

# Westbound State Route 91 Improvement Project

CITIES OF CERRITOS AND ARTESIA, CALIFORNIA  
DISTRICT 7 – LA – 91, (SR-91 PM 16.9–19.8, I-605 PM 5.0–5.8)  
EA 29811/EFIS 0716000284

## Negative Declaration/Finding of No Significant Impact

### Volume I



**Prepared by the  
State of California Department of Transportation**

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.



January 2019

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District 07-LA-91-(SR-91 PM 16.9-19.8, I-605 PM 5.0-5.8)  
EA: 29811/ EFIS: 0716000284  
0700000191

Widening of State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange (westbound SR-91 PM 16.9-19.8 and northbound I-605 PM 5.0-5.8) in the Cities of Cerritos and Artesia, California

## INITIAL STUDY WITH PROPOSED NEGATIVE DECLARATION / ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code  
(Federal) 42 USC 4332(2)(c)

THE STATE OF CALIFORNIA  
Department of Transportation

July 11, 2018  
Date of Approval

  
Ron Kosinski  
Deputy District Director  
California Department of Transportation  
District 7  
CEQA/NEPA Lead Agency

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CALIFORNIA DEPARTMENT OF TRANSPORTATION  
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

Westbound State Route 91 Improvement Project

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), and in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia has determined that the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate project features. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Jan 17, 2019  
Date

Ronald Kosinski  
Ron Kosinski, Deputy District Director  
California Department of Transportation, District 7  
CEQA/NEPA Lead Agency

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## Negative Declaration

Pursuant to: Division 13, Public Resources Code

### ***Project Description***

The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia, The Westbound State Route 91 Improvement Project will widen and improve approximately 4 miles (mi) of freeway along westbound State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange, and at the I-605 northbound exit to Alondra Boulevard. Caltrans has selected the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). Also, as part of the project, the Gridley Road Overcrossing will be improved to a two-lane road with standard shoulders and sidewalks on both sides. The study area includes westbound SR-91 (Post Miles [PM] 16.9-19.8) and northbound I-605 (PM 5.0-5.8) and traverses the cities of Cerritos and Artesia.

### ***Determination***

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on the following resources: Agriculture and Forest Resources, Mineral Resources, Biological Resources.

In addition, the proposed project would have less than significant effects to: Land Use and Planning, Utilities and Service Systems, Public Services, Visual/Aesthetics, Cultural Resources, Tribal Cultural Resources, Hydrology and Water Quality, Geology and Soils, Hazards and Hazardous Materials, Air Quality, Recreation, Noise, Population and Housing, Transportation/Traffic.

 Jan 17, 2019

Ron Kosinski, Deputy District Director  
California Department of Transportation, District 7  
CEQA/NEPA Lead Agency

Date of Approval

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# Chapter 1 Proposed Project

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## 1.1 Introduction

The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia, propose to widen and improve approximately 4 miles (mi) of freeway along westbound State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange, and at the I-605 northbound exit to Alondra Boulevard. The Study Area includes westbound SR-91 (Post Miles [PM] 16.9–19.8) and northbound I-605 (PM 5.0–5.8) and traverses the cities of Cerritos and Artesia. Caltrans, as assigned by the Federal Highway Administration (FHWA), is the Lead Agency for compliance under the National Environmental Policy Act (NEPA). Caltrans is the Lead Agency for compliance under the California Environmental Quality Act (CEQA). Figure 1-1 shows the project location and vicinity.

The Westbound SR-91 Improvement Project (project) is funded by County of Los Angeles Measure R sales tax funds, which are administered by Metro. Under Measure R, \$590 million has been set aside for the I-605 “Hot Spots” Program. The project cost is estimated at \$140 million and will be listed as an Early Action priority. Metro has been awarded \$32 million in 2018 Trade Corridor Enhancement Program (TCEP) funds by the California Transportation Commission (CTC) to design and construct the project.

California participated in the Surface Transportation Project Delivery Pilot Program (Pilot Program), pursuant to 23 United States Code (USC) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. The Moving Ahead for Progress in the 21st Century Act (MAP-21 [P.L. 112-141]), signed by President Barack Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of 5 years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary’s

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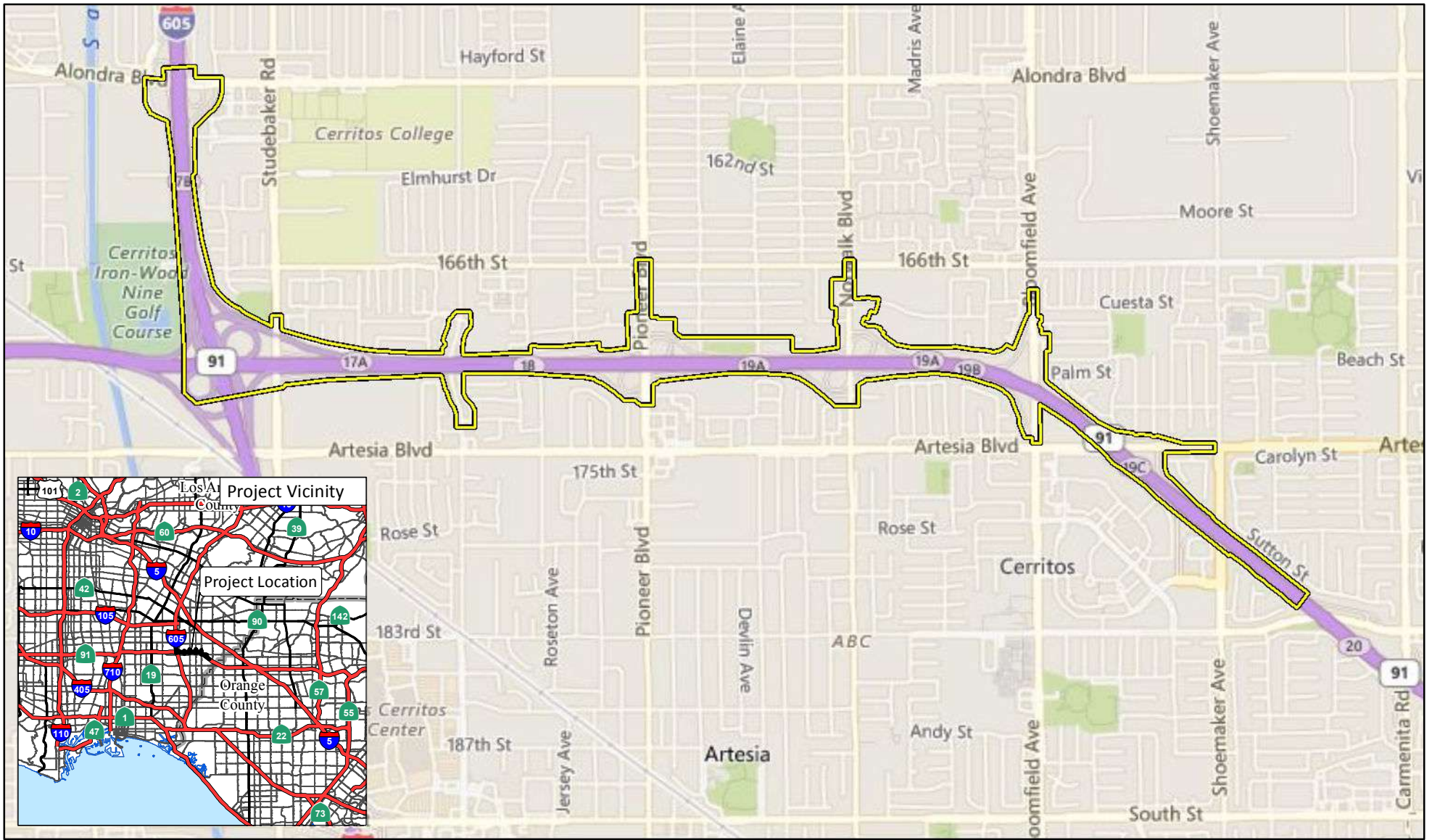

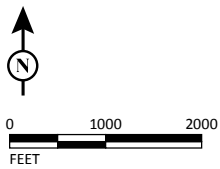


FIGURE 1-1

LEGEND  
 Study Area Limits



SOURCE: Bing Maps (2014); Michael Baker (4/2017)  
 I:\RBF1601\GIS\MXD\ProjectLocation\_Streets.mxd (4/5/2018)

Westbound SR-91 Improvement Project

Project Location

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA-07-29811

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responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions (CE) that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The proposed project is listed in Amendment #3 to the 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and was adopted on September 6, 2018. The proposed project is included in the Federal Transportation Improvement Program (FTIP), Amendment #17-22. The FTIP was approved by the SCAG on July 31, 2018, and the FTA and FHWA approved the FTIP on December 17, 2018.

## **1.2 Purpose and Need**

### **1.2.1 Purpose**

The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations.







### **1.2.2 Need**

Westbound SR-91 approaching the connector ramp for both northbound and southbound I-605 currently experiences substantial congestion, which will continue in the future No Build condition. This congestion, as a result of inadequate capacity of the existing two-lane connector for westbound SR-91 to northbound and southbound I-605 as well as the closely spaced freeway entrance and exit ramps, contributes to a high concentration of accidents.

#### **1.2.2.1 Capacity, Transportation Demand, and Safety**

##### ***Existing Capacity and Levels of Service***

Freeway traffic flow can be defined in terms of levels of service (LOS). There are six defined LOS for freeways: LOS A to LOS F. As shown on Figure 1-2, LOS A represents free traffic flow with low traffic volumes and high speeds, and LOS F represents traffic volumes that exceed the facility capacity and result in forced flow operations at low speeds.

| <h1 style="text-align: center;">LEVELS OF SERVICE</h1> <p style="text-align: center;">for Freeways</p> |   |                       |  |
|--|---|-----------------------|--|
| Level of Service   | Flow Conditions   | Operating Speed (mph) | Technical Descriptions   |
| <b>A</b>   |    | 70                    | Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability.<br><b>No delays</b>         |
| <b>B</b>   |    | 70                    | Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted.<br><b>No delays</b>                  |
| <b>C</b>   |    | 67                    | Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes.<br><b>Minimal delays</b> |
| <b>D</b>   |  | 62                    | Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited.<br><b>Minimal delays</b>                       |
| <b>E</b>   |  | 53                    | Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor.<br><b>Significant delays</b>                          |
| <b>F</b>   |  | <53                   | Very congested traffic with traffic jams, especially in areas where vehicles have to merge.<br><b>Considerable delays</b>                |

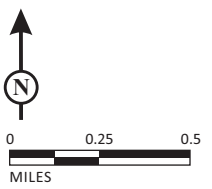
**Figure 1-2 LOS Thresholds for a Basic Freeway Segment**

The results of the Draft Traffic Analysis Report (which used the Highway Capacity Manual (HCM) method of analysis for determining LOS), provided in Table 1.1 and shown on Figure 1-3 (a.m. peak period) and Figure 1-4 (p.m. peak period), indicate that all existing freeway mainline segments are currently operating at LOS D or better during the peak hours. All freeway mainline segments would also operate at LOS D





FIGURE 1-3



SOURCE: Revised Draft Traffic Analysis Report, 2017

*Westbound SR-91 Improvement Project*  
 Year 2016 Existing Conditions Level of Service Analysis  
 Based on HCM Method - AM Peak Period

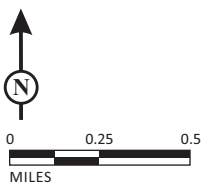
07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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FIGURE 1-4



SOURCE: Revised Draft Traffic Analysis Report, 2017

*Westbound SR-91 Improvement Project*  
 Year 2016 Existing Conditions Level of Service Analysis  
 Based on HCM Method - PM Peak Period

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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**Table 1.1 Year 2016 Existing Conditions Freeway Mainline Level of Service Analysis – Highway Capacity Manual Method**

| Segment Location   | AM Peak Hour       |     | PM Peak Hour       |     |
|--|--------------------|-----|--------------------|-----|
|  | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Westbound SR-91  |                    |     |                    |     |
| Carmenita Road Off-Ramp to 183 <sup>rd</sup> Street On-Ramp        | 23.8               | C   | 25.1               | C   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | 22.9               | C   | 24.4               | C   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | 25.3               | C   | 27.5               | D   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | 25.6               | C   | 27.9               | D   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | 27.2               | D   | 29.3               | D   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | 27.6               | D   | 30.0               | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | 28.6               | D   | 31.8               | D   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | 22.0               | C   | 26.4               | D   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | 19.6               | C   | 25.0               | C   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | 18.8               | C   | 25.4               | C   |

Source: Table 2-8, *Traffic Operations Analysis Report* (2018).

I-605 = Interstate 605      pc/mi/ln = passenger car per mile per lane      WB = westbound  
 LOS = level of service      SB = southbound  
 NB = northbound      SR-91 = State Route 91

or better during peak hours in the 2024 No Build scenario. Caltrans strives for freeway facilities to operate at either LOS C or D. Further details regarding existing and future traffic conditions are provided in Section 2.5, Traffic.

All existing freeway weaving segments operate at LOS D or better during the peak hours, except for the weaving segment from the Pioneer Boulevard on-ramp to the I-605 off-ramp for which the HCM results indicate LOS F, as shown in Table 1.2. All existing freeway merge and diverge segments operate at LOS D or better during peak hours, as shown in Table 1.3. All existing intersections in the Study Area operate at LOS D or better during peak hours, as shown in Table 1.4.

**Table 1.2 Year 2016 Existing Conditions Freeway Weaving Analysis**

| Segment Location   | AM Peak Hour       |     | PM Peak Hour       |     |
|--|--------------------|-----|--------------------|-----|
|  | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Westbound SR-91  |                    |     |                    |     |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | 26.7               | C   | 27.7               | C   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | 27.7               | C   | 30.1               | D   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | 28.8               | D   | 32.0               | D   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | –                  | F   | –                  | F   |
| Northbound I-605   |                    |     |                    |     |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | –                  | F   | –                  | F   |

Source: Table 2-10, *Traffic Operations Analysis Report* (2018).

Note: Shaded cells indicate unsatisfactory LOS (i.e., LOS E or F).

I-605 = Interstate 605      pc/mi/ln = passenger cars per mile per lane      WB = westbound  
 LOS = level of service      SB = southbound  
 NB = northbound      SR-91 = State Route 91

**Table 1.3 Year 2016 Existing Conditions Freeway Merge and Diverge Analysis**

| Junction                       | Merge/<br>Diverge | AM Peak Hour          |     | PM Peak Hour          |     |
|--------------------------------|-------------------|-----------------------|-----|-----------------------|-----|
|                                |                   | Density<br>(pc/mi/ln) | LOS | Density<br>(pc/mi/ln) | LOS |
| Westbound SR-91                |                   |                       |     |                       |     |
| Artesia Boulevard On-Ramp      | Merge             | 21.8                  | C   | 24.4                  | C   |
| Norwalk Boulevard Loop On-Ramp | Merge             | 22.1                  | C   | 23.2                  | C   |
| Pioneer Boulevard Loop On-Ramp | Merge             | 22.3                  | C   | 24.7                  | C   |
| Studebaker Road Off-Ramp       | Diverge           | 25.6                  | C   | 29.0                  | D   |
| I-605 NB On-Ramp               | Merge             | 20.3                  | C   | 29.4                  | D   |

Source: Table 2-11, *Traffic Operations Analysis Report* (2018).

I-605 = Interstate 605

LOS = level of service

NB = northbound

pc/mi/ln = passenger cars per mile per lane

SR-91 = State Route 91

**Table 1.4 Year 2016 Existing Conditions Intersection Level of Service Analysis**

| Intersection                        | AM Peak Hour    |     | PM Peak Hour    |     |
|-------------------------------------|-----------------|-----|-----------------|-----|
|                                     | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| Westbound SR-91                     |                 |     |                 |     |
| WB SR-91 Off-Ramp/Artesia Boulevard | 22.5            | C   | 19.0            | B   |
| Bloomfield Avenue/WB SR-91 On-Ramp  | 10.5            | B   | 8.4             | A   |
| Norwalk Boulevard/WB SR-91 Off-Ramp | 9.9             | A   | 6.9             | A   |
| Pioneer Boulevard/WB SR-91 Off-Ramp | 7.2             | A   | 6.4             | A   |
| Studebaker Road/WB SR-91 Off-Ramp   | 16.5            | B   | 8.3             | A   |
| Northbound I-605                    |                 |     |                 |     |
| NB I-605 Off-Ramp/Alondra Boulevard | 25.1            | C   | 38.9            | D   |

Source: Table 2-13, *Traffic Operations Analysis Report* (2018).

I-605 = Interstate 605

LOS = level of service

NB = northbound

sec/veh = seconds per vehicle

SR-91 = State Route 91

WB = westbound

In areas with long vehicle queues, slow speeds, and high levels of congestion, the HCM method of analysis can report LOS that is better than what drivers actually experience on the road. In order to report LOS that more closely reflects what drivers experience, the speed method of analysis for determining LOS was also employed. The speed method of analysis included observing existing speed profiles in the Study Area and comparing those speeds to likely LOS designations.

Based on the speed method of analysis, the existing freeway mainline segments mostly experience LOS E and LOS F during both peak periods, as shown in Table 1.5 and on Figure 1-5 (a.m. peak period) and Figure 1-6 (p.m. peak period). It should be noted that the segments analyzed using the speed method are different than the segments analyzed using the HCM method because the HCM segments are determined based on criteria used in the HCM manual that define analysis segments. However, for the speed method, the locations are entirely dependent on the locations of the Caltrans Performance Measurement System (PeMS) detector stations that provided the speed information.

**Table 1.5 Year 2016 Existing Conditions Freeway Mainline Level of Service Analysis – Speed Method**

| Segment Location   | AM Peak Hour        |     | PM Peak Hour        |     |
|--|---------------------|-----|---------------------|-----|
|  | Average Speed (mph) | LOS | Average Speed (mph) | LOS |
| <b>Westbound SR-91</b>   |                     |     |                     |     |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | 40.0                | D   | 30.0                | E   |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp                 | 29.0                | F   | 27.0                | F   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | 25.0                | F   | 22.0                | F   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | 22.0                | F   | 21.0                | F   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp            | 20.0                | F   | 22.0                | F   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | 28.0                | F   | 32.0                | E   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp     | 39.0                | D   | 41.0                | D   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | 33.0                | E   | 37.0                | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | 37.0                | D   | 46.0                | C   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB and SB)     | 44.0                | D   | 47.0                | C   |
| <b>Northbound I-605</b>  |                     |     |                     |     |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                     | 32.0                | E   | 40.0                | D   |

Source: Table 2-9, *Traffic Operations Analysis Report* (2018).  
 Note: Shaded cells indicate unsatisfactory LOS (i.e., LOS E or F).  
 I-605 = Interstate 605      SB = southbound  
 LOS = level of service      SR-91 = State Route 91  
 mph = miles per hour      WB = westbound  
 NB = northbound

The existing (2016) congestion during peak hours along westbound SR-91 is caused by the freeway geometric design along the Study Area and the high traffic demand. The two-lane westbound to northbound/southbound freeway-to-freeway connector ramp continues to worsen as the peak-hour flow of traffic creates vehicle queues. The vehicle queues cause slowing and congestion on westbound SR-91 leading up to the I-605 connector ramp. Demand is forecast to increase in the absence of physical and operational improvements.

