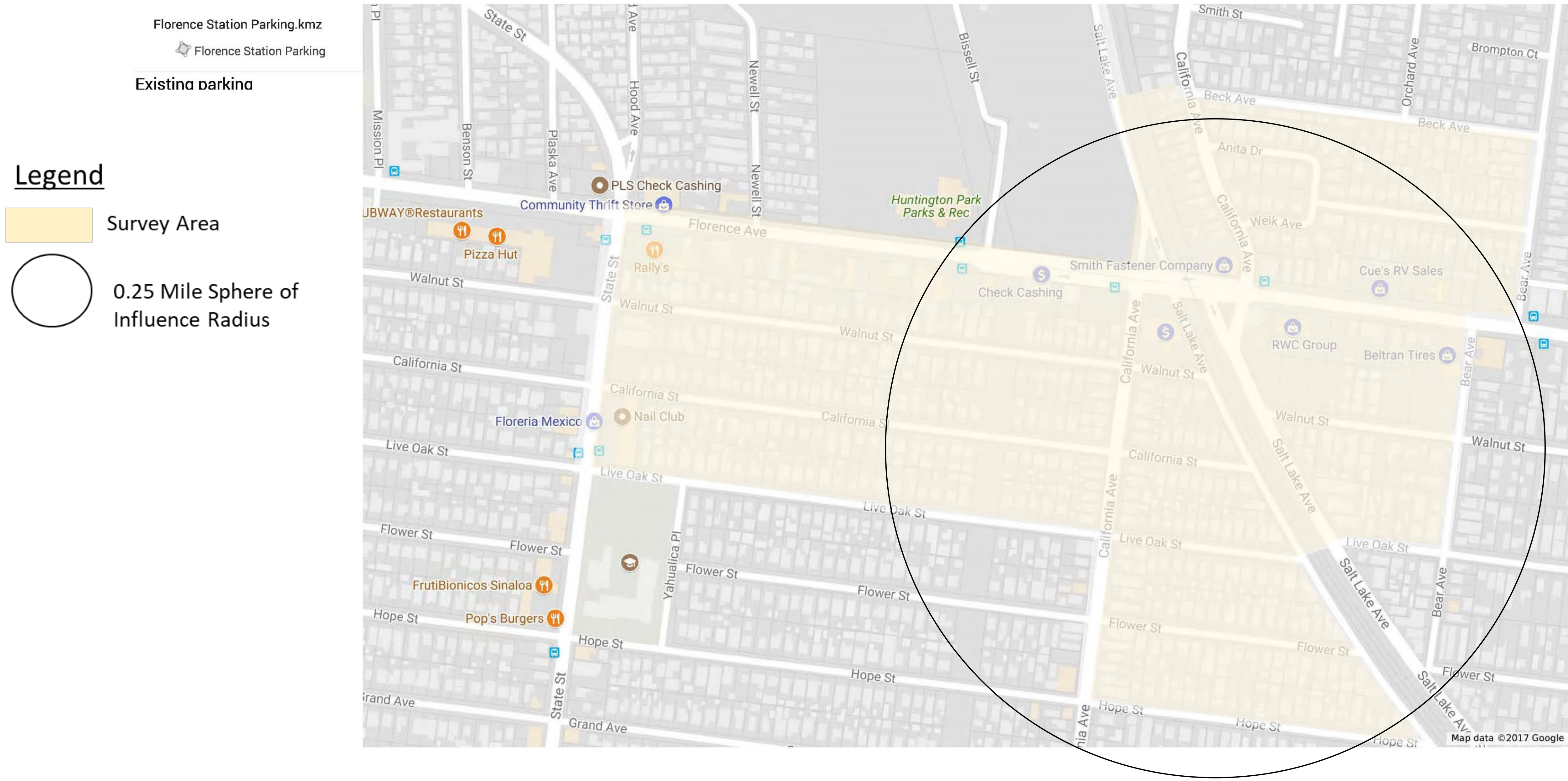

Figure A2-8. Firestone Station Parking Survey Area

Firestone Station Parking.kmz

Firestone Station Parking

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

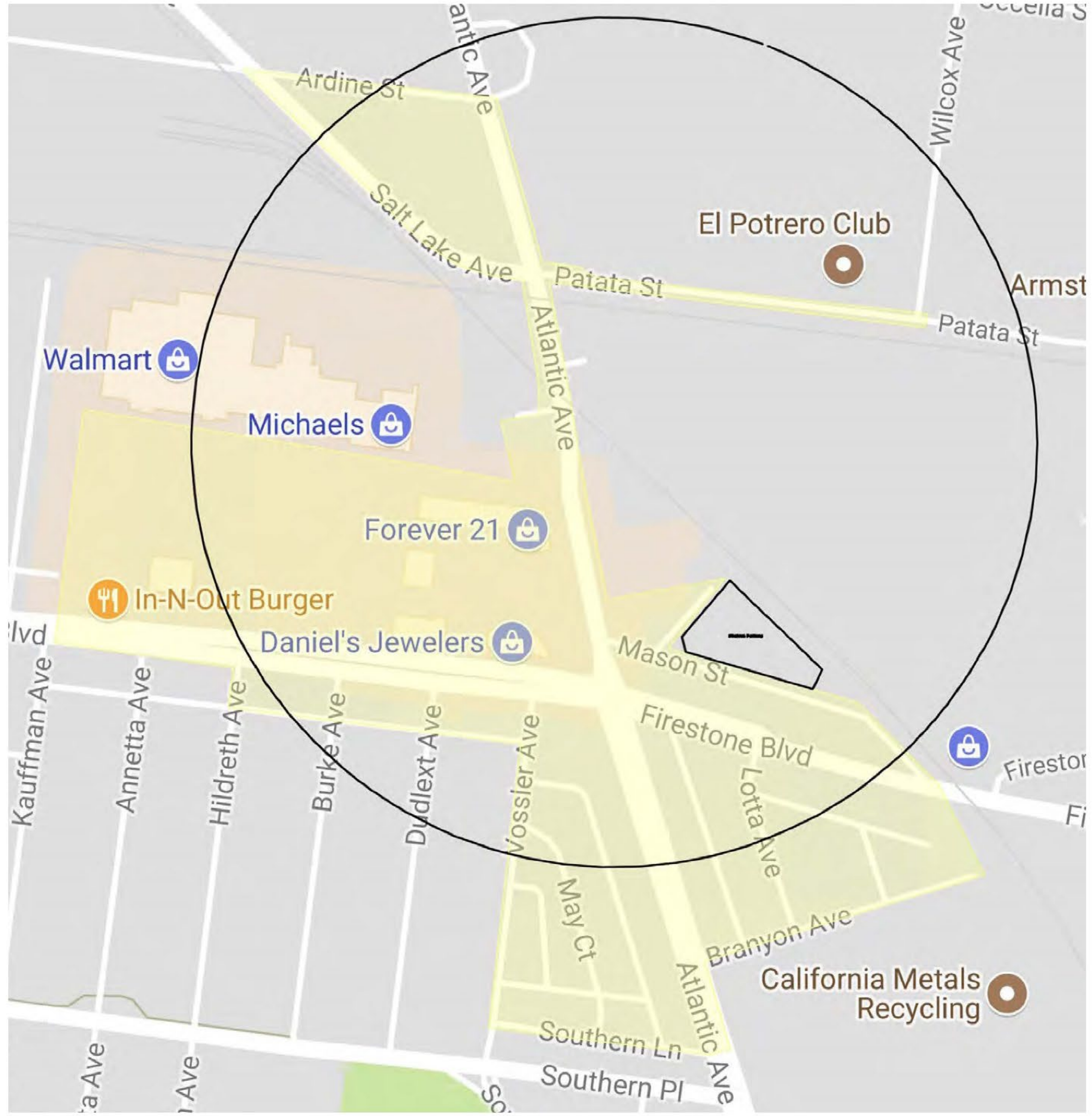

Figure A2-9. Gardendale Station Parking Survey Area

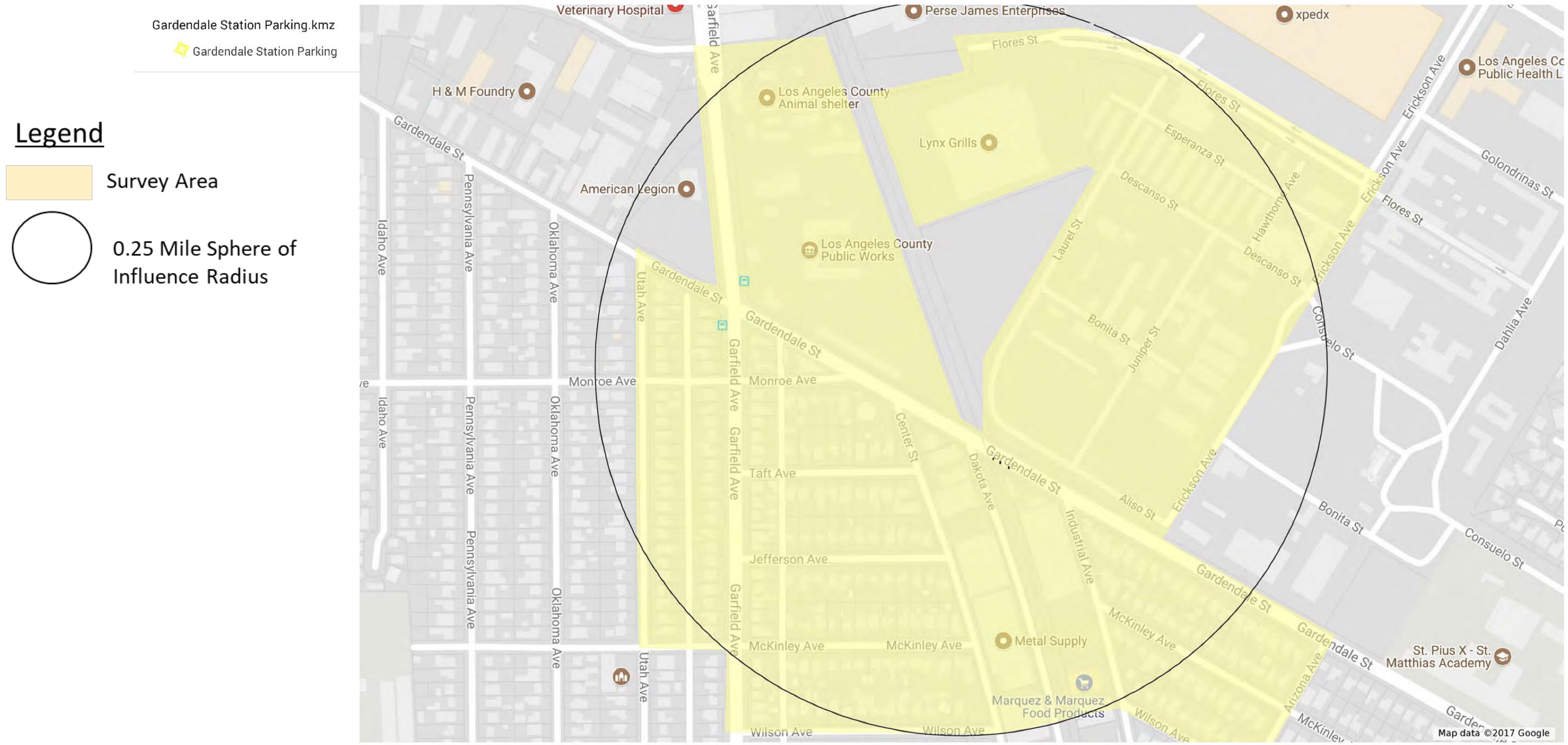

Figure A2-10. I-105/C Line Station Parking Survey Area

26 Undefined

Style1

Style2

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

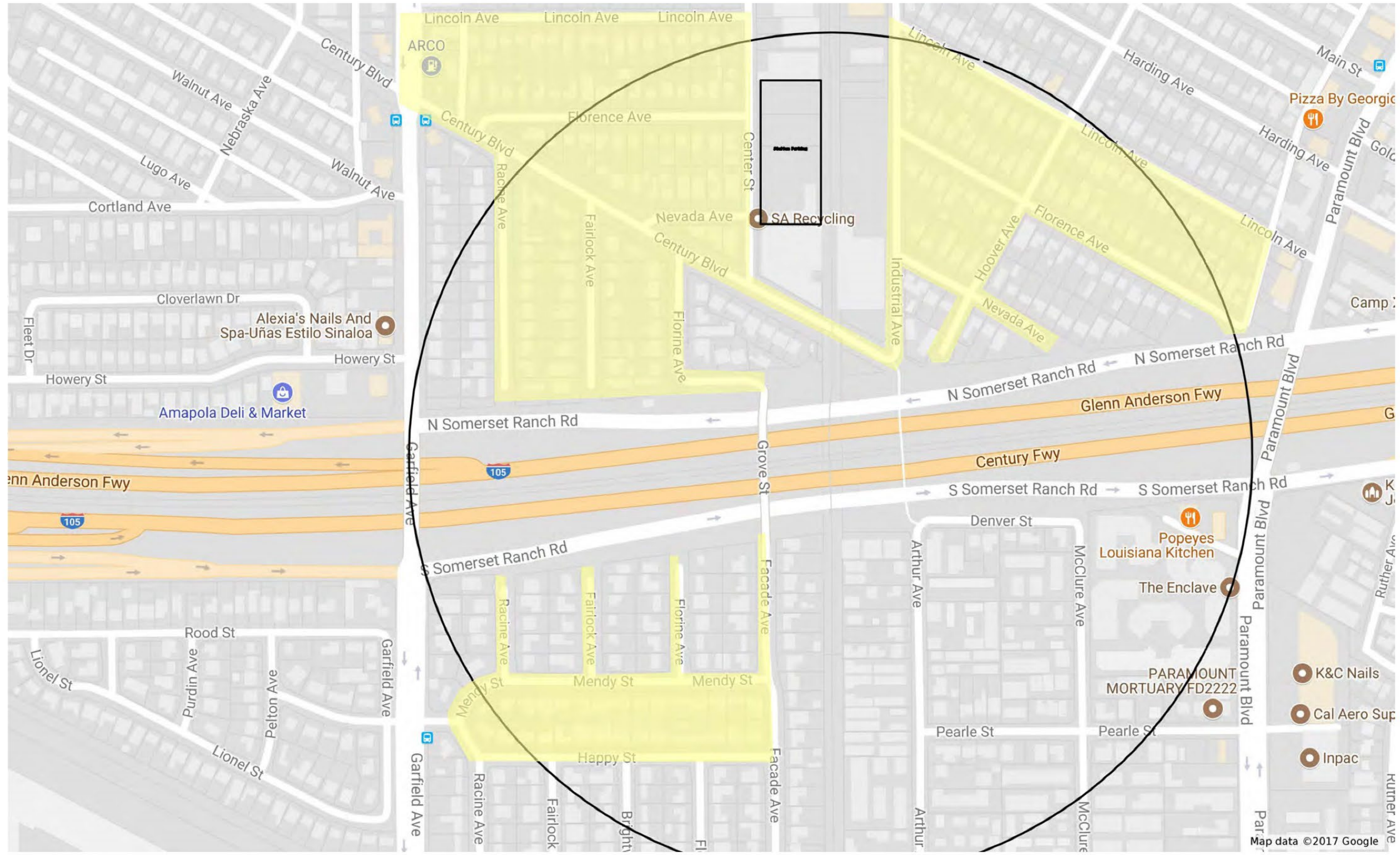

Figure A2-11. Paramount/Rosecrans Station Parking Survey Area

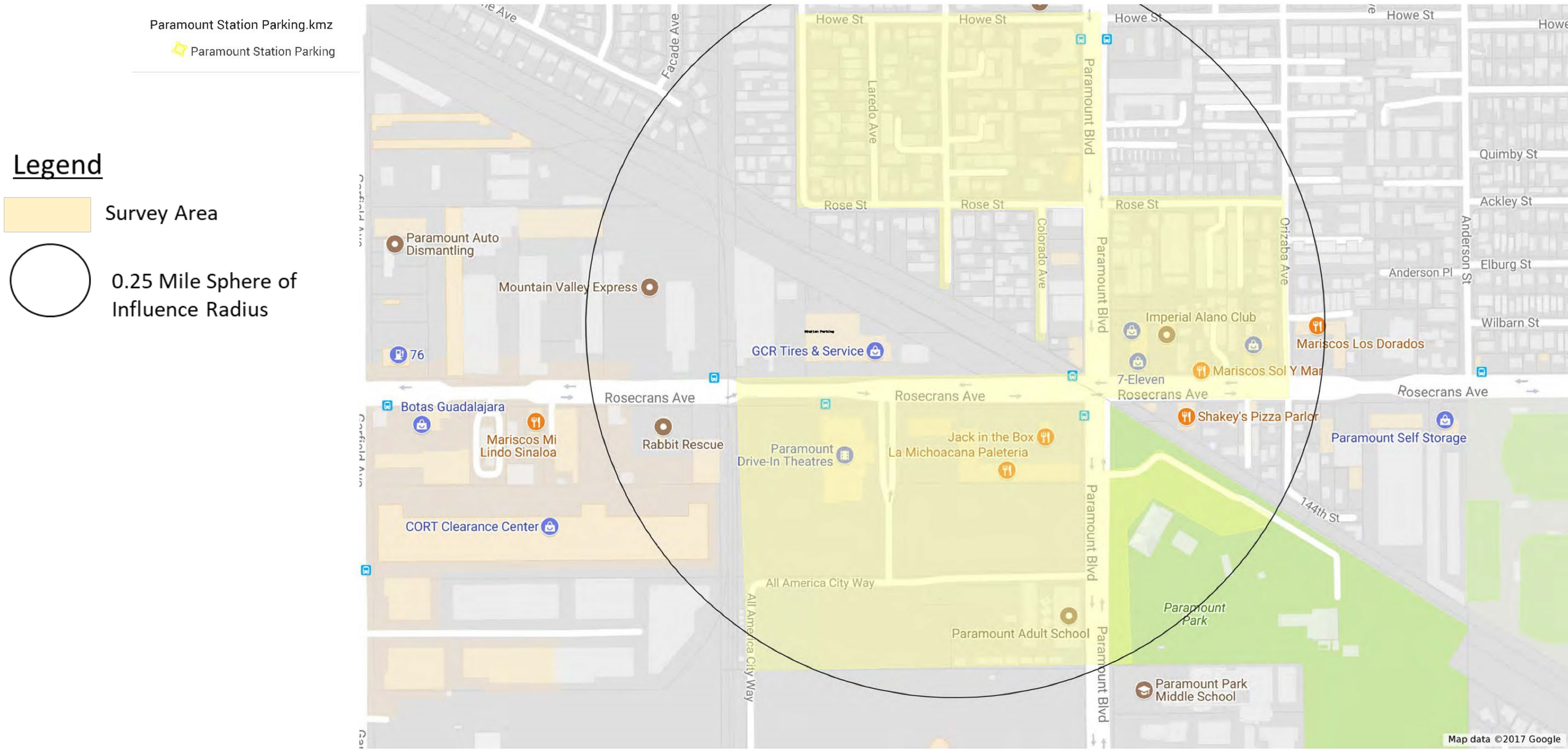

Figure A2-12. Bellflower Station Parking Survey Area

Bellflower Blvd Station.kmz

Bellflower Blvd Station

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

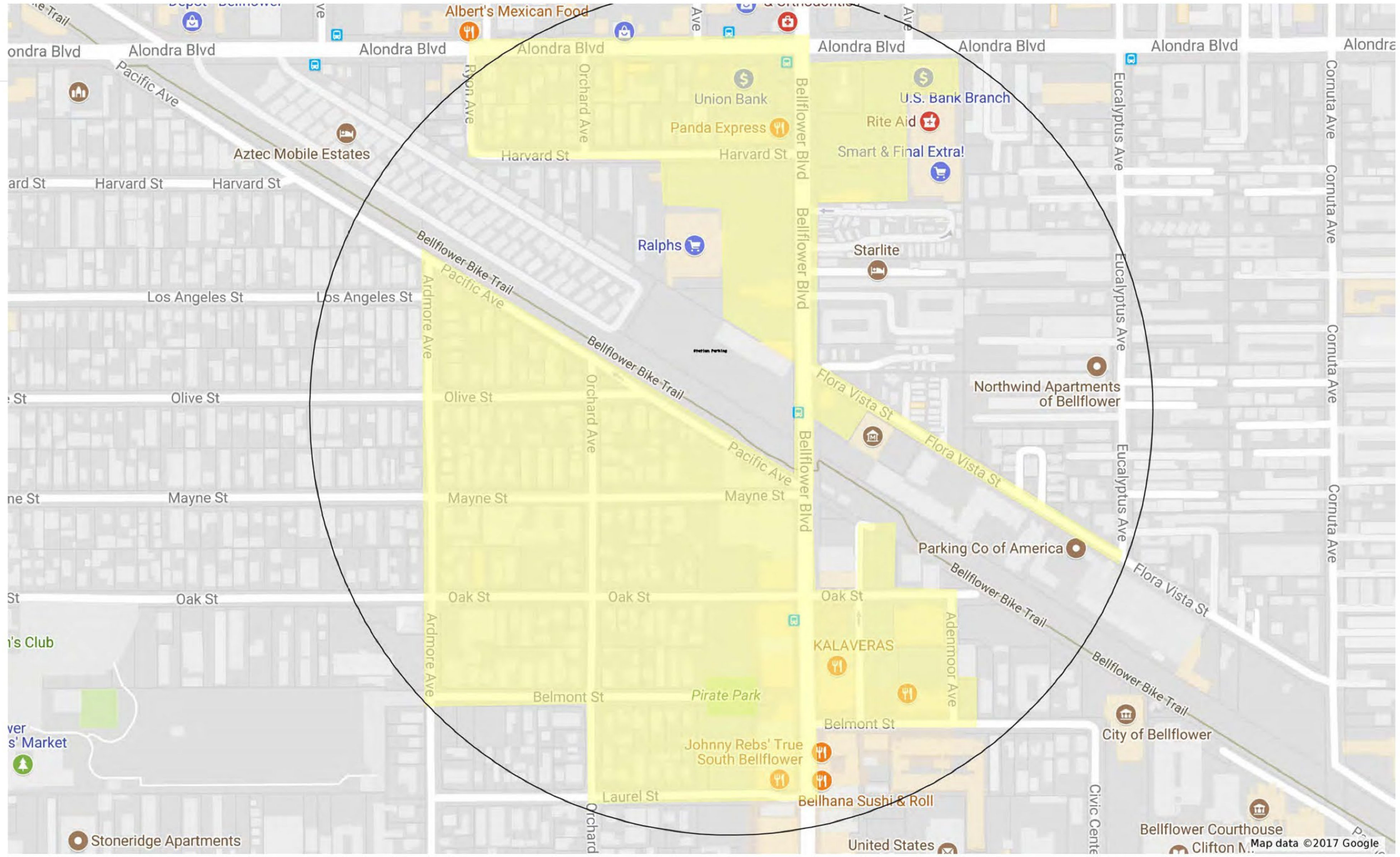

Figure A2-13. Pioneer Station Parking Survey Area

Pioneer Station Parking.kmz

Pioneer Station Parking

Legend

Survey Area

0.25 Mile Sphere of Influence Radius

ATTACHMENT A3 TRAFFIC ANALYSIS APPROACH FOR OTHER STUDIES

Table A3.1. Other Relevant Traffic Studies

Project Name/Description	Type of Analysis	Intersections	Impact Criteria	Impact Criteria Threshold	Traditional Intersection Analysis?	Additional Analysis Thresholds	Any VMT Analysis?	Multiple Jurisdictions? How was that handled?
Metro Gold Line Foothill Extension Phase 2B - Azusa to Montclair: 12.3-mile extension of the Foothill Gold line from Azusa to Montclair in San Bernardino County using old ATSF right-of-way (ROW) at-grade (Metro Gold Line Foothill Extension Construction Authority, February 2013) – Final Environmental Impact Report (FEIR)	Level of service (LOS) and delay	90 intersections analyzed. Each grade crossing was analyzed.	Los Angeles (LA) County Traffic Impact Analysis Guidelines (1997). LOS D or better is acceptable. Metro's Policy for Grade Crossing for Light Rail Transit (LRT) (2003).	Methodology used to determine adverse or significant impacts at the study intersections was to identify the change in delay between build and No Build alternative. Significant Increase in Delay from the No Build (Seconds/Vehicle) Unsignalized Intersection: LOS C >= 4 LOS D >= 2 LOS E/F >= 1.5 Signalized Intersections: LOS C >= 6 LOS D >= 4 LOS E/F >= 2.5	Yes. Manual vehicle turning movement counts and daily traffic volumes were conducted. Several cities requested additional traffic evaluations at specific locations. Grade crossing analysis. Parking analysis.	Additional parking analysis was conducted at the request of some cities	No	6 local cities and 2 counties. Used LA County criteria. Federal Transit Administration (FTA) approved *Highway Capacity Manual* (HCM) methodology (Transportation Research Board [TRB], 2010).
Metro Expo Corridor Phase 2 - Culver City to Santa Monica: 6.6-mile extension of the Expo Line from Culver City to Santa Monica using old Pacific Electric ROW. Alignment is at-grade and above-grade. (Los Angeles County Metropolitan Transportation Authority [Metro], December 2009) - FEIR	LOS and delay	90 intersections analyzed. Each grade crossing was analyzed	LOS D or better is acceptable. HCM accepted Metro's Policy for Grade Crossing for LRT (2003) Los Angeles County Congestion Management Plan	An intersection is considered to be impacted if the project traffic is projected to cause deterioration in level of service to LOS E/F or if the intersection is already operating at LOS E/F and the project results in an increase in the average vehicle delay of 4 seconds or more compared to the No Build.	Yes. Queuing analysis. Grade crossing analysis. Parking analysis.	Queuing analysis was conducted at specific locations at the request of some cities.	No	3 local cities. HCM methodology approved among all jurisdictions including LA County and FTA.
Metro Crenshaw/LAX Transit Corridor Project: 8.5 miles of new LRT from the Expo Crenshaw station south to LAX. Alignment is below-grade, at-grade, and above-grade (Metro, August 2011) - FEIR	LOS, travel times and average speeds	26 intersections analyzed. (Intersections within 200 feet of proposed at-grade roadway crossings)	HCM. City of Los Angeles Department of Transportation (LADOT) requires Critical Movement Analysis (TRB, 1980). Metro's Policy for Grade Crossing for LRT (2003).	The intersection LOS analysis assumed that an intersection would be adversely affected by traffic volume changes if the project alternative will cause an increase in average vehicle delay according to the following thresholds that were developed in consultation with local jurisdictions: LOS C >= 10 or more seconds LOS D >= 7.5 or more seconds LOS E/F >= 5 or more seconds	Yes. Travel time analysis. Vehicle miles traveled (VMT) and vehicle hours traveled (VHT).	No thresholds for travel time, VMT, and VHT. Only used to compare No Build and locally preferred alternative.	Yes	2 local cities. City of Inglewood did not have any guidelines or criteria for traffic analysis at the time.

