

## 3.5 Transportation

### 3.5.1 Overview

This section describes the existing transportation conditions and applicable laws and regulations associated with transportation, as well as an analysis of the potential effects resulting from implementation of the proposed project. Information contained in this section is summarized from the *Traffic Impact Analysis for Spring Street Business/Industrial Park* prepared by Linscott, Law, & Greenspan, Engineers dated December 11, 2019 (Appendix E).

### 3.5.2 Environmental Setting

#### Existing Facilities

##### *Existing Street System*

The principal local network of streets serving the project site includes Spring Street, Willow Street, Cherry Avenue, Orange Avenue, and Atlantic Avenue. The following summarizes the roadways that provide access to the project site:

- **Spring Street** is a four-lane, divided roadway oriented in the east-west direction. The speed limit is 40 miles per hour. Parking is not permitted on either side of the roadway west of Orange Avenue; however, parking is permitted on both sides of the roadway east of Orange Avenue.
- **Willow Street** is a six-lane, divided roadway oriented in the east-west direction. The speed limit is 40 miles per hour. Parking is generally not permitted on either side of the roadway within the vicinity of the project.
- **Cherry Avenue** is a six-lane, divided roadway oriented in the north-south direction. The speed limit is 40 miles per hour. Parking is generally not permitted on either side of the roadway within the vicinity of the project.
- **Orange Avenue** is a two-lane, divided roadway north of Spring Street and a two-lane, undivided roadway south of Spring Street. The speed limit is 35 miles per hour north of Spring Street and 40 miles per hour south of Spring Street. Parking is generally not permitted on either side of the roadway within the vicinity of the project.
- **Atlantic Avenue** is a four-lane, divided roadway oriented in the north-south direction. The speed limit is 40 miles per hour. Parking is generally not permitted on either side of the roadway within the vicinity of the project.

##### *Existing Public Transit*

Long Beach Transit (LBT) provides public transit services in the vicinity of the proposed project. In the vicinity of the project, LBT Route 131 serves Spring Street; LBT Routes 102 and 104 serve Willow Street; LBT 21, 22, and 131 serve Cherry Avenue; LBT 71 and 72 serve Orange Avenue; and LBT Route 61, 101, and 103 serve Atlantic Avenue.

### *Existing Bicycle Master Plan*

The City of Long Beach Bicycle Master Plan identifies existing and proposed bicycle facilities in the vicinity of the project site. Similarly, the City of Signal Hill Bicycle Master Plan also identifies existing bicycle facilities in the project area.

Both the City of Long Beach and City of Signal Hill classify the north side and south side of Spring Street, west of the project site, as a Class II bike lane. The bikeway in this section is discontinuous. Both the City of Long Beach and the City of Signal Hill classify Orange Avenue as a Class III bikeway. The City of Long Beach proposes a Class IV bikeway along Orange Avenue between 70th Street and the Pacific Coast Highway; however, this improvement is subject to review and approval of the City of Signal Hill given a section of Orange Avenue is located within Signal Hill's jurisdiction.

### Existing Traffic Conditions

The Traffic Impact Analysis (TIA) evaluated fifteen key study intersections in the vicinity of the project site for the AM and PM peak periods on weekdays. The fifteen intersections are listed below.

1. Orange Avenue at 32nd Street
2. I-405 Northbound Ramps at 32nd Street
3. Orange Avenue at I-405 Southbound Ramps
4. Atlantic Avenue at Spring Street
5. Olive Avenue at Spring Street
6. California Avenue at Spring Street
7. Orange Avenue at Spring Street
8. Walnut Avenue at Spring Street
9. Cherry Avenue at Spring Street
10. I-405 Southbound Off-Ramp at Spring Street
11. Orange Avenue at 29th Street
12. California Avenue at Willow Street
13. Orange Avenue at Willow Street
14. Walnut Avenue at Willow Street
15. Cherry Avenue at Willow Street

### *Existing Conditions Analysis*

Analysis of traffic operations are conducted according to the traffic impact study requirements of the City of Long Beach, as well as the City of Signal Hill, and is consistent with the requirements and procedures outlined in the most current *Congestion Management Program (CMP) for Los Angeles County*. The LOS conditions at the key study intersections were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects, and the proposed project. While the City of Long Beach does not require long-term traffic assessment, the City of Signal Hill requested an analysis of long-term buildout (Year 2038) traffic conditions. The TIA includes an analysis of existing (2019), future (near-term Year 2021), and long-term buildout (Year 2038).



Additionally, the City of Long Beach plans to implement a Class IV (Protected Bike Lane) bikeway along Orange Avenue, which will span between 70th Street and the Pacific Coast Highway. As part of the planned bikeway, Orange Avenue would require a road diet, which would reduce the roadway from a four-lane roadway to a two-lane roadway. The City of Signal Hill classifies Orange Avenue as a Principal Arterial, which requires four lanes of travel and a painted or raised median; therefore, the road diet may not be implemented. To address this issue, the TIA includes an existing, future, and long-term buildout analysis of the 15 study intersections without the road diet and an alternative evaluation of the future and long-term buildout with the road diet. The alternative evaluation of the road diet only affects three intersections: (3) Orange Avenue at I-405 Southbound Ramps, (7) Orange Avenue at Spring Street, and (13) Orange Avenue at Willow Street.

In conformance with the City of Long Beach, City of Signal Hill, and Los Angeles County CMP, at signalized intersections, LOS analysis is performed using Intersection Capacity Utilization (ICU) operations methodology. In addition, analysis of traffic operations at unsignalized intersections is conducted utilizing the Highway Capacity Manual (HCM) methodology, which uses vehicular delay criteria to determine LOS. A brief description of each LOS letter grade, as well as the range of delays or volume/capacity (V/C) ratios associated with each grade for signalized and unsignalized intersections is presented in Table 3.5-1.

**Table 3.5-1. Intersection Level of Service Definitions – Intersection Capacity Utilization and Methodologies**

LOS	Description	Volume to Capacity Ratio	HCM Average Delay (sec) – Unsignalized Intersections	HCM Average Delay (sec) – Signalized Intersections (Caltrans)
A	Excellent. No vehicle waits longer than on red light, and no approach phase is fully used.	0.000-0.0600	≤ 10	≤ 10
B	Very good. An occasional approach phase is fully utilized; many drivers being to feel somewhat restricted within groups of vehicles.	>0.601-0.700	>10.0 and ≤15.0	>10.0 and ≤20.0
C	Good. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	>0.701-0.800	>15.0 and ≤25.0	>20.0 and ≤35.0
D	Fair. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	>0.801-0.900	>25.0 and ≤35.0	>35.0 and ≤55.0
E	Poor. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	>0.901-1.000	>35 and ≤50.0	>55 and ≤80.0

**Table 3.5-1. Intersection Level of Service Definitions – Intersection Capacity Utilization and Methodologies**

LOS	Description	Volume to Capacity Ratio	HCM Average Delay (sec) – Unsignalized Intersections	HCM Average Delay (sec) – Signalized Intersections (Caltrans)
F	Failure. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.	>1.000	>50	>80

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

Caltrans=California Department of Transportation; HCM=Highway Capacity Manual; LOS=level of service

The City of Long Beach and City of Signal Hill consider LOS D as the minimum acceptable LOS for all signalized intersections. A significant impact would occur if the project causes a study intersection to deteriorate from LOS D to LOS E or F, or the project increases traffic demand at the study intersection by 2 percent of capacity (ICU increase  $\geq 0.020$ ), causing or worsening LOS E or F when an intersection is operating at LOS E or F in the baseline condition. For unsignalized intersections, an impact is considered significant if the project causes an intersection operating at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a traffic signal is justified. Note the local streets are not defined in the City of Long Beach General Plan. Thus, significant impact criteria does not apply to local streets.