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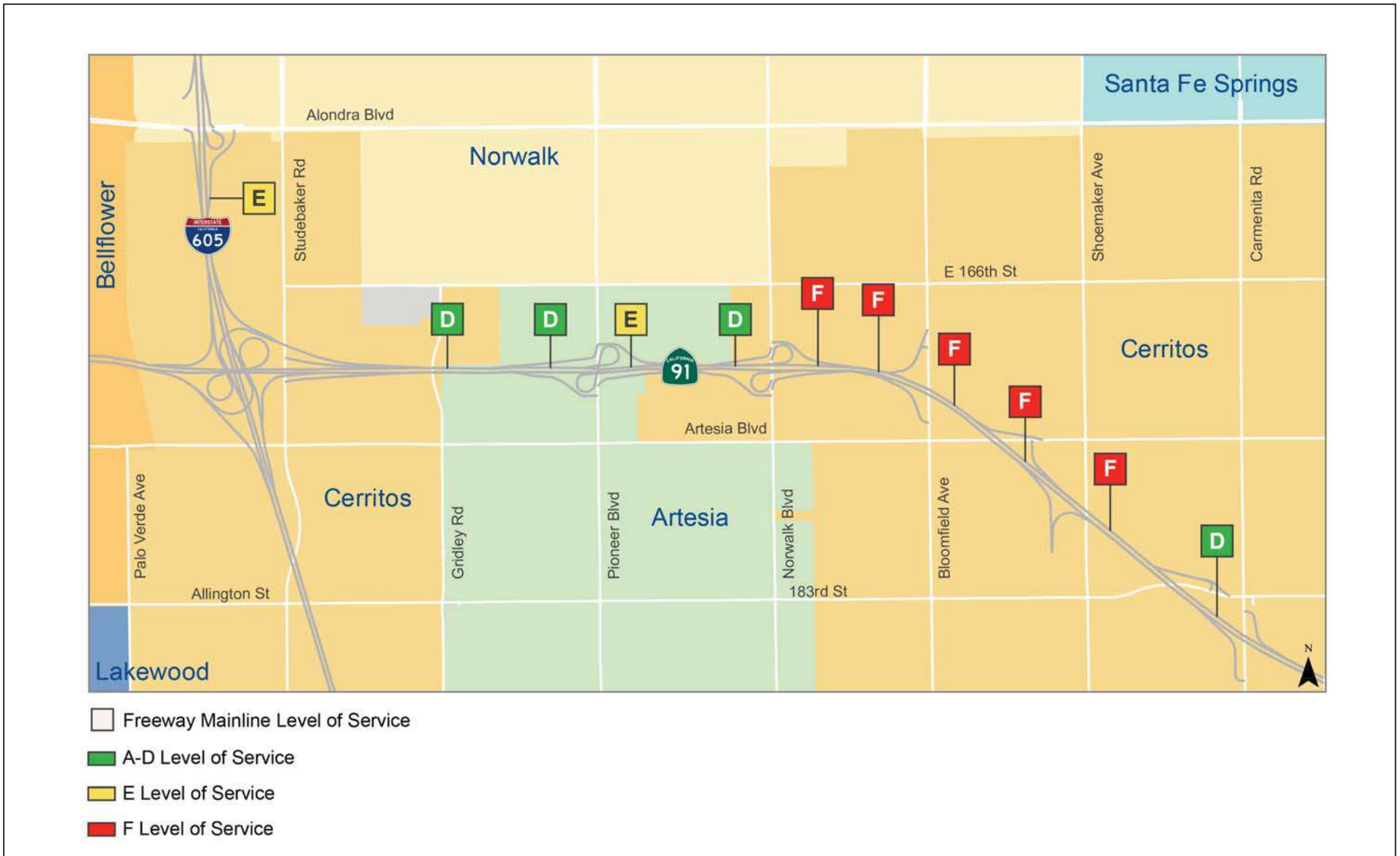
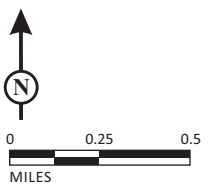


FIGURE 1-5



SOURCE: Revised Draft Traffic Analysis Report, 2017

*Westbound SR-91 Improvement Project*  
 Year 2016 Existing Conditions Level of Service Analysis  
 Based on Speeds - AM Peak Period

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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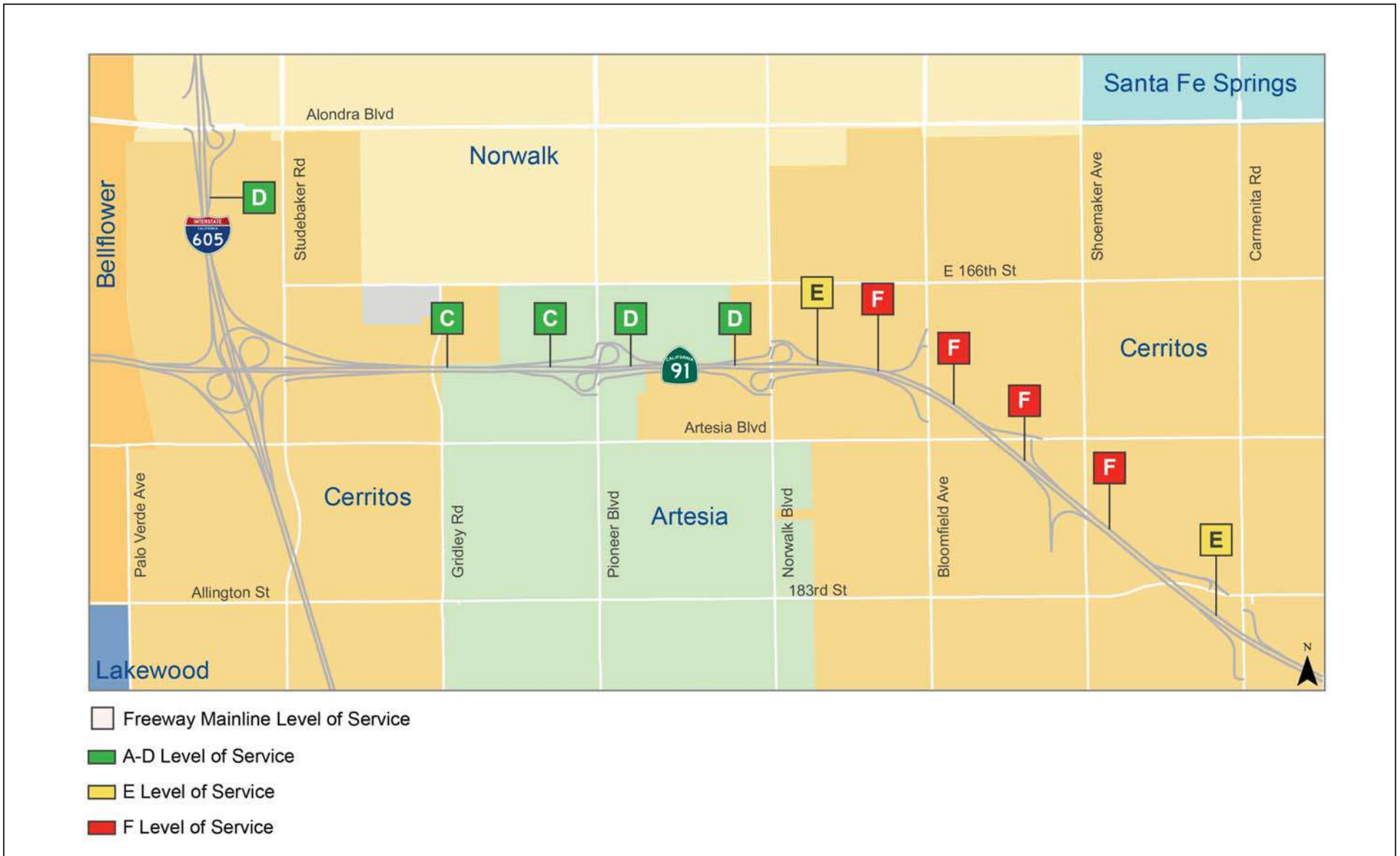
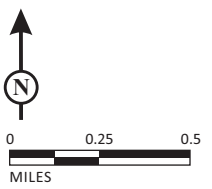


FIGURE 1-6



SOURCE: Revised Draft Traffic Analysis Report, 2017

*Westbound SR-91 Improvement Project*  
 Year 2016 Existing Conditions Level of Service Analysis  
 Based on Speeds - PM Peak Period

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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The congestion caused by the ramp is then worsened by current geometric conditions, including the closely spaced arterial interchanges at Pioneer Boulevard, Norwalk Boulevard, and Bloomfield Avenue. These ramps are spaced much closer together than current freeway design standards allow, and this close spacing further contributes to congestion due to inadequate distances for vehicles to merge and weave to access the freeway on- and off-ramps. The interchange improvements would increase vehicular weaving and merging distances between interchanges.

### ***Travel Times and Speeds***

As shown in Table 1.5, traffic speeds are slowest at the eastern end of the Study Area and increase going to the west. This is a result of the fact that over 3,000 vehicles in the peak hour exit from westbound SR-91 to I-605, thereby reducing the traffic demand on the remaining lanes on westbound SR-91. Additionally, traffic speeds leading to the I-605 connector ramp and on the I-605 ramp are low. SR-91 is the closest east-west corridor to the two ports and provides direct access to many major warehouse clusters and distribution centers in the region.

### ***Accidents and Safety***

Accident data for the project limits are provided in Tables 1.6 and 1.7 for the 3-year period from January 1, 2012, through December 31, 2014. The accident data were obtained from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) database.

As shown in Tables 1.6 and 1.7, a total of 1,177 accidents occurred within the project limits, including the mainline segments, freeway-to-freeway direct connect ramps, and freeway-to-arterial ramps. The majority of the accidents (88 percent) occurred on the mainline segments, while the remainder (12 percent) occurred at the freeway-to-freeway direct connect ramps and freeway-to-arterial ramps. Approximately 82 percent of mainline accidents occurred on westbound SR-91. The accident rates at 12 locations were higher than the statewide averages for fatal plus injury accidents, while accident rates at 11 locations were higher than the statewide averages for total accidents. The locations where the actual accident rate is greater than the statewide average accident rate for similar facilities are highlighted on Figure 1-7.

**Table 1.6 Westbound SR-91 Freeway, Summary of Existing (01/2012–12/2014) Accident Rates**

| Map No. <sup>1</sup>                             | Location  | Actual Accident Rates <sup>2,3</sup> |                |       | Statewide Average Accident Rates <sup>2</sup> |                |       | Number of Accidents <sup>2</sup> |           |           |       |
|--|---|--------------------------------------|----------------|-------|---|----------------|-------|----------------------------------|-----------|-----------|-------|
|  |   | Fatal                                | Fatal + Injury | Total | Fatal   | Fatal + Injury | Total | Fatal                            | Injury    | PDO       | Total |
| <b>Freeway Mainline Segments</b>                 |   |                                      |                |       |   |                |       |                                  |           |           |       |
|  | Bellflower Boulevard to I-605 Freeway Interchange   | 0.000                                | 0.180          | 0.500 | 0.003   | 0.280          | 0.960 | 0 (0%)                           | 35 (36%)  | 61 (64%)  | 96    |
|  | I-605 Freeway Interchange to Studebaker Road        | 0.000                                | 0.330          | 0.830 | 0.004   | 0.340          | 1.110 | 0 (0%)                           | 8 (40%)   | 12 (60%)  | 20    |
| 1  | Studebaker Road to Pioneer Boulevard                | 0.000                                | 0.670          | 1.990 | 0.004   | 0.310          | 1.050 | 0 (0%)                           | 100 (34%) | 198 (66%) | 298   |
| 2  | Pioneer Boulevard to Norwalk Boulevard              | 0.012                                | 0.690          | 2.550 | 0.004   | 0.320          | 1.050 | 1 (1%)                           | 56 (26%)  | 153 (73%) | 210   |
| 3  | Norwalk Boulevard to Bloomfield Avenue              | 0.000                                | 0.320          | 1.230 | 0.004   | 0.310          | 1.030 | 0 (0%)                           | 25 (26%)  | 70 (74%)  | 95    |
| 4  | Bloomfield Avenue to Artesia Avenue                 | 0.000                                | 0.370          | 1.270 | 0.004   | 0.310          | 1.020 | 0 (0%)                           | 13 (29%)  | 32 (71%)  | 45    |
|  | Artesia Avenue to Shoemaker Avenue                  | 0.000                                | 0.290          | 0.810 | 0.004   | 0.300          | 1.000 | 0 (0%)                           | 11 (35%)  | 20 (65%)  | 31    |
|  | Shoemaker Avenue to Carmenita Road                  | 0.000                                | 0.150          | 0.620 | 0.003   | 0.270          | 0.910 | 1 (2%)                           | 14 (23%)  | 46 (75%)  | 61    |
| <b>Freeway-to-Freeway Direct Connector Ramps</b> |   |                                      |                |       |   |                |       |                                  |           |           |       |
| 5  | WB SR-91 On-Ramp from SB I-605 Freeway              | 0.000                                | 0.160          | 0.490 | 0.003   | 0.110          | 0.320 | 0 (0%)                           | 5 (33%)   | 10 (67%)  | 15    |
| 6  | WB SR-91 Loop On-Ramp from NB I-605 Freeway         | 0.000                                | 0.200          | 0.980 | 0.004   | 0.210          | 0.720 | 0 (0%)                           | 4 (20%)   | 16 (80%)  | 20    |
| 7  | WB SR-91 Off-Ramp to I-605 Freeway (both NB and SB) | 0.000                                | 0.220          | 0.790 | 0.002   | 0.080          | 0.250 | 0 (0%)                           | 13 (28%)  | 33 (72%)  | 46    |
| <b>Freeway-to-Arterial Ramps</b>                 |   |                                      |                |       |   |                |       |                                  |           |           |       |
| 8  | WB SR-91 Off-Ramp to Studebaker Road                | 0.000                                | 0.450          | 0.680 | 0.003   | 0.350          | 1.010 | 0 (0%)                           | 2 (67%)   | 1 (33%)   | 3     |
|  | WB SR-91 On-Ramp from SB Pioneer Boulevard          | 0.000                                | 0.000          | 0.170 | 0.003   | 0.180          | 0.570 | 0 (0%)                           | 0 (0%)    | 1 (100%)  | 1     |
|  | WB SR-91 Loop On-Ramp from NB Pioneer Boulevard     | 0.000                                | 0.160          | 0.470 | 0.002   | 0.210          | 0.730 | 0 (0%)                           | 1 (33%)   | 2 (67%)   | 3     |
|  | WB SR-91 Off-Ramp to Pioneer Boulevard              | 0.000                                | 0.150          | 0.880 | 0.003   | 0.350          | 1.010 | 0 (0%)                           | 1 (17%)   | 5 (83%)   | 6     |
| 9  | WB SR-91 On-Ramp from SB Norwalk Boulevard          | 0.000                                | 0.520          | 1.040 | 0.003   | 0.180          | 0.570 | 0 (0%)                           | 2 (50%)   | 2 (50%)   | 4     |
| 10   | WB SR-91 Loop On-Ramp from NB Norwalk Boulevard     | 0.000                                | 0.290          | 0.290 | 0.002   | 0.210          | 0.730 | 0 (0%)                           | 1 (100%)  | 0 (0%)    | 1     |
| 11   | WB SR-91 Off-Ramp to Norwalk Boulevard              | 0.000                                | 1.290          | 1.550 | 0.003   | 0.350          | 1.010 | 0 (0%)                           | 5 (83%)   | 1 (17%)   | 6     |
|  | WB SR-91 On-Ramp from Bloomfield Avenue             | 0.000                                | 0.000          | 0.200 | 0.002   | 0.220          | 0.630 | 0 (0%)                           | 0 (0%)    | 2 (100%)  | 2     |
| 12   | WB SR-91 On-Ramp from WB Artesia Boulevard          | 0.000                                | 1.050          | 1.390 | 0.003   | 0.180          | 0.570 | 0 (0%)                           | 6 (75%)   | 2 (25%)   | 8     |
| 13   | WB SR-91 Off-Ramp to Artesia Boulevard              | 0.000                                | 1.120          | 1.600 | 0.003   | 0.350          | 1.010 | 0 (0%)                           | 7 (70%)   | 3 (30%)   | 10    |

Source: Table B, Traffic Accident Surveillance and Analysis System–Transportation System Network (TASAS-TSN).

<sup>1</sup> Map numbers correspond to numbers on Figure 1-7.

<sup>2</sup> Accident rates are per million vehicle miles traveled for the mainline and per million vehicles for the connector and arterial ramps.

<sup>3</sup> Shaded cells indicate accident rates that are higher than the statewide average.

Caltrans = California Department of Transportation

SB = southbound

I-605 = Interstate 605

SR-91 = State Route 91

NB = northbound

WB = westbound

PDO = property damage only

**Table 1.7 Northbound I-605 Freeway, Summary of Existing (01/2012–12/2014) Accident Rates**

| Location                                       | Actual Accident Rates <sup>1</sup> |                |       | Statewide Average Accident Rates <sup>1</sup> |                |       | Number of Accidents <sup>1</sup> |          |          |       |
|--|------------------------------------|----------------|-------|---|----------------|-------|----------------------------------|----------|----------|-------|
|  | Fatal                              | Fatal + Injury | Total | Fatal   | Fatal + Injury | Total | Fatal                            | Injury   | PDO      | Total |
| Freeway Mainline Segments                      |                                    |                |       |   |                |       |                                  |          |          |       |
| South Street to SR-91 Freeway Interchange      | 0.006                              | 0.170          | 0.658 | 0.004   | 0.280          | 0.920 | 1 (1%)                           | 27 (25%) | 82 (74%) | 110   |
| SR-91 Freeway Interchange to Alondra Boulevard | 0.000                              | 0.170          | 0.600 | 0.003   | 0.270          | 0.910 | 0 (0%)                           | 21 (28%) | 53 (72%) | 74    |
| Freeway-to-Freeway Direct Connector Ramps      |                                    |                |       |   |                |       |                                  |          |          |       |
| NB I-605 On-Ramp from WB SR-91 Freeway         | 0.000                              | 0.050          | 0.150 | 0.003   | 0.110          | 0.320 | 0 (0%)                           | 2 (33%)  | 4 (67%)  | 6     |
| Freeway-to-Arterial Ramps                      |                                    |                |       |   |                |       |                                  |          |          |       |
| NB I-605 Off-Ramp to Alondra Boulevard         | 0.000                              | 0.080          | 0.470 | 0.003   | 0.350          | 1.010 | 0 (0%)                           | 1 (17%)  | 5 (83%)  | 6     |

Source: Table B, Traffic Accident Surveillance and Analysis System–Transportation System Network (TASAS-TSN).

<sup>1</sup> Accident rates are per million vehicle miles traveled for the mainline and per million vehicles for the connector and arterial ramps.

Caltrans = California Department of Transportation

I-605 = Interstate 605

NB = northbound

PDO = property damage only

SR-91 = State Route 91

WB = westbound

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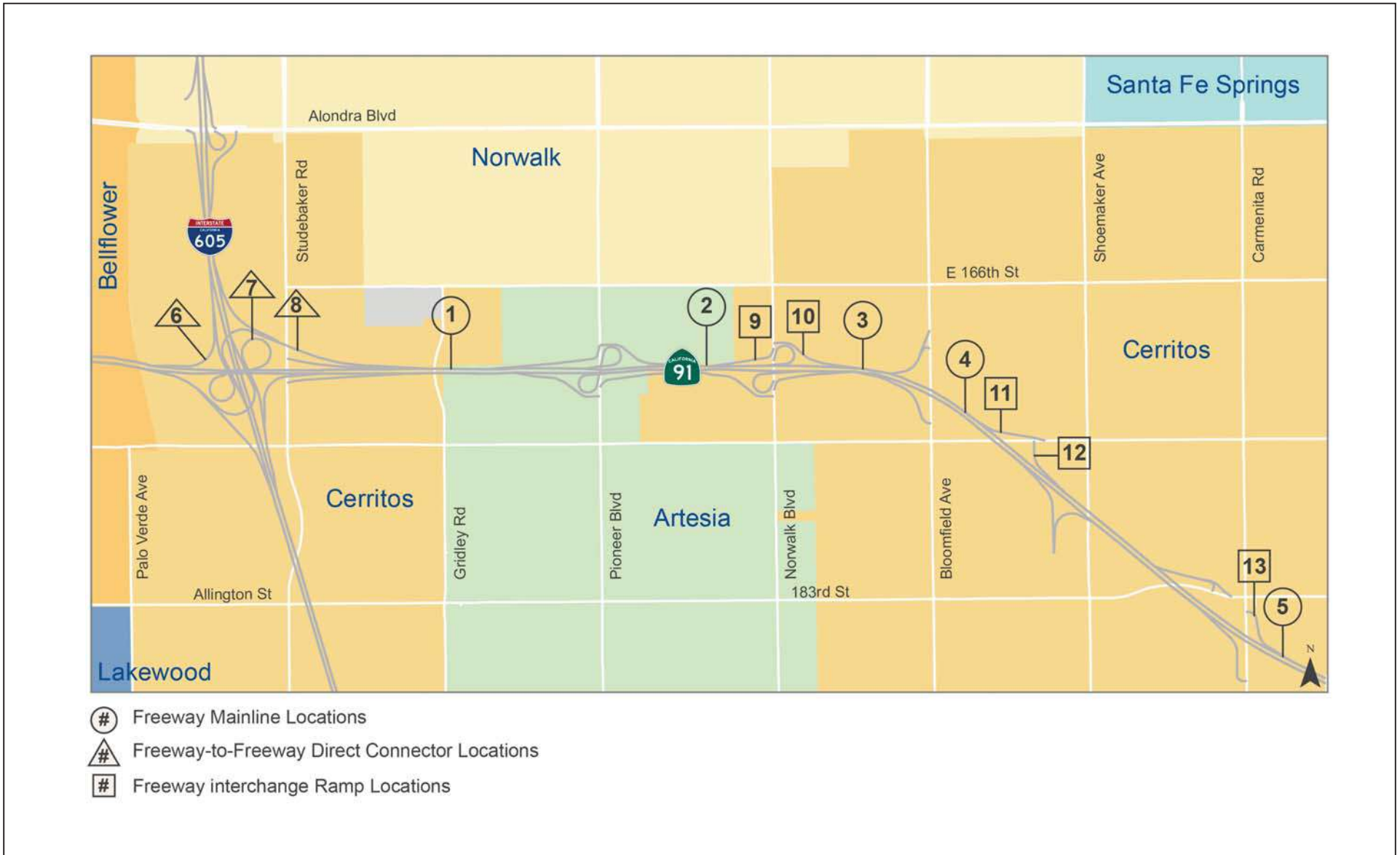
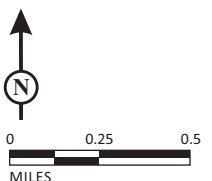


FIGURE 1-7



SOURCE: Intueor Consulting, Inc., 2017

Westbound SR-91 Improvement Project  
 Accident Concentration Locations with Actual  
 Accident Rates Greater than the Statewide Average

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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Rear-end collisions were the most common accident type. Other key accident types included broadside and hit-objects. Rear-end collisions are typically related to traffic congestion in chokepoint areas and are associated with sudden attempts to stop when traffic volumes exceed the capacity of the road. The majority of broadside accidents can usually be attributed to merging/diverging vehicle movements.

### **1.2.2.2 Roadway Deficiencies**

The traffic congestion, delays, and reduced travel speeds currently experienced in the Study Area are partly the result of the segment of westbound SR-91 approaching the connector ramp for both northbound and southbound I-605, which currently experiences substantial congestion and low peak-hour speeds and will continue to do so in the future No-Build condition. Closely spaced freeway entrance and exit ramps result in a high concentration of accidents.

### **1.2.2.3 Social Demands and Economic Development**

From 2016 to 2044, the SCAG regional population<sup>1</sup> is forecast to grow by 18 percent, and the Study Area population is forecast to grow by 12 percent. During this same period, employment is anticipated to follow a different pattern, with regional employment forecast to grow by 23 percent and Study Area employment forecast to grow by 27 percent. The rate of population growth is projected to be lower in the Study Area than in the SCAG region because the Study Area is almost completely developed. New growth will be limited to smaller, infill-type developments. The rate of employment growth is projected to be higher in the Study Area than in the SCAG region because employment in the Study Area tends to be in industry sectors that are projected to experience substantial growth over the next several decades (education, health care, and professional services). For historical context, the regional population was approximately 8 million in 1960 (SCAG 2015). The 2016 regional population of nearly 19 million represents a 135 percent increase since 1960. The 2016 RTP growth forecast was the basis for the regional traffic modeling that was conducted for the project.

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<sup>1</sup> The SCAG regional population includes Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County.

#### **1.2.2.4 Legislation**

##### ***Measure R Initiative***

The proposed project is part of a larger program of transportation improvements included in Metro's Measure R<sup>1</sup>. Measure R, a 1/2-cent sales tax for Los Angeles County, is expected to provide \$40 billion in local sales tax revenues over 30 years. Measure R, which took effect July 2009, provided funding for new transportation projects and programs and current projects already in development. These future and current projects include new rail and/or bus rapid transit projects, commuter rail improvements, Metro Rail system improvements, highway projects, improved countywide local bus operations, and local city-sponsored transportation improvements.