Project Name/Description	Type of Analysis	Intersections	Impact Criteria	Impact Criteria Threshold	Traditional Intersection Analysis?	Additional Analysis Thresholds	Any VMT Analysis?	Multiple Jurisdictions? How was that handled?
Metro Gold Line Foothill Extension Phase 2A - Pasadena to Azusa: 11.5-mile extension of the Foothill Gold line from Pasadena to Azusa using old ATSF ROW. Alignment is at-grade and below-grade. (Metro Gold Line Foothill Extension Construction Authority, February 2007) - FEIR	LOS and delay	153 intersections analyzed. Each grade crossing was analyzed	HCM. LOS D or better is acceptable. Impact if change in delay is greater than 2%. Los Angeles County Congestion Management Program (Metro, 2010). Metro's Policy for Grade Crossing for LRT (2003).	Signalized intersection is considered to be adversely or significantly impacted if the resulting LOS is E/F and the change in V/C ratio is $\geq$ 0.020 Unsignalized intersection is considered to be adversely or significantly impacted if the resulting LOS is E/F and the change in Delay is $\geq$ 2%	Yes. Grade crossing analysis	N/A	No	6 local cities. Followed HCM methodology as it is used by the cities within project area.
Metro Eastside Transit Corridor Phase 2: Ongoing study to extend Eastside Gold Line along SR-60 for 6.6 miles or Washington Blvd for 9.2 miles (Metro, August 2014) – Draft Environmental Impact Statement (DEIS)/EIR	LOS and delay	63 intersections analyzed.	HCM. LOS D or better is acceptable.	The project will be considered to have an adverse effect or significant impact at a study intersection if it would cause: - The average delay per vehicle to increase by 10 or more seconds at an intersection that operates at LOS C with the project; -The average delay per vehicle to increase by 7.5 or more seconds at an intersection that operates at LOS D with the project; or, -The average delay per vehicle to increase by 5 or more seconds at an intersection that operates at LOS E or LOS F with the project.	Yes. Included performance measures included VMT and VHT. Freeway ramps within routes that lead directly to and from proposed stations and parking facilities were also analyzed.	VMT and VHT used only to compare each project alternative and No Build.	Yes	10 local cities. Followed HCM methodology as it us used by the cities within the project area.
Redlands Passenger Rail: New 9-mile commuter rail project from San Bernardino to Redlands using existing rail ROW. (San Bernardino Associated Governments, 2015) - FEIR	LOS and delay	39 intersections analyzed. Selected based on San Bernardino County Congestion Management Program (CMP) Traffic Impact Analysis Guidelines. Each grade crossing was analyzed.	HCM. LOS D or better is acceptable. CMP. Metro's Policy for Grade Crossings for LRT. Southern California Regional Rail Authority Highway-Rail Grade Crossing Recommended Design Practices and Standards Manual.	Per the 1995 City of Redlands General Plan, City of Redlands requires LOS C with intersections operating at LOS D, E, or F considered unsatisfactory. Any increase in V/C greater than 0.01 is considered a significant impact. Per the 2004 City of San Bernardino Traffic Impact Study Guidelines, the City of San Bernardino requires intersections to operate at LOS D or better. A significant project impact would occur when intersection operations change between the "without project" and "with project" conditions as shown below. LOS C > 0.04 V/C LOS D > 0.02 V/C LOS E/F > 0.01 V/C	Yes. Also included influence zone queues, crossing spillback queues, and potential traffic signal preemption	Queue analysis thresholds were determined in the intersections exceed the available storage distance between the signalized intersection and the grade crossing and if could potentially block the grade crossing.	No	2 local cities. Used HCM per request of City of Redlands
Mid-Coast Corridor Transit Project: 11-mile extension of the Blue Line Trolley from Old Town Transit Center to University City. (San Diego Association of Governments, September 2014) – Supplemental EIR/EIS	LOS and delay	42 intersections analyzed.	HCM. LOS D or better is acceptable. City of San Diego's Traffic Impact Study Manual.	Not described	Yes. Also included intersection lane vehicles (ILV) analysis, vehicle hours of delay (VHD) analysis.	ILV Thresholds: Stable flow < 1200 ILV/hour Unstable flow 1200-1500 ILV/hour Stop and go = 1500 (capacity) VHD used for comparison of built alternative and No Build	Yes	Entirely within City of San Diego.

Project Name/Description	Type of Analysis	Intersections	Impact Criteria	Impact Criteria Threshold	Traditional Intersection Analysis?	Additional Analysis Thresholds	Any VMT Analysis?	Multiple Jurisdictions? How was that handled?
Silicon Valley Rapid Transit Corridor (BART): 16-miles extension of BART from Fremont into the Silicon Valley. (FTA and Santa Clara Valley Transportation Authority VTA), March 2010) - FEIS	LOS and delay	127 intersections analyzed.	VTA CMP. HCM. LOS D or better is acceptable.	Cause a Congestion Management Program designated intersection's level of service to deteriorate from LOS E (when compared to the No Build). Cause an increase in the critical volume delay by 4 seconds or more, and increase the critical traffic volume to capacity (V/C) ratio by 0.01 or more at a Congestion Management Program designated intersection already operating at LOS F under No Build conditions. Cause a local intersection's level of service to deteriorate from LOS D (when compared to the No Build). Cause an increase in the critical volume delay by 4 seconds or more, and increase the critical V/C ratio by 0.01 or more at a local intersection already operating at LOS E or F under No Build conditions. Result in a change of two letter grades at an intersection operating at LOS A or LOS B under No Build conditions. Add new trips totaling more than 1 percent of the freeway capacity if a freeway segment is already operating at LOS E.	Yes.	N/A	No	3 local cities were subject to their local level of service standards. All three cities had an LOS of D or better, while VTA's CMP LOS is LOS E or better.
Metrolink Perris Valley Line: New 20-mile Metrolink service between Perris and Riverside using the ATSF San Jacinto Branch ROW. (Riverside County Transportation Commission, July 2011) - FEIR	LOS and delay	29 intersections analyzed.	HCM. LOS D or better is acceptable.	Based on the LOS thresholds established by the cities and county, deterioration from LOS A, B, C, or D conditions without the project to LOS E or F conditions with the project is considered a significant impact. For LOS E or F conditions without the project, an increase of two or more seconds of delay as a result of the project is also considered a significant impact.	Yes.	N/A	No	General plans had different levels of thresholds for LOS. Project adopted LOS thresholds for each city.
Downtown LA Streetcar: New 4-mile modern, fixed-rail streetcar in Downtown LA. (City of Los Angeles, October 2016) - FEIR	LOS and delay	65 intersections analyzed.	HCM. LOS D or better is acceptable. Metro's 2010 CMP. LADOT Traffic Study Policies and Procedures (2014). LA CEQA Thresholds Guide (2006).	Significant impact on intersection capacity is determined if the project traffic would result in the following delays at Affected Area intersections, under the "with project" condition: - If final LOS is C, an increase in average delay of ≥6.0 seconds. - If final LOS is D, an increase in average delay of ≥4.0 seconds. - If final LOS is E or F, an increase in average delay of ≥2.5 seconds.	Yes.	N/A	No	Entirely within City of Los Angeles

Project Name/Description	Type of Analysis	Intersections	Impact Criteria	Impact Criteria Threshold	Traditional Intersection Analysis?	Additional Analysis Thresholds	Any VMT Analysis?	Multiple Jurisdictions? How was that handled?
Westway Expansion Project (City of Hoquiam, WA): Additional heavy rail traffic along the Puget Sound & Pacific rail line (City of Hoquiam and Washington State Department of Ecology, 2015)	LOS. Focused on delays due to roadway blocking assuming worst case (longest train)	25. Each grade crossing was analyzed	Washington State Department of Transportation (WSDOT) LOS Standards. LOS D or better is acceptable. Queue lengths exceeding available storage.	Did not state a specific criterion because a train crossing during the peak hours was considered a very conservative assumption.	Yes, although daily delay (formula-based) was also to factor the daily rail-vehicle traffic operations. Queue calculations, safety (accidents) analysis and emergency access impact analysis was performed.	Queue lengths exceeding available storage at each crossing.	No	Local cities, WSDOT, Federal Railroad Administration (FRA). They used the local cities and FRA for data sourcing, but ultimately they adopted the DOT standards.

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ATTACHMENT A4 NO BUILD INTERSECTION VOLUME AND LEVEL OF SERVICE (LOS)

Table A4.1. No Build Key Intersections Volumes and LOS

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
1	1st St/Alameda St	Los Angeles	AM	58	743	56	12	935	79	54	157	56	4	613	54	35.5	D
			PM	44	672	124	49	770	113	265	622	130	0	328	12	18.4	B
2	2nd St/Alameda St	Los Angeles	AM	92	991	52	43	1009	88	61	105	-	177	270	79	121.4	F
			PM	125	381	85	60	828	56	117	340	-	126	185	32	64.7	E
3	Traction Ave/Alameda St	Los Angeles	AM	-	813	37	8	819	-	-	-	69	-	-	91	81.9	F
			PM	-	767	70	0	664	-	-	-	166	-	-	48	79.1	F
4	3rd St/Alameda St	Los Angeles	AM	144	677	0	2	893	198	-	-	-	169	2644	311	60.8	E
			PM	279	840	2	0	816	164	-	-	-	198	1028	102	68.7	E
5	6th St/Alameda St	Los Angeles	AM	137	685	39	71	998	144	70	150	115	35	393	69	16.1	B
			PM	143	993	47	106	977	140	176	501	210	22	152	74	19.1	B
6	7th St/Alameda St	Los Angeles	AM	142	691	103	123	913	156	61	380	117	142	1074	162	68.6	E
			PM	112	887	108	185	906	90	146	1080	128	111	690	171	136.2	F
7	7th St/Flower St	Los Angeles	AM	-	-	-	77	958	81	-	382	177	119	552	-	17.4	B
			PM	-	-	-	81	1726	113	-	359	205	124	621	-	18.9	B
8	8th St/Figueroa St	Los Angeles	AM	435	1784	-	-	-	-	-	-	-	-	1299	222	12.9	B
			PM	185	1450	-	-	-	-	-	-	-	-	1818	383	16.7	B
9	8th St/Flower St	Los Angeles	AM	-	-	-	-	688	170	-	-	-	175	1266	-	8.8	A
			PM	-	-	-	-	2023	373	-	-	-	256	1451	-	13.5	B
10	8th St/Hope St	Los Angeles	AM	197	361	-	-	144	102	-	-	-	51	1220	202	19.2	B
			PM	127	343	-	-	434	170	-	-	-	172	1409	176	21.4	C
11	9th St/Flower St	Los Angeles	AM	-	-	-	185	565	-	-	1105	156	-	-	-	15.1	B
			PM	-	-	-	320	2076	-	-	1130	235	-	-	-	17.4	B
12	7th St/Main St	Los Angeles	AM	32	591	82	-	-	-	52	377	-	-	453	114	16	B
			PM	31	1238	132	-	-	-	107	475	-	-	377	126	18.6	B
13	7th St/Los Angeles St	Los Angeles	AM	23	480	66	51	833	84	-	346	127	-	469	148	14.7	B
			PM	31	928	138	29	888	105	-	491	89	-	465	88	22.5	C
14	7th St/Maple Ave	Los Angeles	AM	26	50	37	18	94	43	28	295	78	181	571	37	10.4	B
			PM	54	210	124	38	127	31	49	627	60	121	488	48	16.2	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
15	9th St/Main St/Spring St	Los Angeles	AM	-	661	137	152	-	416	85	866	57	-	-	-	19.1	B
			PM	-	1023	105	88	-	615	233	1040	72	-	-	-	20.4	C
16	9th St/Los Angeles St	Los Angeles	AM	-	488	79	112	718	-	144	850	121	-	-	-	11.8	B
			PM	-	693	98	87	866	-	262	838	73	-	-	-	15	B
17	9th St/Santee St	Los Angeles	AM	-	52	76	-	-	-	163	818	57	164	-	215	7.2	A
			PM	-	111	98	-	-	-	159	813	69	225	-	217	15.5	B
18	9th St/Maple St	Los Angeles	AM	8	181	74	19	169	33	43	833	33	57	335	50	13.2	B
			PM	23	210	114	24	276	50	44	782	76	100	376	44	20	C
19	8th St/Broadway	Los Angeles	AM	78	488	-	-	242	92	-	-	-	36	1154	75	21.3	C
			PM	75	598	-	-	378	86	-	-	-	109	1130	87	18.7	B
20	8th St/Spring St	Los Angeles	AM	-	-	-	-	577	169	-	-	-	71	1105	-	8.5	A
			PM	-	-	-	-	583	188	-	-	-	162	1143	-	11	B
21	8th St/Main St	Los Angeles	AM	103	631	-	-	-	-	-	-	-	-	1125	77	10	A
			PM	146	1244	-	-	-	-	-	-	-	-	1076	140	12	B
22	8th St/Los Angeles St	Los Angeles	AM	45	527	-	-	725	182	-	-	-	88	902	94	12.7	B
			PM	100	915	-	-	799	204	-	-	-	150	1050	137	17.1	B
23	8th St/Santee St	Los Angeles	AM	225	6	129	10	-	37	-	-	-	-	855	11	10.6	B
			PM	340	9	188	5	-	19	-	-	-	-	968	19	83.9	F
24	8th St/Maple Ave	Los Angeles	AM	35	143	49	49	169	143	26	75	35	46	692	65	11.1	B
			PM	81	237	49	28	203	158	35	159	24	54	778	31	16.7	B
25	8th St/Wall St	Los Angeles	AM	33	76	38	33	65	86	12	137	24	35	718	61	11.5	B
			PM	44	238	125	19	86	35	23	265	30	24	730	34	15.3	B
26	Center St/Alameda St	Los Angeles	AM	5	918	71	59	1041	83	11	0	9	43	0	45	5.6	A
			PM	4	1022	6	12	1013	15	14	0	11	4	0	17	14	B
27	Bay St/Alameda St	Los Angeles	AM	57	918	98	66	990	31	13	4	18	114	23	62	9.6	A
			PM	17	769	67	45	1073	22	32	12	94	72	6	59	11.9	B
28	8th St/Alameda St	Los Angeles	AM	46	917	22	19	974	144	118	54	71	38	96	33	10.9	B
			PM	14	775	18	108	1087	37	54	24	30	30	32	22	11.6	B
29	Olympic Blvd/Alameda St	Los Angeles	AM	94	759	46	124	797	176	69	761	76	114	1274	86	28.9	C
			PM	117	791	170	112	896	169	54	1438	49	102	1184	47	85	F
30	Randolph St/Wilmington Ave	Huntington Park	AM	158	204	125	36	61	9	69	385	91	92	247	28	32.5	D
			PM	31	40	81	74	126	17	21	310	21	98	294	8	12.1	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
31	Randolph St/Alameda St (West)	Huntington Park	AM	6	814	88	29	419	16	56	448	28	76	336	137	49.9	D
			PM	18	594	69	38	803	18	19	460	36	67	388	53	60.8	E
32	Randolph St/Alameda St (East)	Huntington Park	AM	13	3	24	2	2	11	31	499	18	15	524	6	13	B
			PM	27	2	57	12	0	12	10	505	43	18	396	2	14.2	B
33	Randolph St/Regent St	Huntington Park	AM	-	-	-	11	-	12	32	514	-	81	538	24	10.3	B
			PM	-	-	-	32	-	43	5	542	-	19	446	4	11.5	B
34	Randolph St/Albany St	Huntington Park	AM	66	24	82	3	9	6	44	532	5	52	502	10	18.2	C
			PM	11	5	29	16	28	10	28	548	18	51	465	6	17	C
35	Randolph St/Santa Fe Ave	Huntington Park	AM	30	1348	71	13	524	56	160	428	31	122	446	29	30.3	C
			PM	9	782	89	31	1186	44	109	435	44	135	359	32	30.1	C
36	Randolph St/Malabar St	Huntington Park	AM	13	279	32	16	147	49	123	516	25	39	489	28	22.5	C
			PM	12	73	37	54	285	50	38	527	29	80	390	23	22.1	C
37	Randolph St/Rugby Ave	Los Angeles	AM	49	163	111	13	-	28	59	494	-	9	505	25	6.7	A
			PM	18	55	122	21	-	47	28	602	-	0	383	22	3.9	A
38	Pacific Blvd/Belgrave Ave	Huntington Park	AM	43	941	70	49	439	48	96	165	31	38	129	69	13.4	B
			PM	44	576	42	133	834	75	56	173	53	61	108	57	12	B
39	Pacific Blvd/Clarendon Ave	Huntington Park	AM	42	1062	81	25	379	24	29	176	65	42	134	76	10.8	B
			PM	40	582	70	50	729	29	34	150	47	24	83	55	9.1	A
40	Pacific Blvd/Randolph St	Huntington Park	AM	56	900	29	68	399	35	62	471	61	45	439	94	26	C
			PM	46	589	42	126	710	58	102	533	78	66	343	26	32.5	C
41	Randolph St/Rita Ave	Huntington Park	AM	-	-	-	22	35	18	40	494	80	110	575	48	19.5	C
			PM	-	-	-	64	164	74	67	567	83	86	360	78	48.4	E
42	Randolph St/Seville Ave	Huntington Park	AM	29	372	46	29	133	39	69	476	22	99	645	56	37.5	D
			PM	39	166	30	55	328	44	37	627	38	55	436	35	34.9	C
43	Randolph St/Miles Ave	Huntington Park	AM	52	676	66	56	448	64	210	404	40	75	540	124	36.7	D
			PM	42	408	61	99	993	40	67	574	62	72	416	46	36.2	D
44	Arbutus Ave/Randolph St	Huntington Park	AM	54	55	57	0	86	36	88	403	12	43	601	36	32.7	D
			PM	10	16	40	0	48	26	74	98	14	62	449	40	6.4	A
45	State St/Randolph St	Huntington Park	AM	141	1616	54	58	485	0	177	302	63	41	460	196	43.6	D
			PM	64	607	41	164	1295	8	106	416	108	50	276	86	19.4	B
46	Randolph St/Bissell Pl	Huntington Park	AM	3	0	4	-	-	-	-	400	6	13	627	-	6.7	A
			PM	0	3	12	-	-	-	-	609	9	4	409	-	5.1	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
47	Randolph Ave/Maywood Ave	Huntington Park	AM	55	475	10	6	286	6	94	263	58	13	332	28	14	B
			PM	32	327	16	22	443	22	5	404	100	11	241	5	12.7	B
48	Gage Ave/California Ave	Bell	AM	31	161	137	36	116	190	177	749	50	69	939	112	19.6	B
			PM	17	100	67	79	212	229	138	1179	99	48	930	94	97.5	F
49	Gage Ave/Salt Lake Ave (West)	Bell	AM	475	0	185	-	-	-	-	683	144	223	842	-	16.3	B
			PM	205	0	185	-	-	-	-	1190	254	302	855	-	34.2	C
50	Bell Ave/California Ave	Huntington Park	AM	41	299	91	85	122	38	83	122	32	72	202	97	12.3	B
			PM	16	113	47	93	267	50	57	199	62	24	158	48	9.3	A
51	Bell Ave/Bissell St	Bell	AM	24	18	39	36	24	15	21	194	25	31	168	39	5.3	A
			PM	21	14	37	62	19	27	16	274	28	14	160	47	5.7	A
52	Bell Ave/Salt Lake Ave	Huntington Park	AM	89	545	121	17	321	42	52	110	95	81	122	78	89.4	F
			PM	82	302	89	63	478	32	43	201	134	81	124	43	88	F
53	Florence Ave/California Ave (West)	Huntington Park	AM	178	527	350	117	301	64	32	1009	112	176	1497	174	37.1	D
			PM	153	327	272	126	478	74	38	1301	214	201	1089	113	42.3	D
54	Florence Ave/California Ave (East)	Huntington Park	AM	416	168	4	55	155	56	58	1173	225	0	1358	121	65.2	E
			PM	293	111	5	69	202	53	31	1276	352	2	1063	55	44.3	D
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	AM	106	369	3	5	343	103	310	43	103	17	169	7	188.8	F
			PM	47	351	7	146	458	9	254	68	128	8	136	5	164.6	F
56	Otis Ave/Salt Lake Ave (East)	Cudahy	AM	54	474	174	54	378	0	7	169	56	17	232	43	83.4	F
			PM	32	446	124	61	446	0	13	235	124	38	157	52	104.2	F
57	Otis Ave/Elizabeth St	Cudahy	AM	4	385	134	77	378	5	2	39	0	70	80	99	1452	F
			PM	0	400	95	73	413	4	7	46	0	95	63	69	1473.1	F
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	AM	25	3	9	60	0	7	22	821	8	4	452	156	1478	F
			PM	7	0	16	65	0	5	5	612	3	2	564	148	1574.1	F
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	AM	269	233	7	33	352	2	2	445	321	4	383	69	218.6	F
			PM	254	169	26	63	344	8	5	439	261	5	448	52	264.9	F
60	Ardine St/Salt Lake Ave	Cudahy	AM	50	406	8	25	593	4	24	87	124	10	60	55	24.2	C
			PM	45	350	3	10	569	14	35	35	115	10	95	49	19.6	C
61	Atlantic Ave/Salt Lake Ave	Cudahy	AM	425	1141	129	10	890	3	4	9	687	120	3	13	51.4	D
			PM	394	971	207	9	1193	5	2	15	605	190	9	15	81.2	F
62	Atlantic Ave/Azalea West	South Gate	AM	13	1559	-	-	1512	106	80	-	18	-	-	-	4.8	A
			PM	82	1328	-	-	1570	388	269	-	153	-	-	-	9.4	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
63	Firestone Blvd/Atlantic Ave	South Gate	AM	155	952	60	939	780	156	190	1571	144	56	1430	263	139	F
			PM	199	610	100	788	701	177	165	1460	134	88	1416	276	89.6	F
64	Firestone Blvd/Mason St	South Gate	AM	-	-	-	14	-	9	-	1891	-	-	1679	296	19.4	B
			PM	-	-	-	35	-	29	-	1840	-	-	1674	331	12.4	B
65	Firestone Blvd/Firestone Pl	South Gate	AM	-	-	-	2	-	18	4	1917	-	-	1961	5	58.9	E
			PM	-	-	-	3	-	70	11	1865	-	-	1962	20	24.1	C
66	Firestone Blvd/Rayo Ave	South Gate	AM	3	20	1181	40	3	7	14	1792	10	315	1927	91	49	D
			PM	17	32	1015	122	26	4	20	1823	21	357	1879	68	40.2	D
67	Southern Ave/Salt Lake Ave	South Gate	AM	38	-	2	-	-	-	-	31	18	0	20	-	4.2	A
			PM	21	-	2	-	-	-	-	17	16	3	29	-	4	A
68	Gardendale St/Center St	South Gate	AM	12	-	43	-	-	-	-	633	3	23	1078	-	23.5	C
			PM	14	-	47	-	-	-	-	704	11	59	556	-	17.2	C
69	Gardendale St/Dakota Ave	South Gate	AM	2	-	0	-	-	-	-	592	3	0	998	-	28.7	D
			PM	0	-	3	-	-	-	-	724	3	2	544	-	11.1	B
70	Gardendale St/Industrial Ave	South Gate	AM	31	-	10	-	-	-	-	657	13	5	1068	-	75.5	F
			PM	25	-	14	-	-	-	-	695	44	13	593	-	28.9	D
71	Main St/Center St	South Gate	AM	9	7	40	34	4	15	13	236	12	48	330	29	7.6	A
			PM	8	7	61	37	9	16	10	199	11	47	160	29	6.5	A
72	Main St/Dakota Ave	South Gate	AM	-	-	-	0	-	5	2	312	-	-	390	0	2.7	A
			PM	-	-	-	2	-	3	3	294	-	-	241	0	5.4	A
73	Main St/Arizona Ave/Industrial Ave	South Gate	AM	38	20	48	13	14	71	48	270	35	29	400	10	12.5	B
			PM	23	4	59	15	25	15	47	229	45	26	261	10	6.7	A
74	Century Blvd/Center St	South Gate	AM	-	-	-	4	-	24	10	104	-	-	128	5	2.1	A
			PM	-	-	-	2	-	16	13	104	-	-	53	3	1.2	A
75	Century Blvd/Florence Ave	South Gate	AM	-	-	-	3	-	30	0	179	-	-	104	31	2.4	A
			PM	-	-	-	0	-	13	0	75	-	-	62	21	1.6	A
76	Rosecrans Ave/Paramount Blvd	Paramount	AM	196	568	281	102	751	376	191	815	229	194	910	112	67.5	E
			PM	132	753	217	167	639	217	251	1056	206	153	688	178	22.7	C
77	Rosecrans Ave/Bianchi Wy	Paramount	AM	34	0	15	-	-	-	2	1365	147	27	1315	3	5.8	A
			PM	25	0	15	-	-	-	0	1497	43	11	915	5	22.7	C
78	Somerset Blvd/Hayter Ave	Paramount	AM	66	-	17	-	-	-	-	652	39	14	911	-	15.7	C
			PM	29	-	9	-	-	-	-	999	58	20	653	-	18.1	C