The TIA analyzed the peak hour intersection capacity for multiple scenarios, including:

- Existing Traffic Conditions and Existing Plus Project Traffic Conditions
- Year 2021 Cumulative Traffic Conditions and Year 2021 Cumulative Plus Project Traffic Conditions, without road diet and with road diet
- Year 2038 Buildout Traffic Conditions and Year 2038 Buildout Plus Project Traffic Conditions, without road diet and with road diet

The cumulative projects analyzed in the TIA are described in Chapter 3.0 of this EIR. Included in the cumulative background traffic conditions for the alternative analysis of the “with road diet” scenario is the planned City of Long Beach Class IV Protected Bike Lane bikeway along Orange Avenue. The bikeway will span between 70th Street and Pacific Coast Highway. The bikeway project is anticipated to be completed by the Spring Street Business Park Project opening year. As part of the improvements associated with the bikeway project, a road diet along Orange Avenue will be implemented, which will reduce Orange Avenue from a four-lane roadway to a two-lane roadway. Additional improvements needed for the bikeway are described in Appendix E.

Additionally, the TIA includes a Caltrans analysis for the same scenarios analyzed for peak hour intersection capacity. Three of the study intersections are state-controlled (Caltrans); therefore, the TIA analysis was prepared in conformance with the current Caltrans *Guide for the Preparation of Traffic Impact Studies, December 2002* (Caltrans 2002b). Analysis of traffic operations for Caltrans jurisdictional intersections used the HCM LOS criteria for signalized intersections, as shown in Table 3.5-1. Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS



D on state highway facilities; therefore, for this analysis, LOS D is the target LOS standard for the state-controlled study intersections. The following intersections are under Caltrans jurisdiction:

- 2. I-405 Northbound Ramps at 32nd Street (City of Signal Hill/Caltrans)
- 3. Orange Avenue at I-405 Southbound Ramps (City of Long Beach/Caltrans)
- 10. I-405 Southbound Off-Ramp at Spring Street (City of Long Beach/City of Signal Hill/Caltrans)

The intersection of Orange Avenue at I-405 Southbound Ramps also includes the alternative evaluation of the “with road diet” scenario. Additionally, the TIA also includes an intersection left-turn vehicle queuing analysis and traffic signal warrant analysis.

*Existing Traffic Volumes*

Table 3.5-2 lists the fifteen key study intersections, as well as the jurisdiction, control type, and existing intersection capacity.

**Table 3.5-2. Study Intersections**

Key Intersection	Jurisdiction	Control Type	Time Period	ICU/HCM	LOS
1. Orange Avenue at 32nd Street	Signal Hill	2 Ø Traffic Signal	AM PM	0.719 0.856	C D
2. I-405 Northbound Ramps at 32nd Street	Caltrans/Signal Hill	One-Way Stop	AM PM	11.0 s/v 14.3 s/v	B B
3. Orange Avenue at I-405 Southbound Ramps	Caltrans/Long Beach	One-Way Stop	AM PM	44.0 s/v 90.6 s/v	E F
4. Atlantic Avenue at Spring Street	Long Beach/Signal Hill	6 Ø Traffic Signal	AM PM	0.732 0.828	C D
5. Olive Avenue at Spring Street	Signal Hill	3 Ø Traffic Signal	AM PM	0.454 0.519	A A
6. California Avenue at Spring Street	Long Beach/Signal Hill	2 Ø Traffic Signal	AM PM	0.590 0.714	A C
7. Orange Avenue at Spring Street	Long Beach/Signal Hill	2 Ø Traffic Signal	AM PM	0.826 0.833	D D
8. Walnut Avenue at Spring Street	Long Beach/Signal Hill	2 Ø Traffic Signal	AM PM	0.584 0.717	A C
9. Cherry Avenue at Spring Street	Long Beach/Signal Hill	8 Ø Traffic Signal	AM PM	0.690 0.738	B C
10. I-405 Southbound Off-Ramp at Spring Street	Caltrans/Long Beach/Signal Hill	2 Ø Traffic Signal	AM PM	0.732 0.719	C C
11. Orange Avenue at 29th Street	Long Beach/Signal Hill	One-Way Stop	AM PM	13.9 s/v 14.1 s/v	B B
12. California Avenue at Willow Street	Long Beach/Signal Hill	2 Ø Traffic Signal	AM PM	0.613 0.593	B A

**Table 3.5-2. Study Intersections**

Key Intersection	Jurisdiction	Control Type	Time Period	ICU/HCM	LOS
13. Orange Avenue at Willow Street	Long Beach/Signal Hill	8 Ø Traffic Signal	AM PM	0.736 0.845	C D
14. Walnut Avenue at Willow Street	Signal Hill	5 Ø Traffic Signal	AM PM	0.510 0.617	A B
15. Cherry Avenue at Willow Street	Signal Hill	8 Ø Traffic Signal	AM PM	0.687 0.818	B D

Notes:

Ø=Phase; Caltrans=California Department of Transportation; HCM=Highway Capacity Manual; I-405=Interstate 405; ICU=Intersection Capacity Utilization; LOS=level of service; s/v=seconds per vehicle

### 3.5.3 Regulatory Framework

Table 3.5-3 identifies and summarizes laws, regulations, and plans relative to transportation.

**Table 3.5-3. Applicable Laws, Regulations, and Plans for Transportation**

Laws, Regulation, or Plan	Description
<b>State</b>	
Caltrans	Caltrans is the primary state agency responsible for transportation issues. One of its duties is the construction and maintenance of the state highway system. Caltrans has established standards for street traffic flow and has developed procedures to determine if intersections require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, these potential impacts on Caltrans facilities would need to be analyzed in accordance with Caltrans protocol, and Caltrans may recommend measures to mitigate the traffic impacts of such projects.
<b>Regional</b>	
CMP for Los Angeles County	The CMP was created as a result of Proposition 111. On October 28, 2010, the Los Angeles County Metropolitan Transportation Authority Board adopted the 2010 CMP for Los Angeles County. The CMP was adopted primarily to monitor and maintain LOS standards across the network of all CMP facilities, including state highways and principal arterials within Los Angeles County. The CMP requires that potential project impacts on CMP monitoring locations are analyzed as part of proposed new development projects, if an EIR is prepared for the project.  Per the 2010 CMP, a significant impact occurs when a project increases traffic demand on a CMP facility by 2 percent of capacity ( $V/C \geq 0.02$ ), causing LOS F ( $V/C > 1.00$ ); if the facility is already at LOS F, a significant impact occurs when a project increases traffic demand on a CMP facility by 2 percent of capacity ( $V/C \geq 0.02$ ).