#### **1.2.2.5 Modal Interrelationships and System Linkages**

Bus service within the Study Area includes three Long Beach Transit (LBT) routes, two Cerritos on Wheels routes, two Norwalk Transit System (NTS) routes, one Orange County Transportation Authority (OCTA) route, and three Metro routes. The Study Area is also slated to receive rail service from the proposed Metro West Santa Ana Branch (WSAB) light rail line<sup>2</sup> in the coming years. As described in Section 1.3 below, the proposed project would provide improvements for pedestrians that would result in better first-mile/last-mile transit access.

#### **1.2.2.6 Logical Termini and Independent Utility**

Federal regulations (23 Code of Federal Regulations [CFR] 771.111(f)) require that "logical termini" and "independent utility" be established for a transportation improvement project evaluated under NEPA. The project limits were defined based on providing a logical and independent set of improvements. Logical termini are defined as rational end points for transportation improvement and analysis of the potential environmental impacts of a proposed project. A project is defined as having independent utility if it meets the project purpose in the absence of other improvements in the project limits.

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<sup>1</sup> Los Angeles County Metropolitan Transportation Authority (Metro). Measure R. Website: <https://www.metro.net/projects/measurer/> (accessed November 11, 2017).

<sup>2</sup> Los Angeles County Metropolitan Transportation Authority (Metro). West Santa Ana Branch Transit Corridor. Website: <https://www.metro.net/projects/west-santa-ana/> (accessed November 11, 2017).

### ***Logical Termini***

The focus of the proposed project is to reduce congestion and improve freeway operations. The environmental study limits extend from approximately Shoemaker Avenue to I-605 and north on I-605 to Alondra Boulevard, although actual improvements may not be included along this entire length. As shown in Table 1.5, Year 2016 Existing Conditions Freeway Mainline Level of Service Analysis, LOS E and LOS F conditions occur on westbound SR-91 during both the a.m. and p.m. peak hours within the study limits. Similarly, as shown in Table 1.6, Westbound SR-91 Freeway, Summary of Existing Accident Rates, accident rates are higher than the statewide average for the section of westbound SR-91 from Bloomfield Avenue to Studebaker Road within the study limits. The proposed geometric design features are expected to result in improved operating conditions throughout the length of the project, with reductions in vehicle delay and travel time. Safety would be improved as a result of increased weaving distances between interchanges. The proposed project provides logical termini because the western and eastern termini assure a sufficient length of alignment (approximately 4 mi) to integrate the proposed westbound SR-91 widening and Pioneer Boulevard and Norwalk Boulevard interchange improvements with existing facilities and avoid any abrupt transitions.

### ***Independent Utility***

The mixed-flow lane in the westbound direction for SR-91, the auxiliary lanes, and the interchange modifications included in the proposed project would provide benefits to the traveling public without requiring or being dependent on the provision of other improvements on SR-91 or other freeways or arterials. These improvements would benefit travelers as they enter/exit the freeway or travel in the general-purpose and high-occupancy vehicle (HOV) lanes. The proposed project represents a reasonable expenditure even if no additional transportation improvements are made in the corridor, it can be implemented in the absence of any other improvements, and it does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements in the SR-91 corridor and areas adjacent to the project limits. The proposed project would have independent utility because it meets the project purpose in the absence of other improvements in the SR-91 corridor.

## **1.3 Project Description**

This section describes the proposed action and the project alternative developed to meet the purpose and need of the project and to avoid or minimize environmental impacts. The alternatives are the Build Alternative and the No Build Alternative.

The project is located in southeast Los Angeles County on westbound SR-91 (PM 16.9–19.8) and I-605 (PM 5.0–5.8). The total length of the project is approximately 4 mi, with the majority of improvements along the westbound SR-91 three-mile segment.

### **1.3.1 Existing Freeway Mainline**

Within the project limits, westbound SR-91 includes four mixed-flow lanes that are 11 feet (ft) wide, a 1.5 ft wide left median shoulder, a 12 ft wide HOV lane, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps. Within the project limits, I-605 has four to five mixed-flow lanes and one HOV lane in each direction plus ramp merge and diverge lanes.

### **1.3.2 Existing Ramps and Interchanges (East to West and South to North)**

The SR-91/Artesia Boulevard westbound off-ramp terminus is located at the eastern end of the Study Area. The exit ramp splits into one left-turn lane and one right-turn lane. The Artesia Boulevard westbound on-ramp currently is a direct ramp from Artesia Boulevard that merges onto SR-91 just east of the Bloomfield Avenue overpass.

The SR-91/Bloomfield Avenue westbound on-ramp is located northwest of the SR-91/Artesia Boulevard westbound off-ramp. The Bloomfield Avenue westbound on-ramp currently is a direct ramp from Bloomfield Avenue that merges onto SR-91 just west of Bloomfield Avenue.

SR-91 forms a partial cloverleaf interchange with Norwalk Boulevard. The westbound side consists of a two-lane off-ramp at Norwalk Boulevard, a one-lane on-ramp from southbound Norwalk Boulevard, and a one-lane loop on-ramp from northbound Norwalk Boulevard.

Similar to the SR-91/Norwalk Boulevard interchange, the SR-91/Pioneer Boulevard interchange is a partial cloverleaf. The westbound side of the interchange consists of a two-lane off-ramp at Pioneer Boulevard, a two-lane on-ramp from southbound Pioneer Boulevard (with one dedicated HOV lane), and a one-lane loop on-ramp from northbound Pioneer Boulevard.

The existing outside lane of the westbound SR-91 to the northbound I-605 two-lane connector ramp terminates as a trapped auxiliary lane for the northbound I-605 exit to Alondra Boulevard; the outside lane forces the driver to exit at Alondra Boulevard.

The SR-91/Studebaker Road westbound off-ramp splits into two lanes and is located immediately west of the SR-91/I-605 freeway-to-freeway connector.

The existing outside lane of the westbound SR-91 to the northbound I-605 two-lane connector ramp terminates as a trapped auxiliary lane for the northbound I-605 exit to Alondra Boulevard; the outside lane forces the driver to exit at Alondra Boulevard. The northbound I-605 Alondra Boulevard off-ramp splits into two lanes.

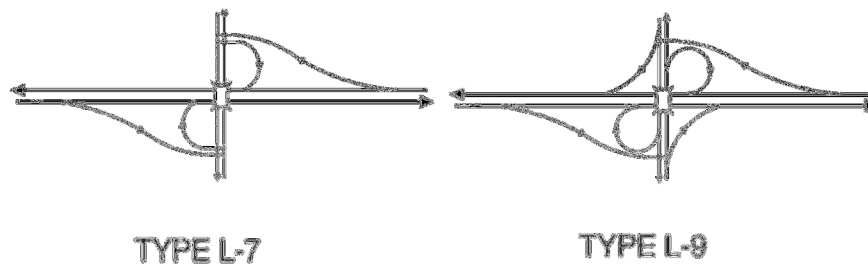
### 1.3.3 Alternatives

#### 1.3.3.1 Build Alternative

The Build Alternative would add one new mixed-flow lane in the westbound direction on SR-91 from approximately Shoemaker Avenue to I-605, joining at the point where the westbound SR-91 to northbound I-605 connector ramp flares from one to two lanes. In addition, the new mixed-flow lane would create a three-lane exit movement on westbound SR-91 to both the northbound and southbound I-605 connector ramps where only a two-lane exit movement exists now.

The Build Alternative would keep the existing auxiliary lanes between Bloomfield Avenue and Norwalk Boulevard, Norwalk Boulevard and Pioneer Boulevard, and Pioneer Boulevard and westbound SR-91 to the northbound and southbound I-605 connector ramps.

Interchange modifications at Pioneer Boulevard and Norwalk Boulevard are also proposed under the Build Alternative. These modifications include reconstructing existing Type L-9 cloverleaf interchanges into Type L-7 cloverleaf interchanges. Typical Type L-7 and Type L-9 local street interchanges are shown on Figure 1-8.

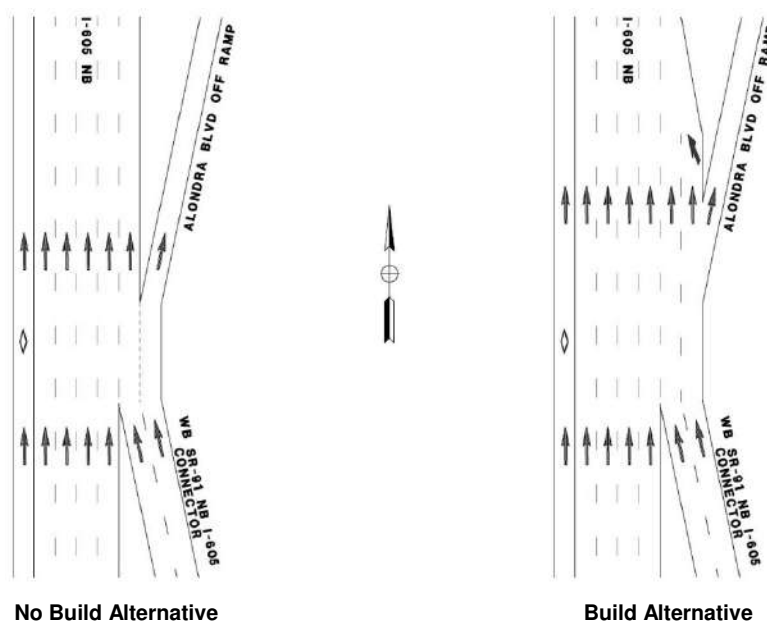


**Figure 1-8 Typical Type L-7 and L-9 Local Street Interchanges**

These new configurations will eliminate loop on-ramp free right-turn and direct on-ramp movements, and will increase the vehicular weaving and merging distances on the westbound SR-91 mainline between these two interchanges, as well as on the I-605 northbound/southbound connector ramp. These modifications will alter the

arterial street operations as a result of the changed interchange access point for the arterial street to westbound SR-91.

The existing outside lane of westbound SR-91 to the northbound I-605 two-lane connector ramp terminates at Alondra Boulevard, forcing the driver in the outside lane to exit at Alondra Boulevard. Modifications are proposed at the Alondra Boulevard exit point to provide a single-lane exit movement and to carry the outside lane past the exit point and merge it with the northbound I-605 mainline prior to the Alondra Boulevard undercrossing. No Build and Build Alternatives for the I-605 northbound Alondra Boulevard off-ramp are shown on Figure 1-9.



**Figure 1-9 Interstate 605 Northbound Alondra Boulevard Off-Ramp**

The Build Alternative would include standardized features (such as Best Management Practices [BMPs] for water quality) that are generally applied to Caltrans' highway improvement projects. These standardized features avoid and minimize environmental impacts. More information on applicable project features can be found in the applicable environmental consequences sub-sections of Chapter 2.

### ***Build Alternative Design Options***

To compare overall freeway, ramp, and arterial street operations, the following design options for the Build Alternative were evaluated:

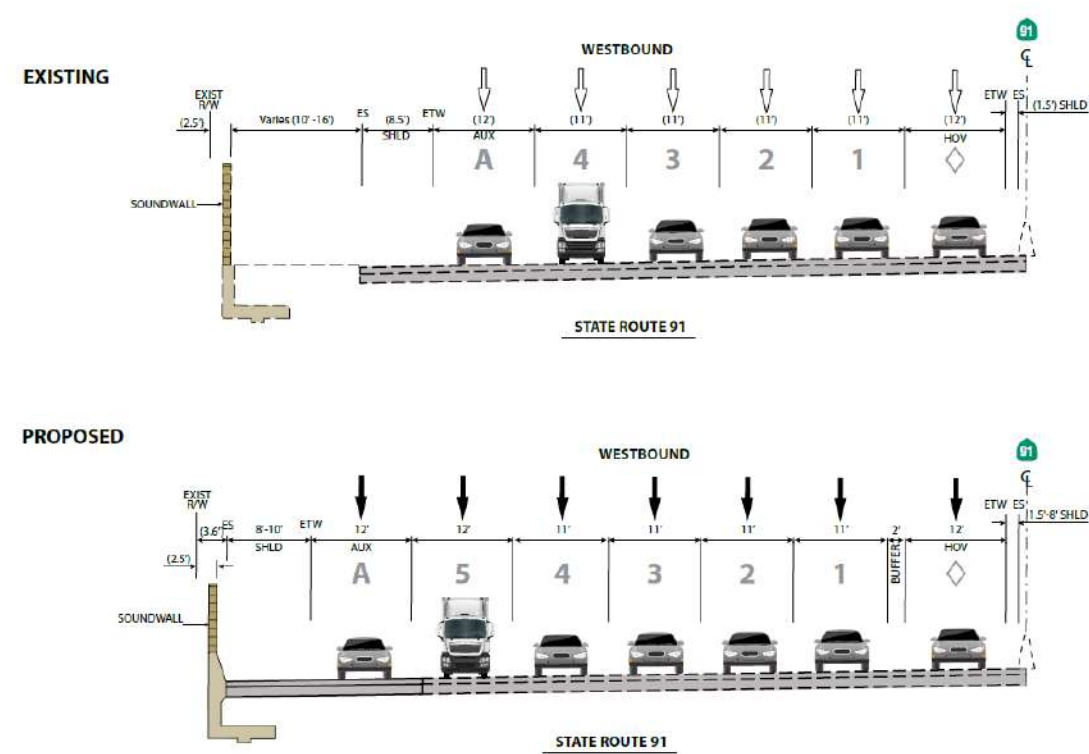
- **Design Option: Full Build.** Using standard (12 ft) lane and shoulder widths. This standard option would acquire 18 residences and one business on the north side of

the freeway along 170th Street between the Norwalk Boulevard and Pioneer Boulevard interchanges in Artesia, as well as the Arco Gas Station on Pioneer Boulevard. A typical section of this design option is shown on the next page under the heading Typical Cross Sections as the Proposed Standard.

- **Design Option 1: Reduced Lane/Shoulder Width.** Using non-standard (narrower than standard) lane and shoulder widths. This non-standard option would eliminate the need for right-of-way acquisition (18 residences and one business) on the north side of the freeway along 170th Street between the Norwalk Boulevard and Pioneer Boulevard interchanges in Artesia. A typical section of this design option is shown under the heading Typical Cross Sections.
- **Design Option 2: Pioneer Boulevard L-9.** By keeping the Type L-9 interchange configuration at Pioneer Boulevard, both the loop and direct westbound on-ramps would remain. Both loop and direct westbound on-ramps would intersect Pioneer Boulevard at a 90-degree angle, which would slow vehicle speeds at the Pioneer Boulevard interchange and improve pedestrian and bicycle safety.
- **Design Option 3: Pioneer Boulevard Westbound Ramps/168th Alignment.** Aligning the SR-91 westbound ramps with 168th Street in Artesia at the Pioneer Boulevard interchange would create a four-legged intersection with Pioneer Boulevard as the north and south legs, the westbound ramps as the east leg, and 168th Street as the west leg. This option would require right-of-way acquisition of approximately eight parcels, which would include five residences, but would eliminate the need to acquire one gas station along Pioneer Boulevard.
- **Design Option 4: Diamond Ramps.** This design option utilizes diamond ramp configurations at Pioneer Boulevard Interchange and Norwalk Boulevard Interchange in lieu of the proposed Type L-7 cloverleaf interchange configurations. The diamond ramps were analyzed for comparison purposes to the partial cloverleaf ramp configuration options. The diamond ramps have a smaller footprint than the cloverleaf options but provide less weaving distance between successive on- and off-ramps, and therefore do not improve safety and traffic operations as much as the cloverleaf design options.
- **Design Option 5: Four-Lane Gridley Road Overcrossing.** The four-lane Gridley Road overcrossing structure is a design option that the City of Cerritos requested be studied. This would add approximately \$4 million of construction cost, require no additional right-of-way acquisition, and is within the environmental footprint that is being studied with this project. However, since a four-lane Gridley Road overcrossing, when compared to the existing two-lane, is not required to fulfill the purpose and need of the project, the City of Cerritos

would need to find and obtain the additional funds necessary for the improvement.

**Typical Cross Sections**



**Utilities**

Table 1.8 provides a list of the 20 different utility owners and the type of facilities they operate within the Study Area.

The construction and operation of the Build Alternative will potentially require the utilities listed in Table 1.9 to be relocated. No oil utilities will need to be relocated.

**Staging Areas**

Construction staging areas used by the contractor to store construction equipment will be limited to public right-of-way areas within the Study Area. Staging areas are anticipated to be within available space at interchange ramp areas.

**Reversible Lanes**

Reversible lanes are not a viable alternative for the proposed project since both directions of SR-91 have high traffic volumes in both the a.m. and p.m. peak periods.



**Table 1.8 Utility Companies and Types of Facilities**

|     | <b>Utility Company</b>                        | <b>Type</b>    |
|-----|---|----------------|
| 1.  | Central Basin Municipal Water District        | Water          |
| 2.  | Chevron Pipe Line Company                     | Oil            |
| 3.  | City of Norwalk                               | Water, Sewer   |
| 4.  | Crown Castle                                  | Telecom        |
| 5.  | Frontier Communications                       | Telecom        |
| 6.  | Kinder Morgan, Inc.                           | Oil            |
| 7.  | Los Angeles County Department of Public Works | Sewer          |
| 8.  | Shell Pipeline                                | Oil            |
| 9.  | Southern California Gas Company               | Natural Gas    |
| 10. | Wilshire Connection, LLC                      | Telecom        |
| 11. | Charter Communications                        | Telecom        |
| 12. | City of Cerritos                              | Water, Sewer   |
| 13. | Crimson Pipeline                              | Oil            |
| 14. | Defense Fuel Support Point                    | Oil            |
| 15. | Golden State Water                            | Water          |
| 16. | Liberty Utilities                             | Water          |
| 17. | Los Angeles County Sanitation Districts       | Sewer          |
| 18. | Southern California Edison                    | Electric Power |
| 19. | Time Warner Cable                             | Telecom        |
| 20. | XO Communications                             | Telecom        |

Source: *Utility Impacts and Relocation Report* (2018).

**Table 1.9 Potentially Affected Utilities by Type**

| <b>Location</b>          | <b>Natural Gas</b> | <b>Electric Power</b> | <b>Sewer</b> | <b>Telecom</b> | <b>Water</b> | <b>Total</b> |
|--------------------------|--------------------|-----------------------|--------------|----------------|--------------|--------------|
| Alondra Boulevard        | —                  | —                     | —            | —              | —            | —            |
| 166 <sup>th</sup> Street | —                  | —                     | —            | —              | —            | —            |
| Studebaker Road          | —                  | 1                     | —            | 1              | —            | 2            |
| Gridley Road             | —                  | —                     | —            | —              | —            | —            |
| Beach Street             | —                  | —                     | —            | —              | —            | —            |
| 169 <sup>th</sup> Street | —                  | —                     | —            | —              | —            | —            |
| Pioneer Boulevard        | —                  | 1                     | —            | 3              | —            | 4            |
| 170 <sup>th</sup> Street | 2                  | 2                     | 4            | —              | 1            | 9            |
| Norwalk Boulevard        | —                  | 1                     | —            | 2              | —            | 3            |
| Bloomfield Avenue        | —                  | 1                     | —            | 3              | —            | 4            |
| Artesia Boulevard        | —                  | —                     | —            | —              | —            | —            |
| Subtotals                | 2                  | 6                     | 4            | 9              | 1            | 22           |

Source: *Utility Impacts and Relocation Report* (2018).

***Design Exceptions (Advisory and Mandatory)***

The Build Alternative would require design exceptions. Design exceptions are necessary when the proposed design deviates from the standard design features presented in the Caltrans *Highway Design Manual* (2017). For example, the design standard for a freeway left-side shoulder is 10 ft; design exceptions would be requested for locations where the columns supporting overcrossing bridges encroach into the shoulder and narrow the shoulder to approximately 7 ft where it is beneath the bridge. The proposed Build Alternative would not be standard; therefore, mandatory and advisory design exceptions would be required for the Build

Alternative. A standard alternative would not be cost effective, would require an extensive rebuild of the existing freeway, and would have extensive right-of-way impacts. There are 15 mandatory and 8 advisory design standards that would require design exceptions at one or more locations in the Study Area (see the Project Report for a full list of design exceptions). Notably, Design Option 1 (Reduced Lane/Shoulder Width) includes reduced non-standard lane and shoulder widths.

### ***Transportation Systems Management and Transportation Demand Management Alternatives***

Transportation Systems Management (TSM) provides cost-effective improvements that increase transportation system performance without the major expense of capital expansion projects. These programs include minor geometric improvements, bicycle and pedestrian improvements, and other measures such as signal synchronization, motorist information, bus signal priority, and freeway ramp metering. Transportation Demand Management (TDM) provides cost-effective improvements that reduce system demand by eliminating trips or shifting trips out of the peak periods to other, less-congested time periods during the day, thus increasing transportation system performance without implementing travel restrictions. TDM programs include rideshare programs, employer flex-time, parking pricing, and intermodal improvements that support TDM programs and transfers between modes at key locations. TDM programs are devised to change the behavior of travelers. Some TDM approaches are voluntary, and they motivate participants with incentives. Other TDM approaches apply disincentives to drive single-occupancy vehicles, such as fees and constraints.

A TSM/TDM alternative is not considered a viable stand-alone option because it does not fulfill the project's purpose and need. A TSM/TDM alternative on its own would:

- Provide minimal congestion reduction,
- Provide minimal enhancement of operations and improvement in trip reliability,
- Not increase mobility significantly because it would have a limited effect on congestion, and
- Not maximize traffic throughput because no additional through lanes are provided.

TSM and TDM are similar in a number of ways, because they may:

- Lessen the number of trips,
- Lessen peak-hour travel,
- Conserve energy,
- Reduce emissions, and
- Provide more travel alternatives.

Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures are beneficial and will be incorporated into the Build Alternative for the proposed project:

- Upgraded traffic signals that are interconnected and coordinated with adjacent signals and ramp meters at locations of interchange improvements
- Additional way-finding signs on freeways and arterials
- On- and off-ramps designed to limit impacts to non-motorized travel and preserve access to bike lanes and trails
- Intelligent Transportation Systems (ITS) elements, including fiber-optic and other communication systems for improved connectivity and remote management; changeable message signs; closed-circuit television coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection systems for volume, speed, and vehicle classification

### ***Bicycle and Pedestrian Facilities***

New construction will be compliant with the Americans with Disabilities Act (ADA), per Caltrans standards. This includes curb ramps that will be replaced as part of the project. The Build Alternative will replace existing bicycle and pedestrian facilities and construct new bicycle and pedestrian facilities at the locations described below.

The following sidewalks are proposed where sidewalks do not currently exist:

- 1,293 ft along westbound Gridley Road between Aclare Street and Park Avenue
- 1,643 ft along westbound Bloomfield Avenue between the SR-91 eastbound off-ramp and 250 ft north of Lucas Street

The following bicycle facilities are proposed for future consideration within the project area where bicycle facilities do not currently exist:

- Bike lane in the northbound direction at the intersection of Pioneer Boulevard and the westbound SR-91 off-ramp
- Bike lane in the northbound direction at the intersection of Norwalk Boulevard and the westbound SR-91 off-ramp
- Bike lane in the southbound direction at the intersection of Bloomfield Avenue and the westbound SR-91 on-ramp/Lucas Street
- Bike lane in the northbound direction at the intersection of Bloomfield Avenue and the westbound SR-91 on-ramp/Lucas Street

### **1.3.3.2 No Build Alternative**

The No Build Alternative does not include any planned improvements to the Study Area. Under this alternative, there would be no reconstruction or improvements to the Study Area. Within the project limits, westbound SR-91 would continue to have four mixed-flow lanes that are 11 ft wide, a 1.5 ft wide median shoulder, one 12 ft wide HOV lane, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps.

### **1.3.4 Identification of a Preferred Alternative**

A Preferred Alternative was identified after considering all information in the IS/EA and technical studies. It was also based on input from the Project Development Team (PDT) members, public stakeholders, federal, State, and local agencies during the project development process. Public outreach and coordination resulted in comments from the public and governmental agencies; all of which were carefully considered during the Preferred Alternative identification process. In addition, consideration was given to all issues raised during the public circulation period. After comparing and weighing the benefits and impacts of the Build Alternative, the Design Options, and the No Build Alternative, the PDT has identified the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) as the Preferred Alternative. Also, as part of the project, the Gridley Road Overcrossing will be improved to a two-lane road with standard shoulders and sidewalks on both sides

The project was initiated to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations. One of the factors in identifying the Build Alternative with Design Option 1 as part of the Preferred Alternative was the impact associated with residential acquisition compared to the Design Option: Full Build. The Build

Alternative with Design Option 1 substantially reduces the amount of full and partial property acquisitions.

Design Option 2 and Design Option 3 both proposed new configurations at Pioneer Boulevard to improve pedestrian and bicycle safety. The need for Design Option 2 was eliminated after Design Option 3 was identified as part of the Preferred Alternative. One of the factors in identifying the Build Alternative with Design Option 3 as part of the Preferred Alternative was that this option improves traffic operation on Pioneer Boulevard by eliminating existing driveways within the westbound on-/off-ramps intersection. The Build Alternative with Design Option 3 would result in the acquisition of five residences, which could affect approximately 24 residents.

### **1.3.5 Alternatives Considered but Eliminated from Further Discussion Prior to the Draft Initial Study/Environmental Assessment**

A Value Analysis (VA) for this project was conducted July 31, 2017 to August 3, 2017. The VA included coordination with Caltrans, Metro, and consultants known as the VA Team. The following alternatives from the VA were considered, but eliminated from further discussion by the VA Team:

- **Close the Studebaker Road westbound off-ramp and eliminate the westbound SR 91/Studebaker Road Bridge widening.** This VA alternative was rejected because the City of Cerritos expressed their desire for the Studebaker Road westbound off-ramp to remain open since it provides access to various facilities within the City. Furthermore, Caltrans' maintenance facility is located opposite the ramp terminus intersection. Closing the ramp would make access to the Caltrans maintenance facility more difficult. After reviewing the Caltrans TASAS accident data, there does not appear to be an accident concentration at the off-ramp. Ramp accident rates are below the statewide average.
- **Eliminate the preferential HOV lanes at the Bloomfield on-ramps and construct two-lane ramps.** This VA alternative was rejected because, while this alternative would save some cost, it is inconsistent with Caltrans ramp metering policy. HOV preferential lanes are included where there are no additional right-of-way impacts. However, a preferential HOV on-ramp lane at the Bloomfield Avenue westbound on-ramp is not included since it would result in additional right-of-way impacts.

- **Close the HOV lane during construction to facilitate the construction of bridge median columns.** This VA alternative was rejected because it was determined that Caltrans Office of Corridor Management South does not recommend the proposal because this segment of SR-91 is heavily congested. Closing the HOV lane for 8–10 months would result in significant user delays on the mainline. Weekend, nighttime, and short-term closures may be allowed.
- **Keep existing 11-foot lanes at Norwalk Boulevard north of the ramps in lieu of the proposed 12-foot lanes.** In a meeting with Tracy High School/ABC School District, the School District did not oppose the right-of-way acquisition needed for the widening of Norwalk Boulevard, on the condition of reasonable compensation and parking lot reconfiguration. 11 ft lanes would still require right-of-way acquisition if any right shoulder is provided for bicycle use. Furthermore, curb-adjacent 11 ft wide lanes are extremely narrow next to the sidewalk and are not as safe for pedestrians using the sidewalk. Therefore, 12 ft lanes can be provided with the acquisition. For these reasons, this VA alternative was rejected.
- **Braid the Norwalk Boulevard on-ramp over the Pioneer Boulevard off-ramp.** This VA alternative was rejected because the construction cost would increase by \$15 million and A.J. Padelford Park would be impacted. There would be additional noise impacts to the community because this VA alternative would require an elevated ramp.

## 1.4 Permits and Approvals Needed

The proposed project is anticipated to require the permits, licenses, agreements, and certifications (PLACs) listed in Table 1.10.

**Table 1.10 Project Permits and Approvals**

| <b>Agency</b>                                      | <b>PLAC</b>  | <b>Status</b>  |
|--|--|--|
| Federal Highway Administration (FHWA)              | Air Quality Conformity Approval Letter   | The Air Quality Conformity report was submitted to the FHWA on December 15, 2018 FHWA made a project-level air quality conformity determination on January 9, 2019 that the project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.   |
| California Department of Fish and Wildlife (CDFW)  | Fish and Game Code Section 1602 Streambed Alteration Agreement   | This application will be submitted after Environmental Document approval. Caltrans will coordinate with the CDFW to obtain an agreement regarding riparian habitat impacts and mitigation.   |
| United States Army Corps of Engineers (USACE)      | Federal Clean Water Act (CWA) Section 404 Permit   | After approval of the Final Environmental Document, Caltrans will submit the Jurisdictional Delineation to the USACE. Caltrans will obtain the Preliminary Jurisdictional Determination from USACE during the PS&E phase. In addition, prior to obtaining grading permits, Caltrans will submit a Pre-Construction Notification form to the USACE to obtain coverage under NWPs 14 and 33, pursuant to Section 404 of the Federal CWA.   |
| Regional Water Quality Control Board (RWQCB)       | CWA Section 401 Water Quality Certification or waiver  | Caltrans will submit the application to the RWQCB after approval of the Final Environmental Document. Caltrans will coordinate with the RWQCB to obtain water quality certification during final design. The RWQCB will provide comments on the application. Meetings between Caltrans and the RWQCB will be held if necessary during final design. Caltrans will obtain the certification or waiver from the RWQCB during final design and will implement the requirements included in the certification or waiver. |
| State Water Resources Control Board (SWRCB)        | <i>NPDES Construction General-Permit</i> Order No. 2009-0009-DWQ, (as amended by 2012-0006-DWQ)  | The permits, including the NOI, will be submitted to the SWRCB prior to any project construction.  |
| State Water Resources Control Board (SWRCB)        | Caltrans NPDES Permit Order No. 2012-0011-DWQ, (as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, and Order WQ 2015-0036-EXEC, NPDES No. CAS000003) | The Permit Registration Documents, including the NOI, will be submitted to the SWRCB prior to any project construction.  |
| California Department of Transportation (Caltrans) | Construction Encroachment Permit   | Application for a Caltrans construction encroachment permit will be submitted prior to construction, if a contractor is procured by Metro.   |
| City of Cerritos                                   | Construction Encroachment Permit   | Application for a City of Cerritos construction encroachment permit for temporary access onto public rights-of-way will be submitted prior to construction.  |
| City of Artesia                                    | Construction Encroachment Permit   | Application for a City of Artesia construction encroachment permit for temporary access onto public rights-of-way will be submitted prior to construction.   |

IS/EA = Initial Study/Environmental Assessment

Metro = Los Angeles County Metropolitan Transportation Authority

NOI = Notice of Intent

NPDES = National Pollutant Discharge Elimination System

NWP = Nationwide Permit

PLAC = permits, licenses, agreements, and certifications

PS&amp;E = Plans, Specifications, and Estimates

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## **Chapter 2**      Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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This chapter describes the current state of the resources in the study area and identifies the potential effects of implementing the proposed Westbound State Route 91 (SR-91) Improvement Project (project). Each subsection describes the present conditions, discusses the potential impacts of building the proposed project, and indicates what measures would be taken to avoid, minimize, or mitigate those impacts.

The environmental analysis contained within the following chapter considers the potential environmental consequences associated with implementation of the two proposed alternatives (the No Build Alternative and the Build Alternative). The following sections have been updated in response to comments received during public review period of the Draft Initial Study/Environmental Assessment (IS/EA) or to reflect the Preferred Alternative:

- 2.1, Land Use
- 2.3, Community Impacts
- 2.7, Cultural Resources
- 2.11, Hazardous Waste/Materials
- 2.12, Air Quality
- 2.13, Noise
- 2.16, Animal Species

The environmental impact analyses discuss potential impacts in three general categories: human environment, physical environment, and biological environment. As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered, but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document:

- **Coastal Zone:** California’s Coastal Zone generally extends 1,000 yards inland from the mean high tide line. The study area is located approximately 11 miles (mi) from the Pacific Ocean and is not located within the Coastal Zone.
- **Wild and Scenic Rivers:** According to the Bureau of Land Management (BLM), there are no Wild and Scenic Rivers located in the project area.<sup>1</sup>
- **Farmland/Timberlands:** There will be no effect on farmland and timberlands resources because the project is not located within farmland and timberland.<sup>2</sup>
- **Hydrology and Floodplain:** There will be no effect on hydrology and floodplain because the project is not located within the 100-year base flood zone.
- **Natural Communities:** According to the *Natural Environment Study (Minimal Impacts)* (2017 and 2018 Errata), the Biological Study Area (BSA) does not contain any sensitive natural communities. The habitat types present in the BSA include flood control channels, transportation, ornamental landscaping, and disturbed or barren areas.
- **Threatened and Endangered Species:** According to the *Natural Environment Study (Minimal Impacts)* (2017 and 2018 Errata), the BSA does not contain suitable habitat for any threatened or endangered species.
  - The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant and animal species. Per the official species list received from the USFWS on March 19, 2018 (provided in Chapter 4), two plant species and five wildlife species that are federally and/or State-listed as endangered or threatened were identified as potentially occurring within the vicinity of the BSA. The plant species are Ventura marsh milk-vetch and the salt marsh bird's-beak. The animal species are western snowy plover, coastal California gnatcatcher, California least tern, least Bell’s vireo, and Pacific pocket mouse. None of these species were observed during field surveys and none are expected to occur within the BSA because there is no suitable habitat

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<sup>1</sup> United States Department of the Interior, Bureau of Land Management (BLM). BLM California Wild and Scenic Rivers. Website: <https://blm-prod.opengov.ibmcloud.com/programs/national-conservation-lands/wild-and-scenic-rivers/california> (accessed November 28, 2017).

<sup>2</sup> California Department of Conservation. 2014. Farmland Mapping and Monitoring Program. San Bernardino Important Farmland. Website: <https://maps.conservation.ca.gov/dlrp/ciff/> (accessed November 28, 2017).

for these species in the BSA. No effect to USFWS listed species or critical habitat are anticipated.

- The project is within National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) jurisdiction. Per the NOAA Fisheries Service official species list received on March 19, 2018 (included in Chapter 4), one species, California steelhead trout, was reported to potentially have critical habitat occurring in the United States Geological Survey (USGS) *Los Alamitos, California* or *Whittier, California* 7.5-minute quadrangle areas; however, this habitat is not within or adjacent to the BSA. No effect to NOAA Fisheries Service listed species is anticipated.

The Build Alternative would include project features that are generally applied to California Department of Transportation (Caltrans) highway improvement projects. These standardized features avoid and minimize environmental impacts. The project features proposed as part of the project are provided in Table 2.0.1.

**Table 2.0.1 Project Features Summary**

| Resource   | Project Feature No. | Page No. | Title/Summary  |
|--|---------------------|----------|--|
| Land Use   | PF-PR-1             | 2.1.29   | Tracy High School Parking Lot  |
|  | PF-PR-2             | 2.1.30   | Negotiations with the City of Cerritos and the ABC Unified School District   |
|  | PF-PR-3             | 2.1.30   | Landscaping and Irrigation at Ecology Park   |
| Community Impacts  | PF-REL-1            | 2.3-19   | Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) (Public Law 91-646, 84 Statutes 1894)   |
|  | PF-REL-2            | 2.3-19   | TCE Restoration after Construction   |
|  | PF-EJ-1             | 2.3-42   | Relocation Assistance Services   |
| Utilities/Emergency Services                                     | PF-UES-1            | 2.4-2    | Utility Relocation Plans   |
|  | PF-UES-2            | 2.4-5    | Roadway Closures and Detour Plans  |
| Traffic and Transportation/<br>Pedestrian and Bicycle Facilities | PF-T-1              | 2.5-6    | Transportation Management Plan   |
| Visual   | PF-VIS-1            | 2.6-30   | Landscaping  |
|  | PF-VIS-2            | 2.6-30   | Architectural Treatment and Review   |
|  | PF-VIS-3            | 2.6-31   | Construction Lighting  |
| Cultural Resources   | PF-CR-1             | 2.7-7    | Discovery of Cultural Materials  |
|  | PF-CR-2             | 2.7-8    | Discovery of Human Remains   |
| Water Quality and Storm Water<br>Runoff                          | PF-WQ-1             | 2.8-11   | Caltrans National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit and NPDES General Permit for Storm Water Discharges of Stormwater Runoff Associated with Construction Activities |
|  | PF-WQ-2             | 2.8-11   | Storm Water Pollution Prevention Plan  |
|  | PF-WQ-3             | 2.8-13   | Treatment BMPs   |
| Geology/Soils/Seismic/<br>Topography                             | PF-GEO-1            | 2.9-10   | Geotechnical Investigation   |
|  | PF-GEO-2            | 2.9-11   | Slope Protection   |
|  | PF-GEO-3            | 2.9-11   | Soil Settlement and Liquefaction   |
| Paleontology   | PF-PAL-1            | 2.10-3   | Paleontological Mitigation Plan  |
| Hazardous Waste/Materials  | PF-HAZ-1            | 2.11-4   | Excess Aerially Deposited Lead (ADL) Contaminated Soils  |
|  | PF-HAZ-2            | 2.11-4   | Testing for Lead   |
|  | PF-HAZ-3            | 2.11-5   | Assessment for the Possible Presence of Asbestos-Containing Materials (ACMs) and Lead-Based Paint (LBP)  |
|  | PF-HAZ-4            | 2.11-5   | Lead-Based Paint Survey  |
|  | PF-HAZ-5            | 2.11-9   | Implement the Requirements in the Lead-Based Paint Survey Report   |
|  | PF-HAZ-6            | 2.11-9   | Focused Initial Site Assessment and a Phase II Site Investigation  |
|  | PF-HAZ-7            | 2.11-9   | Monitor Soil Excavation for Visible Soil Staining, Odor, and the Possible Presence of Unknown Hazardous Material Sources   |
|  | PF-HAZ-8            | 2.11-10  | Soil Sampling for Pesticides on Any Former Agricultural Parcels  |
|  | PF-HAZ-9            | 2.11-10  | Properly Dispose of All Soils Exceeding the Criteria for State or Federal Hazardous Waste  |
|  | PF-HAZ-10           | 2.11-10  | Treated Wood Waste   |
|  | PF-HAZ-11           | 2.11-11  | Polychlorinated Biphenyls  |
|  | PF-HAZ-12           | 2.11-11  | Preliminary Site Investigation   |
| Air Quality  | PF-AQ-1             | 2.12-12  | South Coast Air Quality Management District's (SCAQMD) Rule 403  |
|  | PF-AQ-2             | 2.12-13  | Ozone (O <sub>3</sub> ) Precursor Emissions  |
|  | PF-AQ-3             | 2.12-13  | Prevention of Excavated or Graded Material Spilling onto Public Streets and Roads  |
|  | PF-AQ-4             | 2.12-13  | Standard Specifications for Construction (Sections 14-9.02 and 14-9.03)  |
|  | PF-AQ-5             | 2.12-13  | Removal of Asbestos-Containing Materials (ACMs)  |
|  | PF-AQ-6             | 2.12-13  | Prohibited from Idling in Excess of 5 Minutes  |
|  | PF-AQ-7             | 2.12-14  | Locate equipment and materials storage sites as far away from adjacent residential and park uses as  |

**Table 2.0.1 Project Features Summary**

| Resource                  | Project Feature No. | Page No. | Title/Summary  |
|---------------------------|---------------------|----------|--|
|                           |                     |          | practical  |
| Noise                     | PF-N-1              | 2.13-27  | Standard Specifications, Section 14-8.02, Noise Control  |
|                           | PF-N-2              | 2.13-27  | Construction Equipment Mufflers  |
|                           | PF-N-3              | 2.13-27  | Construction Staging Areas   |
|                           | PF-N-4              | 2.13-28  | Sensitive Receptors  |
| Wetlands and Other Waters | PF-WET-1            | 2.14-7   | United States Army Corps of Engineers (USACE) Pursuant to Section 404 of the Clean Water Act   |
|                           | PF-WET-2            | 2.14-8   | Watershed Streambed Alteration Agreement (WSAA; in Combination with an LOP) or a Streambed Alteration Agreement (SAA; in Combination with an Individual Permit) with the California Department of Fish and Wildlife (CDFW) |
|                           | PF-WET-3            | 2.14-8   | Section 401 Water Quality Certification (Certification) from the Los Angeles Regional Water Quality Control Board (RWQCB)  |
|                           | PF-WET-4            | 2.14-8   | Best Management Practices (BMPs) to Prevent Loose Soil or Pollutants Associated with the Project from Inadvertently Entering the Drainage Features   |
| Animal Species            | PF-BIO-1            | 2.16-32  | Avoidance of Breeding Season   |
|                           | PF-BIO-2            | 2.16-29  | Nighttime Exit Counts and Acoustic Surveys   |
|                           | PF-BIO-3            | 2.16-29  | Avoidance of Bat Roosts  |
|                           | PF-BIO-4            | 2.16-29  | Avoidance of Maternity Colonies  |
|                           | PF-BIO-5            | 2.16-29  | Humane Bat Eviction  |
|                           | PF-BIO-6            | 2.16-30  | Installation of Alternate Roosting Habitat   |
|                           | PF-BIO-7            | 2.16-30  | Night Lighting During Construction   |
|                           | PF-BIO-8            | 2.16-30  | Avoidance of Foliage-Roosting Bats   |
|                           | PF-BIO-9            | 2.16-30  | Biological Monitoring by a Bat Specialist  |
|                           | PF-BIO-10           | 2.16-31  | Access to Bat-Roosting Habitat   |
|                           | PF-BIO-11           | 2.16-31  | Inspection of Swallow Nests  |
|                           | PF-BIO-12           | 2.16-31  | Best Management Practices During Construction  |
| Invasive Species          | PF-BIO-13           | 2.17-3   | Plant Removal  |
|                           | PF-BIO-14           | 2.17-3   | Prevention of the Spread of Invasive Species   |

BMP = best management practice  
 LOP = Letter of Permission  
 TCE = temporary construction easement

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## **HUMAN ENVIRONMENT**

### **2.1 Land Use**

This section is based on a review of local planning documents and geographic information systems (GIS) land use data, the *Community Impact Assessment* (2018), as well as information from Section 2.3, Community Impacts, and Appendix A, Section 4(f) Analysis.

#### **2.1.1 Existing and Future Land Uses**

The study area for the land use analysis includes the project area (the physical area that would be directly affected by the proposed project) and the adjacent neighborhoods within the Cities of Artesia, Cerritos, and Norwalk (Census Tracts 5530.00, 5545.12, 5545.13, 5545.14, 5545.21, 5546.00, 5547.00, 5548.01, and 5548.02). The census tracts and block groups are depicted later on Figure 2.3-1 in Section 2.3, Community Impacts.