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	(sec/veh)	
79	Somerset Blvd/Lakewood Blvd	Bellflower	AM	117	1013	238	94	1032	209	132	380	115	191	608	159	43.1	D
			PM	112	895	195	142	942	175	183	678	132	98	388	154	46.5	D
80	Paseo St/Lakewood Blvd	Bellflower	AM	39	1321	-	-	1314	25	36	-	54	-	-	-	4.9	A
			PM	53	1143	-	-	1288	30	11	-	21	-	-	-	4.5	A
81	Flora Vista St/Clark Ave	Bellflower	AM	25	692	6	13	691	3	3	0	24	11	0	80	7.6	A
			PM	30	634	29	19	866	4	3	2	12	15	5	73	22.4	C
82	Alondra Blvd/Clark Ave	Bellflower	AM	85	577	112	62	626	152	107	492	92	151	849	68	46.2	D
			PM	115	616	112	91	673	158	144	798	133	112	723	61	69.3	E
83	Alondra Blvd/Pacific Ave	Bellflower	AM	81	-	41	-	-	-	-	718	35	33	993	-	6.1	A
			PM	70	-	32	-	-	-	-	109	85	45	735	-	13.3	B
84	Alondra Blvd/Flora Vista St	Bellflower	AM	-	-	-	13	-	4	-	835	-	-	1125	77	52.6	F
			PM	-	-	-	20	-	4	-	1038	-	-	853	81	41.4	E
85	Alondra Blvd/Stevens Ave	Bellflower	AM	-	-	-	46	-	31	14	760	-	-	1164	25	33.4	D
			PM	-	-	-	29	-	28	29	1044	-	-	889	34	15.8	C
86	Flora Vista St/Bellflower Blvd	Bellflower	AM	4	640	51	66	540	9	2	0	0	94	2	120	7.1	A
			PM	4	751	99	82	655	8	7	0	16	78	0	90	18.9	B
87	Mayne St/Bellflower Blvd	Bellflower	AM	44	771	-	-	438	80	16	-	27	-	-	-	1.9	A
			PM	48	826	-	-	541	128	22	-	22	-	-	-	2.7	A
88	Oak St/Bellflower Blvd	Bellflower	AM	36	623	6	21	507	32	72	11	39	3	8	11	18.4	B
			PM	37	749	17	40	608	53	82	18	45	15	9	41	20	C
89	Artesia Blvd/Dumont Ave	Cerritos	AM	92	-	70	-	-	-	-	1258	135	77	1408	-	14.7	B
			PM	77	-	103	-	-	-	-	1395	85	59	1203	-	21.6	C
90	Artesia Blvd/Studebaker Rd	Cerritos	AM	131	524	66	164	634	480	522	524	179	159	661	277	48.1	D
			PM	236	975	189	175	734	413	610	797	155	146	676	156	99.8	F
91	Business Cir/Studebaker Rd	Cerritos	AM	-	622	34	15	728	-	-	-	-	18	-	43	8.4	A
			PM	-	830	11	8	757	-	-	-	-	8	-	18	8	A
92	186th St/Jersey Ave	Artesia	AM	17	0	11	-	-	-	-	35	39	21	35	-	3.3	A
			PM	24	0	23	-	-	-	-	11	18	56	31	-	2.4	A
93	187th St/Alburtis Ave	Artesia	AM	26	0	8	0	0	2	0	81	16	13	83	0	4.1	A
			PM	0	0	0	0	0	2	2	98	27	22	67	0	1.6	A
94	187th St/Corby Ave (West)	Artesia	AM	17	-	13	-	-	-	-	73	16	17	95	-	4.2	A
			PM	30	-	33	-	-	-	-	92	7	22	70	-	3.9	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
95	187th St/Corby Ave (East)	Artesia	AM	-	-	-	24	-	22	17	68	-	-	74	9	4.1	A
			PM	-	-	-	21	-	22	30	95	-	-	70	19	3.8	A
96	186th St/Pioneer Blvd	Artesia	AM	4	254	4	6	220	7	8	28	6	22	44	17	6.6	A
			PM	18	287	11	25	358	22	29	22	16	9	32	21	6.1	A
97	187th St/Pioneer Blvd	Artesia	AM	27	196	31	12	198	12	9	35	28	24	52	9	6.7	A
			PM	43	274	50	9	372	11	23	59	56	16	25	16	8.1	A
98	188th St/Pioneer Blvd	Artesia	AM	13	301	-	-	274	4	7	-	13	-	-	-	4.6	A
			PM	28	395	-	-	425	16	16	-	22	-	-	-	6.4	A
99	South St/Pioneer Blvd	Cerritos	AM	110	224	183	46	181	52	45	584	74	120	992	41	24.9	C
			PM	163	246	172	96	290	116	106	903	149	182	839	80	38.4	D
100	South St/Clarkdale Ave	Artesia	AM	-	-	-	39	-	44	107	709	-	-	1063	93	15.8	B
			PM	-	-	-	55	-	49	83	1133	-	-	1108	74	18.2	B
101	South St/Elaine Ave	Artesia	AM	-	-	-	27	-	51	71	688	-	-	1085	35	10.3	B
			PM	-	-	-	30	-	96	77	1104	-	-	1094	43	8.9	A

sec/veh = seconds per vehicle
LOS = level of service
NBL = northbound left
NBT = northbound through
NBR = northbound right
SBL = southbound left
SBT = southbound through
SBR = southbound right
EBL = eastbound left
EBT = eastbound through
EBR = eastbound right
WBL = westbound left
WBT = westbound through
WBR = westbound right
EB = eastbound

ATTACHMENT A5 BUILD ALTERNATIVES INTERSECTION VOLUME AND LEVEL OF SERVICE (LOS)

Table A5.1. Build Alternatives Conditions Key Intersections Volumes and LOS

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
1	1st St/Alameda St	Los Angeles	AM	58	743	56	12	935	79	54	158	56	4	614	54	35.9	D
			PM	44	672	124	49	770	113	265	623	130	0	329	12	19.7	B
2	2nd St/Alameda St	Los Angeles	AM	92	991	52	43	1009	88	61	105	-	177	270	79	123.4	F
			PM	125	381	85	60	828	56	117	340	-	126	185	32	65.6	E
3	Traction Ave/Alameda St	Los Angeles	AM	-	813	37	8	819	-	-	-	69	-	-	91	82.6	F
			PM	-	767	70	0	664	-	-	-	166	-	-	48	77.2	F
4	3rd St/Alameda St	Los Angeles	AM	144	677	0	2	893	198	-	-	-	169	2644	311	57.8	E
			PM	279	840	2	0	816	164	-	-	-	198	1028	102	68	E
5	6th St/Alameda St	Los Angeles	AM	137	685	39	71	998	144	70	150	115	35	393	69	16.5	B
			PM	143	993	47	106	977	140	176	501	210	22	152	74	24	C
6	7th St/Alameda St	Los Angeles	AM	143	691	103	123	913	156	61	380	118	142	1074	162	63.7	E
			PM	113	887	108	185	906	90	146	1080	129	111	690	171	121	F
7	7th St/Flower St	Los Angeles	AM	-	-	-	77	958	81	-	382	177	119	552	-	17	B
			PM	-	-	-	81	1726	113	-	359	205	124	621	-	18.4	B
8	8th St/Figueroa St	Los Angeles	AM	435	1784	-	-	-	-	-	-	-	-	1302	222	12.9	B
			PM	185	1450	-	-	-	-	-	-	-	-	1821	383	17	B
9	8th St/Flower St	Los Angeles	AM	-	-	-	-	688	170	-	-	-	175	1269	-	9	A
			PM	-	-	-	-	2023	373	-	-	-	256	1454	-	13.6	B
10	8th St/Hope St	Los Angeles	AM	200	361	-	-	144	102	-	-	-	51	1220	202	19.2	B
			PM	130	343	-	-	434	170	-	-	-	172	1409	176	21.2	C
11	9th St/Flower St	Los Angeles	AM	-	-	-	185	565	-	-	1108	156	-	-	-	15	B
			PM	-	-	-	320	2076	-	-	1133	235	-	-	-	17.3	B
12	7th St/Main St	Los Angeles	AM	32	591	82	-	-	-	52	377	-	-	453	114	16.7	B
			PM	31	1238	132	-	-	-	107	475	-	-	377	126	18.2	B
13	7th St/Los Angeles St	Los Angeles	AM	23	480	66	51	833	84	-	346	127	-	469	148	14.7	B
			PM	31	928	138	29	888	105	-	491	89	-	465	88	20.5	C
14	7th St/Maple Ave	Los Angeles	AM	26	50	37	18	94	43	28	295	78	181	571	37	10	A
			PM	54	210	124	38	127	31	49	627	60	121	488	48	15.7	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
15	9th St/Main St/Spring St	Los Angeles	AM	-	661	137	152	-	416	88	866	57	-	-	-	17.7	B
			PM	-	1023	105	88	-	615	236	1040	72	-	-	-	22	C
16	9th St/Los Angeles St	Los Angeles	AM	-	488	79	112	718	-	144	850	121	-	-	-	12.4	B
			PM	-	693	98	87	866	-	262	838	73	-	-	-	15.7	B
17	9th St/Santee St	Los Angeles	AM	-	52	76	-	-	-	163	818	57	164	-	215	7.3	A
			PM	-	111	98	-	-	-	159	813	69	225	-	217	15.2	B
18	9th St/Maple St	Los Angeles	AM	8	181	74	19	169	33	43	833	33	57	335	50	13.5	B
			PM	23	210	114	24	276	50	44	782	76	100	376	44	18.5	B
19	8th St/Broadway	Los Angeles	AM	78	488	-	-	242	92	-	-	-	36	1157	75	21	C
			PM	75	598	-	-	378	86	-	-	-	109	1133	87	18.3	B
20	8th St/Spring St	Los Angeles	AM	-	-	-	-	577	169	-	-	-	71	1105	-	8.8	A
			PM	-	-	-	-	583	188	-	-	-	162	1143	-	11	B
21	8th St/Main St	Los Angeles	AM	106	631	-	-	-	-	-	-	-	-	1125	77	9.9	A
			PM	149	1244	-	-	-	-	-	-	-	-	1076	140	11.9	B
22	8th St/Los Angeles St	Los Angeles	AM	45	527	-	-	725	182	-	-	-	88	902	94	12.7	B
			PM	100	915	-	-	799	204	-	-	-	150	1050	137	16.8	B
23	8th St/Santee St	Los Angeles	AM	225	6	129	10	-	37	-	-	-	-	855	11	11.7	B
			PM	340	9	188	5	-	19	-	-	-	-	968	19	84.5	F
24	8th St/Maple Ave	Los Angeles	AM	35	143	49	49	169	143	26	75	35	46	692	65	11.7	B
			PM	81	237	49	28	203	158	35	159	24	54	778	31	16.2	B
25	8th St/Wall St	Los Angeles	AM	33	76	38	33	65	86	12	137	24	35	718	61	11.6	B
			PM	44	238	125	19	86	35	23	265	30	24	730	34	14.6	B
26	Center St/Alameda St	Los Angeles	AM	5	918	71	59	1041	83	11	0	9	43	0	45	5.5	A
			PM	4	1022	6	12	1013	15	14	0	11	4	0	17	14.8	B
27	Bay St/Alameda St	Los Angeles	AM	57	918	98	66	990	31	13	4	18	114	23	62	9.2	A
			PM	17	769	67	45	1073	22	32	12	94	72	6	59	12.4	B
28	8th St/Alameda St	Los Angeles	AM	46	917	22	19	974	144	118	54	71	38	96	33	11.1	B
			PM	14	775	18	108	1087	37	54	24	30	30	32	22	12.4	B
29	Olympic Blvd/Alameda St	Los Angeles	AM	94	759	46	124	797	176	69	761	76	114	1274	86	33.4	C
			PM	117	791	170	112	896	169	54	1438	49	102	1184	47	58	E
30	Randolph St/Wilmington Ave	Huntington Park	AM	0	0	125	0	0	9	0	421	91	0	339	28	34	F
			PM	0	0	81	0	0	17	0	384	21	0	392	8	12.9	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
31	Randolph St/Alameda St (West)	Huntington Park	AM	6	814	88	29	419	16	88	448	28	157	336	137	142.7	F
			PM	18	594	69	38	803	18	24	460	36	86	388	53	140.4	F
32	Randolph St/Alameda St (East)	Huntington Park	AM	13	3	24	2	2	11	31	499	18	15	605	6	-	-
			PM	27	2	57	12	0	12	10	505	43	18	415	2	-	-
33	Randolph St/Regent St	Huntington Park	AM	-	-	-	0	-	12	0	595	-	0	619	24	4.5	A
			PM	-	-	-	0	-	43	0	561	-	0	465	4	5.9	A
34	Randolph St/Albany St	Huntington Park	AM	0	0	82	0	0	6	0	576	5	0	502	10	7.5	A
			PM	0	0	29	0	0	10	0	576	18	0	465	6	8.3	A
35	Randolph St/Santa Fe Ave	Huntington Park	AM	96	1372	71	27	533	56	204	429	31	174	447	29	114.8	F
			PM	20	787	89	79	1214	44	137	436	44	186	360	32	141.2	F
36	Randolph St/Malabar St	Huntington Park	AM	62	361	32	16	147	49	123	517	25	48	490	28	81.9	F
			PM	30	101	37	54	285	50	38	528	29	80	391	23	52.3	D
37	Randolph St/Rugby Ave	Los Angeles	AM	0	0	111	0	-	28	0	554	-	0	515	25	4.2	A
			PM	0	0	122	0	-	47	0	603	-	0	384	22	5.2	A
38	Pacific Blvd/Belgrave Ave	Huntington Park	AM	43	1043	70	49	439	48	117	165	44	97	129	69	17.2	B
			PM	44	611	42	133	834	75	79	173	74	297	108	57	15.9	B
39	Pacific Blvd/Clarendon Ave	Huntington Park	AM	42	1064	81	25	417	24	110	176	65	42	134	76	51.1	D
			PM	40	584	70	50	901	29	34	150	47	24	83	55	14.2	B
40	Pacific Blvd/Randolph St	Huntington Park	AM	58	1014	30	83	414	36	123	488	63	46	455	97	90.1	F
			PM	48	638	43	153	736	60	143	552	81	69	356	27	73.2	E
41	Randolph St/Rita Ave	Huntington Park	AM	0	0	0	0	0	77	0	512	83	0	597	50	7.8	A
			PM	0	0	0	0	0	76	0	588	86	0	373	81	5.2	A
42	Randolph St/Seville Ave	Huntington Park	AM	30	386	48	30	138	41	113	497	23	217	671	58	111.3	F
			PM	41	172	31	57	340	45	123	654	40	173	455	36	129.4	F
43	Randolph St/Miles Ave	Huntington Park	AM	54	701	69	58	465	66	217	422	42	78	563	129	91.5	F
			PM	43	423	63	102	1029	42	76	598	64	85	434	48	121.6	F
44	Arbutus Ave/Randolph St	Huntington Park	AM	56	57	59	0	89	37	91	421	12	44	627	37	35.4	D
			PM	10	17	42	0	50	27	105	104	15	64	469	42	18.2	B
45	State St/Randolph St	Huntington Park	AM	141	1616	54	58	485	0	177	305	63	41	463	196	144.3	F
			PM	64	607	41	164	1295	8	106	419	108	50	279	86	76.1	E
46	Randolph St/Bissell Pl	Huntington Park	AM	3	0	4	-	-	-	-	400	6	13	627	-	2.4	A
			PM	0	3	12	-	-	-	-	609	9	4	409	-	5.5	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
47	Randolph Ave/Maywood Ave	Huntington Park	AM	55	475	10	6	286	6	94	263	58	13	332	28	17	B
			PM	32	327	16	22	443	22	5	404	100	11	241	5	11.8	B
48	Gage Ave/California Ave	Bell	AM	31	161	137	36	116	190	177	749	50	69	939	112	69.4	E
			PM	17	100	67	79	212	229	138	1179	99	48	930	94	120.3	F
49	Gage Ave/Salt Lake Ave (West)	Bell	AM	475	0	185	-	-	-	-	683	144	223	842	-	64.9	E
			PM	205	0	185	-	-	-	-	1190	254	302	855	-	114.4	F
50	Bell Ave/California Ave	Huntington Park	AM	41	299	91	85	122	38	83	124	32	72	204	97	13.7	B
			PM	16	113	47	93	267	50	57	201	62	24	160	48	8.2	A
51	Bell Ave/Bissell St	Bell	AM	24	18	39	37	24	15	21	195	25	31	169	40	13.9	B
			PM	21	14	37	63	19	27	16	275	28	14	161	48	22.5	C
52	Bell Ave/Salt Lake Ave	Huntington Park	AM	91	545	123	17	321	42	52	110	97	83	122	78	52.7	D
			PM	84	302	91	63	478	32	43	201	136	83	124	43	19.3	B
53	Florence Ave/California Ave (West)	Huntington Park	AM	182	531	362	121	301	64	32	1013	112	188	1497	174	103.2	F
			PM	157	331	284	130	478	74	38	1305	214	213	1089	113	80.8	F
54	Florence Ave/California Ave (East)	Huntington Park	AM	416	168	4	55	155	56	58	1185	225	0	1370	121	143.2	F
			PM	293	111	5	69	202	53	31	1288	352	2	1075	55	31.4	C
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	AM	371	103	310	43	103	17	169	7	371	103	310	43	122.8	F
			PM	465	9	254	68	128	8	136	5	465	9	254	68	135.2	F
56	Otis Ave/Salt Lake Ave (East)	Cudahy	AM	378	0	7	169	56	45	232	43	378	0	7	169	36.4	E
			PM	446	0	13	235	124	45	157	52	446	0	13	235	93.7	F
57	Otis Ave/Elizabeth St	Cudahy	AM	378	5	2	39	0	70	80	99	378	5	2	39	342.3	F
			PM	413	4	7	46	0	95	63	69	413	4	7	46	366.5	F
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	AM	0	7	22	821	8	0	452	156	0	7	22	821	823.4	F
			PM	0	5	5	612	3	0	564	148	0	5	5	612	747.1	F
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	AM	352	2	30	445	321	4	383	69	352	2	30	445	146.8	F
			PM	344	8	12	439	261	5	448	52	344	8	12	439	100.9	F
60	Ardine St/Salt Lake Ave	Cudahy	AM	593	4	24	87	124	10	60	55	593	4	24	87	25.2	D
			PM	569	14	35	35	115	10	95	49	569	14	35	35	16.3	C
61	Atlantic Ave/Salt Lake Ave	Cudahy	AM	967	3	4	9	713	120	3	13	967	3	4	9	53.2	D
			PM	1211	5	2	15	611	190	9	15	1211	5	2	15	81.7	F
62	Atlantic Ave/Azalea West	South Gate	AM	1512	106	80	-	18	27	0	7	1512	106	80	-	10.6	B
			PM	1570	388	269	-	153	340	0	85	1570	388	269	-	18.5	B

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
63	Firestone Blvd/Atlantic Ave	South Gate	AM	787	163	275	1571	144	56	1430	432	787	163	275	1571	140.2	F
			PM	786	262	172	1460	134	88	1416	288	786	262	172	1460	91.2	F
64	Firestone Blvd/Mason St	South Gate	AM	-	9	-	1904	-	-	1849	296	-	9	-	1904	10.9	B
			PM	-	29	-	2010	-	-	1687	331	-	29	-	2010	14.8	B
65	Firestone Blvd/Firestone Pl	South Gate	AM	-	18	-	1930	-	-	2131	5	-	18	-	1930	44.5	D
			PM	-	70	-	2035	-	-	1975	20	-	70	-	2035	27.5	C
66	Firestone Blvd/Rayo Ave	South Gate	AM	3	7	14	1805	10	315	2097	91	3	7	14	1805	42.3	D
			PM	26	4	20	1993	21	357	1892	68	26	4	20	1993	43.4	D
67	Southern Ave/Salt Lake Ave	South Gate	AM	-	-	-	31	18	0	20	-	-	-	-	31	6.4	A
			PM	-	-	-	17	16	3	29	-	-	-	-	17	4.5	A
68	Gardendale St/Center St	South Gate	AM	-	-	-	660	22	35	1089	-	-	-	-	660	48.8	E
			PM	-	-	-	715	14	73	583	-	-	-	-	715	41.0	E
69	Gardendale St/Dakota Ave	South Gate	AM	-	-	-	630	5	0	1021	-	-	-	-	630	8.2	A
			PM	-	-	-	751	5	0	585	-	-	-	-	751	9.2	A
70	Gardendale St/Industrial Ave	South Gate	AM	-	-	-	679	29	69	1091	-	-	-	-	679	594.2	F
			PM	-	-	-	722	44	13	616	-	-	-	-	722	50.9	F
71	Main St/Center St	South Gate	AM	35	15	13	236	12	48	330	31	35	15	13	236	10.0	A
			PM	24	16	10	199	11	47	160	29	24	16	10	199	7.7	A
72	Main St/Dakota Ave	South Gate	AM	-	7	0	312	-	-	390	0	-	7	0	312	4.1	A
			PM	-	8	0	294	-	-	241	0	-	8	0	294	7.5	A
73	Main St/Arizona Ave/Industrial Ave	South Gate	AM	93	71	48	270	35	29	400	10	93	71	48	270	17.3	C
			PM	25	15	47	229	45	26	261	10	25	15	47	229	11.6	B
74	Century Blvd/Center St	South Gate	AM	-	24	10	168	-	-	128	5	-	24	10	168	2.4	A
			PM	-	16	13	104	-	-	117	3	-	16	13	104	1.6	A
75	Century Blvd/Florence Ave	South Gate	AM	-	45	15	243	-	-	104	31	-	45	15	243	2.5	A
			PM	-	28	15	75	-	-	126	21	-	28	15	75	2.2	A
76	Rosecrans Ave/Paramount Blvd	Paramount	AM	226	568	281	102	751	396	197	824	238	194	940	112	69.7	E
			PM	141	753	217	167	639	223	271	1086	236	153	697	178	26.5	C
77	Rosecrans Ave/Bianchi Wy	Paramount	AM	34	0	15	23	0	6	22	1365	147	27	1315	82	9.3	A
			PM	25	0	15	79	0	20	6	1497	43	11	915	28	8.6	A
78	Somerset Blvd/Hayter Ave	Paramount	AM	66	-	17	-	-	-	-	652	39	14	911	-	13.4	B
			PM	29	-	9	-	-	-	-	999	58	20	653	-	17.0	C