**Table 3.5-3. Applicable Laws, Regulations, and Plans for Transportation**

Laws, Regulation, or Plan	Description
<b>Local</b>	
City of Long Beach General Plan – Mobility Element	The City of Long Beach General Plan Mobility Element, updated in 2013, establishes the vision, goals, policies, and implementation measures required to improve and enhance the city’s local and regional transportation networks. The Mobility Element describes LOS as the system the City of Long Beach uses to measure the efficiency and performance of traffic operations at a specific location.
City of Long Beach General Plan – Bicycle Master Plan	The City of Long Beach General Plan Bicycle Master Plan builds upon a long-standing effort to make Long Beach a city known for its bicycle-friendliness and as an active, healthy, and prosperous place to live, work, and play. The plan is in compliance with AB 32 and the Complete Streets Act. The plan recommends a series of projects and programs to be implemented by the City of Long Beach in the next few decades.
LBMC	Chapter 8.80.202 restricts construction activities to weekdays between 7:00 a.m. and 7:00 p.m. and Saturdays between 9:00 a.m. and 6:00 p.m., except for emergency work. Construction work on Sundays is prohibited unless the City of Long Beach’s Noise Control Officer issues a permit. The permit may allow work on Sundays between 9:00 a.m. and 6:00 p.m.  Chapter 21.41.140 describes general provisions for off-street parking and loading requirements, including location of proposed parking and loading, as well as location of driveways.

Notes:

AB=assembly bill; Caltrans=California Department of Transportation; CMP=Congestion Management Program; EIR=environmental impact report; LBMC=Long Beach Municipal Code; LOS=level of service; V/C=volume to capacity ratio

### 3.5.4 Analysis of Impacts

#### Methodology

The TIA details the methodology used for traffic forecasting (Appendix E). In order to estimate the traffic impact characteristics of the proposed project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

#### *Trip Generation*

Trip generation for the proposed project was completed for two development type alternatives, as shown in Table 3.5-4, because the project includes both manufacturing and warehouse land uses (ancillary offices and associated passenger car trips included). The first alternative analyzes the project utilizing the manufacturing land use. The second alternative analyzes the project utilizing the warehousing land use. As shown in Table 3.5-4, the trip generation under land use code manufacturing would generate approximately 757 total daily trips, and the trip generation under land use code warehousing would generate approximately 335 total daily trips. To provide a conservative assessment, the trip generation for manufacturing was analyzed in the TIA.

**Table 3.5-4. Project Trip Generation Forecast**

Land Use (ITE Code)	Size	Trip Generation Rates							Trip Generation								
		AM Peak Hour			PM Peak Hour			Daily	Generation Forecasts		AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total		Building	Traffic Type	In	Out	Total	In	Out	Total	
Manufacturing (140)	160,673 SF	77%	23%	0.67	31%	69%	0.67	3.93	Building 1 (39,812 SF)	Passenger Car	15	5	20	6	16	22	125
										Truck PCE	8	2	10	4	6	10	62
									Building 2 (48,745 SF)	Passenger Car	18	6	24	8	18	26	154
										Truck PCE	10	2	12	4	10	14	76
									Building 3 (72,116 SF)	Passenger Car	28	8	36	12	26	38	226
										Truck PCE	14	4	18	6	14	20	114
<b>Total</b>											<b>93</b>	<b>27</b>	<b>120</b>	<b>40</b>	<b>90</b>	<b>130</b>	<b>757</b>
Warehousing (150)	160,673 SF	77%	23%	0.17	27%	73%	0.19	1.74	Building 1 (39,812 SF)	Passenger Car	4	2	6	2	4	6	55
										Truck PCE	2	0	2		4	4	28
									Building 2 (48,745 SF)	Passenger Car	5	1	6	2	5	7	68
										Truck PCE	2	2	4	0	4	4	34
									Building 3 (72,116 SF)	Passenger Car	7	3	10	3	8	11	100
										Truck PCE	4	0	4	2	4	6	50
<b>Total</b>											<b>24</b>	<b>8</b>	<b>32</b>	<b>9</b>	<b>29</b>	<b>38</b>	<b>335</b>

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

Manufacturing truck estimates: 20 percent trucks, PCE = 2.0 vehicles per truck; warehousing truck estimates: 20 percent trucks. PCE = 2.0 vehicles per truck  
 ITE=Institute of Transportation Engineers; SF=square feet; PCE=passenger car equivalency

### *Traffic Distribution and Assignment*

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

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

The TIA includes the details of the directional traffic distribution pattern for both passenger vehicles and trucks. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- Location of site access points in relation to the surrounding street system
- The site's proximity to major traffic carriers and regional access routes
- Physical characteristics of the circulation system, such as lane channelization and presence of traffic signals that affect travel patterns
- City of Long Beach and Signal Hill designated truck routes
- Ingress/egress availability at the project site, plus parking layout and allocation within the subject property

With the forecasting process complete and project traffic assignments developed, the impact of the project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

### Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to transportation and traffic are considered significant if any of the following occur:

- a) Conflict with plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle and pedestrian facilities
- b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- c) Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- d) Result in inadequate emergency access

As discussed in the IS (Appendix A), criterion (b), (c), and (d) would result in a less than significant impact or no impact, and therefore, are not included in the analysis below.

### *City of Long Beach and City of Signal Hill Significant Impact Criteria*

The City of Long Beach and City of Signal Hill significant impact criteria consider impacts on local and regional transportation systems significant if:

- **Signalized Intersections** – The project causes a study intersection to deteriorate from LOS D to LOS E or F. LOS D (ICU = 0.801 – 0.900) is the minimum acceptable LOS for all signalized intersections. A significant impact would occur if the project causes a study intersection to deteriorate from LOS D to LOS E or F, or the project increases traffic demand at the study intersection by 2 percent of capacity (ICU increase  $\geq 0.020$ ), causing or worsening LOS E or F when an intersection is operating at LOS E or F in the baseline condition.
- **Unsignalized Intersections** – The project causes an intersection operating at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a traffic signal is justified. Note the local streets are not defined in the City of Long Beach General Plan. Thus, significant impact criteria does not apply to local streets.