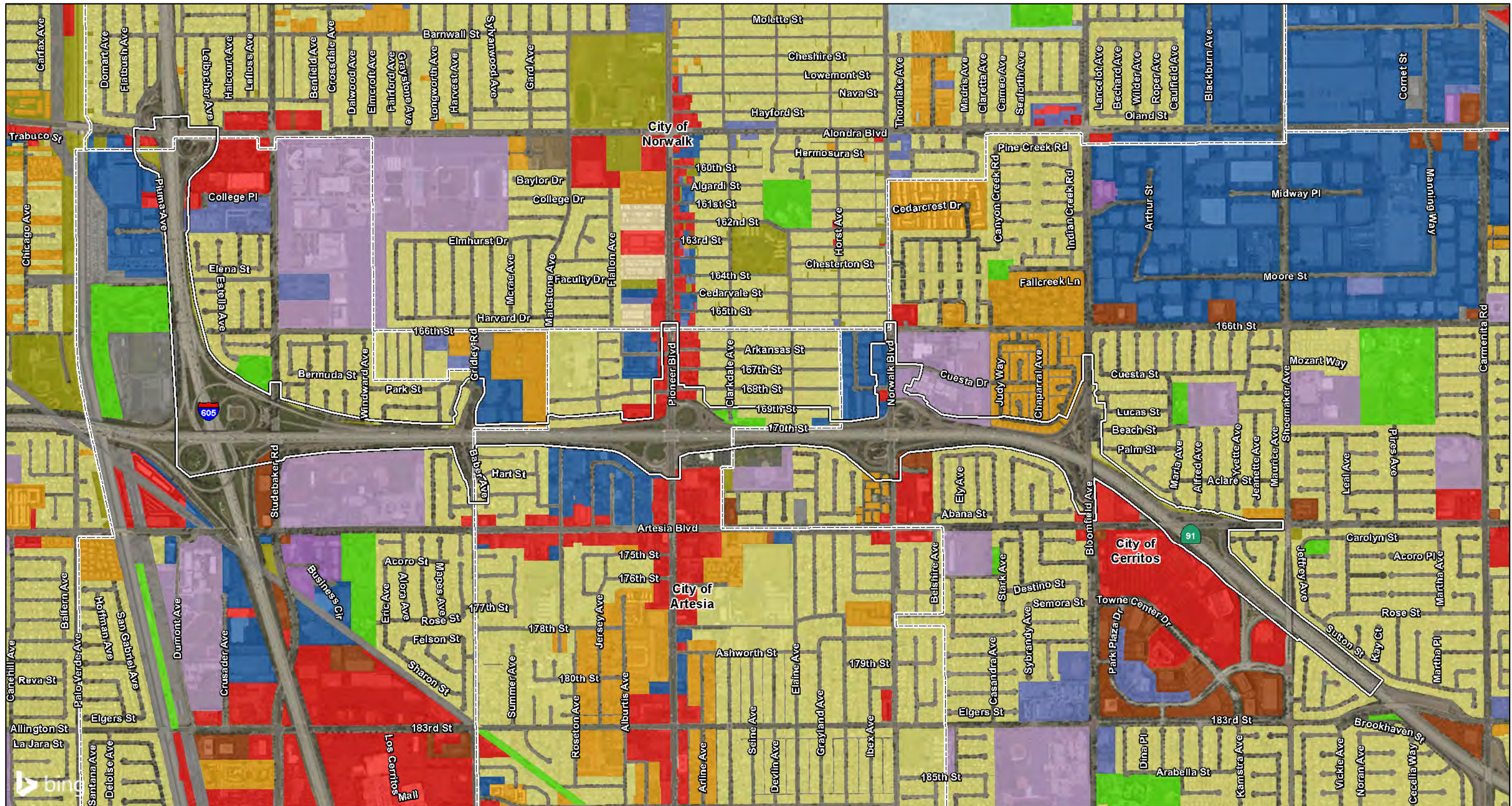
##### **2.1.1.1 Existing Land Uses**

The existing land uses in the study area are shown on Figure 2.1-1. North of State Route 91 (SR-91), existing land uses are a mix of single- and multi-family residential, commercial and services, industrial, education, and open space and recreation uses. South of SR-91, the primary existing land uses are similar. Existing land uses surrounding Interstate 605 (I-605) north of SR-91 include single-family residential, commercial, institutional, religious, medical, and park uses to the east and commercial, industrial, recreational (golf course), and utility facilities (Los Coyotes Water Reclamation Plant) to the west. The acreages and percentages of existing land uses in the study area are shown in Table 2.1.1.

As indicated in Table 2.1.1, approximately 18 acres (ac), or approximately 37 percent of the study area, consists of existing single-family residential uses. As shown on Figure 2.1-1, single-family residential uses are the predominant land use type within the study area, with the exception of the areas adjacent to the SR-91/I-605 interchange. Commercial and service uses and industrial uses are the second- and third-most common existing land uses, respectively, in the study area.

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**LEGEND**

Study Area Limits

**Existing Land Uses**

- Single Family Residential
- Multi-Family Residential
- Mobile Homes and Trailer Parks
- General Office

Commercial and Services

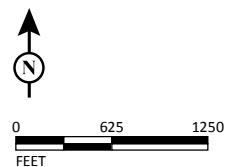
- Facilities
- Education
- Industrial
- Transportation, Communications, and Utilities

Mixed Commercial and Industrial

- Mixed Residential and Commercial
- Open Space and Recreation
- Vacant
- Water

FIGURE 2.1-1

Westbound SR-91 Improvement Project  
Existing Land Uses



SOURCE: Bing Maps (2015); Michael Baker (8/2017); SCAG (2012)

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07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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**Table 2.1.1 Existing Land Uses in the Land Use Analysis Study Area**

| Land Use                                      | Acres        |              |             | Study Area Total | Percentage of Total Study Area |
|---|--------------|--------------|-------------|------------------|--------------------------------|
|   | Artesia      | Cerritos     | Norwalk     |                  |                                |
| Commercial and Services                       | 4.74         | 2.57         | 0.75        | 8.10             | 16.74%                         |
| Education                                     | –            | 4.79         | –           | 4.79             | 9.93%                          |
| Facilities                                    | –            | 0.37         | –           | 0.37             | 0.76%                          |
| General Office                                | –            | 0.94         | –           | 0.94             | 1.96%                          |
| Industrial                                    | 1.09         | 4.10         | 0.02        | 5.21             | 10.80%                         |
| Multi-Family Residential                      | –            | 3.68         | –           | 3.68             | 7.64%                          |
| Single-Family Residential                     | 8.10         | 9.86         | 0.02        | 17.93            | 37.17%                         |
| Open Space and Recreation                     | 1.77         | 0.83         | –           | 2.60             | 5.40%                          |
| Transportation, Communications, and Utilities | –            | 1.34         | –           | 1.34             | 2.78%                          |
| Vacant  | –            | 3.06         | 0.24        | 3.29             | 6.83%                          |
| <b>Total</b>                                  | <b>15.65</b> | <b>31.54</b> | <b>1.03</b> | <b>48.25</b>     | <b>–</b>                       |

Source: Southern California Association of Governments (SCAG). GIS Open Data Portal. Website: <http://gisdata-scag.opendata.arcgis.com/> (accessed March 2018).

Note: Percentages are based on the total acreage within the study area (48.25 acres). The land use categories above do not capture local roadways, and the local rights-of-way are not included in the sum of the “Acres” columns. Therefore, percentages do not add up to 100.

### 2.1.1.2 General Plan Land Uses

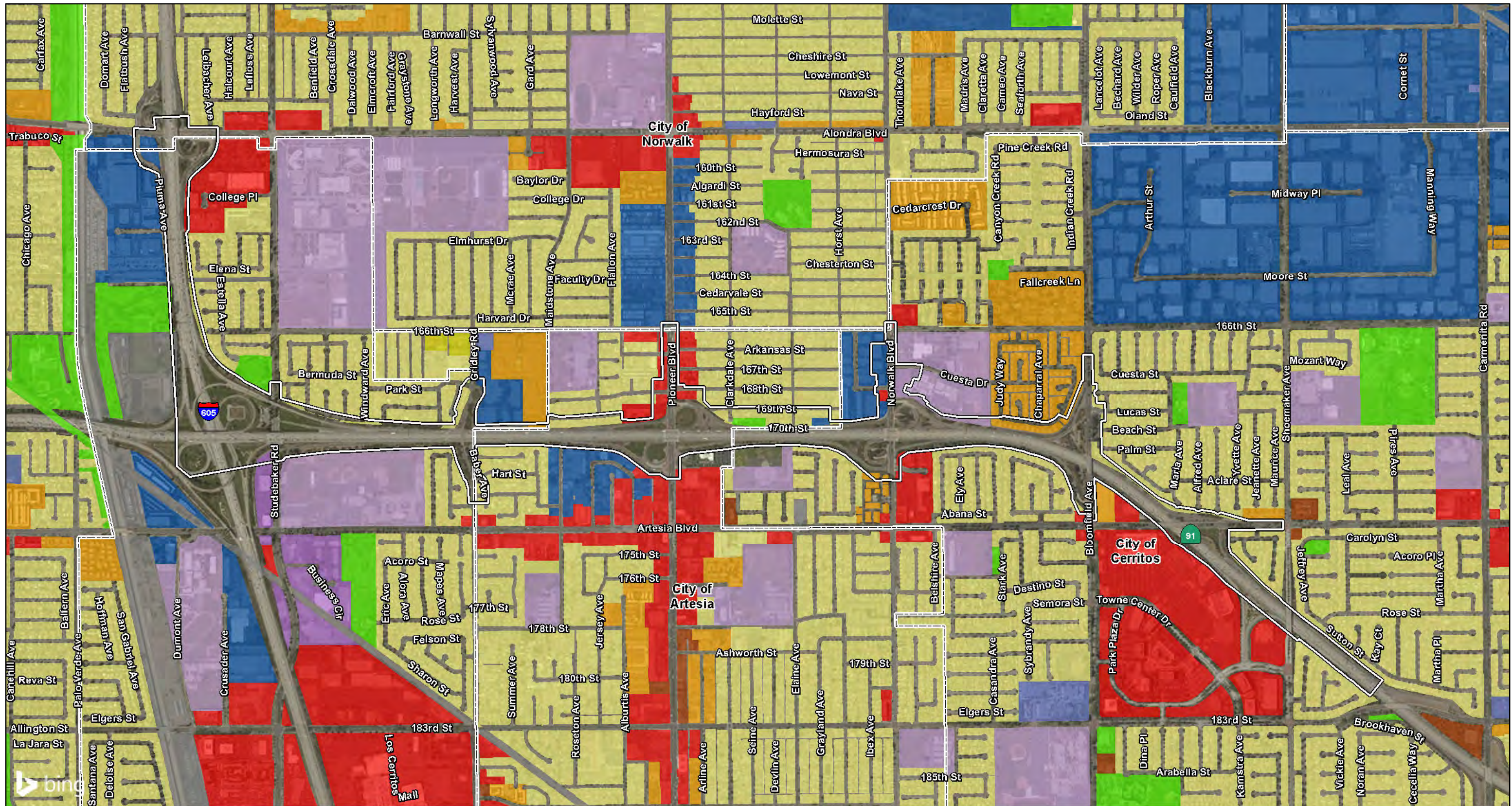
General Plan land use designations, which guide future development in a jurisdiction, are depicted on Figure 2.1-2 for the study area and surrounding areas. In the study area north of SR-91, the General Plan land uses in the cities of Artesia, Cerritos, and Norwalk are predominantly single-family residential uses, followed by educational and facilities uses.

South of SR-91, the predominant General Plan land use in the cities of Artesia and Cerritos is also single-family residential, followed by commercial and services uses and educational uses. Next to the SR-91/I-605 interchange, the predominant uses include educational, industrial, and mixed commercial/industrial uses.

As shown in Table 2.1.2, single-family residential makes up the largest category of planned land uses within the study area (43.27 percent), followed by commercial and services uses and industrial uses (16.27 percent and 14.45 percent, respectively). The existing land uses in the study area are consistent with the land use designations in the General Plans of the Cities of Artesia, Cerritos, and Norwalk.

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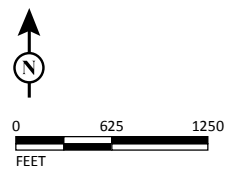
LEGEND

- |                          |                           |   |                                 |
|--------------------------|---------------------------|---|---------------------------------|
| Study Area Limits        | Single Family Residential | General Office                                | Industrial                      |
| Multi-Family Residential | Commercial and Services   | Transportation, Communications, and Utilities | Mixed Commercial and Industrial |
| Mixed Residential        | Facilities                | Education                                     | Open Space and Recreation       |

FIGURE 2.1-2

Westbound SR-91 Improvement Project  
General Plan Land Use Designations

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811





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**Table 2.1.2 General Plan Land Uses in the Land Use  
Analysis Study Area**

| Land Use                                      | Acres        | Percentage |
|---|--------------|------------|
| Commercial and Services                       | 7.85         | 16.27%     |
| Education                                     | 4.79         | 9.93%      |
| Industrial                                    | 6.97         | 14.45%     |
| Mixed Commercial and Industrial               | 0.55         | 1.14%      |
| Multi-Family Residential                      | 4.08         | 8.45%      |
| Open Space and Recreation                     | 1.92         | 3.98%      |
| Single-Family Residential                     | 20.87        | 43.27%     |
| Transportation, Communications, and Utilities | 1.21         | 2.50%      |
| <b>Total</b>                                  | <b>48.24</b> | -          |

Source: Southern California Association of Governments (SCAG). GIS Open Data Portal. Website: <http://gisdata-scag.opendata.arcgis.com/> (accessed January 2018).

Note 1: Percentages are based on the total acreage within the study area, approximately 47.44 acres. The land use categories above do not capture local roadways, and the local rights-of-way are not included in the sum of the Acres column. Therefore, percentages do not add up to 100.

Note 2: The acreage of land identified in the study area for general plan land uses does not add up to the acreage of land identified in the study area for existing land uses, due to slight differences in SCAG existing land use and General Plan land use data.

### 2.1.1.3 Development Trends

The city of Artesia encompasses an area of 1.62 square miles (sq mi) and was incorporated in 1959 (City of Artesia 2017). The population of the city of Artesia in 2012 was 16,600, compared to 16,380 in 2000, according to the Southern California Association of Governments (SCAG) (2017). The city of Artesia has grown at a rate of 1.34 percent between 2000 and 2012 and has grown at a faster rate than the city of Cerritos during the same period. (SCAG 2017). The Artesia General Plan 2030 identifies the opportunity for infill and redevelopment projects, emphasizing a focus on new mixed-use development, diversifying housing types, and revitalizing existing commercial centers (City of Artesia, nd). Based on SCAG (2017) growth projections, employment in the city of Artesia is projected to increase by 6.13 percent from 2015 to 2040.

The city of Cerritos encompasses an area of 8.85 sq mi, and was incorporated in 1956 as the City of Dairy Valley, which reflected the agricultural focus of the community at the time (City of Cerritos 2016). The name change to Cerritos was made official on January 19, 1967. The population of the city of Cerritos in 2012 was 49,300, compared to 51,488 in 2000 (SCAG 2017). With a population growth rate of 1.85 percent expected between 2015 and 2040, the city of Cerritos is growing at a slower rate than the city of Artesia (SCAG 2017). The City of Cerritos General Plan recognized the city's opportunity for infill and redevelopment projects. The General Plan outlines goals to develop two new parks and a mixed-use town center, along with various redevelopment projects. In addition, the City of Cerritos adopted the Los

Cerritos and the Los Coyotes redevelopment plans with the intent to revitalize existing buildings and facilities to improve aesthetics and meet the changing needs of the community (City of Cerritos, 2004). According to SCAG (2017) growth projections, the city of Cerritos is projected to increase job growth by 10.8 percent from 2012 to 2040.

Approved and planned projects in the study area are described in Table 2.18.1 and shown on Figure 2.18-1 in Section 2.18, Cumulative Impacts.

#### **2.1.1.4 Environmental Consequences**

##### ***Temporary Impacts***

###### ***Build Alternative (includes Design Options)***

Construction of the Build Alternative would require temporary construction easements (TCEs) along the north side of SR-91 for certain areas of the project segment to allow access for the construction of best management practices (BMPs) for water quality, retaining walls, and roadway and/or interchange widening. TCEs are also required at the Alondra Boulevard/I-605 interchange northbound off-ramp. The affected parcels are identified in Table 2.3.9 and the locations of the parcels that would be affected by these TCEs are shown on Figure 2.3-3 in Section 2.3, Community Impacts. The largest TCEs occur between the Artesia Boulevard/SR-91 interchange and the Bloomfield Avenue/SR-91 interchange on the north and south sides of SR-91, as well as adjacent and east of Norwalk Boulevard north of the Norwalk Boulevard/SR-91 westbound exit ramp where it intersects with Norwalk Boulevard (at Tracy High School). Staging activities may result in temporary increases in dust and noise levels in the vicinity of these staging areas; however, such activities are not anticipated to interfere with existing uses on the parcels or result in land use conflicts with adjacent businesses and residences near SR-91 or I-605. These impacts would be temporary and would cease when the project construction is complete.

Open space and recreation uses make up the greatest share of existing land uses that would be impacted by TCEs. As shown in Table 2.1.3, the Build Alternative would result in the use of approximately 0.2 ac of existing commercial and services uses, approximately 0.03 ac of existing educational/institutional uses, approximately 0.5 ac of existing industrial uses, approximately 0.4 ac of existing residential uses, approximately 1.2 ac of existing open space and recreational uses, and approximately 0.03 ac of existing vacant land for TCEs.



**Table 2.1.3 Existing Land Use Impacts**

| Permanent and Temporary Impacts | Build Alternative (acres) | Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) (acres) | Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) (acres) | Preferred Alternative [Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)] (acres) |
|---------------------------------|---------------------------|--|--|--|
| <b>Permanent Impacts</b>        |                           |  |  |  |
| Commercial and Services         | 0.4                       | 0.4  | 0.4  | 0.4  |
| Education/Institutional         | 0.03                      | 0.1  | 0.03   | 0.1  |
| Industrial                      | 0.5                       | 0.0  | 0.5  | 0.0  |
| Residential                     | 1.4                       | 1.2  | 2.1  | 1.9  |
| Open Space and Recreation       | 0.03                      | 0.3  | 0.03   | 0.3  |
| Utility and Flood Control       | 0.0                       | 0.0  | 0.0  | 0.0  |
| Vacant                          | 0.4                       | 0.02   | 0.8  | 0.42   |
| <b>Permanent Impacts Total</b>  | <b>2.8</b>                | <b>2.0</b>   | <b>3.9</b>   | <b>3.12</b>  |
| <b>TCEs</b>                     |                           |  |  |  |
| Commercial and Services         | 0.2                       | 0.2  | 0.2  | 0.2  |
| Education/Institutional         | 0.03                      | 0.1  | 0.03   | 0.1  |
| Industrial                      | 0.5                       | 0.0  | 0.5  | 0.0  |
| Residential                     | 0.4                       | 0.4  | 0.5  | 0.5  |
| Open Space and Recreation       | 1.2                       | 1.2  | 1.2  | 1.2  |
| Utility and Flood Control       | 0.0                       | 0.0  | 0.0  | 0.0  |
| Vacant                          | 0.03                      | 0.0  | 0.03   | 0.0  |
| <b>TCE Total</b>                | <b>2.36</b>               | <b>1.9</b>   | <b>2.46</b>  | <b>2.0</b>   |

Source: Southern California Association of Governments (SCAG). GIS Open Data Portal. Website: <http://gisdata-scag.opendata.arcgis.com/> (accessed March 2018).

Note: Totals may not appear to sum correctly due to rounding.

GIS = geographic information system

TCEs = temporary construction easements

The Build Alternative would require TCEs on 30 parcels in the project area (refer to Table 2.3.9 in Section 2.3, Community Impacts).

Following completion of the project, areas that are temporarily disturbed by construction activities would be returned to their property owners in the same or better condition than prior to construction. As stated in Section 2.3.1.3 in PF-REL-2, owners of parcels where TCEs would be required would receive compensation for the temporary use of a portion of their property. Therefore, the temporary use of land during construction of the Build Alternative would have no substantial adverse effects.

Generally, any freeway lane or ramp closures would occur during off-peak and overnight hours, minimizing delays to the traveling public and local business operations. When full or partial closures of the freeway mainline are required, they would occur primarily at nighttime and on weekends to minimize delays to the traveling public. Access to all nearby businesses would be maintained during any freeway, ramp, and/or local street closures through the identification of detour routes on alternate freeway off-ramps and local streets. Although construction of the Build Alternative would not substantially interfere with any adjacent land uses, there would be inconveniences due to construction-related delays, temporary closures, and construction equipment operations. Full and partial closures will be coordinated with local jurisdictions as described in the Transportation Management Plan (Project Feature PF-T-1 in Section 2.5.3.2).

Construction of the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would also require TCEs along the north side of SR-91 for certain areas of the project segment to allow access for the construction of BMPs for water quality, retaining walls, and roadway and/or interchange widening; however, due to the reduced lane and shoulder widths, the number of TCEs would be reduced from that needed for the Build Alternative. TCEs are also required at the Alondra Boulevard/I-605 interchange northbound off-ramp. The affected parcels are identified in Table 2.3.10 and the locations of the parcels that would be affected by these TCEs are shown on Figure 2.3-4 in Section 2.3, Community Impacts. The largest TCEs occur between the Artesia Boulevard/SR-91 interchange and the Bloomfield Avenue/SR-91 interchange on the south side of SR-91, as well as adjacent and east of Norwalk Boulevard north of the Norwalk Boulevard/SR-91 westbound exit ramp where it intersects with Norwalk Boulevard (at Tracy High School). Staging activities may result in temporary increases in dust and noise levels in the vicinity of these staging

areas; however, such activities are not anticipated to interfere with existing uses on the parcels or result in land use conflicts with adjacent businesses and residences near SR-91 or I-605. These impacts would be temporary and would cease when project construction is complete.

Open space and recreation uses make up the greatest share of existing land uses that would be impacted by TCEs. As shown in Table 2.1.3, the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would result in the use of approximately 0.2 ac of existing commercial and services uses, approximately 0.1 ac of existing educational/institutional uses, approximately 0.4 ac of existing residential uses, and approximately 1.2 ac of existing open space and recreational uses for TCEs.

Construction of the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would require the same TCEs as the Build Alternative but would require additional TCEs due to the ramp configuration at Pioneer Boulevard/168th Street. The affected parcels are identified in Table 2.3.11 and the locations of the parcels that would be affected by these TCEs are shown on Figure 2.3-3 in Section 2.3, Community Impacts. Staging activities may result in temporary increases in dust and noise levels in the vicinity of these staging areas; however, such activities are not anticipated to interfere with existing uses on the parcels or result in land use conflicts with adjacent businesses and residences near SR-91 or I-605. These impacts would be temporary and would cease when project construction is complete.

Open space and recreation uses make up the greatest share of existing land uses that would be impacted by TCEs. As shown in Table 2.1.3, the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would result in the use of approximately 0.2 ac of existing commercial and services uses, approximately 0.03 ac of existing educational/institutional uses, approximately 0.5 ac of industrial existing uses, approximately 0.4 ac of existing residential uses, approximately 1.2 ac of existing open space and recreational uses, and approximately 0.03 ac of existing vacant land for TCEs.