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
79	Somerset Blvd/Lakewood Blvd	Bellflower	AM	117	1013	238	94	1032	209	132	380	115	191	608	159	44.8	D
			PM	112	895	195	142	942	175	183	678	132	98	388	154	38.9	D
80	Paseo St/Lakewood Blvd	Bellflower	AM	39	1321	-	-	1314	25	36	-	54	-	-	-	12.8	B
			PM	53	1143	-	-	1288	30	11	-	21	-	-	-	7.9	A
81	Flora Vista St/Clark Ave	Bellflower	AM	0	719	6	0	698	3	3	0	24	0	0	80	172.1	F
			PM	0	671	29	0	868	4	3	2	12	0	0	78	389.0	F
82	Alondra Blvd/Clark Ave	Bellflower	AM	126	618	112	69	626	152	107	512	92	184	854	70	61.1	E
			PM	150	651	112	93	673	158	144	803	133	157	743	68	83.3	F
83	Alondra Blvd/Pacific Ave	Bellflower	AM	0	-	41	-	-	-	-	744	35	0	1033	-	9.2	A
			PM	0	-	32	-	-	-	-	1093	85	0	806	-	6.2	A
84	Alondra Blvd/Flora Vista St	Bellflower	AM	-	-	-	13	-	15	-	861	-	-	1132	77	420.6	F
			PM	-	-	-	20	-	19	-	1045	-	-	879	81	37.6	E
85	Alondra Blvd/Stevens Ave	Bellflower	AM	-	-	-	46	-	31	14	786	-	-	1171	25	36.2	E
			PM	-	-	-	29	-	28	29	1051	-	-	915	34	20.4	C
86	Flora Vista St/Bellflower Blvd	Bellflower	AM	71	707	51	69	729	164	90	0	38	94	2	124	18.1	B
			PM	42	914	99	91	847	96	162	0	83	78	0	101	25.9	C
87	Mayne St/Bellflower Blvd	Bellflower	AM	134	858	-	-	489	256	63	-	50	-	-	-	18.2	B
			PM	124	911	-	-	646	282	138	-	77	-	-	-	24.8	C
88	Oak St/Bellflower Blvd	Bellflower	AM	36	789	6	21	577	35	77	11	39	3	8	11	23.1	C
			PM	37	895	17	40	758	62	93	18	45	15	9	41	34.3	C
89	Artesia Blvd/Dumont Ave	Cerritos	AM	92	-	70	-	-	-	-	1258	135	77	1408	-	24.2	C
			PM	77	-	103	-	-	-	-	1395	85	59	1203	-	58.2	E
90	Artesia Blvd/Studebaker Rd	Cerritos	AM	131	524	66	164	634	480	522	524	179	159	661	277	49.4	D
			PM	236	975	189	175	734	413	610	797	155	146	676	156	82.9	F
91	Business Cir/Studebaker Rd	Cerritos	AM	-	622	34	15	728	-	-	-	-	18	-	43	3.3	A
			PM	-	830	11	8	757	-	-	-	-	8	-	18	15.3	C
92	186th St/Jersey Ave	Artesia	AM	17	0	104	-	-	-	-	35	39	59	35	-	5.5	A
			PM	24	0	164	-	-	-	-	11	18	105	31	-	8.1	A
93	187th St/Alburtis Ave	Artesia	AM	56	0	0	0	0	2	0	88	16	0	31	0	2.9	A
			PM	22	0	0	0	0	2	0	28	27	0	77	0	2.1	A
94	187th St/Corby Ave (West)	Artesia	AM	30	-	0	-	-	-	-	0	38	0	0	-	1.5	A
			PM	63	-	0	-	-	-	-	0	29	0	0	-	3.0	A

No.	Intersection Name	Jurisdiction	Peak Period	Peak-Hour Turning Movement Volumes												Delay (sec/veh)	LOS
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
95	187th St/Corby Ave (East)	Artesia	AM	-	-	-	24	-	0	0	0	-	-	0	53	1.5	A
			PM	-	-	-	21	-	0	0	0	-	-	0	63	1.1	A
96	186th St/Pioneer Blvd	Artesia	AM	4	254	4	6	380	23	68	88	10	22	44	17	11.0	B
			PM	18	403	11	25	402	49	112	94	32	9	32	21	8.1	A
97	187th St/Pioneer Blvd	Artesia	AM	0	240	31	12	358	0	0	0	28	76	0	9	5.2	A
			PM	0	434	50	9	416	0	0	0	56	41	0	16	4.1	A
99	188th St/Pioneer Blvd	Cerritos	AM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	South St/Pioneer Blvd	Cerritos	AM	150	463	183	112	247	104	45	584	74	120	992	280	27.6	C
			PM	234	312	172	335	529	141	106	903	149	182	839	146	40.5	D
100	South St/Clarkdale Ave	Artesia	AM	-	-	-	39	-	44	107	723	-	-	1109	93	9.9	A
			PM	-	-	-	55	-	49	83	1179	-	-	1122	74	18.7	B
101	South St/Elaine Ave	Artesia	AM	-	-	-	27	-	51	71	702	-	-	1131	35	11.2	B
			PM	-	-	-	30	-	96	77	1150	-	-	1108	43	9.2	A

sec/veh = seconds per vehicle
LOS = level of service
NBL = northbound left
NBT = northbound through
NBR = northbound right
SBL = southbound left
SBT = southbound through
SBR = southbound right
EBL = eastbound left
EBT = eastbound through
EBR = eastbound right
WBL = westbound left
WBT = westbound through
WBR = westbound right

Table A5.2. Build Alternatives Conditions Key Intersections Park and Ride Volumes

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	1st St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
2	2nd St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	-	0	0	0
			PM	0	0	0	0	0	0	0	0	-	0	0	0
3	Traction Ave/Alameda St	Los Angeles	AM	-	0	0	0	0	-	-	-	0	-	-	0
			PM	-	0	0	0	0	-	-	-	0	-	-	0
4	3rd St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	-	-	-	0	0	0
			PM	0	0	0	0	0	0	-	-	-	0	0	0
5	6th St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
6	7th St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
7	7th St/Flower St	Los Angeles	AM	-	-	-	0	0	-	-	0	0	-	-	-
			PM	-	-	-	0	0	-	-	0	0	-	-	-
8	8th St/Figueroa St	Los Angeles	AM	0	0	0	-	-	-	0	0	-	-	0	0
			PM	0	0	0	-	-	-	0	0	-	-	0	0
9	8th St/Flower St	Los Angeles	AM	0	0	0	0	0	0	-	0	0	-	0	0
			PM	0	0	0	0	0	0	-	0	0	-	0	0
10	8th St/Hope St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
11	9th St/Flower St	Los Angeles	AM	-	0	0	0	-	0	0	0	0	-	-	-
			PM	-	0	0	0	-	0	0	0	0	-	-	-
12	7th St/Main St	Los Angeles	AM	-	0	0	0	0	-	0	0	0	-	-	-
			PM	-	0	0	0	0	-	0	0	0	-	-	-
13	7th St/Los Angeles St	Los Angeles	AM	-	0	0	-	-	-	0	0	0	0	-	0
			PM	-	0	0	-	-	-	0	0	0	0	-	0
14	7th St/Maple Ave	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
15	9th St/Main St/Spring St	Los Angeles	AM	0	0	-	-	0	0	-	-	-	0	0	0
			PM	0	0	-	-	0	0	-	-	-	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
16	9th St/Los Angeles St	Los Angeles	AM	-	-	-	-	0	0	-	-	-	0	0	-
			PM	-	-	-	-	0	0	-	-	-	0	0	-
17	9th St/Santee St	Los Angeles	AM	0	0	-	-	-	-	-	-	-	-	0	0
			PM	0	0	-	-	-	-	-	-	-	-	0	0
18	9th St/Maple St	Los Angeles	AM	0	0	-	-	0	0	-	-	-	0	0	0
			PM	0	0	-	-	0	0	-	-	-	0	0	0
19	8th St/Broadway	Los Angeles	AM	0	0	0	0	-	0	-	-	-	-	0	0
			PM	0	0	0	0	-	0	-	-	-	-	0	0
20	8th St/Spring St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
21	8th St/Main St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
22	8th St/Los Angeles St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
23	8th St/Santee St	Los Angeles	AM	0	0	0	0	0	0	0	0	-	0	0	0
			PM	0	0	0	0	0	0	0	0	-	0	0	0
24	8th St/Maple Ave	Los Angeles	AM	-	0	0	0	0	-	-	-	0	-	-	0
			PM	-	0	0	0	0	-	-	-	0	-	-	0
25	8th St/Wall St	Los Angeles	AM	0	0	0	0	0	0	-	-	-	0	0	0
			PM	0	0	0	0	0	0	-	-	-	0	0	0
26	Center St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
27	Bay St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
28	8th St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
29	Olympic Blvd/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
30	Randolph St/Wilmington Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
31	Randolph St/Alameda St (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
32	Randolph St/Alameda St (East)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
33	Randolph St/Regent St	Huntington Park	AM	-	-	-	0	-	0	0	0	-	0	0	0
			PM	-	-	-	0	-	0	0	0	-	0	0	0
34	Randolph St/Albany St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
35	Randolph St/Santa Fe Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
36	Randolph St/Malabar St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
37	Randolph St/Rugby Ave	Los Angeles	AM	0	0	0	0	-	0	0	0	-	0	0	0
			PM	0	0	0	0	-	0	0	0	-	0	0	0
38	Pacific Blvd/Belgrave Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
39	Pacific Blvd/Clarendon Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
40	Pacific Blvd/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
41	Randolph St/Rita Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
42	Randolph St/Seville Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
43	Randolph St/Miles Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
44	Arbutus Ave/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
45	State St/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
46	Randolph St/Bissell Pl	Huntington Park	AM	0	0	0	-	-	-	-	0	0	0	0	-
			PM	0	0	0	-	-	-	-	0	0	0	0	-
47	Randolph Ave/Maywood Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
48	Gage Ave/California Ave	Bell	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
49	Gage Ave/Salt Lake Ave (West)	Bell	AM	0	0	0	-	-	-	-	0	0	0	0	-
			PM	0	0	0	-	-	-	-	0	0	0	0	-
50	Bell Ave/California Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
51	Bell Ave/Bissell St	Bell	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
52	Bell Ave/Salt Lake Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
53	Florence Ave/California Ave (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
54	Florence Ave/California Ave (East)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
56	Otis Ave/Salt Lake Ave (East)	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
57	Otis Ave/Elizabeth St	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
60	Ardine St/Salt Lake Ave	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
61	Atlantic Ave/Salt Lake Ave	Cudahy	AM	0	0	0	0	50	0	0	0	17	0	0	0
			PM	17	50	0	0	0	0	0	0	0	0	0	0
62	Atlantic Ave/Azalea West	South Gate	AM	0	0	268	67	0	0	0	-	0	0	0	0
			PM	0	0	0	0	0	0	0	-	0	268	0	67
63	Firestone Blvd/Atlantic Ave	South Gate	AM	0	11	0	11	0	0	11	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	11	11	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
64	Firestone Blvd/Mason St	South Gate	AM	-	-	-	0	-	0	-	0	-	-	134	0
			PM	-	-	-	0	-	0	-	134	-	-	0	0
65	Firestone Blvd/Firestone Pl	South Gate	AM	-	-	-	0	-	0	0	0	-	-	134	0
			PM	-	-	-	0	-	0	0	134	-	-	0	0
66	Firestone Blvd/Rayo Ave	South Gate	AM	0	0	0	0	0	0	0	0	0	0	134	0
			PM	0	0	0	0	0	0	0	134	0	0	0	0
67	Southern Ave/Salt Lake Ave	South Gate	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
68	Gardendale St/Center St	South Gate	AM	0	-	0	-	-	-	-	13	13	0	0	-
			PM	13	-	0	-	-	-	-	0	0	0	13	-
69	Gardendale St/Dakota Ave	South Gate	AM	0	-	0	-	-	-	-	13	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	13	-
70	Gardendale St/Industrial Ave	South Gate	AM	0	-	0	-	-	-	-	0	13	54	0	-
			PM	13	-	54	-	-	-	-	0	0	0	0	-
71	Main St/Center St	South Gate	AM	0	0	0	0	13	0	0	0	0	0	0	0
			PM	0	13	0	0	0	0	0	0	0	0	0	0
72	Main St/Dakota Ave	South Gate	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0
73	Main St/Arizona Ave/Industrial Ave	South Gate	AM	0	0	0	0	67	0	0	0	0	0	0	0
			PM	0	67	0	0	0	0	0	0	0	0	0	0
74	Century Blvd/Center St	South Gate	AM	-	-	-	0	-	0	0	54	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	54	0
75	Century Blvd/Florence Ave	South Gate	AM	-	-	-	0	-	0	0	54	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	54	0
76	Rosecrans Ave/Paramount Blvd	Paramount	AM	56	0	0	0	0	38	0	0	0	0	56	0
			PM	0	0	0	0	0	0	38	56	56	0	0	0
77	Rosecrans Ave/Bianchi Wy	Paramount	AM	0	0	0	0	0	0	38	0	0	0	0	149
			PM	0	0	0	149	0	38	0	0	0	0	0	0
78	Somerset Blvd/Hayter Ave	Paramount	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
79	Somerset Blvd/Lakewood Blvd	Bellflower	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
80	Paseo St/Lakewood Blvd	Bellflower	AM	0	0	-	-	0	0	0	-	0	-	-	-
			PM	0	0	-	-	0	0	0	-	0	-	-	-
81	Flora Vista St/Clark Ave	Bellflower	AM	0	0	0	0	11	0	0	0	0	0	0	0
			PM	0	11	0	0	0	0	0	0	0	0	0	0
82	Alondra Blvd/Clark Ave	Bellflower	AM	0	0	0	11	0	0	0	34	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	34	11
83	Alondra Blvd/Pacific Ave	Bellflower	AM	0	-	0	-	-	-	-	45	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	45	-
84	Alondra Blvd/Flora Vista St	Bellflower	AM	-	-	-	0	-	0	-	45	-	-	0	0
			PM	-	-	-	0	-	0	-	0	-	-	45	0
85	Alondra Blvd/Stevens Ave	Bellflower	AM	-	-	-	0	-	0	0	45	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	45	0
86	Flora Vista St/Bellflower Blvd	Bellflower	AM	67	0	0	0	0	157	0	0	0	0	0	0
			PM	0	0	0	0	0	0	157	0	67	0	0	0
87	Mayne St/Bellflower Blvd	Bellflower	AM	0	67	-	-	0	0	0	-	0	-	-	-
			PM	0	0	-	-	67	0	0	-	0	-	-	-
88	Oak St/Bellflower Blvd	Bellflower	AM	0	67	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	67	0	0	0	0	0	0	0
89	Artesia Blvd/Dumont Ave	Cerritos	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
90	Artesia Blvd/Studebaker Rd	Cerritos	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
91	Business Cir/Studebaker Rd	Cerritos	AM	-	0	0	0	0	-	-	-	-	0	-	0
			PM	-	0	0	0	0	-	-	-	-	0	-	0
92	186th St/Jersey Ave	Artesia	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
93	187th St/Alburtis Ave	Artesia	AM	0	0	0	0	0	0	0	58	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	58	0
94	187th St/Corby Ave (West)	Artesia	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
95	187th St/Corby Ave (East)	Artesia	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Park and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
96	186th St/Pioneer Blvd	Artesia	AM	0	0	0	0	116	0	0	0	0	0	0	0
			PM	0	116	0	0	0	0	0	0	0	0	0	0
97	187th St/Pioneer Blvd	Artesia	AM	0	0	0	0	116	0	0	0	0	0	0	0
			PM	0	116	0	0	0	0	0	0	0	0	0	0
98	188th St/Pioneer Blvd	Artesia	AM	-	-	-	-	-	-	-	-	-	-	-	-
			PM	-	-	-	-	-	-	-	-	-	-	-	-
99	South St/Pioneer Blvd	Cerritos	AM	0	173	0	0	0	0	0	0	0	0	0	173
			PM	0	0	0	173	173	0	0	0	0	0	0	0
100	South St/Clarkdale Ave	Artesia	AM	-	-	-	0	-	0	0	0	-	-	173	0
			PM	-	-	-	0	-	0	0	173	-	-	0	0
101	South St/Elaine Ave	Artesia	AM	-	-	-	0	-	0	0	0	-	-	173	0
			PM	-	-	-	0	-	0	0	173	-	-	0	0

sec/veh = seconds per vehicle
LOS = level of service
NBL = northbound left
NBT = northbound through
NBR = northbound right

SBL = southbound left
SBT = southbound through
SBR = southbound right
EBL = eastbound left
EBT = eastbound through
EBR = eastbound right

Table A5.3. Build Alternatives Conditions Key Intersections Kiss and Ride Volumes

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	1st St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	1	0	0	1	0
			PM	0	0	0	0	0	0	0	1	0	0	1	0
2	2nd St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	-	0	0	0
			PM	0	0	0	0	0	0	0	0	-	0	0	0
3	Traction Ave/Alameda St	Los Angeles	AM	-	0	0	0	0	-	-	-	0	-	-	0
			PM	-	0	0	0	0	-	-	-	0	-	-	0
4	3rd St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	-	-	-	0	0	0
			PM	0	0	0	0	0	0	-	-	-	0	0	0
5	6th St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
6	7th St/Alameda St	Los Angeles	AM	1	0	0	0	0	0	0	0	1	0	0	0
			PM	1	0	0	0	0	0	0	0	1	0	0	0
7	7th St/Flower St	Los Angeles	AM	-	-	-	0	0	-	-	3	0	-	-	-
			PM	-	-	-	0	0	-	-	3	0	-	-	-
8	8th St/Figueroa St	Los Angeles	AM	0	0	0	-	-	-	0	0	-	-	0	0
			PM	0	0	0	-	-	-	0	0	-	-	0	0
9	8th St/Flower St	Los Angeles	AM	0	0	0	0	0	0	-	0	0	-	0	0
			PM	0	0	0	0	0	0	-	0	0	-	0	0
10	8th St/Hope St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
11	9th St/Flower St	Los Angeles	AM	-	0	0	0	-	0	3	0	0	-	-	-
			PM	-	0	0	0	-	0	3	0	0	-	-	-
12	7th St/Main St	Los Angeles	AM	-	0	0	0	0	-	0	0	0	-	-	-
			PM	-	0	0	0	0	-	0	0	0	-	-	-
13	7th St/Los Angeles St	Los Angeles	AM	-	0	0	-	-	-	0	0	0	0	-	0
			PM	-	0	0	-	-	-	0	0	0	0	-	0
14	7th St/Maple Ave	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
15	9th St/Main St/Spring St	Los Angeles	AM	0	0	-	-	0	0	-	-	-	0	3	0
			PM	0	0	-	-	0	0	-	-	-	0	3	0

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
16	9th St/Los Angeles St	Los Angeles	AM	-	-	-	-	0	0	-	-	-	0	0	-
			PM	-	-	-	-	0	0	-	-	-	0	0	-
17	9th St/Santee St	Los Angeles	AM	3	0	-	-	-	-	-	-	-	-	0	0
			PM	3	0	-	-	-	-	-	-	-	-	0	0
18	9th St/Maple St	Los Angeles	AM	0	0	-	-	0	0	-	-	-	0	0	0
			PM	0	0	-	-	0	0	-	-	-	0	0	0
19	8th St/Broadway	Los Angeles	AM	0	0	0	0	-	0	-	-	-	-	0	0
			PM	0	0	0	0	-	0	-	-	-	-	0	0
20	8th St/Spring St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
21	8th St/Main St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
22	8th St/Los Angeles St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
23	8th St/Santee St	Los Angeles	AM	0	0	0	0	0	0	0	0	-	0	0	0
			PM	0	0	0	0	0	0	0	0	-	0	0	0
24	8th St/Maple Ave	Los Angeles	AM	-	0	0	0	0	-	-	-	0	-	-	0
			PM	-	0	0	0	0	-	-	-	0	-	-	0
25	8th St/Wall St	Los Angeles	AM	0	0	0	0	0	0	-	-	-	0	0	0
			PM	0	0	0	0	0	0	-	-	-	0	0	0
26	Center St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
27	Bay St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
28	8th St/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
29	Olympic Blvd/Alameda St	Los Angeles	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
30	Randolph St/Wilmington Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
31	Randolph St/Alameda St (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
32	Randolph St/Alameda St (East)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
33	Randolph St/Regent St	Huntington Park	AM	-	-	-	0	-	0	0	0	-	0	0	0
			PM	-	-	-	0	-	0	0	0	-	0	0	0
34	Randolph St/Albany St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
35	Randolph St/Santa Fe Ave	Huntington Park	AM	0	0	0	0	0	0	0	1	0	0	1	0
			PM	0	0	0	0	0	0	0	1	0	0	1	0
36	Randolph St/Malabar St	Huntington Park	AM	0	0	0	0	0	0	0	1	0	0	1	0
			PM	0	0	0	0	0	0	0	1	0	0	1	0
37	Randolph St/Rugby Ave	Los Angeles	AM	0	0	0	0	-	0	0	1	-	0	1	0
			PM	0	0	0	0	-	0	0	1	-	0	1	0
38	Pacific Blvd/Belgrave Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
39	Pacific Blvd/Clarendon Ave	Huntington Park	AM	0	2	0	0	2	0	0	0	0	0	0	0
			PM	0	2	0	0	2	0	0	0	0	0	0	0
40	Pacific Blvd/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
41	Randolph St/Rita Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
42	Randolph St/Seville Ave	Huntington Park	AM	0	0	0	0	0	0	0	3	0	0	3	0
			PM	0	0	0	0	0	0	0	3	0	0	3	0
43	Randolph St/Miles Ave	Huntington Park	AM	0	0	0	0	0	0	0	3	0	0	3	0
			PM	0	0	0	0	0	0	0	3	0	0	3	0
44	Arbutus Ave/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	3	0	0	3	0
			PM	0	0	0	0	0	0	0	3	0	0	3	0
45	State St/Randolph St	Huntington Park	AM	0	0	0	0	0	0	0	3	0	0	3	0
			PM	0	0	0	0	0	0	0	3	0	0	3	0
46	Randolph St/Bissell Pl	Huntington Park	AM	0	0	0	-	-	-	-	0	0	0	0	-
			PM	0	0	0	-	-	-	-	0	0	0	0	-
47	Randolph Ave/Maywood Ave	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
48	Gage Ave/California Ave	Bell	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
49	Gage Ave/Salt Lake Ave (West)	Bell	AM	0	0	0	-	-	-	-	0	0	0	0	-
			PM	0	0	0	-	-	-	-	0	0	0	0	-
50	Bell Ave/California Ave	Huntington Park	AM	0	0	0	0	0	0	0	2	0	0	2	0
			PM	0	0	0	0	0	0	0	2	0	0	2	0
51	Bell Ave/Bissell St	Bell	AM	0	0	0	1	0	0	0	1	0	0	1	1
			PM	0	0	0	1	0	0	0	1	0	0	1	1
52	Bell Ave/Salt Lake Ave	Huntington Park	AM	2	0	2	0	0	0	0	0	2	2	0	0
			PM	2	0	2	0	0	0	0	0	2	2	0	0
53	Florence Ave/California Ave (West)	Huntington Park	AM	4	4	12	4	0	0	0	4	0	12	0	0
			PM	4	4	12	4	0	0	0	4	0	12	0	0
54	Florence Ave/California Ave (East)	Huntington Park	AM	0	0	0	0	0	0	0	12	0	0	12	0
			PM	0	0	0	0	0	0	0	12	0	0	12	0
55	Otis Ave/Salt Lake Ave (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
56	Otis Ave/Salt Lake Ave (East)	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
57	Otis Ave/Elizabeth St	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
58	Santa Ana St/Salt Lake Ave (West)	Huntington Park	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
59	Santa Ana St/Salt Lake Ave (East)	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
60	Ardine St/Salt Lake Ave	Cudahy	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
61	Atlantic Ave/Salt Lake Ave	Cudahy	AM	6	18	0	0	18	0	0	0	6	0	0	0
			PM	6	18	0	0	18	0	0	0	6	0	0	0
62	Atlantic Ave/Azalea West	South Gate	AM	0	0	27	7	0	0	0	-	0	27	0	7
			PM	0	0	27	7	0	0	0	-	0	27	0	7
63	Firestone Blvd/Atlantic Ave	South Gate	AM	0	7	0	13	7	7	7	0	0	0	0	12
			PM	0	7	0	13	7	7	7	0	0	0	0	12