### Impact Analysis

#### ***Threshold (a) Conflict with program, ordinance or policy addressing the circulation system, including transit roadway, bicycle and pedestrian facilities.***

As described above, the City of Long Beach and City of Signal Hill have adopted thresholds for LOS at signalized and unsignalized intersections. Operation of the project would increase LOS at multiple intersections, which would conflict with the thresholds adopted by the City of Long Beach and City of Signal Hill, with and without the road diet. Additionally, Caltrans has different thresholds for LOS at signalized intersections and operation of the project would conflict with these thresholds at one intersection with or without the road diet implementation.

#### *Construction*

During construction, construction-related traffic, such as deliveries of equipment and materials and construction worker traffic, would be generated. However, construction traffic would be temporary and would not substantially interfere with the existing traffic load and capacity of the street system.

#### *Operation*

During operation, the project would generate traffic. As discussed above, the TIA analyzed the trip generation for manufacturing land use, which would generate approximately 757 trips per day, with 120 new AM peak hour trips and 130 new PM peak hour trips, as shown in Table 3.5-4.

#### **EXISTING TRAFFIC CONDITIONS AND EXISTING PLUS PROJECT TRAFFIC CONDITIONS**

Table 3.5-5 summarizes the LOS for the existing conditions plus project traffic conditions for the 15 study intersections. The intersection of Orange Avenue/I-405 Southbound Ramps is forecast to operate at unacceptable LOS E in the AM peak hour and LOS F in the PM peak hour. However, the intersection is not considered significantly impacted when compared with the LOS standards and significant impact criteria outlined above for the City of Long Beach and City of Signal Hill because the intersection currently operates at an LOS E for AM peak hour and LOS F for PM peak hour.

**YEAR 2021 CUMULATIVE TRAFFIC CONDITIONS AND YEAR 2021 CUMULATIVE PLUS TRAFFIC CONDITIONS WITHOUT ROAD DIET**

Table 3.5-6 summarizes the Year 2021 cumulative peak hour intersection capacity analysis. Out of the 15 study intersections, 5 are forecasted to operate adversely with the addition of project traffic. One intersection, Orange Avenue/I-405 Southbound Ramps, which is under the jurisdiction of the City of Long Beach and Caltrans, would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. However, this is not considered significant under the City of Long Beach criteria because the intersection currently operates at an adverse LOS and, therefore, does not deteriorate from an acceptable LOS (Caltrans significant impact criteria is discussed below). Two intersections (Atlantic Avenue/Spring Street and Orange Avenue/Willow Street) would not be considered a significant impact because the project increment adds less than 0.020 to the ICU value. The two remaining intersections (Orange Avenue/32nd Street and Orange Avenue/Spring Street) would result in significant impacts; however, implementation of **Mitigation Measures TRAN-1 and TRAN-2** would reduce these impacts, as shown in Table 3.5-6. Implementation of **Mitigation Measure TRAN-2** would result in a less than significant impact at the intersection of Orange Avenue and Spring Street.

However, the City of Signal Hill has jurisdiction over the intersection of Orange Avenue and 32nd Street. The City of Signal Hill does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and 32nd Street. Due to the fact that **Mitigation Measures TRAN-1** is the responsibility of and is subject to approval by the City of Signal Hill, and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, the impact at Orange Avenue and 32nd Street during PM peak hours is considered significant and unavoidable.

**YEAR 2038 BUILDOUT TRAFFIC CONDITIONS AND YEAR 2038 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS WITHOUT ROAD DIET**

Table 3.5-7 summarizes Year 2038 buildout peak hour intersection capacity analysis. Out of the 15 study intersections, 6 are forecasted to operate adversely with the addition of project traffic. One intersection, Orange Avenue/I-405 Southbound Ramps, which is under the jurisdiction of the City of Long Beach and Caltrans, would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. However, this is not considered significant under the City of Long Beach criteria because the intersection currently operates at an adverse LOS and, therefore, does not deteriorate from an acceptable LOS (Caltrans significant impact criteria is discussed below). Three intersections (Atlantic Avenue/Spring Street, Orange Avenue/Willow Street, and Cherry Avenue/Willow Street) would not be considered a significant impact because the project increment adds less than 0.020 to the ICU value. The remaining two intersections (Orange Avenue/32nd Street and Orange Avenue/Spring Street) would result in significant impacts; however, implementation of **Mitigation Measures TRAN-1 and TRAN-2** would reduce these impacts, as shown in Table 3.5-7. Implementation of **Mitigation Measure TRAN-2** would result in a less than significant impact at the intersection of Orange Avenue and Spring Street.

However, the City of Signal Hill has jurisdiction over the intersection of Orange Avenue and 32nd Street. The City of Signal Hill does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at

Orange Avenue and 32nd Street. Due to the fact that **Mitigation Measures TRAN-1** is the responsibility of and is subject to approval by the City of Signal Hill, and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, the impact at Orange Avenue and 32nd Street during PM peak hours is considered significant and unavoidable.

#### **YEAR 2021 CUMULATIVE TRAFFIC CONDITIONS AND YEAR 2021 CUMULATIVE PLUS TRAFFIC CONDITIONS WITH ROAD DIET**

Table 3.5-8 summarizes the Year 2021 cumulative peak hour intersection capacity analysis with road diet for the three affected intersections. All three of the alternative evaluation intersections are forecasted to operate adversely with the addition of project traffic. One intersection, Orange Avenue/I-405 Southbound Ramps, which is under the jurisdiction of the City of Long Beach and Caltrans, would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. However, this is not considered significant under the City of Long Beach criteria because the intersection currently operates at an adverse LOS and, therefore, does not deteriorate from an acceptable LOS (Caltrans significant impact criteria is discussed below). The Orange Avenue and Willow Street intersection would not be considered a significant impact because the project increment adds less than 0.020 to the ICU value. The remaining intersection Orange Avenue and Spring Street would result in significant impacts. Implementation of **Mitigation Measure TRAN-3** would reduce the impact at Orange Avenue and Spring Street from LOS F to LOS E, as shown in Table 3.5-8. This impact would remain significant with implementation of mitigation because the intersection would deteriorate from LOS D to LOS E, which is considered a significant impact under the City of Long Beach and City of Signal Hill criteria. No additional feasible mitigation measures have been identified for this intersection.

#### **YEAR 2038 BUILDOUT TRAFFIC CONDITIONS AND YEAR 2038 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS WITH ROAD DIET**

Table 3.5-9 summarizes Year 2038 buildout peak hour intersection capacity analysis with road diet for the three affected intersections. All three of the alternative evaluation intersections are forecasted to operate adversely with the addition of project traffic. One intersection, Orange Avenue/I-405 Southbound Ramps, which is under the jurisdiction of the City of Long Beach and Caltrans, would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. However, this is not considered significant under the City of Long Beach criteria because the intersection currently operates at an adverse LOS and therefore does not deteriorate from an acceptable LOS (Caltrans significant impact criteria is discussed below). One intersection (Orange Avenue/Willow Street) would not be considered a significant impact because the project increment adds less than 0.020 to the ICU value. The remaining intersection, Orange Avenue and Spring Street, would result in significant impacts. Implementation of **Mitigation Measure TRAN-3** would reduce the impact at Orange Avenue and Spring Street, as shown in Table 3.5-9; however, the LOS would remain at an adverse LOS of F. This impact would remain significant with implementation of mitigation because the intersection would deteriorate from LOS D to LOS F, which is considered a significant impact under the City of Long Beach and City of Signal Hill criteria. No additional feasible mitigation measures have been identified for this intersection.