Construction of the Build Alternative with Design Options 1 and 3 (Reduced Lane/Shoulder Width, and Pioneer Boulevard Westbound Ramps/168th Alignment, respectively) would require the same TCEs as the Build Alternative but also the TCEs identified under each respective design option. The affected parcels are identified in Table 2.3.12 and the locations of the parcels that would be affected by these TCEs are

shown on Figure 2.3-4 in Section 2.3, Community Impacts. Staging activities may result in temporary increases in dust and noise levels in the vicinity of these staging areas; however, such activities are not anticipated to interfere with existing uses on the parcels or result in land use conflicts with adjacent businesses and residences near SR-91 or I-605. These impacts would be temporary and would cease when project construction is complete.

Open space and recreation uses make up the greatest share of existing land uses that would be impacted by TCEs. As shown in Table 2.1.3, the Build Alternative with Design Options 1 and 3 (Reduced Lane/Shoulder Width, and Pioneer Boulevard Westbound Ramps/168th Alignment, respectively) would result in the use of approximately 0.2 ac of existing commercial and services uses, approximately 0.1 ac of existing educational/institutional uses, approximately 0.5 ac of existing residential uses, and approximately 1.2 ac of existing open space and recreational uses for TCEs.

The Build Alternative including the diamond ramp configurations at Pioneer Boulevard and Norwalk Boulevard in lieu of the proposed Type L-7 cloverleaf interchange configurations (Design Option 4), four-lane Gridley Avenue overcrossing in lieu of the existing two-lane Gridley Avenue overcrossing (Design Option 5), and keeping the Type L-9 interchange configuration at Pioneer Boulevard (Design Option 2) would not result in any change in the number of required TCEs when compared to the Build Alternative.

#### *No Build Alternative*

The No Build Alternative would not result in the construction of any improvements to the project segment of SR-91 and the SR-91/I-605 interchange other than routine maintenance. As a result, the No Build Alternative would not result in temporary adverse effects related to existing and planned land uses.

#### ***Permanent Impacts***

##### *Build Alternative (includes Design Options)*

The Build Alternative would require the permanent conversion from current and planned land uses to transportation uses to accommodate the proposed improvements. As shown in Table 2.1.3, the Build Alternative would result in the conversion of approximately 0.4 ac of existing commercial and services uses, approximately 0.03 ac of existing educational/institutional uses, approximately 0.5 ac of existing industrial uses, approximately 1.4 ac of existing residential uses, approximately 0.03 ac of open space and recreation uses, and approximately 0.4 ac of existing vacant land. As

shown in Table 2.1.4, the Build Alternative would result in the conversion of approximately 0.07 ac of land planned for commercial and services uses, approximately 0.16 ac of planned educational/institutional uses, approximately 0.07 ac of planned single-family residential uses, approximately 0.01 ac of planned multifamily residential uses, and approximately 0.01 ac of planned open space and recreation uses, as identified in local General Plans.

The project would require 18 residential and 2 non-residential full acquisitions of right-of-way (ROW) under the Build Alternative. The full acquisitions would be required on land that is currently used for residential and commercial properties. The privately owned properties that would be fully acquired for the proposed project would be converted from their current and planned land uses to transportation land uses, and would no longer be available for future residential use. All of the proposed property acquisitions are situated adjacent to existing residential land uses but are contiguous. Although the project would result in a change in land use, there are plans to expand the A.J. Padelford Park and North Artesia Community Center parkland into the residential area that is being acquired. Project improvements would be compatible with the adjacent highway uses. In addition, the project would result in several benefits to the existing land uses, such as relieving congestion and improving freeway operations, including both the mainline and ramp connections.

Some of the partial acquisitions may result in the loss of landscaping or setbacks, or in noncompliance with other development standards on the remaining lot. As part of the acquisition process, coordination with the property owner and the local jurisdiction would be undertaken to address any variances needed resulting from noncompliance with development standards.

Design Option 1 (Reduced Lane/Shoulder Width) at 170th Street would reduce the amount of ROW required along westbound SR-91. This design option would eliminate the ROW impacts at 170th Street and would not require the acquisition of 18 homes and 1 business under the Build Alternative. As shown in Table 2.1.3, the total permanent impact area to existing land uses is 0.8 ac less than that of the Build Alternative.

**Table 2.1.4 General Plan Land Use Impacts**

| <b>Permanent Impacts</b>       | <b>Build Alternative (acres)</b> | <b>Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) (acres)</b> | <b>Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Street Alignment) (acres)</b> | <b>Preferred Alternative [Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)] (acres)</b> |
|--------------------------------|----------------------------------|---|--|---|
| Commercial and Services        | 0.07                             | 0.07  | 0.80   | 0.76  |
| Educational/Institutional      | 0.16                             | 0.17  | 0.17   | 0.17  |
| Industrial                     | 0.0                              | 0.0   | 0.0  | 0.0   |
| Single-Family Residential      | 0.07                             | 0.04  | 0.31   | 0.28  |
| Multi-Family Residential       | 0.01                             | 0.00  | 0.01   | 0.0   |
| Open Space and Recreation      | 0.01                             | 0.0   | 0.01   | 0.0   |
| <b>Permanent Impacts Total</b> | <b>0.32</b>                      | <b>0.28</b>   | <b>1.29</b>  | <b>1.21</b>   |

Source: Southern California Association of Governments (SCAG). GIS Open Data Portal. Website: <http://gisdata-scag.opendata.arcgis.com/> (accessed January 2018).

Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would require the acquisition of an additional eight properties, including five residential properties and three vacant lots, within Census Tract 5548.01. These eight properties are located along 168th Street in a cul-de-sac adjacent to the east side of Pioneer Boulevard in Artesia. As shown in Table 2.1.3, the total permanent impact area to existing land uses would be 1.1 ac greater when compared to just the Build Alternative.

The Preferred Alternative [the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)] would be a combination of the reduction and addition of acquisitions as described above and would result in a total permanent impact area of 3.12 ac to existing land uses and 1.21 ac to future General Plan land uses.

Impacts to General Plan planned land uses show a similar trend with inclusion of the design options when compared to the Build Alternative as shown in Table 2.1.4.

#### *No Build Alternative*

The No Build Alternative would not result in any improvements on SR-91 and the SR-91/I-605 interchange within the study area. As a result, the No Build Alternative would not result in permanent impacts related to existing and planned land uses.

#### ***Avoidance, Minimization, and Mitigation Measures***

The proposed project would not result in substantial permanent effects related to land use compatibility. No additional measures or mitigation are required.

### **2.1.2 Consistency with State, Regional, and Local Plans and Programs**

This section discusses the project's consistency with the SCAG 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the SCAG 2017 Federal Transportation Improvement Program (FTIP), the SCAG 2004 Growth Vision Report, the SCAG 2008 Regional Comprehensive Plan (RCP), the Los Angeles County Metropolitan Transportation Authority's (Metro) 2010 Congestion Management Program (CMP), and the General Plans of the Cities of Artesia and Cerritos.

### **2.1.2.1 Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy**

SCAG is the Metropolitan Planning Organization (MPO) for six counties and 187 cities. SCAG prepares long-range planning documents guiding responses to regional challenges in the areas of transportation, air quality, housing, growth, hazardous waste, and water quality. Because these issues cross city and county boundaries, SCAG works with cities, counties, and public agencies in the six-county region (i.e., Los Angeles, Orange, Ventura, San Bernardino, Riverside, and Imperial Counties) to develop strategies to specifically address the growth and transportation issues facing Southern California.

The RTP is a long-range transportation plan that is developed and updated by SCAG every 4 years. The RTP provides a vision for transportation investments throughout the region. The proposed project is listed in Amendment #3 to the 2016 RTP/SCS with Project ID 1163S012. The 2016 RTP was approved by the Regional Council of SCAG on April 7, 2016, and was adopted on September 6, 2018.

### **2.1.2.2 Southern California Association of Governments Federal Transportation Improvement Program**

The FTIP is a listing of all capital transportation projects proposed over a 6-year period for the SCAG region. The FTIP documents the funding programmed to implement the projects and programs listed in the RTP, and is developed in compliance with State and federal requirements. A new FTIP is prepared and approved every 2 years. These funded projects include highway improvements; transit, rail, and bus facilities; carpool lanes; signal synchronization; intersection improvements; freeway ramps; and other related improvements.

Federal law requires that all federally funded projects and regionally significant projects (regardless of funding) must be listed in an FTIP. The proposed project is included in the FTIP, Amendment #17-22. The FTIP was approved by the SCAG on July 31, 2018, and the federal conformity determination letter was received on December 17, 2018.

### **2.1.2.3 Los Angeles Metropolitan Transportation Authority's 2010 Congestion Management Program**

Metro's 2010 CMP was developed to meet the requirements of Section 65089 of the California Government Code (Metro 2010). On October 28, 2010, the Metro Board adopted the 2010 CMP for Los Angeles County. The 2010 CMP summarizes the



results of 18 years of CMP highway and transit monitoring and 15 years of monitoring local growth. CMP implementation guidelines for local jurisdictions are also contained in the 2010 CMP.

#### **2.1.2.4 Local General Plans**

General Plans contain policies that guide land use-related decisions within a city. General Plans address issues that directly and indirectly influence land uses (e.g., housing, noise, transportation, public services and facilities, and conservation and open space). Refer to Section 2.1.5 for an analysis of the consistency of the proposed project with the local planning document.

##### ***City of Artesia General Plan***

Relevant circulation, recreation and resources, and land use-related policies in the City of Artesia General Plan are described below.

- **Land Use Element (2016)**
  - **Policy Action LU 1.3.1:** Enhance access, safety and the streetscape experience for pedestrians, bicyclists and transit riders; and focus improvements in areas with the highest need.
  - **Policy Action LU 2.1.1:** Maintain standards for circulation, noise, setbacks, buffer areas, landscaping and architecture to ensure compatibility between different uses.
- **Circulation Element (2008)**
  - **Policy Action CIR 1.1.3:** Identify necessary improvements associated with growth and land use change through the City's Capital Improvements Program.
  - **Policy Action CIR 2.1.4:** Work with Caltrans to ensure that sound walls along State facilities are landscaped and maintained with plant materials.
  - **Policy Action CIR 3.2.1:** Identify and implement necessary improvements associated with growth and land use change to maintain adequate capacity on major arterials.
  - **Policy Action CIR 6.1.1:** Work with Caltrans to review, monitor, and improve as necessary on-/off-ramps at the 91 freeway.
  - **Policy Action CIR 3.2.1:** Compliance with provisions of the Congestion Management Program (CMP).

### **City of Cerritos General Plan**

Relevant circulation and land use-related policies in the City of Cerritos General Plan are described below.

- **Land Use Element** (2004)
  - **Policy LU-16.1:** Work with Caltrans to provide and maintain an attractive freeway environment in Cerritos, including access ramps and freeway interchanges.
- **Circulation Element** (2004)
  - **Policy CIR-1.6:** Where deemed necessary, upgrade major arterial facilities to accommodate regional traffic demand, improve access to and from freeway ramp facilities and to facilitate truck movements.
  - **Policy CIR-9.5:** Design and maintain landscaped parkways, decorative median islands and entrance planters at freeway on-ramps and off-ramps.
    - **Policy (a):** Align roadways in relationship to adjoining land uses to minimize noise and visual impacts.

#### **2.1.2.5 Specific Plans**

Some municipalities adopt specific plans to implement the policies established in the General Plan in a specific geographical area. The Cities of Artesia and Cerritos do not have specific plans within the study area.

#### **2.1.2.6 Environmental Consequences**

##### ***Temporary Impacts***

##### ***Build Alternative (includes Design Options)***

Consistency with State, regional, and local plans and programs is related to the consistency of permanent project changes with those plans. As a result, the construction of the Build Alternative would not result in any inconsistencies with State, regional, and local plans and policies.

##### ***No Build Alternative***

Consistency with State, regional, and local plans and programs is related to the consistency of permanent changes with those plans. Therefore, there would be no temporary impacts under the No Build Alternative.

### **Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

The local land use policies consistency analysis for the Build Alternative (including all the design options) is provided in Table 2.1.5. The Build Alternative would be generally consistent with the applicable policies and objectives contained in the General Plans of the Cities of Artesia and Cerritos. Specifically, the project is consistent with the policies and objectives to improve regional transportation facilities, maximize the efficiency of the circulation system, and improve access to city streets. In addition, implementation of the Build Alternative would not result in changes to existing land use patterns along SR-91 and I-605 because these freeways are existing transportation facilities located in a highly developed area, and the Build Alternative would result in a limited number of acquisitions. The Build Alternative would not require amendment of the affected Cities' General Plans.

#### ***No Build Alternative***

The existing condition of SR-91 and the SR-91/I-605 interchange in the project area is generally not consistent with the regional mobility objectives of the City of Artesia and the City of Cerritos General Plan Circulation Elements. As shown in Table 2.1.5, the No Build Alternative would be generally inconsistent with the policies in these Cities' General Plans related to circulation and level of service (LOS) because the implementation of the No Build Alternative would not facilitate transportation improvements along SR-91.

### **Avoidance, Minimization, and Mitigation Measures**

The proposed project would not result in substantial permanent effects related to plan consistency. No additional measures or mitigation are required.

## **2.1.3 Parks and Recreational Facilities**

### **2.1.3.1 Regulatory Setting**

This project will affect facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409). The Park Preservation Act prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

**Table 2.1.5 Consistency with Regional and Local Plans and Programs**

| Policy   | No Build Alternative   | Build Alternative  |
|--|--|--|
| <b>SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS<br/>FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM</b>   |  |  |
| <p><b>Policy Guideline:</b> Each project in the County TIP submitted to SCAG must be consistent with and reflect investment priorities established in the most recently adopted metropolitan transportation plan, in accordance with MAP-21. Each FTIP project must show consistency with the project's design concept, and timely implementation as reflected in the adopted RTP/SCS.</p> | <p><b>Consistent.</b> The proposed project is included in the FTIP. Therefore, the No Build Alternative would be inconsistent with this policy guideline.</p>  | <p><b>Consistent.</b> The 2016 RTP was approved by the Regional Council of SCAG on April 7, 2016. The proposed project is listed in Amendment #3 to the 2016 RTP/SCS with Project ID 1163S012. The proposed project is included in the FTIP, Amendment #17-22. The FTIP was approved by the SCAG on July 31, 2018, and the federal conformity determination letter was received on December 17, 2018. Therefore, the project is consistent with this policy guideline.</p> |
| <b>2004 Growth Vision Report</b>   |  |  |
| <p><b>Principle #1:</b> Improve mobility for all residents. Encourage transit-oriented development. Promote a variety of travel choices</p>  | <p><b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with this principle. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative.</p> | <p><b>Consistent.</b> By increasing operational efficiencies at SR-91, the Build Alternative would enhance transit and improve traffic conditions. Therefore, the project would be consistent with this principle.</p>   |
| <b>2008 Regional Comprehensive Plan</b>  |  |  |
| <p><b>Transportation Goal:</b> A more efficient transportation system that reduces and better manages vehicle activity.</p>  | <p><b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with this goal. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative.</p>      | <p><b>Consistent.</b> The Build Alternative would result in a more efficient transportation system by adding another lane on SR-91. Therefore, the project would be consistent with this goal.</p>   |
| <p><b>Security and Emergency Preparedness Goal:</b> Ensure transportation safety, security, and reliability for all people and goods in the region.</p>  | <p><b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with this goal. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative.</p>      | <p><b>Consistent.</b> The Build Alternative would help to ensure transportation safety, security, and reliability by adding another lane on SR-91. Therefore, the project would be consistent with this goal.</p>  |
| <b>2016-2040 Regional Transportation Plan/Sustainable Communities Strategy</b>   |  |  |
| <p><b>Goal 2:</b> Maximize mobility and accessibility for all people and goods in the region.</p>  | <p><b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with this goal. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative.</p>      | <p><b>Consistent.</b> The Build Alternative would maximize mobility and accessibility in the region by improving operational efficiency at SR-91. Therefore, the project would be consistent with this goal.</p>   |
| <p><b>Goal 3:</b> Ensure travel safety and reliability for all people and goods in the region.</p>   | <p><b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with this goal. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative.</p>      | <p><b>Consistent.</b> The Build Alternative would help to ensure transportation safety, security, and reliability by improving operational efficiency at SR-91. Therefore, the project would be consistent with this goal.</p>   |

**Table 2.1.5 Consistency with Regional and Local Plans and Programs**

| Policy  | No Build Alternative   | Build Alternative   |
|---|--|---|
| <b>LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY</b>   |  |   |
| <b>2010 Congestion Management Program</b>   |  |   |
| <b>Goals:</b> To link local land use decisions with their impacts on regional transportation, and air quality; and to develop a partnership among transportation decision makers on devising appropriate transportation solutions that include all modes of travel. | <b>Consistent.</b> The No Build Alternative would not result in any changes to existing conditions and would therefore not conflict with these goals. However, this alternative would not achieve the transportation improvements projected to result under the Build Alternative. | <b>Consistent.</b> The Build Alternative would improve operational efficiencies at SR-91 and would therefore enhance transportation, resulting in improvements to regional transportation and air quality. Therefore, the project would be consistent with this goal. |
| <b>CITY OF ARTESIA GENERAL PLAN</b>   |  |   |
| <b>Land Use Element (2016)</b>  |  |   |
| <b>Policy Action LU 1.3.1:</b> Enhance access, safety and the streetscape experience for pedestrians, bicyclists and transit riders; and focus improvements in areas with the highest need.   | <b>Inconsistent.</b> The No Build Alternative would not provide any enhancements related to access, safety, and the streetscape experience for pedestrians, bicyclists, and transit riders.  | <b>Consistent.</b> The proposed project is an improvement to existing infrastructure. It would provide an opportunity for the incorporation of enhancements to access, safety, and the streetscape experience for pedestrians, bicyclists, and transit riders.        |
| <b>Policy Action LU 2.1.1:</b> Maintain standards for circulation, noise, setbacks, buffer areas, landscaping and architecture to ensure compatibility between different uses.  | <b>Consistent.</b> The No Build Alternative does not introduce a disruptive, non-conforming use to the surrounding land uses.  | <b>Consistent.</b> The proposed project is an improvement to existing infrastructure. It does not introduce a disruptive, non-conforming use to the surrounding land uses.  |
| <b>Circulation Element (revised 2008)</b>   |  |   |
| <b>Policy Action CIR 1.1.3:</b> Identify necessary improvements associated with growth and land use change through the City's Capital Improvements Program.   | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 or local roadways and would not implement necessary improvements to accommodate growth and land use change.  | <b>Consistent.</b> The proposed project would improve conditions on SR-91 and local roadways, and would implement necessary improvements to accommodate growth and land use change.   |
| <b>Policy Action CIR 2.1.4:</b> Work with Caltrans to ensure that sound walls along State facilities are landscaped and maintained with plant materials.  | <b>Inconsistent.</b> The No Build Alternative would not result in the construction of sound walls with landscaped plant materials.   | <b>Consistent.</b> Where feasible and practical, the proposed project would incorporate landscaped plant materials on new or reconstructed sound walls.   |
| <b>Policy Action CIR 3.2.1:</b> Identify and implement necessary improvements associated with growth and land use change to maintain adequate capacity on major arterials.  | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 or local roadways and would not implement necessary improvements to accommodate growth and land use change to maintain adequate capacity on major arterials.                                   | <b>Consistent.</b> Where feasible and practical, the proposed project would implement necessary improvements to maintain adequate capacity on major arterials.  |
| <b>Policy Action CIR 6.1.1:</b> Work with Caltrans to review, monitor, and improve as necessary on-/off-ramps at the 91 freeway.  | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 and would not implement necessary improvements to accommodate growth and land use change to maintain adequate capacity on SR-91 on-/off-ramps..  | <b>Consistent.</b> The proposed project would improve conditions on SR-91, and would implement necessary improvements to accommodate growth and land use change to maintain adequate capacity on SR-91 on-/off-ramps.   |
| <b>Policy Action CIR 3.2.1:</b> Compliance with provisions of the Congestion Management Program (CMP).  | <b>Consistent.</b> While no changes would occur under the No Build Alternative, it would not be inconsistent with the provision of the CMP.  | <b>Consistent.</b> The improvements associated with the proposed project would be consistent with the provisions of the CMP.  |

**Table 2.1.5 Consistency with Regional and Local Plans and Programs**

| Policy   | No Build Alternative   | Build Alternative  |
|--|--|--|
| <b>CITY OF CERRITOS GENERAL PLAN</b>   |  |  |
| <b>Land Use Element (2004)</b>   |  |  |
| <b>Policy LU-16.1:</b> Work with Caltrans to provide and maintain an attractive freeway environment in Cerritos, including access ramps and freeway interchanges.  | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 or at ramps and interchanges, and would not implement improvements to maintain an attractive freeway environment.  | <b>Consistent.</b> The proposed project would improve conditions on SR-91 and at ramps and interchanges, and would implement improvements to maintain an attractive freeway environment where feasible and practical.  |
| <b>Circulation Element (2004)</b>  |  |  |
| <b>Policy CIR-1.6:</b> Where deemed necessary, upgrade major arterial facilities to accommodate regional traffic demand, improve access to and from freeway ramp facilities and to facilitate truck movements.   | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 or major arterials, and would not implement necessary improvements to accommodate regional traffic demand and would not improve access.  | <b>Consistent.</b> The proposed project would improve conditions on SR-91 and along major arterials, and would implement necessary improvements to accommodate regional traffic demand and improve access.   |
| <b>Policy CIR-9.5:</b> Design and maintain landscaped parkways, decorative median islands and entrance planters at freeway on-ramps and off-ramps.<br><br><b>Policy (a):</b> Align roadways in relationship to adjoining land uses to minimize noise and visual impacts. | <b>Inconsistent.</b> The No Build Alternative would not improve conditions on SR-91 or at ramps and interchanges, and would not implement improvements to maintain an attractive freeway environment. No features would be constructed to minimize noise and visual impacts. | <b>Consistent.</b> The proposed project would improve conditions on SR-91 and at ramps and interchanges, and would implement improvements to maintain an attractive freeway environment where feasible and practical. Project elements would be incorporated to minimize noise and visual impacts. |

Source: *Community Impact Assessment* (2018).  
 Caltrans = California Department of Transportation  
 FTIP = Federal Transportation Improvement Program  
 PA&ED = Project Approval/Environmental Documentation  
 RTP/SCS = Regional Transportation Program/Sustainable Communities Strategy  
 SR-91 = State Route 91  
 TIP = Transportation Improvement Program

### 2.1.3.2 City of Artesia

The City of Artesia operates and maintains a total of three city parks: Artesia Park, A.J. Padelford Park, and Baber Park (City of Artesia 2017). The following parks and recreational facilities in the city of Artesia are within 0.5 mile (mi) of the project area:

- **A.J. Padelford Park, 16912 Clarkdale Avenue, Artesia (Map ID No. P-6):** This neighborhood park features one full basketball court, two playgrounds, a Teen Center, and one multi-purpose room. This park is 1.56 ac and is located partially within the study area of the proposed project.
- **Baber Park, 17101 Baber Avenue, Artesia (Map ID No. P-5):** This park is a passive open space area. This park is 0.9 ac and is located partially within the study area of the proposed project.