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
64	Firestone Blvd/Mason St	South Gate	AM	-	-	-	0	-	0	-	13	-	-	13	0
			PM	-	-	-	0	-	0	-	13	-	-	13	0
65	Firestone Blvd/Firestone Pl	South Gate	AM	-	-	-	0	-	0	0	13	-	-	13	0
			PM	-	-	-	0	-	0	0	13	-	-	13	0
66	Firestone Blvd/Rayo Ave	South Gate	AM	0	0	0	0	0	0	0	13	0	0	13	0
			PM	0	0	0	0	0	0	0	13	0	0	13	0
67	Southern Ave/Salt Lake Ave	South Gate	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
68	Gardendale St/Center St	South Gate	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0
69	Gardendale St/Dakota Ave	South Gate	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0
70	Gardendale St/Industrial Ave	South Gate	AM	0	-	0	-	-	-	-	22	0	0	23	-
			PM	0	-	0	-	-	-	-	22	0	0	23	-
71	Main St/Center St	South Gate	AM	0	15	0	0	15	0	0	0	0	0	0	0
			PM	0	15	0	0	15	0	0	0	0	0	0	0
72	Main St/Dakota Ave	South Gate	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0
73	Main St/Arizona Ave/Industrial Ave	South Gate	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
74	Century Blvd/Center St	South Gate	AM	-	-	-	0	-	0	0	0	-	-	0	0
			PM	-	-	-	0	-	0	0	0	-	-	0	0
75	Century Blvd/Florence Ave	South Gate	AM	-	-	-	0	-	15	15	0	-	-	0	0
			PM	-	-	-	0	-	15	15	0	-	-	0	0
76	Rosecrans Ave/Paramount Blvd	Paramount	AM	9	0	0	0	0	6	6	9	9	0	9	0
			PM	9	0	0	0	0	6	6	9	9	0	9	0
77	Rosecrans Ave/Bianchi Wy	Paramount	AM	0	0	0	23	0	6	6	0	0	0	0	23
			PM	0	0	0	23	0	6	6	0	0	0	0	23
78	Somerset Blvd/Hayter Ave	Paramount	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
79	Somerset Blvd/Lakewood Blvd	Bellflower	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
80	Paseo St/Lakewood Blvd	Bellflower	AM	0	0	-	-	0	0	0	-	0	-	-	-
			PM	0	0	-	-	0	0	0	-	0	-	-	-
81	Flora Vista St/Clark Ave	Bellflower	AM	0	2	0	0	2	0	0	0	0	0	0	0
			PM	0	2	0	0	2	0	0	0	0	0	0	0
82	Alondra Blvd/Clark Ave	Bellflower	AM	0	0	0	2	0	0	0	6	0	0	6	2
			PM	0	0	0	2	0	0	0	6	0	0	6	2
83	Alondra Blvd/Pacific Ave	Bellflower	AM	0	-	0	-	-	-	-	7	0	0	7	-
			PM	0	-	0	-	-	-	-	7	0	0	7	-
84	Alondra Blvd/Flora Vista St	Bellflower	AM	-	-	-	0	-	0	-	7	-	-	7	0
			PM	-	-	-	0	-	0	-	7	-	-	7	0
85	Alondra Blvd/Stevens Ave	Bellflower	AM	-	-	-	0	-	0	0	7	-	-	7	0
			PM	-	-	-	0	-	0	0	7	-	-	7	0
86	Flora Vista St/Bellflower Blvd	Bellflower	AM	11	0	0	0	0	25	25	0	11	0	0	0
			PM	11	0	0	0	0	25	25	0	11	0	0	0
87	Mayne St/Bellflower Blvd	Bellflower	AM	0	11	-	-	11	0	0	-	0	-	-	-
			PM	0	11	-	-	11	0	0	-	0	-	-	-
88	Oak St/Bellflower Blvd	Bellflower	AM	0	11	0	0	11	0	0	0	0	0	0	0
			PM	0	11	0	0	11	0	0	0	0	0	0	0
89	Artesia Blvd/Dumont Ave	Cerritos	AM	0	-	0	-	-	-	-	0	0	0	0	-
			PM	0	-	0	-	-	-	-	0	0	0	0	-
90	Artesia Blvd/Studebaker Rd	Cerritos	AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
91	Business Cir/Studebaker Rd	Cerritos	AM	-	0	0	0	0	-	-	-	-	0	-	0
			PM	-	0	0	0	0	-	-	-	-	0	-	0
92	186th St/Jersey Ave	Artesia	AM	0	0	0	-	-	-	-	0	0	0	0	-
			PM	0	0	0	-	-	-	-	0	0	0	0	-
93	187th St/Alburtis Ave	Artesia	AM	22	0	0	0	0	0	0	22	0	0	22	0
			PM	22	0	0	0	0	0	0	22	0	0	22	0
94	187th St/Corby Ave (West)	Artesia	AM	0	-	0	-	-	-	-	0	22	0	0	-
			PM	0	-	0	-	-	-	-	0	22	0	0	-
95	187th St/Corby Ave (East)	Artesia	AM	-	-	-	0	-	0	0	0	-	-	0	44
			PM	-	-	-	0	-	0	0	0	-	-	0	44

No.	Intersection Name	Jurisdiction	Peak Period	Kiss and Ride Turning Movement Volumes											
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
96	186th St/Pioneer Blvd	Artesia	AM	0	0	0	0	44	0	44	0	0	0	0	0
			PM	0	0	0	0	44	0	44	0	0	0	0	0
97	187th St/Pioneer Blvd	Artesia	AM	0	0	0	0	0	44	0	0	0	0	0	0
			PM	0	0	0	0	0	44	0	0	0	0	0	0
98	188th St/Pioneer Blvd	Artesia	AM	-	-	-	-	-	-	-	-	-	-	-	-
			PM	-	-	-	-	-	-	-	-	-	-	-	-
99	South St/Pioneer Blvd	Cerritos	AM	0	66	0	66	66	0	0	0	0	0	0	66
			PM	0	66	0	66	66	0	0	0	0	0	0	66
100	South St/Clarkdale Ave	Artesia	AM	-	-	-	0	-	0	0	66	-	-	66	0
			PM	-	-	-	0	-	0	0	66	-	-	66	0
101	South St/Elaine Ave	Artesia	AM	-	-	-	0	-	0	0	66	-	-	66	0
			PM	-	-	-	0	-	0	0	66	-	-	66	0

sec/veh = seconds per vehicle
LOS = level of service
NBL = northbound left
NBT = northbound through
NBR = northbound right
SBL = southbound left
SBT = southbound through
SBR = southbound right
EBL = eastbound left
EBT = eastbound through
EBR = eastbound right

ATTACHMENT A6 TRAFFIC OPERATIONS ASSESSMENT – PRELIMINARY MITIGATION OPTIONS

Table A6.1 is a summary of the first-level evaluation of potential mitigation options to address traffic operations impacts. The table is organized by intersection. The "No Build Peak Hour" columns summarize the delay and level of service (LOS) without the project. Then, the first line in each intersection is labeled "0) Project Description (no additional mitigation)". The delay and LOS listed in that row is highlighted in color to show if there is a projected significant impact (in pink) or not (in green).

The following rows are the mitigation options that were evaluated. As referenced above several options were considered at each intersection. The final row, shown in bold, is the preliminary selection of mitigation option(s). The delay and LOS of that option is shown, with the same color coding. The traffic operations were assessed using the selection option(s) at the nearby intersections, so the values are may be somewhat different than the same mitigation option(s) shown above.

The mitigation options were evaluated, using a screening-level assessment, of the secondary impacts. The following scale was used:

0. Addressed by Nearby Mitigation – generally no impacts expected
1. Minor Widening/Lane Extension/Striping – generally minimal impacts expected
2. Minor/Moderate Land Acquisition – level of potential impact variable
3. Major Land Acquisition – highest impacts expected

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Table A6.1 First-Level Evaluation of Potential Mitigation Options

No	Intersection Name	Control Type	No Build Peak Hour				Intersection Mitigation Options	Peak Hour				Estimated Impact (1-3) of Mitigation (3 is worst)
			AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS		AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS	
31	Randolph St/Alameda St	Traffic Signal	49.9	D	60.8	E	(0) Project Description (no additional mitigation)	139.6	F	150.2	F	
							(1) Added WBL lane (150 ft.) and added EBL lane (150 ft.) calculated with other nearby mitigation strategies in place	94.7	F	111.5	F	1
							(2) Added NBL (150 ft.) lane and added SBL (150 ft.) lane calculated with other nearby mitigation strategies in place	158.8	F	9.4	A	2
							(3) Added EBT lane and added WBT lane and calculated with other nearby mitigation strategies in place	87.5	F	92.6	F	3
							(4) Added EBT lane and added WBT lane and added WBL lane (150 ft.) and added EBL lane (150 ft.) and added NBL (150 ft.) lane and added SBL (150 ft.) lane calculated with other nearby mitigation strategies in place	93.5	F	50.1	D	3
35	Randolph St/Santa Fe Ave	Traffic Signal	30.3	C	30.1	C	(0) Project Description (no additional mitigation)	199.2	F	200.2	F	
							(1) Added WBL lane (100 ft.) and added EBL lane (100 ft.) calculated with other nearby mitigation strategies in place	142.3	F	156.6	F	1
							(2) Added NBL (150 ft.) lane and added SBL (150 ft.) lane calculated with other nearby mitigation strategies in place	142.4	F	9.5	A	2
							(3) Added EBT lane and added WBT lane and calculated with other nearby mitigation strategies in place	94.5	F	121.2	F	3
							(4) Added EBT lane and added WBT lane and added WBL lane (100 ft.) and added EBL lane (100 ft.) and added NBL (150 ft.) lane and added SBL (150 ft.) lane calculated with other nearby mitigation strategies in place	85.8	F	102.3	F	3
							-	-	-	-	-	-
36	Randolph St/Malabar St	Traffic Signal	22.5	C	22.1	C	(0) Project Description (no additional mitigation)	107.4	F	107.9	F	
							(1) Added WBL lane (100 ft.) and added EBL lane (100 ft.) calculated with other nearby mitigation strategies in place	159.2	F	100.7	F	1
							(2) Added NBL (100 ft.) lane and added SBL (100 ft.) lane calculated with other nearby mitigation strategies in place	166.8	F	9.2	A	2
							(3) Added EBT lane and added WBT lane and calculated with other nearby mitigation strategies in place	106.2	F	91.1	F	3
							(4) Added EBT lane and added WBT lane and added WBL lane (100 ft.) and added EBL lane (100 ft.) and added NBTR lane and added SBTR lane calculated with other nearby mitigation strategies in place	69.3	E	66.6	E	3
							-	-	-	-	-	-
39	Pacific Blvd/Clarendon Ave	Traffic Signal	10.8	B	9.1	A	(0) Project Description (no additional mitigation)	49.2	D	14.5	B	
							(1) Added EBTL lane and converted EBTLR lane into EBTR lane calculated with other nearby mitigation strategies in place	65.6	E	11.8	B	1
							(2) Added EBTL lane and converted EBTLR lane into EBTR lane and added NBR lane (100 ft.) calculated with other nearby mitigation strategies in place	67.7	E	9.6	A	2
							(3) Added EBTL lane and converted EBTLR lane into EBTR lane and added NBT lane and added SBT lane calculated with other nearby mitigation strategies in place	90.9	F	8.3	A	3
							-	-	-	-	-	-
							-	-	-	-	-	-
40	Pacific Blvd/Randolph St	Traffic Signal	26	C	32.5	C	(0) Project Description (no additional mitigation)	87.4	F	106.4	F	
							(1) Extended SBL lane (150 ft.) calculated with other nearby mitigation strategies in place	92.9	F	87.6	F	1
							(2) Extended SBL lane (150 ft.) and added WBL lane (300 ft.) calculated with other nearby mitigation strategies in place	113.9	F	91.0	F	1
							(3) Added WBT lane and added EBT lane and extended SBL lane (150 ft.) and extended EBL lane (150 ft.) and added WBL lane (150 ft.) calculated with other nearby mitigation strategies in place	71.3	E	56.6	E	3
							-	-	-	-	-	-
							-	-	-	-	-	-

No	Intersection Name	Control Type	No Build Peak Hour AM Delay (sec/veh)	No Build Peak Hour AM LOS	No Build Peak Hour PM Delay (sec/veh)	No Build Peak Hour PM LOS	Intersection Mitigation Options	Peak Hour AM Delay (sec/veh)	Peak Hour AM LOS	Peak Hour PM Delay (sec/veh)	Peak Hour PM LOS	Estimated Impact (1-3) of Mitigation (3 is worst)
42	Randolph St/Seville Ave	Traffic Signal	37.5	D	34.9	C	(0) Project Description (no additional mitigation)	223.8	F	255.6	F	
							(1) Added WBL lane (200 ft.) calculated with other nearby mitigation strategies in place	205.7	F	146.6	F	1
							(2) Added WBL lane (200 ft.) and added EBL lane (150 ft.) calculated with other nearby mitigation strategies in place	181.3	F	212.4	F	1
							(3) Added EBT lane and added WBT lane and added WBL lane (250 ft.) and added EBL lane (250 ft.) calculated with other nearby mitigation strategies in place	125.2	F	80.3	F	3
							(4) Added EBT lane and added WBT lane and added WBL lane (250 ft.) and added EBL lane (250 ft.) and added NBTR lane and added SBTR lane calculated with other nearby mitigation strategies in place	48.1	D	66.3	E	3
							-	-	-	-	-	-
43	Randolph St/Miles Ave	Traffic Signal	36.7	D	36.2	D	(0) Project Description (no additional mitigation)	232.2	F	150.3	F	
							(1) Added WBL lane (100 ft.) calculated with other nearby mitigation strategies in place	267.1	F	119.9	F	1
							(2) Added WBL lane (100 ft.) and added NBR lane (100 ft.) calculated with other nearby mitigation strategies in place	208.3	F	123.9	F	2
							(3) Added EBT lane and added WBT lane and added WBL lane (100 ft.) and added EBL lane (100 ft.) and added NBT lane and SBT lane calculated with other nearby mitigation strategies in place	48.1	D	47.2	D	3
							(4) Added EBT lane and added WBT lane and added WBL lane (100 ft.) and added EBL lane (100 ft.) calculated with other nearby mitigation strategies in place	108.4	F	105.1	F	3
							-	-	-	-	-	-
45	State St/Randolph St	Traffic Signal	43.6	D	19.4	B	(0) Project Description (no additional mitigation)	165.2	F	74.8	E	
							(1) Extended SBL lane (250 ft.) calculated with other nearby mitigation strategies in place	194.9	F	61.9	E	1
							(2) Extended SBL lane (250 ft.) and added NBT lane and added EBT lane calculated with other nearby mitigation strategies in place	121.3	F	59.7	E	3
							(3) Added NBT lane and added WBR lane (200 ft.) calculated with other nearby mitigation strategies in place	62.9	E	62.7	E	3
							(4) Added NBT lane and added WBR lane (200 ft.) and added EBT lane calculated with other nearby mitigation strategies in place	64.7	E	67.0	E	3
							-	-	-	-	-	-
48	Gage Ave/California Ave	Traffic Signal	19.6	B	97.5	F	(0) Project Description (no additional mitigation)	76	E	131.0	F	
							(1) Extended EBL lane (200 ft.)	19.2	B	138.6	F	1
							(2) Added WBL lane (100 ft.)	41.8	D	169.9	F	1
							(3) Added WBT lane	22.3	C	35.3	D	2
49	Gage Ave/Salt Lake Ave (West)	Traffic Signal	16.3	B	34.2	C	(0) Project Description (no additional mitigation)	86.1	F	116.5	F	
							(1) Added EBT lane	20.4	C	158.2	F	2
							(2) Extended WBL lane	118.5	F	152.5	F	2
							(3) Added WBT lane	46.5	D	58.0	E	2
							(1+3) Added EBT lane and added WBT lane	24.9	C	72.1	E	3
							(1+2+3) Added EBT lane and extended WBL and added WBT lane	48.2	D	83.6	F	3
51	Bell Ave/Bissell St	All-Way Stop	5.3	A	5.7	A	(0) Project Description (no additional mitigation)	11	B	22.4	C	
							(1) Upgraded all-way stop to signalized intersection	12.1	B	38.7	E	1
							(2) Added NETR lane and converted NETLR lane into NEL lane (50 ft.)	21.9	C	7.0	A	1
							(3) Added WBTR lane and converted WBTLR lane into WBL lane (50 ft.)	6.5	A	9.3	A	1
53	Florence Ave/California Ave (West)	Traffic Signal	37.1	D	42.3	D	(0) Project Description (no additional mitigation)	109.5	F	82.7	F	
							(1) Extended NBL lane (200 ft.)	134.5	F	92.0	F	1
							(2) Extended SBL lane (150 ft.)	121.6	F	93.7	F	1
							(3) Added NBL lane	114.0	F	72.6	E	2
							(4) Added SBL lane	107.8	F	75.2	E	1
							(5) Added EBR lane (150 ft.)	82.2	F	79.7	E	2
							(6) Added NBT lane	115.2	F	70.4	E	2
							(7) Added EBT lane	37.1	D	50.1	D	3
							(3+5+6) Added NBL lane and added EBR lane (150 ft.) and added NBT lane	86.5	F	84.5	F	3
							(2+5+6+7) Extended SBL lane (150 ft.) and added EBR lane (150 ft.) and added NBT lane and added EBT lane	64.2	E	45.7	D	3

No	Intersection Name	Control Type	No Build Peak Hour				Intersection Mitigation Options	Peak Hour				Estimated Impact (1-3) of Mitigation (3 is worst)
			AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS		AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS	
54	Florence Ave/California Ave (East)	Traffic Signal	65.2	E	44.3	D	(0) Project Description (no additional mitigation)	144.4	F	28.2	C	
							(1) Added EBT lane	98.6	F	28.5	C	2
							(2) Added WBR lane (150 ft.)	157.0	F	27.0	C	2
							(3) Extended NBL lane (250 ft.)	162.8	F	30.9	C	2
							(3a) Extended NBL lane (300 ft.)	158.7	F	26.1	C	2
							(4) Added WBT lane	60.3	E	40.1	D	3
							(3+4) Extended NBL lane (250 ft.) and added WBT lane	53.2	D	39.1	D	3
							(1+4) Added EBT lane and added WBT lane	66.5	E	32.9	C	3
							(3a+4) Extended NBL lane (300 ft.) and added WBT lane	50.8	D	37.1	D	3
68	Gardendale St/Center St	Two-Way Stop (No Build) Traffic Signal (Project)	23.5	C	17.2	C	(0) Project Description (no additional mitigation)	43.8	E	44.0	E	
							(1) Upgraded two-way stop to signalized intersection	7.9	A	14.0	B	1
							-	-	-	-	-	-
							-	-	-	-	-	-
							-	-	-	-	-	-
70	Gardendale St/Industrial Ave	Two-Way Stop (No Build) Traffic Signal (Project)	75.5	F	28.9	C	(0) Project Description (no additional mitigation)	594.6	F	44.5	E	
							(1) Upgraded two-way stop to signalized intersection	78.5	E	5.1	A	1
							(2) Added WBT lane	31.2	D	24.9	C	1
							(1+2) Upgraded two-way stop to signalized intersection and added WBT lane	3.7	A	3.5	A	1
							-	-	-	-	-	-
							-	-	-	-	-	-
81	Flora Vista St/Clark Ave	Two-Way Stop (No Build) Traffic Signal (Project)	7.6	A	22.4	C	(0) Project Description (no additional mitigation)	199.3	F	398.4	F	
							(1) Upgraded two-way stop to signalized intersection	10.1	B	12.3	B	1
							(2) Converted WBLR lane into one WBL lane and one WBR lane	28.8	D	252.3	F	2
							(3) Converted EBLTR into one EBR lane and one EBLT lane	22.3	C	184.8	F	1
							(4) Added SBR lane (50 ft.)	112.2	F	405.6	F	1
82	Alondra Blvd/Clark Ave	Traffic Signal	46.2	D	69.3	E	(0) Project Description (no additional mitigation)	55.8	E	76.0	E	
							(1) Extended SBL lane (100 ft.)	54.6	D	88.1	F	1
							(2) Extended NBL lane (150 ft.)	48.7	D	72.9	E	1
							(3) Extended EBL lane (150 ft.)	57.6	E	68.1	E	1
							(4) Extended WBL lane (200 ft.)	55.7	D	119.5	F	1
							(1+2+3+4) Extended SBL lane (100 ft.) and extended NBL lane (150 ft.) and extended EBL lane (150 ft.) and extended WBL lane (200 ft.)	46.1	D	49.7	D	1
84	Alondra Blvd/Flora Vista St	Two-Way Stop (No Build) Traffic Signal (Project)	52.6	F	41.4	E	(0) Project Description (no additional mitigation)	307.5	F	39.5	E	
							(1) Converted SBLR lane into one SBL Lane and one SBR lane	189.8	F	22.5	C	2
							(2) Upgraded two-way stop to signalized intersection	30.8	C	4.0	A	1
							(3) Converted SBLR lane into one SBL lane and one SBR lane and added WBT lane	107.9	F	20.4	C	2
							-	-	-	-	-	-
89	Artesia Blvd/Dumont Ave	Traffic Signal	14.7	B	21.6	C	(0) Project Description (no additional mitigation)	24.2	C	58.2	E	
							(1) Converted NBLR lane into one NBL lane and one NBR lane (100 ft.)	23.1	C	33.4	C	1
							(2) Added WBT lane	15.9	B	26.4	C	2
							(3) Added EBT lane	17.6	B	29.6	C	2
91	Business Cir/Studebaker Rd	Two-Way Stop (No Build) Traffic Signal (Project)	8.4	A	8	A	(0) Project Description (no additional mitigation)	3.3	A	15.3	C	
							(1) Upgraded two-way stop to signalized intersection	6.3	A	8.9	A	1
							(2) Converted WBLR lane into one WBL lane and one WBR lane	3.5	A	3.9	A	1
							-	-	-	-	-	-

ATTACHMENT A7 ENGINEERING ASSESSMENT OF PRELIMINARY MITIGATION OPTIONS

Each group of intersections/mitigation options was assessed, and the following engineering drawings were produced.