#### **CALTRANS ANALYSIS**

The TIA also analyzed three state-controlled intersections (I-405 Northbound Ramps at 32nd Street, Orange Avenue at I-405 Southbound Ramps, and I-405 Southbound Off-Ramp at Spring Street) for all scenarios, as summarized in Table 3.5-5 through Table 3.5-9. The Orange Avenue and I-405 Southbound Ramps intersection would result in a significant impact under Year 2021 Cumulative



with Road Diet and without Road Diet and Year 2038 Buildout with Road Diet and without Road Diet. Implementation of **Mitigation Measures TRAN-4 and TRAN-5** would reduce these impacts, as shown in Table 3.5-6, Table 3.5-7, Table 3.5-8, and Table 3.5-9.

However, Caltrans has jurisdiction over the Orange Avenue and I-405 Southbound Ramps intersection. Caltrans does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and I-405 Southbound Ramps. Due to the fact that **Mitigation Measures TRAN-4 and TRAN-5** are subject to approval by and are the responsibility of another agency (Caltrans) and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, these impacts are considered significant and unavoidable.

#### PEDESTRIAN FACILITIES

As part of the project, a new sidewalk along Orange Avenue is proposed. Currently, pedestrian access is insufficient due to the lack of continuous sidewalk along Orange Avenue. Pedestrian circulation would be provided via existing public sidewalks along Spring Street and Orange Avenue within the vicinity of the project frontage, which will connect to the new sidewalk on Orange Avenue. The project would not result in conflicts with pedestrian facilities, rather construction of the sidewalk would create code-compliant pedestrian facilities on Orange Avenue where there are currently none. This would result in a benefit by increasing pedestrian access, compliance with Americans with Disabilities Act, and increasing bicycle safety.

**Table 3.5-5. Existing Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary**

Intersection	Time Period	Existing Conditions LOS	Existing Plus Project Conditions LOS	Change ICU (s/v where necessary)		Significant Impact (City Criteria)?	Significant Impact (Caltrans Criteria)?
				AM Peak Hour	PM Peak Hour		
1. Orange Avenue at 32nd Street	AM	C	C	.719	.733	No	—
	PM	D	D	.856	.879		
2. I-405 Northbound Ramps at 32nd Street	AM	B	B	11.0 s/v	11.2 s/v	No	No
	PM	B	B	14.3 s/v	14.7 s/v		
3. Orange Avenue at I-405 Southbound Ramps	AM	<b>E</b>	<b>E</b>	<b>44.0 s/v</b>	<b>47.8 s/v</b>	No*	No
	PM	<b>F</b>	<b>F</b>	<b>90.6 s/v</b>	<b>106.4 s/v</b>		
4. Atlantic Avenue at Spring Street	AM	C	C	.732	.733	No	—
	PM	D	D	.828	.828		
5. Olive Avenue at Spring Street	AM	A	A	.454	.455	No	—
	PM	A	A	.519	.520		
6. California Avenue at Spring Street	AM	A	A	.590	.590	No	—
	PM	C	C	.714	.715		
7. Orange Avenue at Spring Street	AM	D	C	.826	.708	No	—
	PM	D	C	.833	.754		
8. Walnut Avenue at Spring Street	AM	A	A	.584	.589	No	—
	PM	C	C	.717	.723		
9. Cherry Avenue at Spring Street	AM	B	B	.690	.693	No	—
	PM	C	C	.738	.741		



**Table 3.5-5. Existing Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary**

Intersection	Time Period	Existing Conditions LOS	Existing Plus Project Conditions LOS	Change ICU (s/v where necessary)		Significant Impact (City Criteria)?	Significant Impact (Caltrans Criteria)?
				AM Peak Hour	PM Peak Hour		
10. I-405 Southbound Off-Ramp at Spring Street	AM	C	C	.732	0.6	No	No
	PM	C	C	.719	.732		
11. Orange Avenue at 29th Street	AM	B	B	13.9 s/v	14.3 s/v	No	—
	PM	B	B	14.1 s/v	14.3 s/v		
12. California Avenue at Willow Street	AM	B	B	.613	.613	No	—
	PM	A	A	.593	.594		
13. Orange Avenue at Willow Street	AM	C	C	.736	.746	No	—
	PM	D	D	.845	.853		
14. Walnut Avenue at Willow Street	AM	A	A	.510	.512	No	—
	PM	B	B	.617	.619		
15. Cherry Avenue at Willow Street	AM	B	B	.687	.689	No	—
	PM	D	D	.818	.819		

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

\* An unsignalized intersection impacts is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.

**Bold** text indicates an unacceptable LOS.

Caltrans=California Department of Transportation; I-405=Interstate 405; ICU=Intersection change utilization; LOS=level of service; s/v=seconds per vehicle (delay)

**Table 3.5-6. Year 2021 Cumulative Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary without Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2021 Cumulative Traffic Conditions		Year 2021 Cumulative Plus Project		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2021 Cumulative Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
1. Orange Avenue at 32nd Street	AM	0.719	C	0.763	C	0.776	C	0.013	No	—	0.681	B
	PM	0.856	D	<b>0.905</b>	<b>E</b>	<b>0.929</b>	<b>E</b>	<b>0.024</b>	<b>Yes</b>	—	0.726	C
2. I-405 Northbound Ramps at 32nd Street	AM	11.0 s/v	B	11.3 s/v	B	11.4 s/v	B	0.100	No	No	—	—
	PM	14.3 s/v	B	15.0 s/v	B	15.5 s/v	C	0.500	No	No	—	—
3. Orange Avenue at I-405 Southbound Ramps	AM	<b>44.0 s/v</b>	<b>E</b>	<b>61.8 s/v</b>	<b>F</b>	<b>67.4 s/v</b>	<b>F</b>	—	No*	<b>Yes</b>	20.7 s/v	C
	PM	<b>90.6 s/v</b>	<b>F</b>	<b>142.8 s/v</b>	<b>F</b>	<b>164.4 s/v</b>	<b>F</b>	—	No	No	13.8 s/v	B
4. Atlantic Avenue at Spring Street	AM	0.732	C	0.800	C	0.800	C	0.000	No	—	—	—
	PM	0.828	D	<b>0.906</b>	<b>E</b>	<b>0.906</b>	<b>E</b>	0.000	No	—	—	—
5. Olive Avenue at Spring Street	AM	0.454	A	0.472	A	0.472	A	0.000	No	—	—	—
	PM	0.519	A	0.537	A	0.538	A	0.001	No	—	—	—
6. California Avenue at Spring Street	AM	0.590	A	0.611	B	0.611	B	0.000	No	—	—	—
	PM	0.714	C	0.741	C	0.741	C	0.000	No	—	—	—
7. Orange Avenue at Spring Street	AM	0.826	D	0.888	D	<b>0.926</b>	<b>E</b>	<b>0.038</b>	<b>Yes</b>	—	0.745	C
	PM	0.833	D	0.890	D	<b>0.912</b>	<b>E</b>	<b>0.022</b>	<b>Yes</b>	—	0.797	C
8. Walnut Avenue at Spring Street	AM	0.584	A	0.611	B	0.616	B	0.005	No	—	—	—
	PM	0.717	C	0.750	C	0.755	C	0.005	No	—	—	—