- **North Artesia Community Center, 11870 169<sup>th</sup> Street, Artesia (Map ID No. P-6):** This community center is located within A.J. Padelford Park and provides a location for City of Artesia-sponsored educational and recreational opportunities.

### **2.1.3.3 Affected Environment**

#### ***City of Cerritos***

The City of Cerritos operates and maintains a total of 20 community parks and 6 recreational facilities, including community gyms at three high schools, the Cerritos Olympic Swim and Fitness Center, the Iron-Wood Nine Golf Course, and the Cerritos Regional Park, Sports Complex and Skate Park (City of Cerritos 2017). The following parks and recreational facilities in the city of Cerritos are within 0.5 mi of the project area:

- **Satellite Park, 12410 Ash Creek Road (Map ID No. P-8):** This park features ball courts and fields, picnic shelters, and play areas. This park is approximately 1.9 ac and is located approximately 570 feet (ft) from the project area.
- **Reservoir Hill Park, 16733 Studebaker Road (Map ID No. P-3):** This park features play areas. This park is 4.6 ac and is located partially within the project area.
- **Cerritos Park East, 13234 East 166<sup>th</sup> Street (Map ID No. P-13):** This park features ball courts and fields, a meeting room, picnic shelters, restrooms, play areas, a spray pool, and on-site staff. This park is approximately 29.9 ac and is located approximately 1,640 ft from the project area.
- **Frontier Park, 16910 Maria Avenue (Map ID No. P-10):** This park features ball courts, fields, a meeting room, picnic shelters, a restroom, play areas, and on-site staff. This park is approximately 2.6 ac and is located approximately 890 ft from the project area.
- **Ecology Park, 17133 Gridley Road (Map ID No. P-4):** This park features ball courts and play areas. This park is approximately 1.5 ac and is located partially within the project area.
- **Saddleback Park, 13037 Acoro Street (Map ID No. P-12):** This park features ball courts and play areas. This park is 1.5 ac and is located approximately 360 ft from the project area.
- **Loma Park, 17503 Stark Avenue (Map ID No. P-9):** This park features picnic shelters and play areas. This park is approximately 0.8 ac and is located approximately 1,155 ft from the project area.

- **Rosewood Park, 17715 Eric Avenue (Map ID No. 16):** This park features ball courts and fields, picnic shelters, and play areas. This park is approximately 8 ac and is located approximately 1,940 ft from the project area.
- **Cerritos Sculpture Garden, 183rd Street (Map ID No. 17):** This garden features interior and exterior spaces showcasing art and nature. This garden is approximately 0.02 sq mi and is located approximately 2,160 ft from the project area.
- **Brookhaven Park, 13167 Brookhaven Street (Map ID No. P-14):** This park features ball courts and play areas. This park is approximately 0.7 ac and is located approximately 275 ft from the project area.
- **Heritage Park, 18600 Bloomfield Avenue (Map ID No. P-11):** This park features ball courts and fields, an island playground, a meeting room, picnic shelters, restrooms, play areas, and on-site staff. This park is approximately 15.3 ac and is located approximately 2,380 ft from the project area.
- **Cerritos Park East Community Center, 13234 East 166th Street (Map ID No. P-13):** This community center is located within Cerritos Park East and provides a location for City-sponsored educational and recreational opportunities.
- **Cerritos Olympic Swim and Fitness Center, 13150 East 166th Street (Map ID No. RF-2):** This facility is an enclosed 50-meter (m) pool with dressing rooms, a press box area, and seating capacity for 1,200 spectators. Swimming classes for children and adults are offered here. This facility is located approximately 1,640 ft from the project area.
- **Community Gymnasium at Whitney High School, 16800 Shoemaker Avenue (Map ID No. S-13):** This community gymnasium is a shared facility that hosts organized youth and adult sports classes. This community gymnasium is located approximately 1,265 ft from the project area.
- **Cerritos Center for the Performing Arts, 12700 Center Court Drive (Map ID No. 23):** This facility functions as a performing arts and conference facility, offering performances in music, dance, and theater, as well as a facility for meetings, banquets, and special events. This facility is located approximately 1,000 ft from the project area.
- **Heritage Park Community Center, 18600 Bloomfield Avenue (Map ID No. P-11):** This community center is located within Heritage Park and provides a location for City-sponsored educational and recreational opportunities.
- **Tracy High School, 12222 Cuesta Drive (Map ID No. S-10):** This high school campus encompasses 14.57 ac, is a public continuation high school that serves as an alternative education program, and primarily serves students in grades 10



through 12. The facility contains several amenities, including outdoor basketball courts, blacktop tennis courts, and a multipurpose grass area that primarily serves as a baseball field.

### ***City of Norwalk***

The City of Norwalk operates and maintains a total of 12 parks as well as a cultural arts center, a gymnasium, the Hargitt House Museum, the Sproul Museum, the Sproul Reception Center, a teen center, an aquatic pavilion, a golf center, and a senior center (City of Norwalk 2017). The following parks and community centers in the city of Norwalk are within 0.5 mi of the project area:

- **Glazier Park, 10810 Excelsior Drive (Map ID No. P-1):** This park features ball courts, picnic shelters, play areas, restrooms, and passive recreation areas. This park is located approximately 2,430 ft from the project area.
- **Hermosillo Park, 11959 162<sup>nd</sup> Street (Map ID No. P-7):** This park features ball courts and fields, play areas, and passive recreation areas. This park is located approximately 1,600 ft from the project area.

### ***City of Bellflower***

The City of Bellflower operates and maintains a total of four city parks as well as a civic auditorium (City of Bellflower 2017). The following parks and community facilities in the city of Bellflower are within 0.5 mi of the project area:

- **Ruth B. Caruthers Park, 10500 Flora Vista Street (Map ID No. P-2):** This park features ball courts and fields, picnic shelters, a skate park, game room, a wading pool, fitness center, equestrian path, bike trail, and play areas. This park is approximately 20 ac and is located approximately 1,340 ft from the project area.
- **Flora Vista Dog Park, 9203 Flora Vista Street (Map ID No. P-2):** This dog park is part of the larger Ruth B. Caruthers Park.
- **Bellflower Bike Trail (Map ID No. B-1):** A 2.7 mi asphalt bike trail that runs along the former ROW of the Pacific Electric rail system. The trail begins at Ruth B. Caruthers Park and heads northwest to its terminus at Somerset Boulevard.

Parks and recreation resources within 0.5 mi of the project area identified by Map ID are shown on Figure A-1 in Appendix A, Resources Evaluated Relative to the Requirements of Section 4(f).

### **Bicycle Facilities**

On-road bicycle facilities within the project area include:<sup>1</sup>

- A Class III<sup>2</sup> bikeway extends in both directions on 195<sup>th</sup> Street from the San Gabriel River Trail to Bloomfield Avenue. These bikeways then transition to a Class II bikeway before joining the Coyote Creek Bicycle Path.
- A Class II bikeway extends on Pioneer Boulevard from South Street before turning eastward onto Del Amo Boulevard.
- A Class II bikeway extends on Bloomfield Avenue starting at 183<sup>rd</sup> Street and ends at South Street before continuing east on South Street to Carmelita Avenue, where another bikeway extends southward on Shoemaker Avenue.

The project area is located between the following two major bike trails in the region owned and operated by the Los Angeles County Department of Public Works Road Maintenance Division:

- The San Gabriel River Bicycle Trail runs 30.2 mi along the San Gabriel River, from San Gabriel Canyon Road in Azusa to an access into El Dorado Park in Long Beach. There are numerous access points along the path. Within the study area, the Trail crosses under SR-91 just west of I-605, which it parallels for much of its length.
- The Coyote Creek Bicycle Trail is a 9.5 mi Class I bike path adjacent to the Coyote Creek flood control channel, extending from Santa Fe Springs to Long Beach, where it joins the San Gabriel River Bicycle Path. It crosses under SR-91 about 1 mi east of the study area, at Carmenita Road.

### **Park Preservation Act**

The project will affect four park facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400–5409). These park facilities are Reservoir Hill Park, Ecology Park, Baber Park, and A. J. Padelford Park (each described above). The Park Preservation Act prohibits local and State agencies from acquiring any property that is in use as a public park at the time of acquisition

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<sup>1</sup> County of Los Angeles. 2012. *Bicycle Master Plan*. Website: <https://dpw.lacounty.gov/pdd/bike/docs/bmp/BMP%20CHP%203.pdf> (accessed December 12, 2017).

<sup>2</sup> Class I (separate bike path), Class II (bike lane), and Class III (signed as bike route, no striping).

unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

### 2.1.3.4 Environmental Consequences

#### **Temporary Impacts**

##### *Build Alternative (includes Design Options)*

Construction of the Preferred Alternative would result in temporary effects at 2 of the 30 parks and recreational resources within the project area as discussed below.

- **Ecology Park:** The Preferred Alternative would require temporary impacts to Ecology Park for construction activities. Temporary impacts of 0.48 ac of land would be required to reconstruct and revegetate the slope to facilitate footing construction of the retaining wall. Temporary impacts would not interrupt access to the park, and the park would remain open for public use during construction of the project. Additionally, there would be temporary impacts to approximately 0.045 ac of parkland in the northern portion of this resource. This temporary impact area is located beyond the noise barrier that separates the park from SR-91, and it is not accessible from Ecology Park. Therefore, the temporary impact area would not adversely affect users of Ecology Park nor would it adversely affect the facilities, function or activities at the park.
- **Tracy High School:** A TCE on 0.82 ac of land would be required on the parking lot adjacent to Norwalk Boulevard in the western end of the school's boundary for the proposed interchange and intersection improvements at Norwalk Boulevard. Per PF-PR-1 and PF-PR-2, before construction activities begin, the western parking lot would be reconfigured and restriped; therefore, the project would not limit the number of spaces in the western parking lot.  
Temporary impacts would not interrupt access to the recreational resources at this property, and would remain open for public use during construction and operation of the project.

**PF-PR-1** Before construction activities begin; the western parking lot of Tracy High School would be reconfigured and restriped in order to not reduce the number of spaces in the western parking lot compared to existing conditions.

**PF-PR-2** During PS&E Caltrans or Metro will initiate negotiations with the City of Cerritos and the ABC Unified School District for the partial acquisition and Temporary Construction Easement.

*No Build Alternative*

The No Build Alternative would not result in the construction of any improvements to the project segment of SR-91 and the SR-91/I-605 interchange other than routine maintenance. As a result, the No Build Alternative would not result in temporary adverse effects related to parks and recreation facilities, or Section 4(f) resources.

**Permanent Impacts**

*Build Alternative (includes Design Options)*

The following park and recreation facilities would be impacted with the implementation of the Preferred Alternative. These park and recreational facilities qualify for protection under Section 4(f) of the Department of Transportation Act of 1966 and are discussed in more detail in Appendix A, Section 4(f) Analysis.

- **Ecology Park:** The project would result in the permanent incorporation of 0.15 ac of vegetated slope from Ecology Park into the transportation facility. Permanent impacts would not interrupt access to the park, and the park would remain open for public use during construction and operation of the project.

Construction of the Preferred Alternative would include the demolition and reconstruction of the existing Gridley Road overcrossing. While the overcrossing would be removed and replaced, permanent access to an overcrossing connecting to/from Ecology Park would be maintained, and there would be no permanent loss of access to this resource. Additionally, per PF-PR-3, landscaping and irrigation would be restored to Ecology Park after construction.

**PF-PR-3** After construction, landscaping and irrigation would be restored to vegetated slope in Ecology Park.

- **Tracy High School:** The project would result in the permanent incorporation of 0.09 ac of parking lot from Tracy High School at the western portion of the school boundary to accommodate the interchange reconfiguration and intersection improvements at Norwalk Boulevard. Additional improvements would include the reconfiguration of lanes along Norwalk Boulevard and the reconstruction of the existing Type L-9 cloverleaf interchange into a Type L-7 cloverleaf interchange configuration. The interchange modification would also alter the

arterial street operations as a result of the changed interchange access point for the arterial street to westbound SR-91.

Permanent impacts would not interrupt access to the resource, and would not affect the activities, features, or attributes of this resource. The resource would remain open for public use during construction and operation of the project. The project would result in a portion of the property being permanently incorporated into a transportation facility. To minimize the impact on this resource, the parking lot would be reconfigured and restriped prior to construction so that the number of parking stalls would remain the same despite the permanent impacts.

Because the project would not adversely affect the activities, features, and attributes that qualify the properties for protection under Section 4(f), Caltrans has determined that the project would result in a *de minimis* impact on Ecology Park and “No Use” impact on Tracy High School since no recreational facilities of the school will be impacted by the project.

#### ***No Build Alternative***

The No Build Alternative would not result in any improvements on SR-91 and the SR-91/I-605 interchange within the study area. As a result, the No Build Alternative would not result in permanent impacts related to parks and recreation facilities, or Section 4(f) resources.

#### ***Avoidance, Minimization, and/or Mitigation Measures***

The proposed project would not result in substantial permanent effects related to parks and recreation facilities. No additional measures or mitigation are required.

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## 2.2 Growth

### 2.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. The CEQA guidelines (Section 15126.2[d]) require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

### 2.2.2 Affected Environment

Existing and General Plan land uses in Cerritos and Artesia along the project segment of State Route 91 (SR-91) and Interstate 605 (I-605) and the projected growth rates for the various jurisdictions are discussed in Section 2.1, Land Use, and in Chapter 1, Section 1.2.2.3, Social Demands and Economic Development.

This analysis of potential growth impacts follows the first-cut screening guidelines provided in the California Department of Transportation's (Caltrans) *Guidance for Preparers of Growth-related, Indirect Impact Analysis* (2006). The first-cut screening approach identifies the need for and the extent of growth-related impact analysis based on the responses to various questions related to a project's change in accessibility, its potential to influence growth, and the potential for project-related growth to impact resources of concern.

### 2.2.3 Environmental Consequences

#### 2.2.3.1 Temporary Impacts

##### ***Build Alternative (includes Design Options)***

Any potential growth-related impacts of the Build Alternative would be a result of the operation of the Build Alternative and would be permanent. Therefore, the Build

Alternative and its design options would not result in any temporary growth-related impacts.

### **No Build Alternative**

Under the No Build Alternative, none of the proposed improvements to SR-91 and I-605 would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in temporary growth-inducing impacts.

### **2.2.3.2 Permanent Impacts**

#### **Build Alternative (includes Design Options)**

The assessment of the potential growth-related impacts of the Build Alternative was conducted using the first-cut screening analysis approach, including assessment of whether further analysis would be necessary based on consideration of the following four questions.

#### **1. How, if at all, does the proposed project potentially change accessibility?**

The Build Alternative proposes improvements to an existing freeway facility and does not increase the number of access points to or from the facility. The proposed project is located in a highly urbanized area, and the proposed improvements do not provide a new transportation facility or new access to previously inaccessible areas. The Build Alternative would help alleviate existing and forecasted traffic congestion in the study area, resulting in improved operations on the SR-91, the I-605, and on nearby arterials. Additionally, the Build Alternative would help accommodate projected future (2044) traffic volumes in the study area consistent with adopted local land use and transportation plans (as discussed in Section 2.1, Land Use, and in Chapter 1, Section 1.2.2.3, Social Demands and Economic Development). Therefore, the proposed project does not have the potential to change accessibility.

#### **2. How, if at all, do the project type, project location, and growth pressure potentially influence growth?**

Growth in Cerritos and Artesia is expected to occur with or without the Build Alternative because growth has continued in the study area even without improvements to SR-91. The Build Alternative would accommodate approved and planned growth in the study area (see Table 2.18.1 for a list of reasonably foreseeable land use and infrastructure projects within the study area) because the



proposed project would add capacity to a heavily traveled segment of SR-91 and I-605 and thereby help alleviate existing and forecasted congestion in the study area. Pressure for growth is a result of a combination of factors, including economic, market, and land use demands and conditions. The study area cities are projected to experience population growth rates ranging from 3 percent (for Cerritos) to 8 percent (for Artesia) between 2012 and 2040 as projected by the Southern California Association of Governments' (SCAG) 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Final Growth Forecasts.<sup>1</sup>

If traffic congestion was a constraint on growth, the improvements to alleviate congestion and expand the capacity of the existing SR-91 and I-605 facilities could make growth in the study area more attractive. However, as shown in Table 2.18.1, a substantial number of development projects were proposed and approved prior to the initiation of the planning studies for the proposed project, which indicates that development in the study area cities is not dependent on the completion of this freeway improvement project. Additionally, the SR-91 and I-605 corridor runs through a heavily urbanized and built-out area, wherein there is not a substantial amount of land available for new development. The project is in conformance with the growth-related objectives and policies of the General Plans of the Cities of Cerritos and Artesia. The overarching goals identified in these General Plans call for the provision of adequate transportation facilities, a reduction in traffic congestion, and interagency coordination to achieve a reduction in regional traffic congestion. The Build Alternative does not propose improvements that are inconsistent with these goals or other related policies. Moreover, the fact that the project is called for in the RTP/SCS, for which each local jurisdiction provides input, suggests that growth policies would effectively manage any growth created by the Build Alternative. Table 2.18.1 provides the status of land use developments within the study area. These developments will be developed with or without the proposed project.

Because it is located within an existing urbanized area, the Build Alternative is unlikely to alter the historic and projected growth patterns within either the

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<sup>1</sup> Southern California Association of Governments (SCAG). 2016–2040 RTP/SCS Final Growth Forecast by Jurisdiction. Website: [https://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](https://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf) (accessed November 10, 2017).

affected jurisdictions or Los Angeles County and does not encourage growth on undeveloped and unplanned land. Therefore, the Build Alternative would accommodate existing and planned growth, but not influence growth beyond what is currently planned.

**3. Is project-related growth reasonably foreseeable as defined in NEPA?**

Under NEPA, indirect impacts need only be evaluated if they are reasonably foreseeable, rather than remote and speculative. As discussed above, the Build Alternative would not influence growth beyond those projects currently planned for the area (Table 2.18.1) and would not influence the rate, type, or amount of growth that would otherwise occur. Therefore, no reasonably foreseeable project-related growth would occur under the Build Alternative.

**4. If there is project-related growth, how, if at all, will that impact resources of concern?**

As indicated above, because the Build Alternative would not influence the rate, type, or amount of growth that would otherwise occur, the reasonably foreseeable growth anticipated to occur in the study area is not project-related.

Because the Build Alternative would not result in growth-inducing impacts, no analysis of those potential impacts beyond what is contained above in the first-cut screening analysis is necessary.

***No Build Alternative***

Under the No Build Alternative, none of the proposed improvements to SR-91 and I-605 would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in growth-related impacts.

**2.2.4 Avoidance, Minimization, and/or Mitigation Measures**

As the Build Alternative would not result in any temporary or permanent growth-related impacts, no avoidance, minimization, or mitigation measures are required.

## **2.3 Community Impacts**

### **2.3.1 Community Character and Cohesion**

#### **2.3.1.1 Regulatory Setting**

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109(h)) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

#### **2.3.1.2 Affected Environment**

The study area for community character and cohesion includes portions of the cities of Artesia, Cerritos, and Norwalk, specifically the 9 census tracts and 20 applicable block groups adjacent to the project area (Census Tracts 5530.00 [Block Groups 3 and 4], 5545.12 [Block Groups 1 and 2], 5545.13 [Block Group 1], 5545.14 [Block Groups 1, 2, and 3], 5545.21 [Block Groups 1 and 3], 5546.00 [Block Groups 1 and 2], 5547.00 [Block Groups 1, 2, and 3], 5548.01 [Block Groups 1 and 2], and 5548.02 [Block Groups 1, 2, and 3], which are shown on Figure 2.3-1). (Please note that the figures for this section have been placed at the end of the text to enhance the section's readability.) Data presented in this section are based on census tract information available from the United States (U.S.) Census Bureau, the 2010 Census, and the

2011–2015 American Community Survey (ACS)<sup>1</sup> 5-Year Estimates. The ACS is a mandatory, ongoing statistical survey that samples a small percentage of the population every year to provide estimates on various community characteristics. The 5-Year Estimates include data collected over a 5-year period to provide the most reliable estimates for a community.

Community character consists of all the attributes, including social and economic characteristics, and assets that make a community unique and establish a sense of place for its residents. The southern portion of the study area along State Route 91 (SR-91) consists of a mix of education, industrial, commercial/service, and single-family residential uses, with a smaller number of multi-family residential uses. By contrast, the northern portion of the study area along SR-91 is characterized by more single- and multi-family residences, but also includes areas of commercial, industrial, and educational uses. Land uses surrounding Interstate 605 (I-605) in the study area consist of a mix of transportation, communication, utility, recreation, and industrial uses and a small pocket of commercial uses to the west and a mix of commercial, industrial, single-family residential, and recreational uses to the east.

Community cohesion is the degree to which residents have a sense of belonging to their neighborhoods, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Demographic data compiled by the U.S. Census Bureau, including the 2010 Census and the 2011–2015 ACS, may be used to measure a community’s level of cohesion. The following demographic indicators tend to correlate with a higher degree of community cohesion and are used to determine the degree of community cohesion in the study area cities and census tracts:

- **Ethnicity:** In general, homogeneity of the population contributes to higher levels of community cohesion. Communities that are ethnically homogeneous often speak the same language, hold similar beliefs, and share a common culture and, therefore, are more likely to engage in social interaction on a routine basis. The U.S. Census Bureau compiles limited data regarding ethnicity. While the U.S.