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Figure A7-1. Florence Avenue/California Avenue (East) and Florence Avenue/California Avenue (West) Preliminary Mitigation Engineering Evaluation

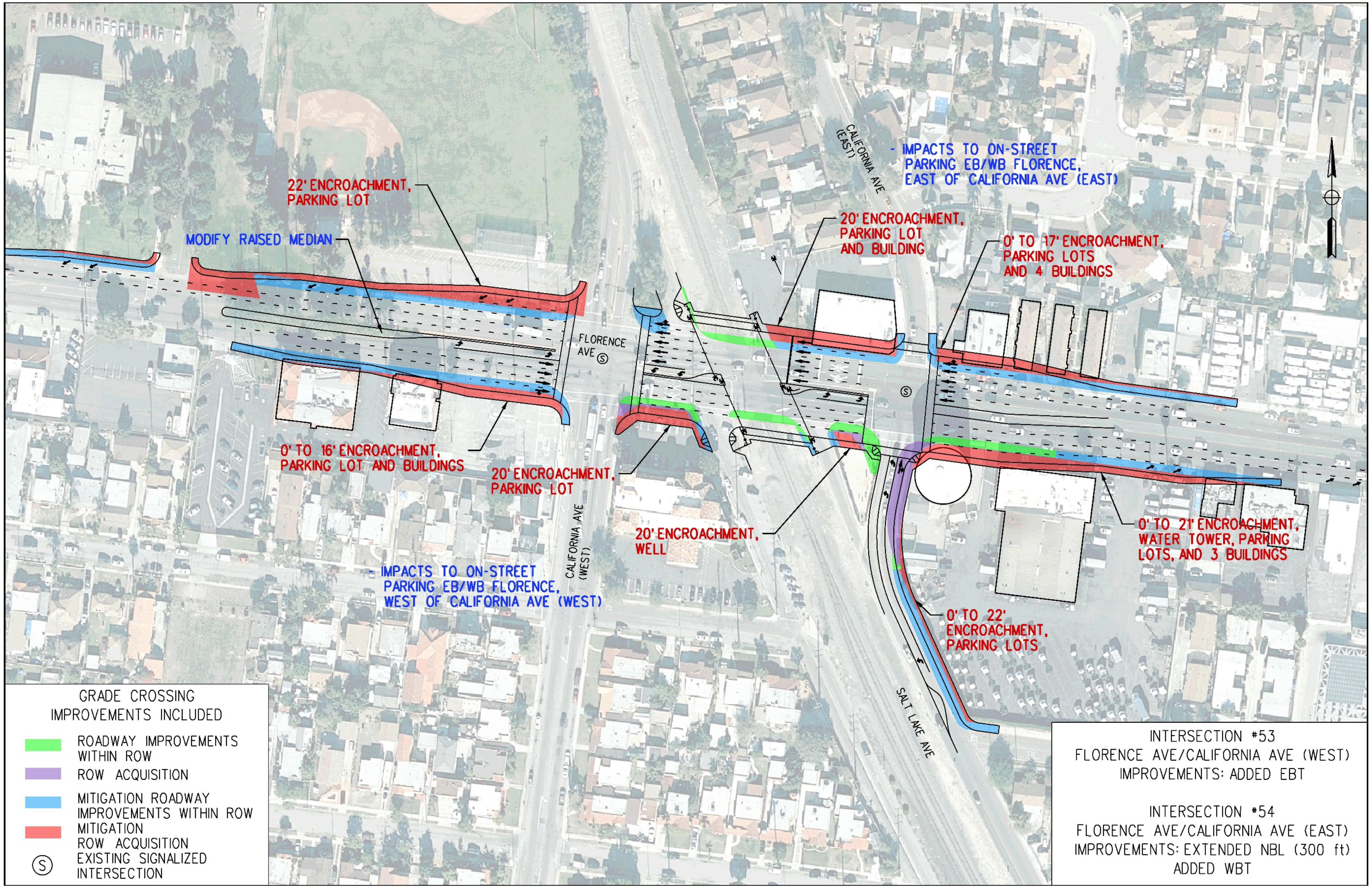


Figure A7-2. Bell Avenue/Bissell Street and Bell Avenue/Salt Lake Avenue Mitigation Engineering Evaluation

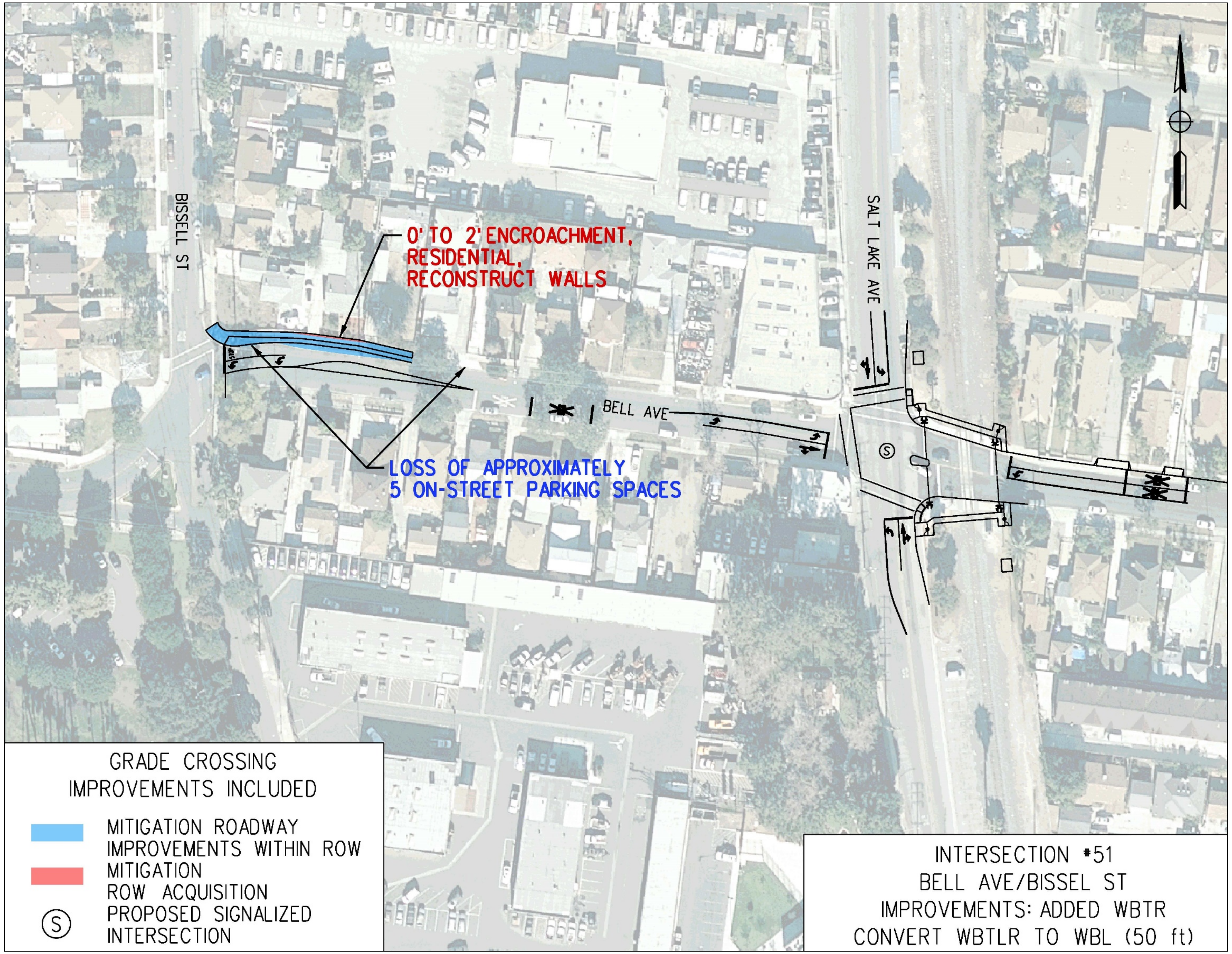


Figure A7-3. Gage Avenue/California Avenue and Gage Avenue/Salt Lake Avenue (West) Preliminary Mitigation Engineering Evaluation

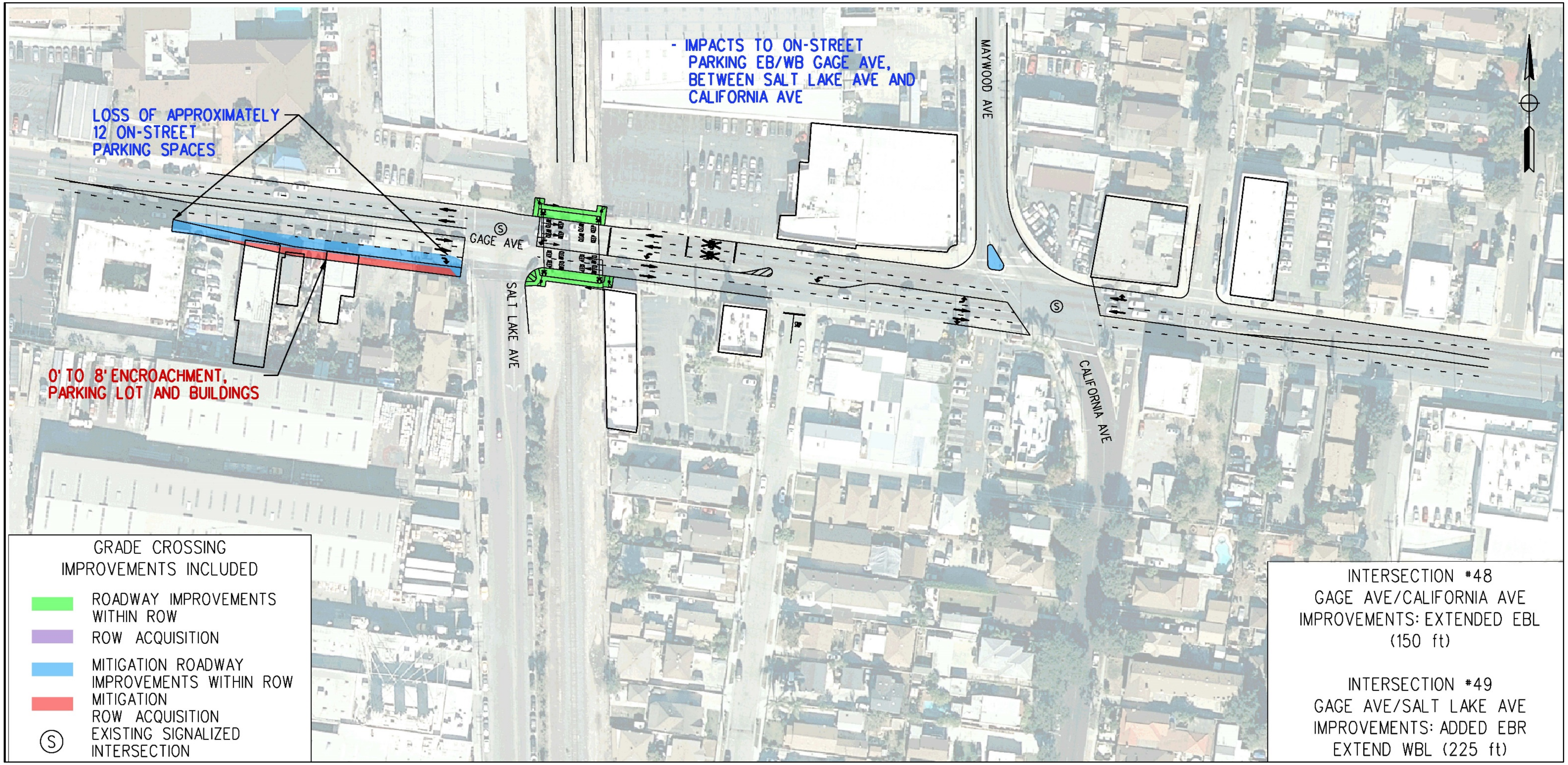
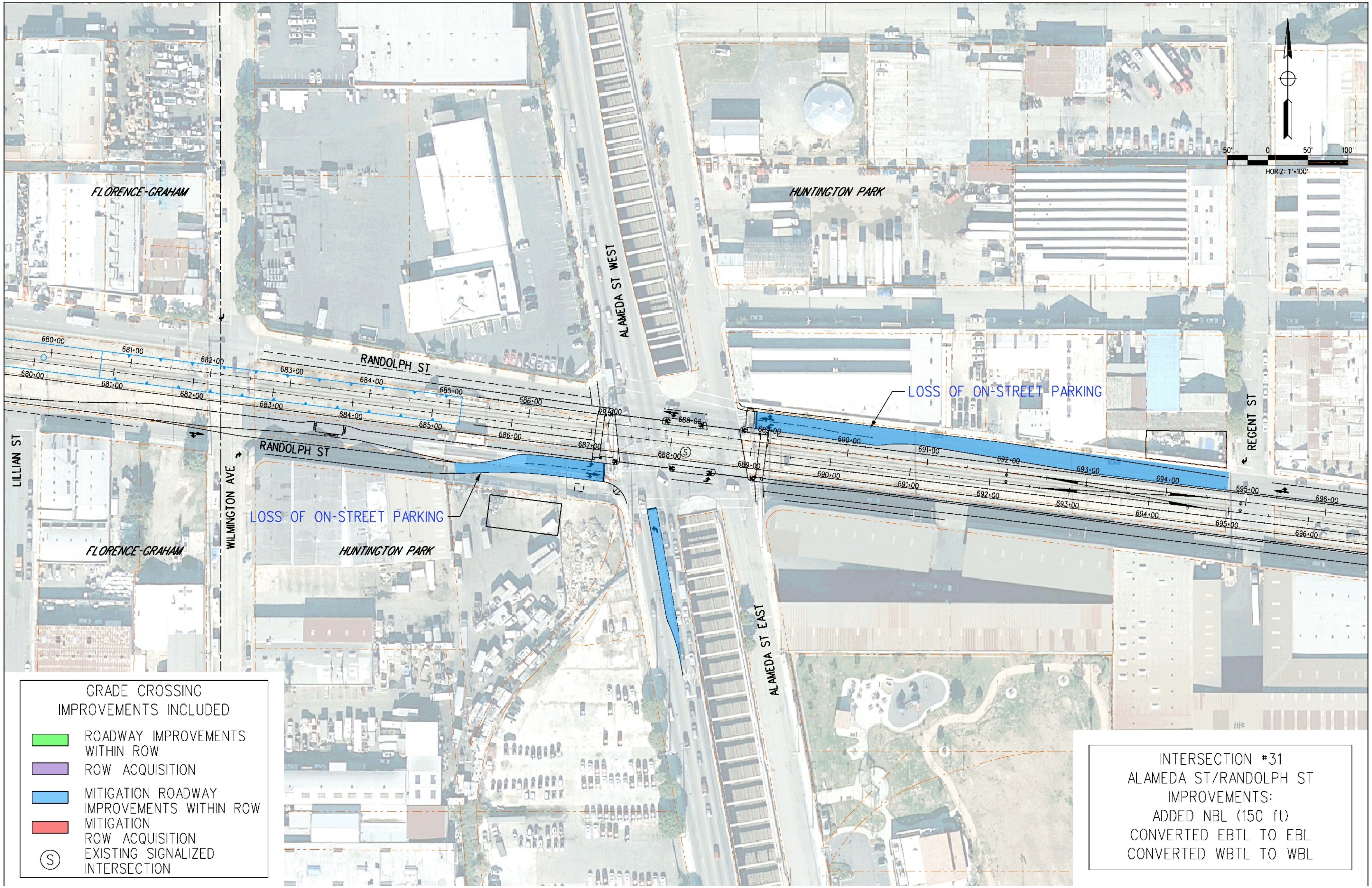
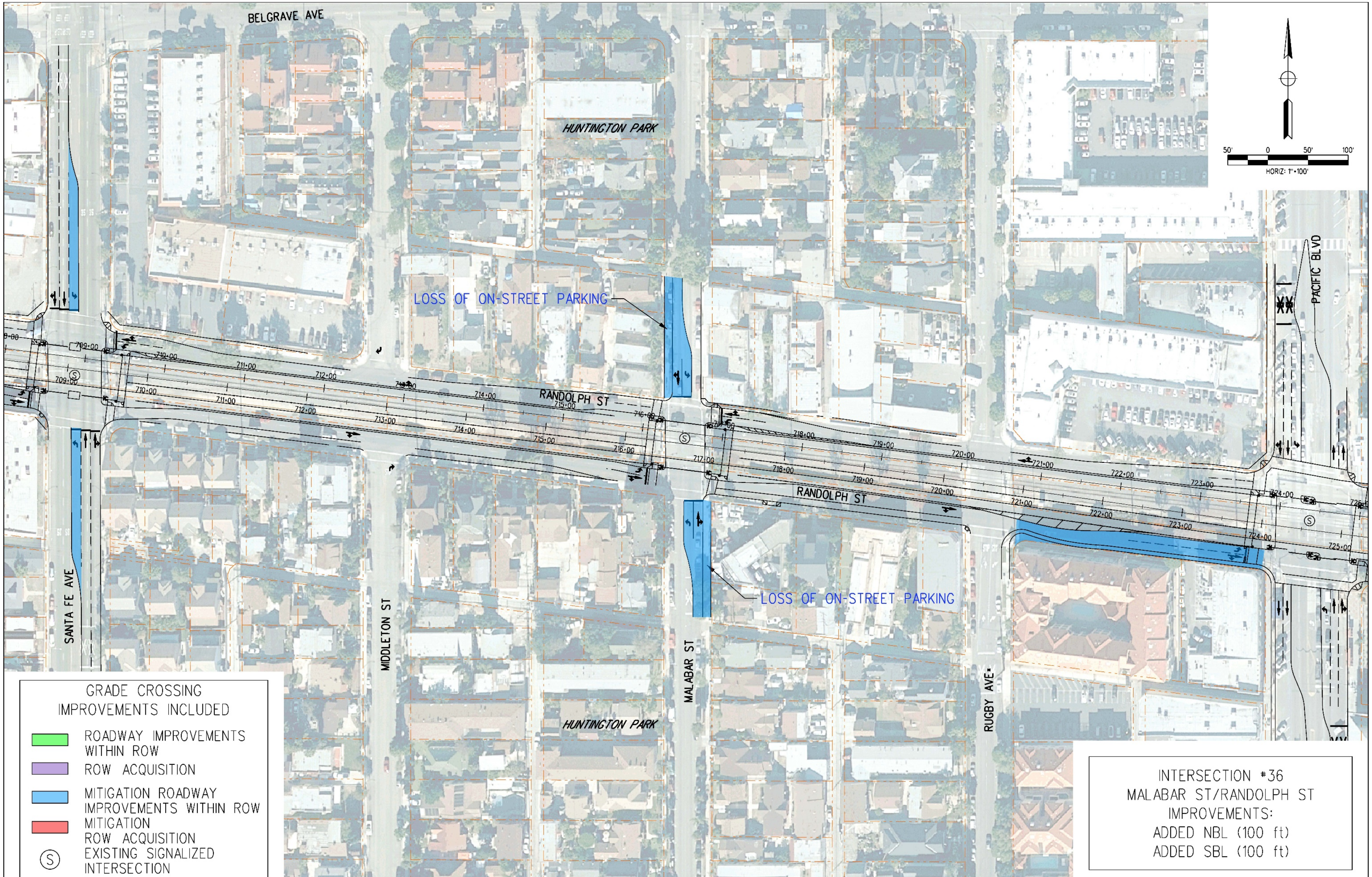


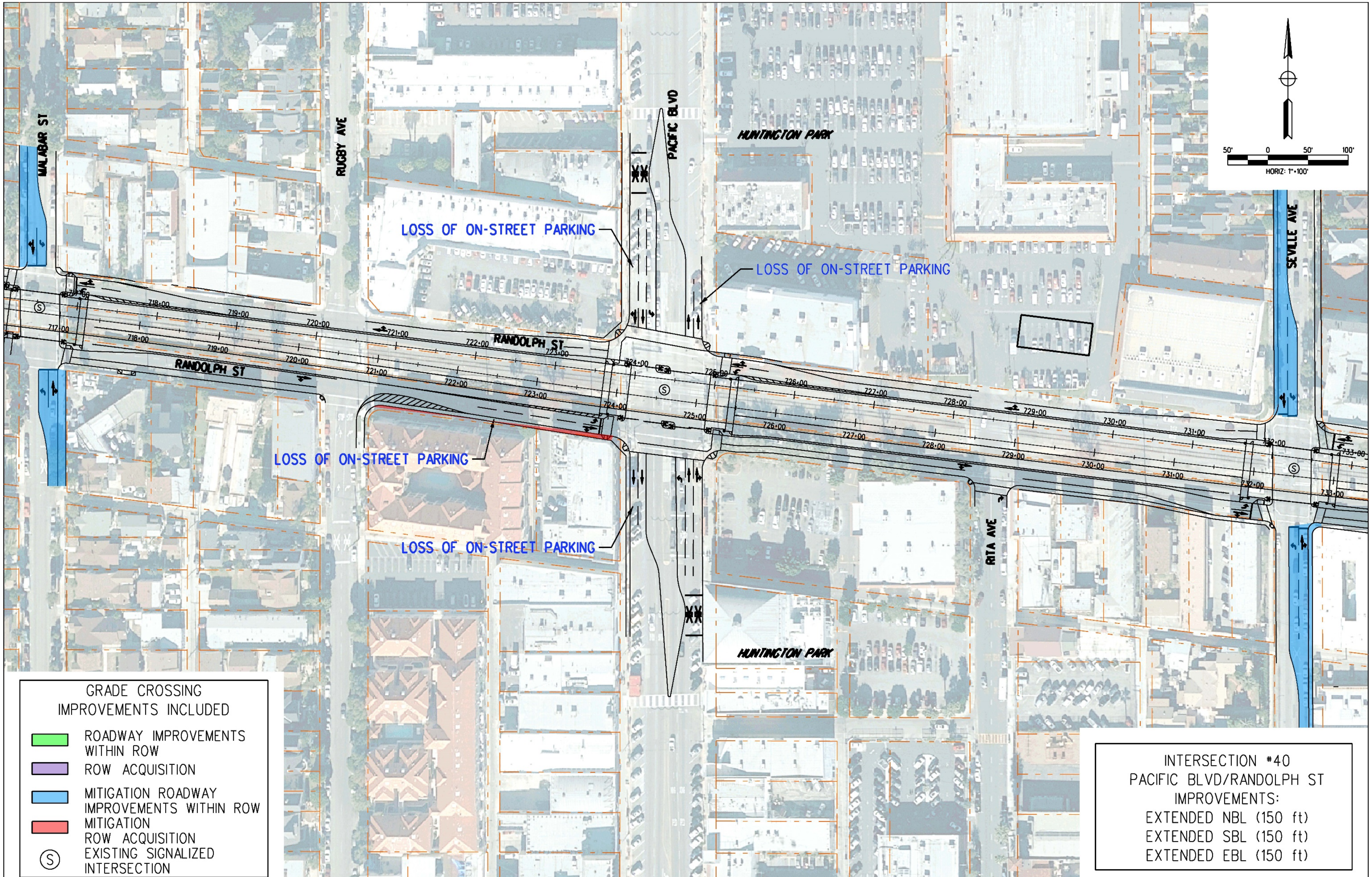
Figure A7-4. Randolph Street/Alameda Street (West), Randolph Street/Santa Fe Avenue, Randolph Street/Malabar Street, Pacific Boulevard/Clarendon Avenue, Randolph Street/Pacific Boulevard, Randolph Street/Seville Avenue, Randolph Street/Miles Avenue, and Randolph Street/State Street