**Table 3.5-6. Year 2021 Cumulative Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary without Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2021 Cumulative Traffic Conditions		Year 2021 Cumulative Plus Project		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2021 Cumulative Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
9. Cherry Avenue at Spring Street	AM	0.690	B	0.720	C	0.723	C	0.003	No	—	—	—
	PM	0.738	C	0.777	C	0.780	C	0.003	No	—	—	—
10. I-405 Southbound Off-Ramp at Spring Street	AM	0.732	C	0.758	C	0.763	C	0.005	No	No	—	—
	PM	0.719	C	0.747	C	0.751	C	0.004	No	No	—	—
11. Orange Avenue at 29th Street	AM	13.9 s/v	B	14.8 s/v	B	15.2 s/v	C	—	No	—	—	—
	PM	14.1 s/v	B	15.3 s/v	C	15.6 s/v	C	—	No	—	—	—
12. California Avenue at Willow Street	AM	0.613	B	0.638	B	0.638	B	0.000	No	—	—	—
	PM	0.593	A	0.620	B	0.620	B	0.000	No	—	—	—
13. Orange Avenue at Willow Street	AM	0.736	C	0.804	D	0.813	D	0.009	No	—	—	—
	PM	0.845	D	<b>0.921</b>	<b>E</b>	<b>0.929</b>	<b>E</b>	0.008	No	—	—	—
14. Walnut Avenue at Willow Street	AM	0.510	A	0.533	A	0.535	A	0.002	No	—	—	—
	PM	0.671	B	0.654	B	0.655	B	0.001	No	—	—	—
15. Cherry Avenue at Willow Street	AM	0.687	B	0.723	C	0.725	C	0.002	No	—	—	—
	PM	0.818	D	0.874	D	0.876	D	0.002	No	—	—	—

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

**Bold** text indicates an unacceptable LOS.

Caltrans=California Department of Transportation; HCM=highway congestion manual; I-405=Interstate 405; ICU=Intersection change utilization; LOS=level of service; s/v=seconds per vehicle (delay)

**Table 3.5-7. Year 2038 Buildout Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary without Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2038 Buildout Traffic Conditions		Year 2038 Buildout Plus Project Traffic Conditions		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2038 Buildout Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
1. Orange Avenue at 32nd Street	AM	0.719	C	0.868	D	0.881	D	0.013	No	—	0.771	C
	PM	0.856	D	<b>1.034</b>	<b>F</b>	<b>1.058</b>	<b>F</b>	<b>0.024</b>	<b>Yes</b>	—	0.826	D
2. I-405 Northbound Ramps at 32nd Street	AM	11.0 s/v	B	12.1 s/v	B	12.3 s/v	B	0.2 s/v	No	No	—	—
	PM	14.3 s/v	B	18.6 s/v	C	19.5 s/v	C	0.9 s/v	No	No	—	—
3. Orange Avenue at I-405 Southbound Ramps	AM	<b>44.0 s/v</b>	<b>E</b>	<b>170.0 s/v</b>	<b>F</b>	<b>181.1 s/v</b>	<b>F</b>	—	No*	<b>Yes</b>	22.2 s/v	C
	PM	<b>90.6 s/v</b>	<b>F</b>	<b>367.8 s/v</b>	<b>F</b>	<b>409.2 s/v</b>	<b>F</b>	—	No	No	14.9 s/v	B
4. Atlantic Avenue at Spring Street	AM	0.732	C	<b>0.908</b>	<b>E</b>	<b>0.908</b>	<b>E</b>	0.000	No	—	—	—
	PM	0.828	D	<b>1.030</b>	<b>F</b>	<b>1.030</b>	<b>F</b>	0.000	No	—	—	—
5. Olive Avenue at Spring Street	AM	0.454	A	0.532	A	0.533	A	0.001	No	—	—	—
	PM	0.519	A	0.608	B	0.609	B	0.001	No	—	—	—
6. California Avenue at Spring Street	AM	0.590	A	0.694	B	0.694	B	0.000	No	—	—	—
	PM	0.714	C	0.845	D	0.845	D	0.000	No	—	—	—
7. Orange Avenue at Spring Street	AM	0.826	D	<b>1.012</b>	<b>F</b>	<b>1.049</b>	<b>F</b>	<b>0.037</b>	<b>Yes</b>	—	0.845	D
	PM	0.833	D	<b>1.014</b>	<b>F</b>	<b>1.036</b>	<b>F</b>	<b>0.022</b>	<b>Yes</b>	—	0.865	D**
8. Walnut Avenue at Spring Street	AM	0.584	A	0.693	B	0.698	B	0.005	No	—	—	—
	PM	0.717	C	0.856	D	0.860	D	0.004	No	—	—	—



**Table 3.5-7. Year 2038 Buildout Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary without Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2038 Buildout Traffic Conditions		Year 2038 Buildout Plus Project Traffic Conditions		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2038 Buildout Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
9. Cherry Avenue at Spring Street	AM	0.690	B	0.820	D	0.824	D	0.004	No	—	—	—
	PM	0.738	C	0.885	D	0.888	D	0.003	No	—	—	—
10. I-405 Southbound Off-Ramp at Spring Street	AM	0.732	C	0.866	D	0.871	D	0.005	No	No	—	—
	PM	0.719	C	0.852	D	0.857	D	0.005	No	No	—	—
11. Orange Avenue at 29th Street	AM	13.9 s/v	B	16.8 s/v	C	17.3 s/v	C	—	No	—	—	—
	PM	14.1 s/v	B	17.7 s/v	C	18.0 s/v	C	—	No	—	—	—
12. California Avenue at Willow Street	AM	0.613	B	0.725	C	0.725	C	0.000	No	—	—	—
	PM	0.593	A	0.704	C	0.704	C	0.000	No	—	—	—
13. Orange Avenue at Willow Street	AM	0.736	C	<b>0.911</b>	<b>E</b>	<b>0.921</b>	<b>E</b>	<b>0.010</b>	No	—	—	—
	PM	0.845	D	<b>1.048</b>	<b>F</b>	<b>1.056</b>	<b>F</b>	<b>0.008</b>	No	—	—	—
14. Walnut Avenue at Willow Street	AM	0.510	A	0.602	B	0.604	B	0.002	No	—	—	—
	PM	0.671	B	0.741	C	0.743	C	0.002	No	—	—	—

**Table 3.5-7. Year 2038 Buildout Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary without Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2038 Buildout Traffic Conditions		Year 2038 Buildout Plus Project Traffic Conditions		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2038 Buildout Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
15. Cherry Avenue at Willow Street	AM	0.687	B	0.823	D	0.825	D	0.002	No	—	—	—
	PM	0.818	D	<b>0.996</b>	<b>E</b>	<b>0.998</b>	<b>E</b>	0.002	No	—	—	—

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

\* An unsignalized intersection impacts is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.