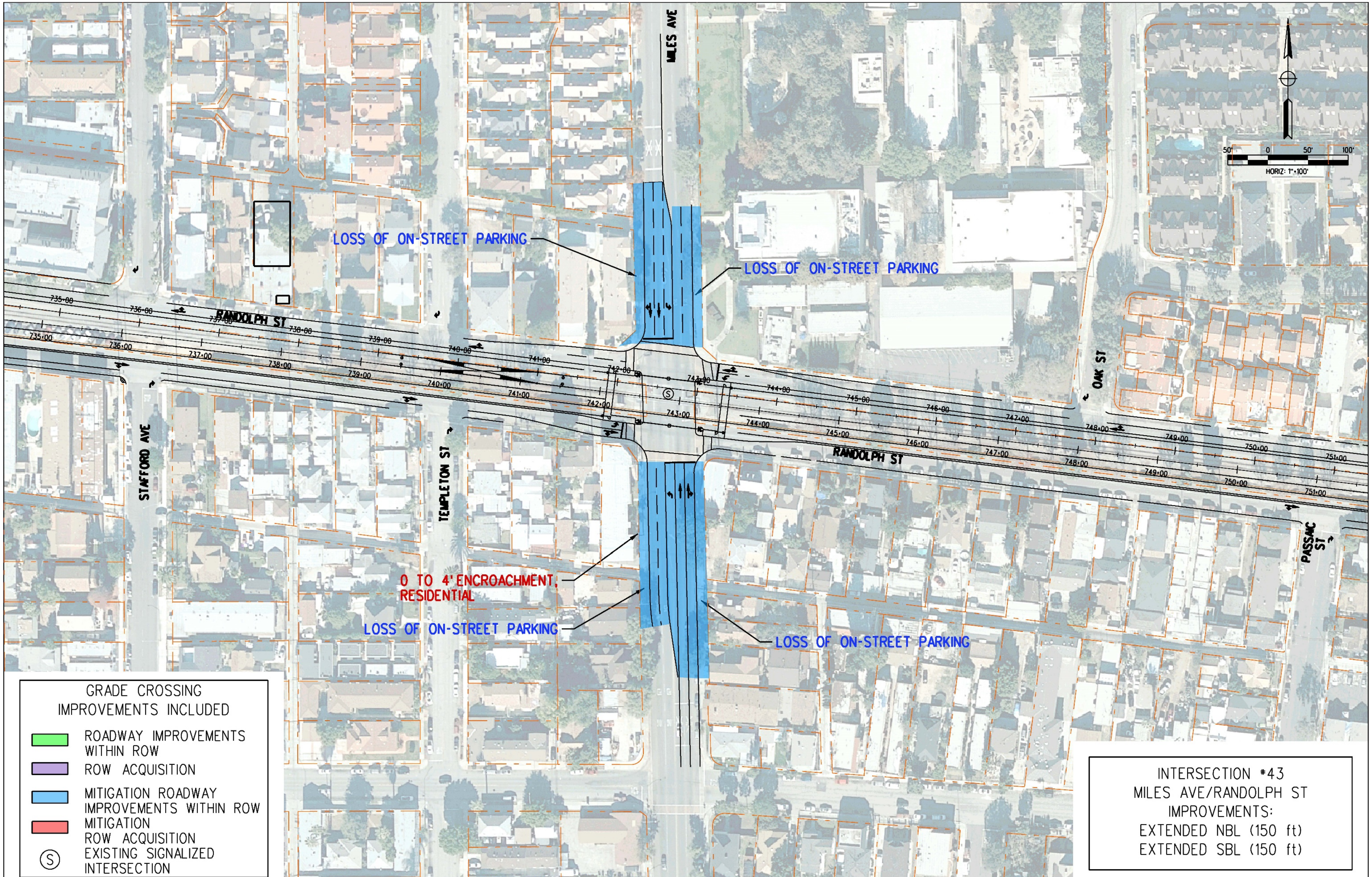

BELGRAVE AVE
HUNTINGTON PARK
LOSS OF ON-STREET PARKING
ALBANY ST
MALABAR ST
RANDOLPH ST
RANDOLPH ST
MARBRISA AVE
MIDDLETON ST
LOSS OF ON-STREET PARKING
HUNTINGTON PARK
SANTA FE AVE
HORIZ: 1"=100'
GRADE CROSSING
IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #35
SANTA FE AVE/RANDOLPH ST
IMPROVEMENTS:
ADDED NBL (150 ft)
ADDED SBL (150 ft)


BELGRAVE AVE
HUNTINGTON PARK
LOSS OF ON-STREET PARKING
RANDOLPH ST
RANDOLPH ST
PACIFIC BLVD
SANTA FE AVE
MIDDLETON ST
MALABAR ST
RUGBY AVE
LOSS OF ON-STREET PARKING
HUNTINGTON PARK
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #36
MALABAR ST/RANDOLPH ST
IMPROVEMENTS:
ADDED NBL (100 ft)
ADDED SBL (100 ft)


HUNTINGTON PARK
LOSS OF ON-STREET PARKING
CLARENDON AVE
LOSS OF ON-STREET PARKING
MALABAR ST
RUGBY AVE
PACIFIC BLVD
RITA AVE
SEVILLE AVE
HUNTINGTON PARK
50' 0 50' 100'
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #39
PACIFIC BLVD/CLARENDON AVE
IMPROVEMENTS:
ADDED EBL (50 ft)
ADDED WBL (50 ft)


MALABAR ST
RUGBY AVE
PACIFIC BLVD
HUNTINGTON PARK
SEVILLE AVE
RITA AVE
RANDOLPH ST
RANDOLPH ST
LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
HUNTINGTON PARK
50' 0 50' 100'
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #40
PACIFIC BLVD/RANDOLPH ST
IMPROVEMENTS:
EXTENDED NBL (150 ft)
EXTENDED SBL (150 ft)
EXTENDED EBL (150 ft)


LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
HUNTINGTON PARK
HUNTINGTON PARK
PACIFIC BLVD
RITA AVE
SEVILLE AVE
STAFFORD AVE
TEMPLETON ST
RANDOLPH ST
RANDOLPH ST
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #42
SEVILLE AVE/RANDOLPH ST
IMPROVEMENTS:
ADDED NBL (150 ft)
ADDED SBL (150 ft)


MILES AVE
RANDOLPH ST
STAFFORD AVE
TEMPLETON ST
OAK ST
PASSAIC ST
LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
0 TO 4' ENCROACHMENT, RESIDENTIAL
LOSS OF ON-STREET PARKING
LOSS OF ON-STREET PARKING
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #43
MILES AVE/RANDOLPH ST
IMPROVEMENTS:
EXTENDED NBL (150 ft)
EXTENDED SBL (150 ft)

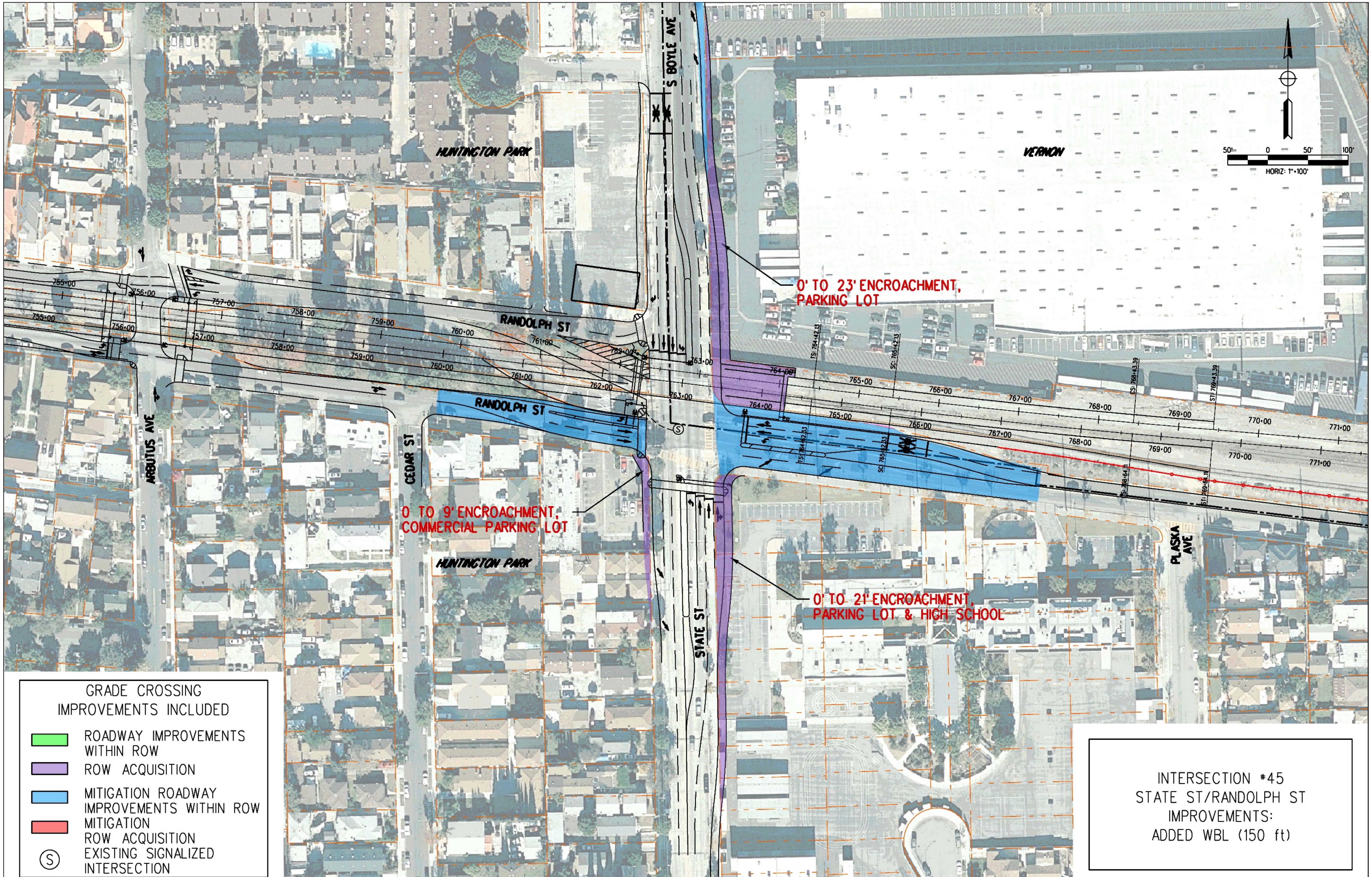

HUNTINGTON PARK
VERNON
S BOYLE AVE
RANDOLPH ST
ARBUTUS AVE
CEDAR ST
STATE ST
PLASKA AVE
0' TO 23' ENCROACHMENT, PARKING LOT
0 TO 9' ENCROACHMENT, COMMERCIAL PARKING LOT
0' TO 21' ENCROACHMENT, PARKING LOT & HIGH SCHOOL
HORIZ: 1"=100'
GRADE CROSSING IMPROVEMENTS INCLUDED
ROADWAY IMPROVEMENTS WITHIN ROW
ROW ACQUISITION
MITIGATION ROADWAY IMPROVEMENTS WITHIN ROW
MITIGATION ROW ACQUISITION
EXISTING SIGNALIZED INTERSECTION
INTERSECTION #45
STATE ST/RANDOLPH ST
IMPROVEMENTS:
ADDED WBL (150 ft)

Figure A7-5. Gardendale Street/Industrial Avenue; Gardendale Street/Center Street Mitigation Engineering Evaluation

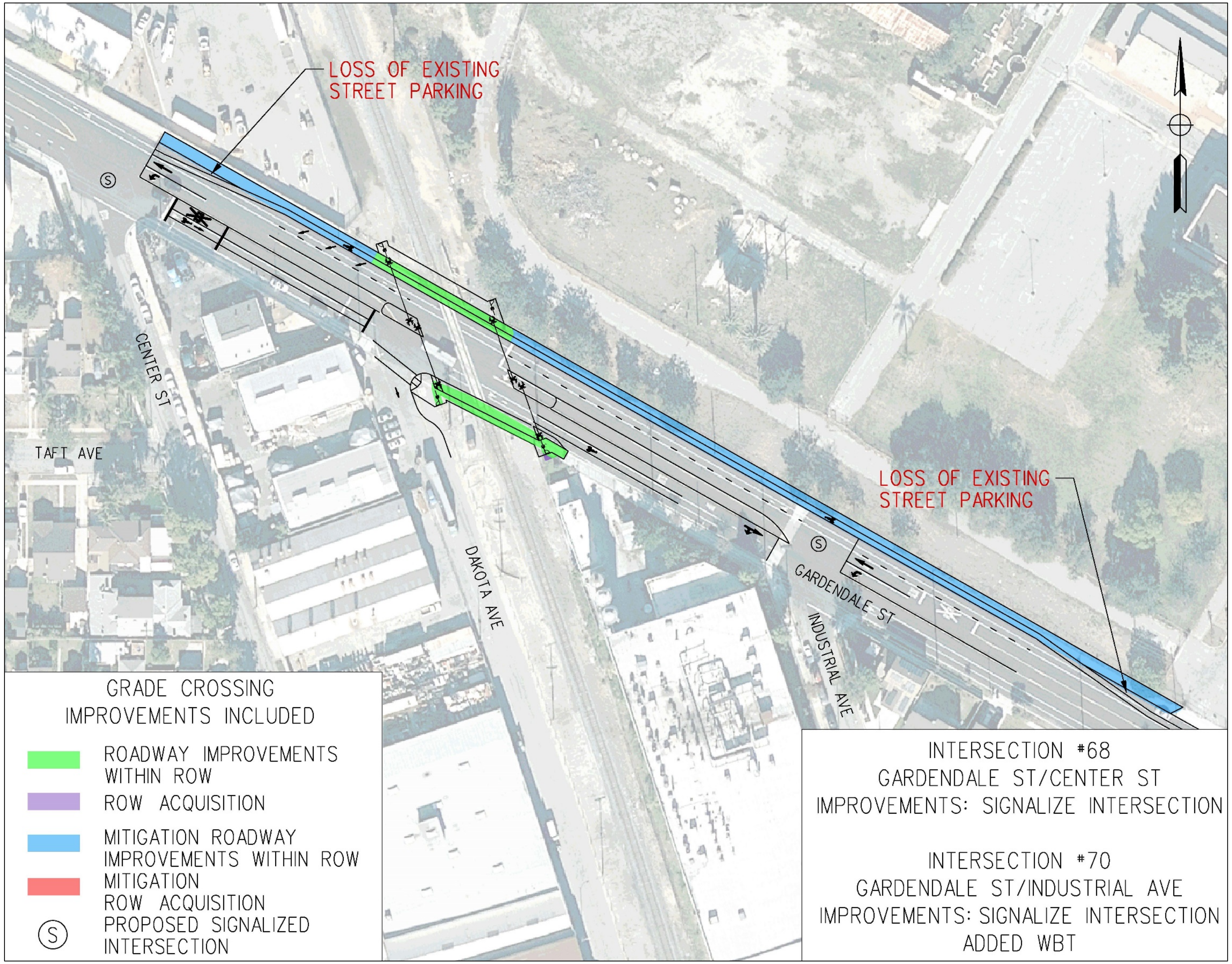


Figure A7-6. Alondra Boulevard/Clark Avenue; Flora Vista Street/Clark Avenue; Alondra Boulevard/Flora Vista Street Mitigation Engineering Evaluation

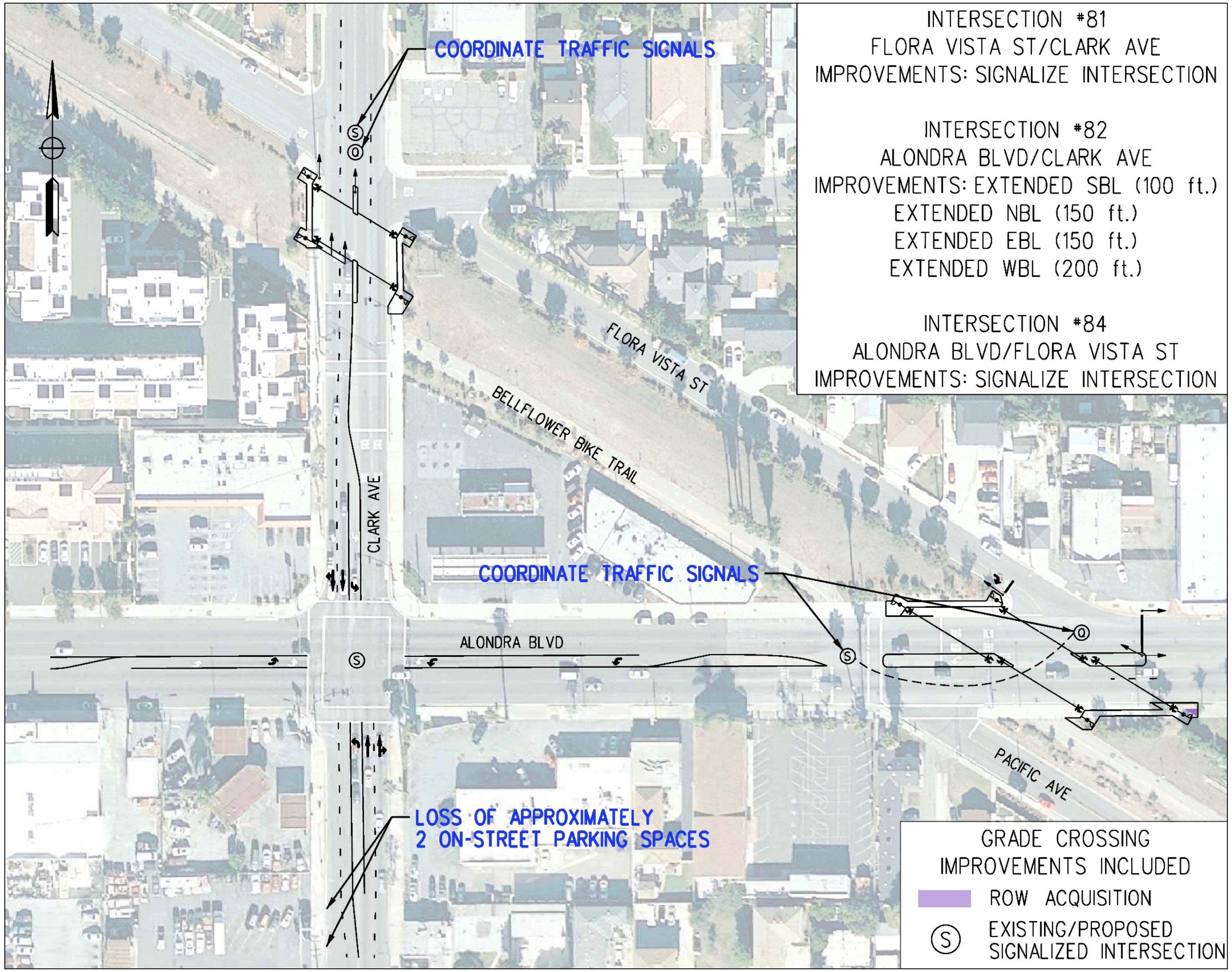


Figure A7-7. Artesia Boulevard/Dumont Avenue Mitigation Engineering Evaluation

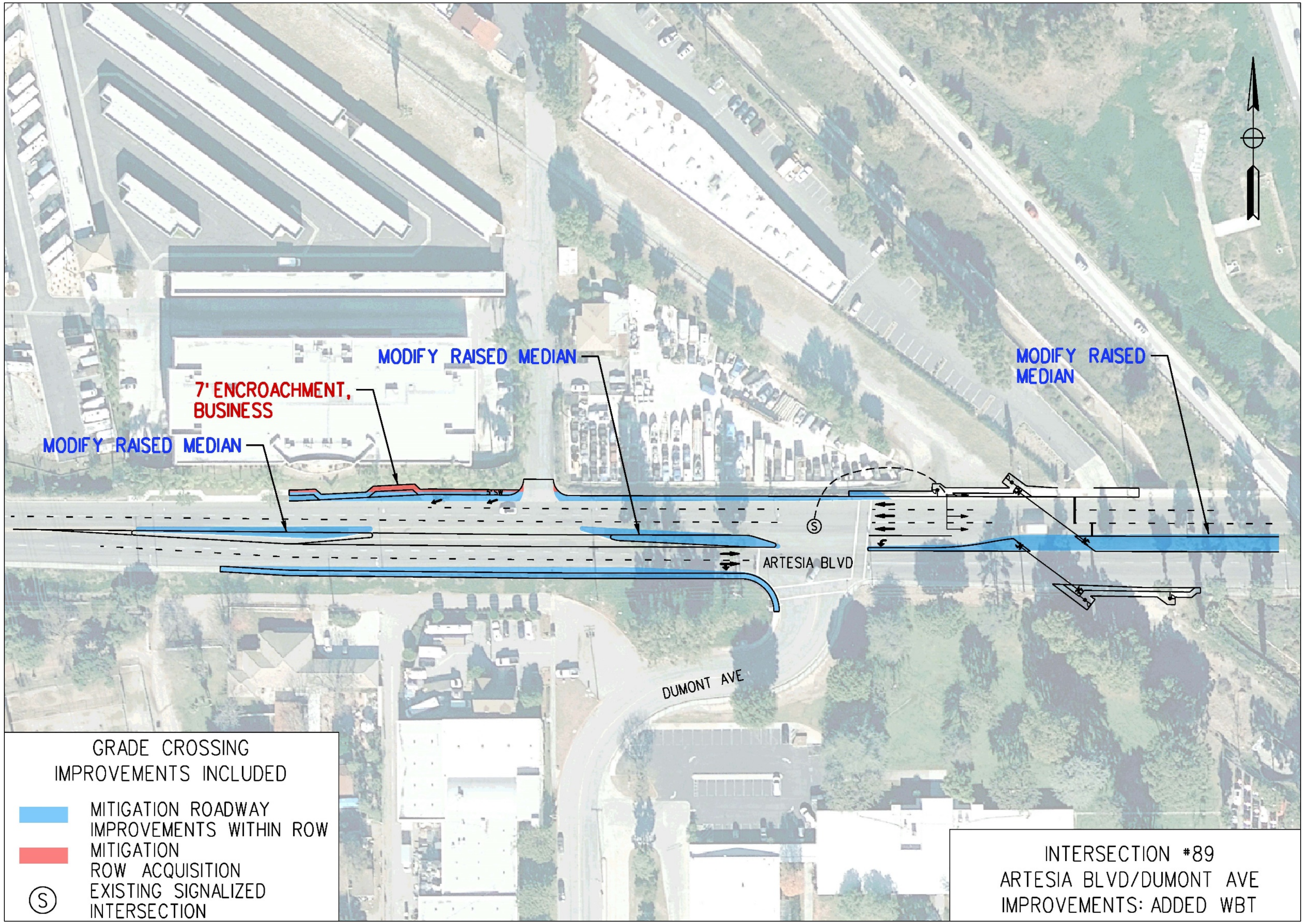
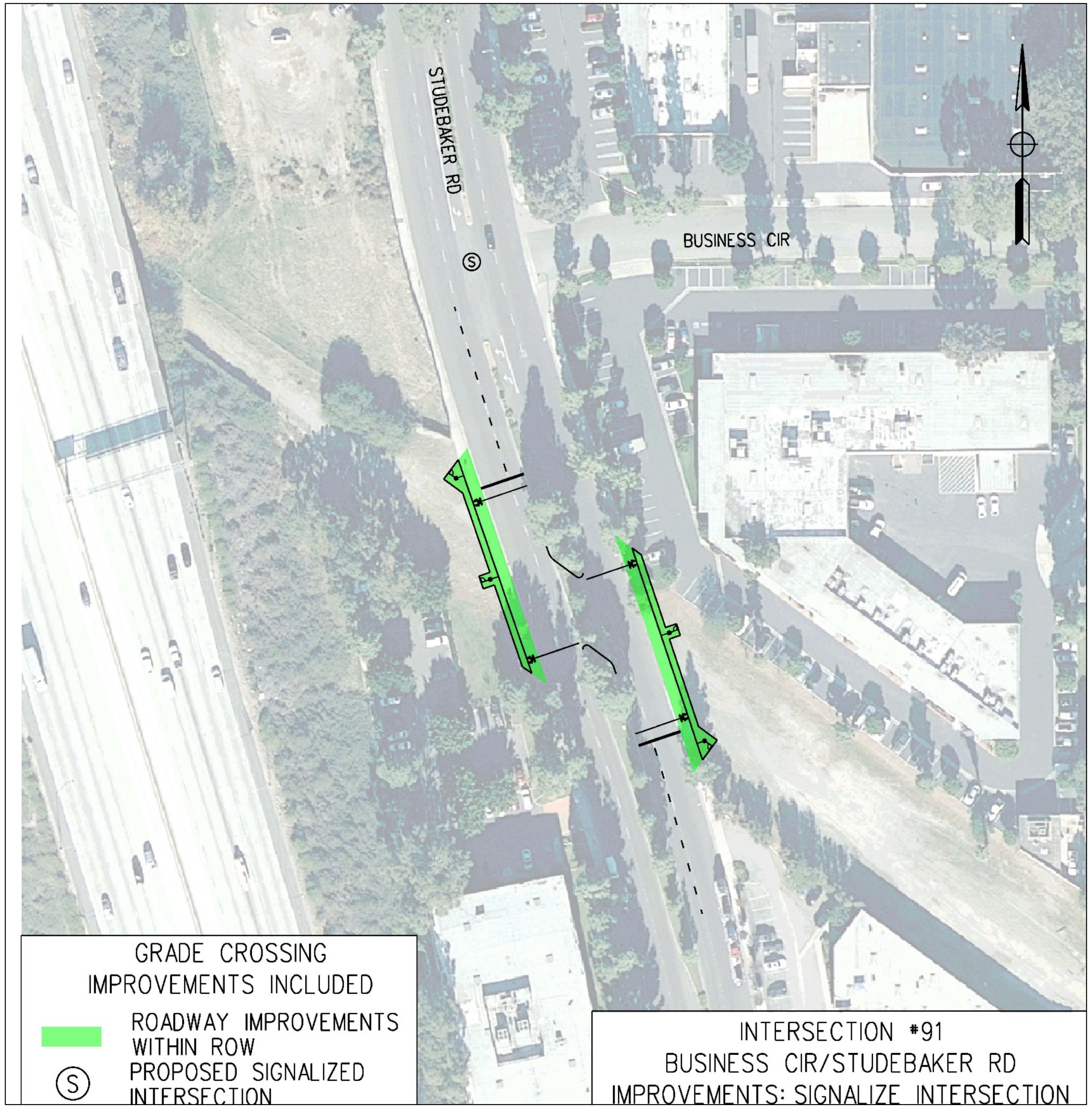


Figure A7-8. Studebaker Road/Business Circle Mitigation Engineering Evaluation



ATTACHMENT A8 LOS BY INTERSECTION AFTER MITIGATION

The following pages are detail sheets showing the mitigation evaluations of the individual intersections. The graphics indicate the LOS after mitigation (either AM or PM peak, whichever is work). The color of the dots indicates the result of the mitigation evaluation.

Figure A8-1. Intersections Mitigation Analysis – Detail 1

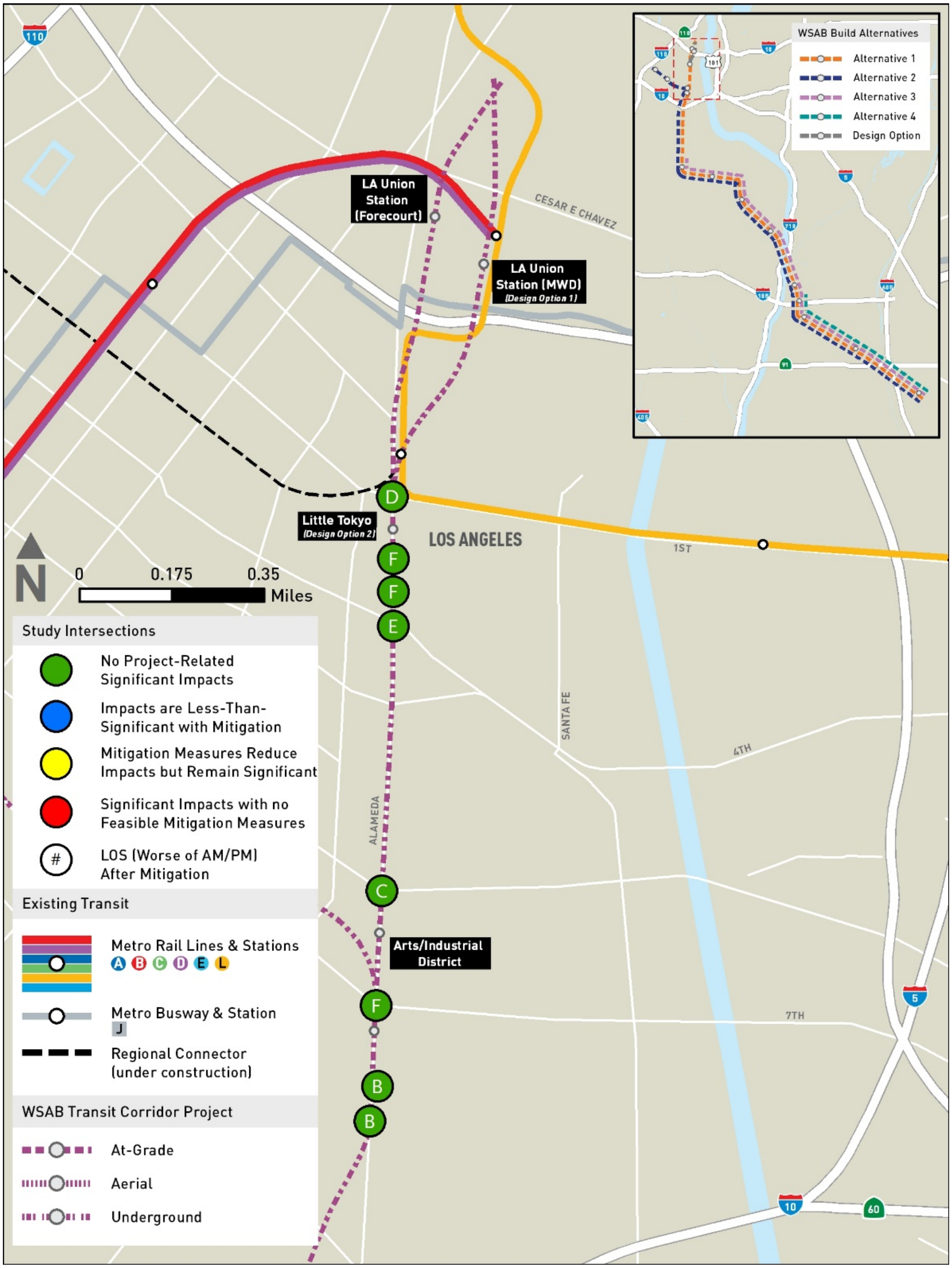


Figure A8-2. Intersections Mitigation Analysis – Detail 2

Figure A8-3. Intersections Mitigation Analysis – Detail 3

Figure A8-4. Intersections Mitigation Analysis – Detail 4

Figure A8-5. Intersections Mitigation Analysis – Detail 5

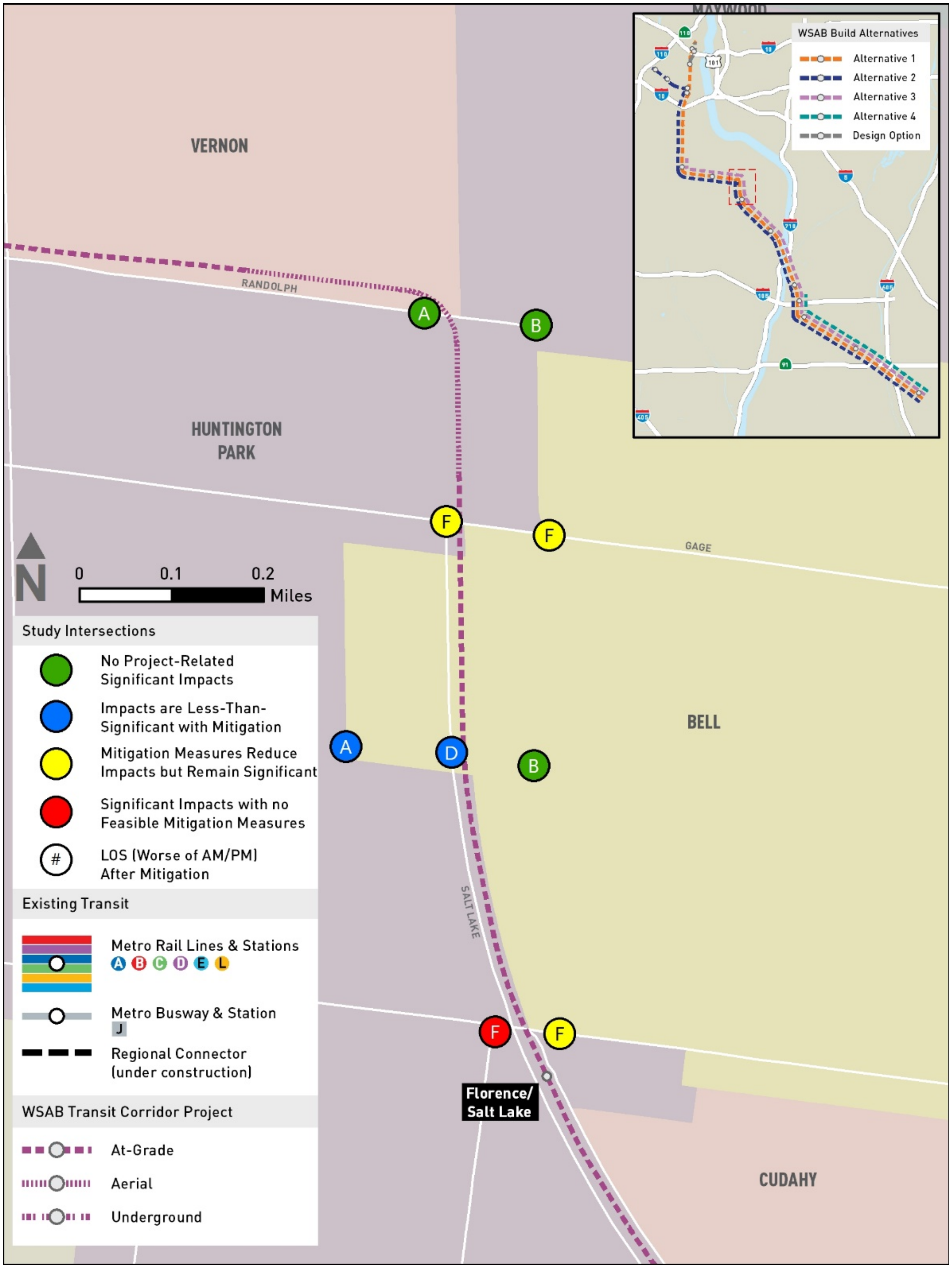


Figure A8-6. Intersections Mitigation Analysis – Detail 6

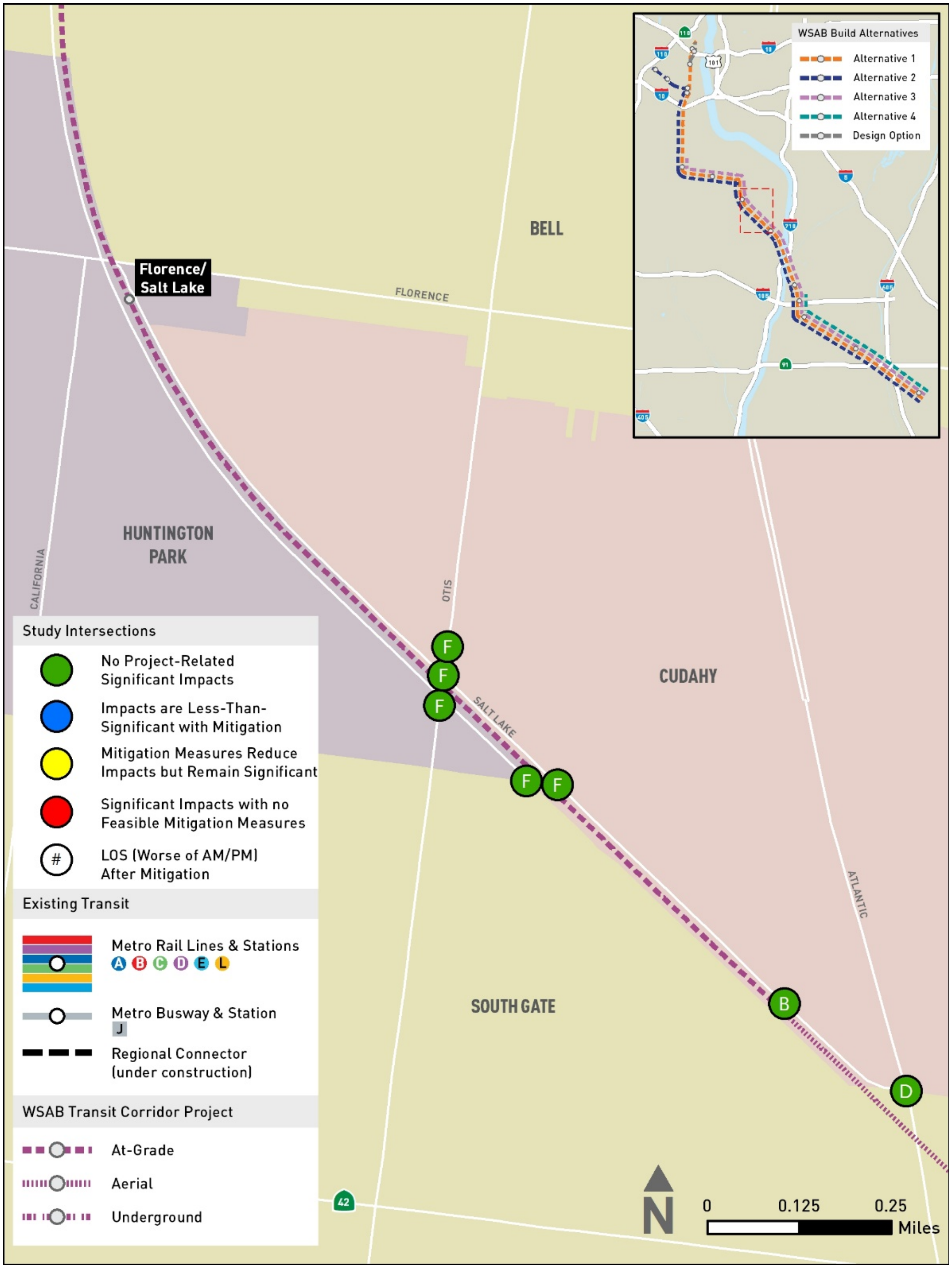


Figure A8-7. Intersections Mitigation Analysis – Detail 7

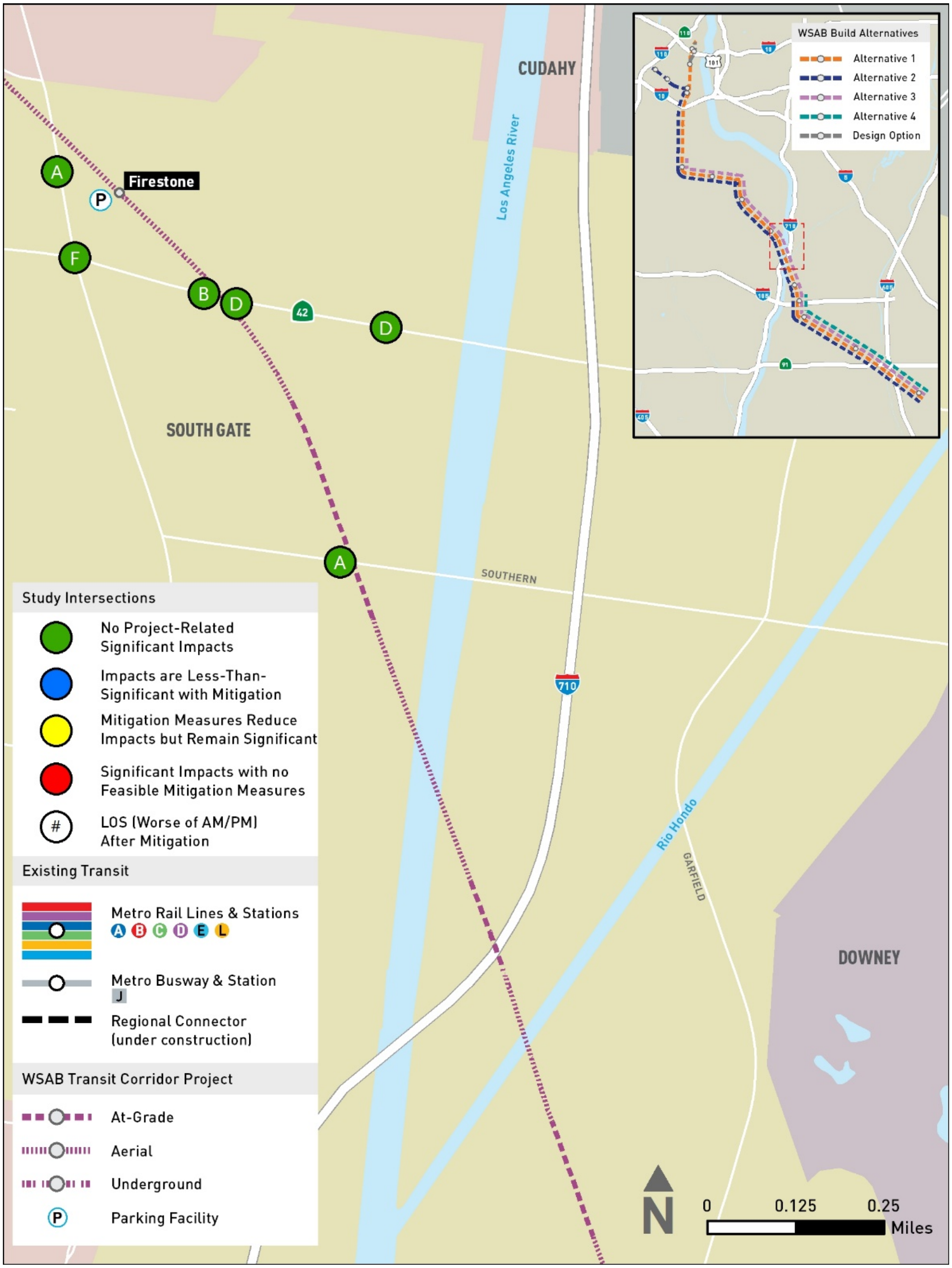


Figure A8-8. Intersections Mitigation Analysis – Detail 8

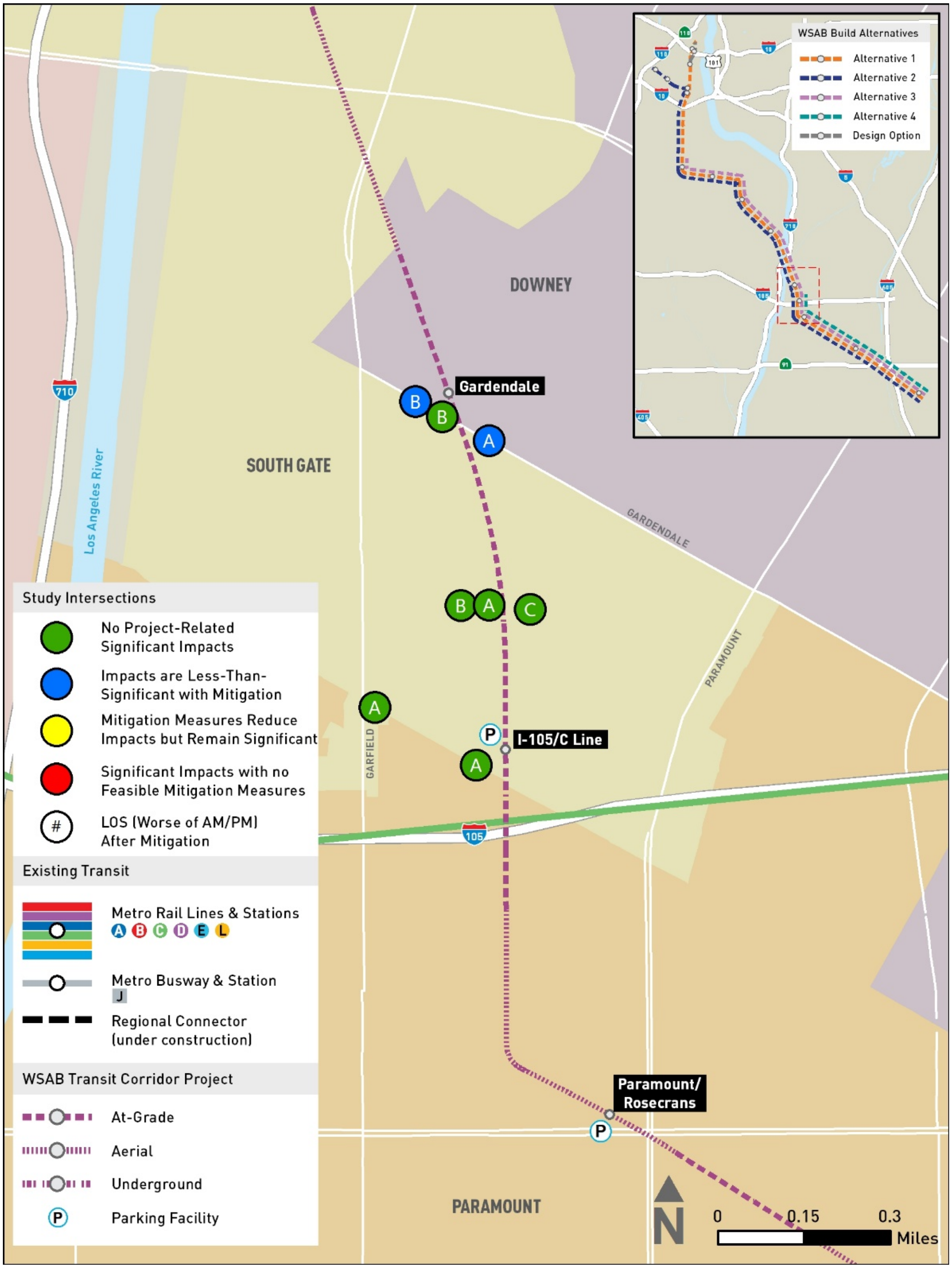


Figure A8-9. Intersections Mitigation Analysis – Detail 9

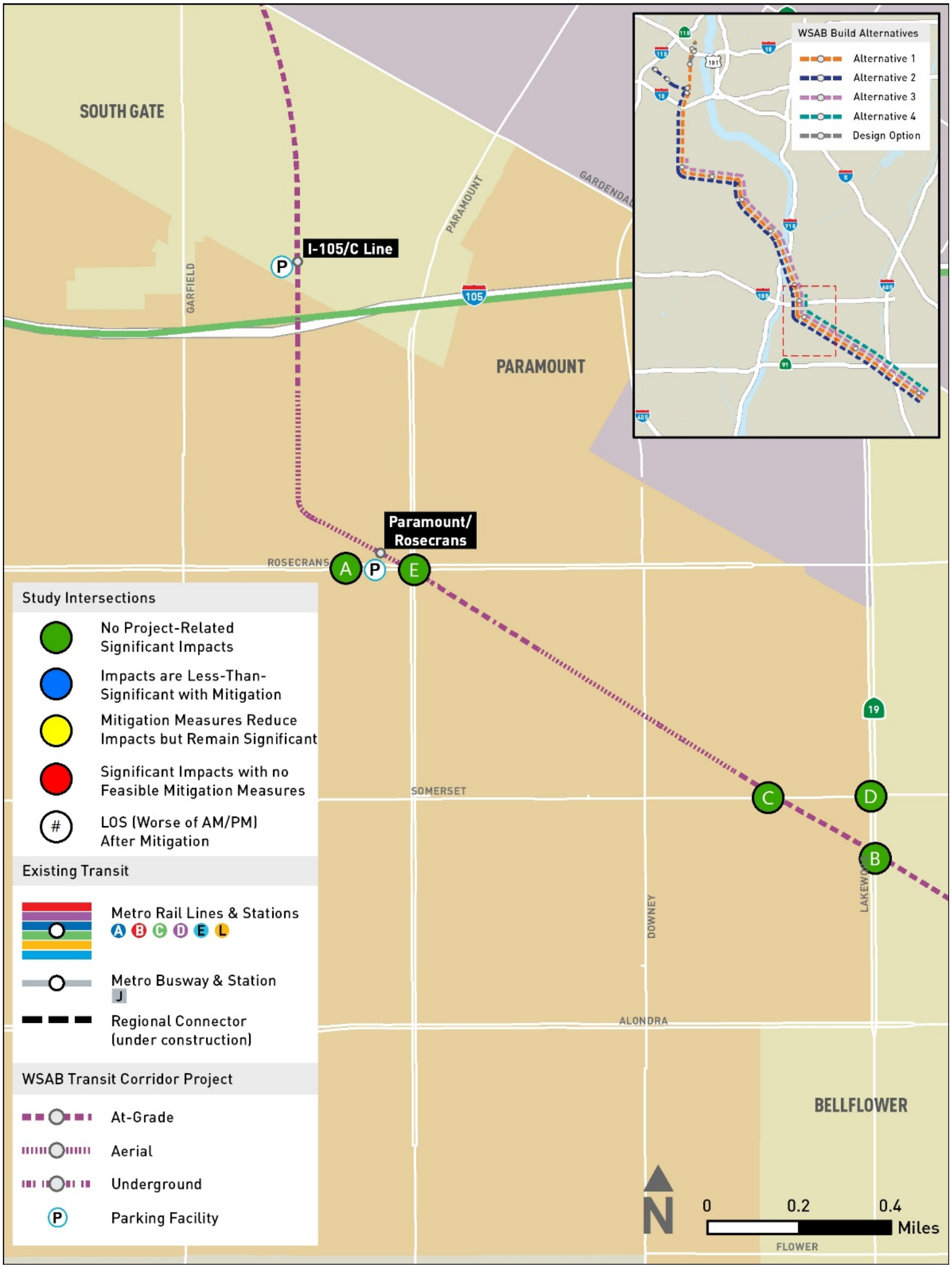


Figure A8-10. Intersections Mitigation Analysis – Detail 10

Figure A8-11. Intersections Mitigation Analysis – Detail 11