\*\* Improvements identified in the footnote of Table 8-5 in the *Spring Street Traffic Impact Analysis* (Appendix E) have been applied to achieve the acceptable LOS and are included in **Mitigation Measure TRAN-2**.

**Bold** text indicates an unacceptable LOS.

Caltrans=California Department of Transportation; HCM=highway congestion manual; I-405=Interstate 405; ICU=Intersection change utilization; LOS=level of service; s/v=seconds per vehicle (delay)



**Table 3.5-8. Year 2021 Cumulative Peak Hour Intersection Capacity and Caltrans Analysis Summary with Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2021 Cumulative Traffic Conditions		Year 2021 Cumulative Plus Project		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2021 Cumulative Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
3. Orange Avenue at I-405 Southbound Ramps	AM	<b>44.0 s/v</b>	<b>E</b>	<b>111.4 s/v</b>	<b>F</b>	<b>122.5 s/v</b>	<b>F</b>	—	No*	<b>Yes</b>	30.6 s/v	C
	PM	<b>90.6 s/v</b>	<b>F</b>	<b>301.5 s/v</b>	<b>F</b>	<b>343.1 s/v</b>	<b>F</b>	—	No	No	18.4 s/v	B
7. Orange Avenue at Spring Street	AM	0.826	D	<b>0.974</b>	<b>E</b>	<b>1.011</b>	<b>F</b>	<b>0.037</b>	<b>Yes</b>	—	<b>0.926</b>	<b>E</b>
	PM	0.833	D	<b>0.996</b>	<b>E</b>	<b>1.030</b>	<b>F</b>	<b>0.034</b>	<b>Yes</b>	—	<b>0.989</b>	<b>E</b>
13. Orange Avenue at Willow Street	AM	0.736	C	0.855	D	0.866	D	0.011	No	—	—	—
	PM	0.845	D	<b>0.950</b>	<b>E</b>	<b>0.961</b>	<b>E</b>	0.011	No	—	—	—

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

\* An unsignalized intersection impacts is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.

**Bold** text indicates an unacceptable LOS.

Caltrans=California Department of Transportation; HCM=highway congestion manual; I-405=Interstate 405; ICU=Intersection change utilization; LOS=level of service; s/v=seconds per vehicle (delay)

**Table 3.5-9. Year 2038 Buildout Plus Project Peak Hour Intersection Capacity and Caltrans Analysis Summary with Road Diet**

Intersection	Time Period	Existing Conditions LOS		Year 2038 Buildout Traffic Conditions		Year 2038 Buildout Plus Project Traffic Conditions		Significant Impact (City Criteria)?		Significant Impact (Caltrans Criteria)?	Year 2038 Buildout Plus Project Traffic Conditions with Mitigation	
		ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	Yes/No	ICU/HCM	LOS
3. Orange Avenue at I-405 Southbound Ramps	AM	<b>44.0 s/v</b>	<b>E</b>	<b>294.8 s/v</b>	<b>F</b>	<b>322.3 s/v</b>	<b>F</b>	—	No*	<b>Yes</b>	49.4 s/v	D
	PM	<b>90.6 s/v</b>	<b>F</b>	<b>724.1 s/v</b>	<b>F</b>	<b>808.6 s/v</b>	<b>F</b>	—	No	No	25.6 s/v	C
7. Orange Avenue at Spring Street	AM	0.826	D	<b>1.112</b>	<b>F</b>	<b>1.149</b>	<b>F</b>	<b>0.037</b>	<b>Yes</b>	—	<b>1.049</b>	<b>F</b>
	PM	0.833	D	<b>1.138</b>	<b>F</b>	<b>1.170</b>	<b>F</b>	<b>0.032</b>	<b>Yes</b>	—	<b>1.124</b>	<b>F</b>
13. Orange Avenue at Willow Street	AM	0736	C	<b>0.971</b>	<b>E</b>	<b>0.982</b>	<b>E</b>	0.011	No	—	—	—
	PM	0845	D	<b>1.083</b>	<b>F</b>	<b>1.095</b>	<b>F</b>	0.012	No	—	—	—

Source: *Spring Street Traffic Impact Analysis* (Appendix E)

Notes:

\* An unsignalized intersection impacts is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.

**Bold** text indicates an unacceptable LOS.

Caltrans=California Department of Transportation; HCM=highway congestion manual; I-405=Interstate 405; ICU=Intersection change utilization; LOS=level of service; s/v=seconds per vehicle (delay)



## Cumulative Impacts

The project's traffic impacts and cumulative impacts are included in Table 3.5-6, Table 3.5-7, Table 3.5-8, and Table 3.5-9. The TIA analyzed the peak hour intersection capacity for multiple cumulative impact scenarios, including:

- Year 2021 Cumulative Traffic Conditions and Year 2021 Cumulative Plus Project Traffic Conditions, without road diet and with road diet
- Year 2038 Buildout Traffic Conditions and Year 2038 Buildout Plus Project Traffic Conditions, without road diet and with road diet

As discussed above, the project would result in significant and unavoidable impacts on two intersections (Orange Avenue/32nd Street and Orange Avenue/Spring Street) under multiple scenarios.

- **Year 2021 Cumulative Traffic Conditions plus Project Traffic Conditions without Road Diet** – Two intersections (Orange Avenue/32nd Street and Orange Avenue/Spring Street) would result in significant impacts; however, implementation of **Mitigation Measures TRAN-1 and TRAN-2** would reduce these impacts, as shown in Table 3.5-6. Implementation of **Mitigation Measure TRAN-2** would result in a less than significant impact at the intersection of Orange Avenue and Spring Street. However, the City of Signal Hill has jurisdiction over the intersection of Orange Avenue and 32nd Street. The City of Signal Hill does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and 32nd Street. Due to the fact that **Mitigation Measures TRAN-1** is the responsibility of and is subject to approval by the City of Signal Hill and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, the impact at Orange Avenue and 32nd Street during PM peak hours is considered significant and unavoidable.
- **Year 2021 Cumulative Traffic Conditions plus Project Traffic Conditions with Road Diet** – The intersection of Orange Avenue and Spring Street would result in significant impacts. Implementation of **Mitigation Measure TRAN-3** would reduce the LOS at Orange Avenue and Spring Street from LOS F to LOS E, as shown in Table 3.5-8. This impact would remain significant because the intersection would deteriorate from LOS D to LOS E, which is considered a significant impact under the City of Long Beach and City of Signal Hill criteria.
- **Year 2038 Buildout plus Project Traffic Conditions without Road Diet** – Two intersections (Orange Avenue/32nd Street and Orange Avenue/Spring Street) would result in significant impacts. Implementation of **Mitigation Measures TRAN-1 and TRAN-2** would reduce these impacts, as shown in Table 3.5-7. Implementation of **Mitigation Measure TRAN-2** would result in a less than significant impact at the intersection of Orange Avenue and Spring Street. However, the City of Signal Hill has jurisdiction over the intersection of Orange Avenue and 32nd Street. The City of Signal Hill does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and 32nd Street. Due to the

fact that **Mitigation Measures TRAN-1** is the responsibility of and is subject to approval by the City of Signal Hill, and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, the impact at Orange Avenue and 32nd Street during PM peak hours is considered significant and unavoidable.

- **Year 2038 Buildout plus Project Traffic Conditions with Road Diet** – Orange Avenue and Spring Street would result in significant impacts. Implementation of **Mitigation Measure TRAN-3** would reduce the ICU value at Orange Avenue and Spring Street, as shown in Table 3.5-9; however, the LOS would remain at an adverse LOS of F. This impact would remain significant because the intersection would deteriorate from LOS D to LOS F, which is considered a significant impact under the City of Long Beach and City of Signal Hill criteria.

Additionally, the Caltrans jurisdictional intersection of Orange Avenue/I-405 Southbound Ramps would result in significant impact under Year 2021 Cumulative with Road Diet and without Road Diet and Year 2038 Buildout with Road Diet and without Road Diet. Implementation of **Mitigation Measures TRAN-4 and TRAN-5** would reduce these impacts, as shown in Table 3.5-6, Table 3.5-7, Table 3.5-8, and Table 3.5-9. However, Caltrans has jurisdiction over the Orange Avenue and I-405 Southbound Ramps intersection. Caltrans does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and I-405 Southbound Ramps. Due to the fact that **Mitigation Measures TRAN-4 and TRAN-5** are subject to approval by and are the responsibility of another agency (Caltrans) and that such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, these impacts are considered significant and unavoidable.

### Mitigation Measures

CEQA Guidelines Section 15126.4(a)(5) states that if the lead agency determines that a mitigation measure cannot be legally imposed, the measure need not be proposed or analyzed. Mitigation Measures TRAN-1, TRAN-4, and TRAN-5 are subject to approval by and are the responsibility of another agency. If the agency responsible for approval determines the measures are infeasible, then the measures would not be imposed by the City of Long Beach.

**TRAN-1 Orange Avenue at 32nd Street without Orange Avenue Bikeway Improvements.**  
Restripe the northbound approach for an exclusive right-turn lane. Modify the existing traffic signal as necessary. These improvements are subject to approval by the City of Signal Hill.

**TRAN-2 Orange Avenue at Spring Street without Orange Avenue Bikeway Improvements.**  
Restripe the northbound approach to provide dual left-turn lanes, a through lane, and a shared through-right turn lane. Restripe the southbound right-turn lane into a shared through-right turn lane. Modify the traffic signal from a two phase signal to a five phase signal, with protected north-south left turn lands. Construct dual southbound left-turn lanes. These improvements are subject to the approval of the City of Long Beach and the City of Signal Hill.



- TRAN-3 Orange Avenue at Spring Street with Orange Avenue Bikeway Improvements.** Construct an exclusive right-turn lane for the northbound and southbound approaches. Modify the existing traffic signal as necessary. These improvements are subject to approval of the City of Long Beach and the City of Signal Hill and will need to consider the City of Long Beach's planned Class IV (Protected Bike Lane) bikeway design/layout for this intersection.
- TRAN-4 Orange Avenue at I-405 Southbound Ramps without Orange Avenue Bikeway Improvements.** Install a three-phase traffic signal; maintain existing intersection lane configuration. These improvements are subject to the approval of Caltrans.
- TRAN-5 Orange Avenue at I-405 Southbound Ramps with Orange Avenue Bikeway Improvements.** Install a three-phase traffic signal. Remove one through lane from the northbound and southbound directions on Orange Avenue. With implementations of improvements associated with the Orange Avenue Class IV Bikeway, the section of Orange Avenue, from 32nd Street south of Spring Street, would be striped as a two-lane divided roadway, with on-street bike lanes and a buffer to separate bicycle traffic from vehicular traffic. These improvements are subject to the approval of Caltrans.

#### Level of Significance after Mitigation

Implementation of **Mitigation Measures TRAN-2 and TRAN-3** would reduce impacts to less than significant under several scenarios. However, impacts would remain significant and unavoidable at the following intersections with the implementation of **Mitigation Measures TRAN-1, TRAN-4, and TRAN-5**:

- **Orange Avenue and Spring Street** – During AM and PM peak hours under 2021 Cumulative Plus Project with Road Diet and AM and PM peak hours under 2038 Buildout Plus Project with Road Diet. The LOS would deteriorate from LOS D to LOS E or F with mitigation implemented, which is considered a significant impact under the City of Long Beach and City of Signal Hill criteria.
- **Orange Avenue and 32nd Street** – During PM peak hours under 2021 Cumulative Plus Project without Road Diet and PM peak hours under 2038 Buildout Plus Project without Road Diet. **Mitigation Measure TRAN-1** is the responsibility of and is subject to approval by the City of Signal Hill, which has jurisdiction over the intersection of Orange Avenue and 32nd Street. The City of Signal Hill does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and 32nd Street. Therefore, such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, and the impact at Orange Avenue and 32nd Street during PM peak hours is considered significant and unavoidable.

### 3.5 Transportation

Draft EIR | Spring Street Business Park Project

- **Orange Avenue and I-405 Southbound Ramps** – During Year 2021 Cumulative with Road Diet and without Road Diet and Year 2038 Buildout with Road Diet and without Road Diet. **Mitigation Measures TRAN-4 and TRAN-5** are the responsibility of and are subject to approval by Caltrans, which has jurisdiction over the Orange Avenue and I-405 Southbound Ramps intersection. Caltrans does not have any plans to improve the impacted intersection, or if it does have plans, those plans are either not funded or on a construction schedule that would not allow for those improvements to be operational by the project's opening year. Furthermore, the City of Long Beach has no independent control or jurisdiction over the implementation of the improvements at Orange Avenue and I-405 Southbound Ramps. Therefore, such improvements are within the responsibility and jurisdiction of another public agency and not the City of Long Beach, and these impacts are considered significant and unavoidable.