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<sup>1</sup> The ACS is an ongoing survey conducted by the U.S. Census Bureau that provides data every year, supplying communities with current information they need to plan investments and services. ACS data are estimates derived from a sampling of the population, rather than population totals collected for the Decennial Census.

Census Bureau provides data regarding Hispanic/Latino origin, the language spoken at home, and ancestry, it does not provide data regarding religion.

Table B03002 of the 2011–2015 ACS provides data regarding the population by ethnicity and race used to identify ethnically homogeneous communities within the study area.

- **Housing Occupancy:** Communities with a high percentage of owner-occupied residences are typically more cohesive because their population tends to be less transient. Because they have a financial stake in their community, homeowners often take a greater interest in what is happening in their community than renters do. This means they often have a stronger sense of belonging to their community. Table B25008 of the 2011–2015 ACS provides data regarding the percentage of housing units in Los Angeles County as well as in each study area city and census tract that is owner-occupied.
- **Housing Tenure:** Communities with a high percentage of long-term residents are typically more cohesive because a greater proportion of the population has had time to establish social networks and develop an identity with the community. Table B25026 of the 2011–2015 ACS provides data regarding the year that each householder in Los Angeles County and the study area cities and census tracts moved into his or her current housing unit. For purposes of this analysis, those households that moved into their current residence in 2001 or earlier are considered long-term residents since they have lived in their current residence for more than 15 years.
- **Household Size:** In general, communities with a high percentage of families with children are more cohesive than communities made up of largely single people. This appears to be because children tend to establish friendships with other children in their community. The social networks of children often lead to the establishment of friendships and affiliations among parents in the community. Table B11016 of the 2011–2015 ACS provides data on household type by household size used to identify family households within the study area.
- **Elderly Residents:** In general, communities with a high percentage of elderly residents (65 years or older) tend to demonstrate a greater social commitment to their community. This is because the elderly population, which includes retirees, often tends to be more active in the community due to its members having more time available to volunteer and participate in social organizations. Table B01001 of the 2011–2015 ACS provides data regarding the age of the population of Los Angeles County and each study area city and census tract.

- **Transit-Dependent Population:** Communities with a high percentage of residents who are dependent on public transportation typically tend to be more cohesive than communities that are dependent on automobiles for transportation. This is because residents who tend to walk or use public transportation for travel tend to engage in social interactions with each other more frequently than residents who travel by automobile. The transit-dependent population was identified from the U.S. Census Bureau (2015) and data reported in Table S0801 of the 2012–2016 ACS.

These indicators of community character and cohesion in the study area and the applicable local jurisdictions are described in greater detail below.

### ***Ethnicity***

Table 2.3.1 provides data regarding ethnicity and race in Los Angeles County, the study area cities of Artesia and Cerritos, and the nine census tracts and associated block groups in the study area, as reported in the 2011–2015 ACS for 2015. The *Community Impact Assessment* (CIA) (2018) prepared for this project also included data from 2013 regarding ethnicity and race for Los Angeles County, the study area cities, and the study area census tract block groups. Table 2.3.1 also identifies whether ethnically homogeneous communities are likely to exist in the study area cities and census tract block groups. Ethnically homogeneous communities are identified in the study area cities and census tract block groups when both of the following criteria are met: (1) a particular ethnic group makes up 30 percent or more of the population within that city or census tract block group; and (2) that particular ethnic group population makes up a higher percentage of the community than it does of Los Angeles County as a whole. These criteria were developed based on a reasonable estimate of the minimum number of residents required before ethnic places of worship, cultural institutions, and/or business districts were established in the community.

As identified in Table 2.3.1, Los Angeles County is predominantly Hispanic or Latino, followed by White and Asian. The composition of the cities of Artesia and Cerritos is predominantly Asian (40 and 60 percent, respectively). In the city of Artesia, the second-largest ethnic population is Hispanic or Latino (37 percent), followed by White (20 percent). In the city of Cerritos, the second-largest ethnic population is White (16 percent), followed by Hispanic or Latino (13 percent). When compared to these two cities and Los Angeles County, Census Tract 5545.14 Block Group 3 has the highest percentage of American Indian and Alaska Native persons

**Table 2.3.1 2015 Population by Ethnicity and Race**

| Area   |                                  | White Alone | Black or African American Alone | American Indian and Alaska Native Alone | Asian Alone | Native Hawaiian and Other Pacific Islander Alone | Some Other Race Alone | Two or More Races | Hispanic or Latino | Ethnically Homogeneous Communities <sup>1</sup> |
|--|----------------------------------|-------------|---------------------------------|---|-------------|--|-----------------------|-------------------|--------------------|---|
| <b>County</b>                                    |                                  |             |                                 |   |             |  |                       |                   |                    |   |
| Los Angeles County                               |                                  | 27%         | 8%                              | 0.2%                                    | 14%         | 0.2%   | 0.3%                  | 2%                | 48%                | N/A   |
| <b>Study Area Cities</b>                         |                                  |             |                                 |   |             |  |                       |                   |                    |   |
| City of Artesia                                  |                                  | 20%         | 2%                              | 0%                                      | <b>40%</b>  | 0%   | 0.06%                 | 2%                | 37%                | Yes   |
| City of Cerritos                                 |                                  | 16%         | 7%                              | 0.03%                                   | <b>60%</b>  | 0.2%   | <b>0.4%</b>           | 2%                | 13%                | Yes   |
| <b>Study Area Census Tracts and Block Groups</b> |                                  |             |                                 |   |             |  |                       |                   |                    |   |
| Census Tract 5530.00                             | Block Group 3 (City of Norwalk)  | 22%         | 5%                              | 0%                                      | 9%          | 0%   | 0%                    | 1%                | <b>62%</b>         | Yes   |
|  | Block Group 4 (City of Norwalk)  | 23%         | <b>10%</b>                      | 0%                                      | <b>17%</b>  | 0%   | <b>1%</b>             | 1%                | 48%                | No  |
| Census Tract 5545.12                             | Block Group 1 (City of Cerritos) | 18%         | 3%                              | 0%                                      | <b>73%</b>  | 0%   | <b>3%</b>             | 1%                | 3%                 | Yes   |
|  | Block Group 2 (City of Cerritos) | 13%         | <b>10%</b>                      | <b>1%</b>                               | <b>64%</b>  | 0%   | 0%                    | 1%                | 11%                | Yes   |
| Census Tract 5545.13                             | Block Group 1 (City of Cerritos) | 7%          | 8%                              | <b>1%</b>                               | <b>72%</b>  | 0%   | 0%                    | <b>5%</b>         | 7%                 | Yes   |
|  | Block Group 1 (City of Cerritos) | 12%         | 6%                              | 0%                                      | <b>30%</b>  | 0%   | 0%                    | 1%                | <b>50%</b>         | Yes   |
| Census Tract 5545.14                             | Block Group 2 (City of Cerritos) | 14%         | <b>26%</b>                      | 0%                                      | <b>55%</b>  | 0%   | 0%                    | <b>3%</b>         | 1%                 | Yes   |
|  | Block Group 3 (City of Cerritos) | 14%         | 2%                              | <b>2%</b>                               | <b>68%</b>  | 0%   | 0%                    | 2%                | 12%                | Yes   |
| Census Tract 5545.21                             | Block Group 1 (City of Cerritos) | 25%         | <b>10%</b>                      | 0%                                      | <b>42%</b>  | 0%   | 0%                    | <b>4%</b>         | 19%                | Yes   |
|  | Block Group 3 (City of Cerritos) | 22%         | <b>10%</b>                      | 0%                                      | <b>47%</b>  | 0%   | 0%                    | 0%                | 21%                | Yes   |
| Census Tract 5546.00                             | Block Group 1 (City of Norwalk)  | 12%         | 3%                              | <b>1%</b>                               | <b>33%</b>  | 0%   | 0%                    | 1%                | <b>50%</b>         | Yes   |
|  | Block Group 2 (City of Norwalk)  | 18%         | <b>11%</b>                      | 0%                                      | <b>26%</b>  | 0%   | 0%                    | 2%                | 44%                | No  |
| Census Tract 5547.00                             | Block Group 1 (City of Norwalk)  | 7%          | 6%                              | 0%                                      | 8%          | 0%   | 0%                    | 0%                | <b>79%</b>         | Yes   |
|  | Block Group 2 (City of Norwalk)  | 5%          | 1%                              | 0%                                      | <b>17%</b>  | 0%   | <b>4%</b>             | 0%                | <b>73%</b>         | Yes   |
|  | Block Group 3 (City of Norwalk)  | 4%          | 3%                              | 0%                                      | 6%          | 0%   | 0%                    | 0%                | <b>86%</b>         | Yes   |
| Census Tract 5548.01                             | Block Group 1 (City of Artesia)  | 1%          | 0%                              | 0%                                      | 3%          | 0%   | 0%                    | 0%                | <b>96%</b>         | Yes   |
|  | Block Group 2 (City of Artesia)  | 23%         | 8%                              | 0%                                      | <b>39%</b>  | 0%   | 0%                    | <b>5%</b>         | 26%                | Yes   |
| Census Tract 5548.02                             | Block Group 1 (City of Artesia)  | 23%         | 1%                              | 0%                                      | <b>32%</b>  | 0%   | 0%                    | <b>4%</b>         | 39%                | Yes   |
|  | Block Group 2 (City of Artesia)  | 13%         | 3%                              | 0%                                      | <b>58%</b>  | 0%   | 0%                    | 1%                | 25%                | Yes   |
|  | Block Group 3 (City of Artesia)  | <b>37%</b>  | 8%                              | 0%                                      | <b>35%</b>  | 0%   | 0%                    | 5%                | 14%                | Yes   |

Source: United States Census Bureau, 2011–2015 ACS 5-Year Estimates; Table B03002.

Note: **Bold italicized numbers** indicate the values are higher than in Los Angeles County as a whole. Shaded numbers indicate the likely presence of an ethnically homogeneous community. Ethnically homogeneous communities were identified in the study area cities and census tract block groups when both of the following criteria are met: (1) a particular ethnic group is 30 percent or more of the population within that city or census tract block group; and (2) that particular ethnic group population makes up a higher percentage of the community than it does of Los Angeles County as a whole.

<sup>1</sup> An ethnically homogeneous community is a geographic area with a high population concentration of a particular ethnic group. Ethnically homogeneous communities often possess a strong cultural identity and typically include a concentration of businesses that cater to the local ethnic group by providing familiar goods and services.

ACS = American Community Survey

N/A = not applicable

(2 percent). Census Tract 5545.12 Block Group 2, Census Tract 5545.13 Block Group 1, and Census Tract 5546.00 Block Group 1 also have higher percentages of American Indian and Alaska Native persons, with each at 1 percent. Census Tract 5547.00 Block Group 2 and Census Tract 5545.12 Block Group 1 have the highest percentage of persons who identify as Other (4 percent and 3 percent, respectively). Census Tract 5548.02 Block Group 3 and Census Tract 5545.21 Block Group 1 have the highest percentages of White persons at 37 percent and 25 percent, respectively. The White populations make up a higher share of the population within these block groups than in the cities of Artesia and Cerritos, but lower than in Los Angeles County.

Between 2013 and 2015, the city of Artesia's population was 36.5 percent Hispanic or Latino on average, while the city of Cerritos's population was 12.5 percent Hispanic or Latino on average in the same time frame. In both cities, Non-Hispanic Asian residents were identified as having the largest ethnic population, making up an average of 38.5 percent of the total population in the city of Artesia and 60.5 percent of the total population in the city of Cerritos.

In half of the studied census tract block groups that surround the project area, the Hispanic or Latino population made up over one-third of the entire area's population in 2015, with 7 of the 10 block groups residing in the city of Norwalk, 2 in the city of Artesia, and 1 in the city of Cerritos.

The highest Non-Hispanic or Latino race identified in 17 of the 20 block groups was Asian, making up an average of 39.5 percent of the population across all 17 block groups; located in the city of Cerritos, Census Tract 5545.12 Block Group 1 had the highest percentage, with 73 percent of residents identifying as Asian.

As shown in Table 2.3.1, both study area cities have one ethnically homogeneous community (Asian alone). A majority of the census tract block groups also have at least one ethnically homogeneous community (either Asian alone, Hispanic or Latino, or White alone). Of the 20 census tract block groups, 2 in the study area do not include at least one ethnically homogeneous community (Census Tract 5530.00 Block Group 4 and Census Tract 5546.00 Block Group 2).

In summary, most of the study area demonstrates strong ethnic homogeneity in a portion of the population.



### **Housing Occupancy**

Table 2.3.2 provides a summary of the percentage of owner-occupied residences for Los Angeles County, the study area cities, and the census tracts based on the 2011–2015 ACS data. As shown in Table 2.3.2, the percentages of owner-occupied residences in both study area cities and all of the census tracts are higher than in Los Angeles County overall (48.6 percent).

**Table 2.3.2 Percentage of Owner-Occupied Residences**

| Area   | Owner-Occupied Residences | Long-Term Residents (Moved in 1999 or Earlier) <sup>1</sup> |
|--|---------------------------|---|
| <b>County</b>  |                           |   |
| Los Angeles County                                   | 48.6%                     | 48.7%   |
| <b>Study Area Cities</b>                             |                           |   |
| City of Artesia                                      | <b>53.7%</b>              | <b>52.4%</b>  |
| City of Cerritos                                     | <b>77.7%</b>              | <b>58.7%</b>  |
| <b>Study Area Census Tracts</b>                      |                           |   |
| Census Tract 5530.00 (City of Norwalk)               | <b>90.6%</b>              | 48.3%   |
| Census Tract 5545.12 (City of Cerritos)              | <b>83.8%</b>              | <b>55.3%</b>  |
| Census Tract 5545.13 (City of Cerritos)              | <b>70.8%</b>              | <b>50.3%</b>  |
| Census Tract 5545.14 (City of Cerritos)              | <b>62.5%</b>              | <b>57.0%</b>  |
| Census Tract 5545.21 (City of Cerritos)              | <b>73.5%</b>              | <b>54.5%</b>  |
| Census Tract 5546.00 (Cities of Norwalk and Artesia) | <b>53.6%</b>              | 46.8%   |
| Census Tract 5547.00 (City of Artesia)               | <b>61.9%</b>              | <b>61.7%</b>  |
| Census Tract 5548.01 (City of Artesia)               | <b>64.1%</b>              | 47.9%   |
| Census Tract 5548.02 (City of Artesia)               | <b>49.1%</b>              | <b>53.8%</b>  |

Source: United States Census Bureau, 2011–2015 ACS 5-Year Estimates; Tables B25008 and B25026.

Note: **Bold italicized numbers** indicate the values are higher than in Los Angeles County as a whole.

<sup>1</sup> Includes those residents who moved into their current residences in 1999 or earlier, as reported in Table B25026 of the 2011–2015 ACS.

ACS = American Community Survey

### **Housing Tenure**

Data on housing tenure, or how long residents have lived at their current residences, is also shown in Table 2.3.2. In Los Angeles County, 48.7 percent of residents have lived in their current residences for more than 15 years and, therefore, can be considered long-term residents. Table 2.3.2 also shows that each of the study area cities has a larger percentage of long-term residents than Los Angeles County.

A majority of the study area census tracts have a larger percentage of long-term residents when compared to Los Angeles County, consistent with the data shown for the study area cities. The census tract with the highest percentage of long-term residents is Census Tract 5547.00 in the city of Artesia at 61.7 percent. As shown in Table 2.3.2, only three of the nine study area census tracts have a lower percentage of long-term residents than Los Angeles County overall.

### **Elderly Residents**

Table 2.3.3 shows the percentage of the population that is elderly (65 years old or older) in Los Angeles County, the study area cities, and the census tract block groups. As shown in Table 2.3.3, elderly residents make up a larger share of the population in each of the study area cities than in Los Angeles County overall. Table 2.3.3 shows that elderly residents' shares of the population range from approximately 5.2 percent to 34.9 percent in the study area census tract block groups, and that 12 of the 20 study area census tract block groups have a higher percentage of elderly residents than Los Angeles County overall.

### **Household Size**

Table 2.3.3 provides the number of family and non-family households in Los Angeles County and the study area cities and census tract block groups. As shown in Table 2.3.3, the number of family households in both the cities of Artesia and Cerritos (3,747 and 12,784 households, respectively) is significantly higher than the number of non-family households. This trend is also evident within the study area census tract block groups. The largest type of household in both cities is two-person households.

### **Transit Dependency**

Table 2.3.3 shows the percentage of the population that is transit-dependent in Los Angeles County, the study area cities, and the census tract block groups. As shown in Table 2.3.3, the percentage of transit-dependent populations within the cities of Artesia and Cerritos (0.8 percent and 1.1 percent, respectively) are lower than in Los Angeles County overall (2.8 percent). Table 2.3.3 also shows that the transit-dependent population in the study area census tract block groups varies, ranging from approximately 0.0 percent to 3.1 percent of the population, and that only 1 of the 20 study area census tract block groups has a higher percentage of transit-dependent residents than Los Angeles County overall.

### **Community Cohesion Summary**

As described above, both of the study area cities exhibit one or more community cohesion indicators. The city of Cerritos has a higher percentage of owner-occupied residences than the city of Artesia and Los Angeles County overall. Both cities each have a larger percentage of family households than non-family households when compared to Los Angeles County overall. In addition, both of the study area cities have at least one ethnically homogeneous population. All 20 of the census tract block groups in the community impacts study area exhibit one or more community cohesion

**Table 2.3.3 Community Cohesion Indicators**

| Area  |                                  | Ethnically Homogeneous Communities <sup>1</sup> | Elderly Residents (>64 Years Old) | Households (Family/Non-Family) | Transit-Dependent Population |
|---|----------------------------------|---|-----------------------------------|--------------------------------|------------------------------|
| <b>County</b>                               |                                  |   |                                   |                                |                              |
| Los Angeles County                          |                                  | N/A   | 11.9%                             | 2,186,485 / 1,076,584          | 2.8%                         |
| <b>Study Area Cities</b>                    |                                  |   |                                   |                                |                              |
| City of Artesia                             |                                  | Yes   | <b>13.2%</b>                      | <b>3,747 / 811</b>             | 0.8%                         |
| City of Cerritos                            |                                  | Yes   | <b>20.2%</b>                      | <b>12,784 / 2,254</b>          | 1.1%                         |
| <b>Study Area Census Tract Block Groups</b> |                                  |   |                                   |                                |                              |
| Census Tract 5530.00                        | Block Group 3 (City of Norwalk)  | Yes   | 9.1%                              | <b>517 / 13</b>                | 1.1%                         |
|   | Block Group 4 (City of Norwalk)  | No  | 11.4%                             | <b>221 / 69</b>                | 1.6%                         |
| Census Tract 5545.12                        | Block Group 1 (City of Cerritos) | Yes   | <b>19.8%</b>                      | <b>1,011 / 97</b>              | 2.3%                         |
|   | Block Group 2 (City of Cerritos) | Yes   | <b>26.6%</b>                      | <b>563 / 160</b>               | <b>3.1%</b>                  |
| Census Tract 5545.13                        | Block Group 1 (City of Cerritos) | Yes   | <b>19.6%</b>                      | <b>634 / 172</b>               | 0.6%                         |
| Census Tract 5545.14                        | Block Group 1 (City of Cerritos) | Yes   | 10.5%                             | <b>327 / 128</b>               | 0.0%                         |
|   | Block Group 2 (City of Cerritos) | Yes   | <b>18.3%</b>                      | <b>379 / 46</b>                | 0.0%                         |
|   | Block Group 3 (City of Cerritos) | Yes   | <b>22.3%</b>                      | <b>434 / 72</b>                | 2.1%                         |
| Census Tract 5545.21                        | Block Group 1 (City of Cerritos) | Yes   | <b>16.7%</b>                      | <b>642 / 76</b>                | 1.5%                         |
|   | Block Group 3 (City of Cerritos) | Yes   | <b>34.9%</b>                      | <b>423 / 193</b>               | 0.6%                         |
| Census Tract 5546.00                        | Block Group 1 (City of Norwalk)  | Yes   | <b>13.7%</b>                      | <b>687 / 211</b>               | 0.0%                         |
|   | Block Group 2 (City of Norwalk)  | No  | 9.2%                              | <b>423 / 31</b>                | 0.9%                         |
| Census Tract 5547.00                        | Block Group 1 (City of Norwalk)  | Yes   | 10.9%                             | <b>314 / 35</b>                | 0.3%                         |
|   | Block Group 2 (City of Norwalk)  | Yes   | <b>12.3%</b>                      | <b>414 / 42</b>                | 0.1%                         |
|   | Block Group 3 (City of Norwalk)  | Yes   | 9.5%                              | <b>226 / 12</b>                | 2.8%                         |
| Census Tract 5548.01                        | Block Group 1 (City of Artesia)  | Yes   | 5.2%                              | <b>443 / 74</b>                | 0.6%                         |
|   | Block Group 2 (City of Artesia)  | Yes   | <b>18.3%</b>                      | <b>168 / 63</b>                | 1.6%                         |
| Census Tract 5548.02                        | Block Group 1 (City of Artesia)  | Yes   | 10.8%                             | <b>613 / 128</b>               | 0.6%                         |
|   | Block Group 2 (City of Artesia)  | Yes   | <b>16.2%</b>                      | <b>411 / 124</b>               | 0.8%                         |
|   | Block Group 3 (City of Artesia)  | Yes   | <b>23.5%</b>                      | <b>364 / 89</b>                | 1.8%                         |

Source: United States Census Bureau, 2011–2015 ACS 5-Year Estimates; Tables B01001, B25026, B26001, B25046.

Note: **Bold italicized numbers** indicate the values are higher than in the Los Angeles County as a whole. For Households data, a higher value above Los Angeles County as a whole is defined as a case where the number of family households exceed the number of non-family household by more than double.

<sup>1</sup> An ethnically homogeneous community is a geographic area with a high population concentration of a particular ethnic group. Ethnically homogeneous communities often possess a strong cultural identity and typically include a concentration of businesses that cater to the local ethnic group by providing familiar goods and services.

ACS = American Community Survey

N/A = not applicable

indicators, and 11 of the study area census tract block groups (Census Tract 5545.12, Block Groups 1 and 2; Census Tract 5545.13, Block Group 1; Census Tract 5545.14, Block Groups 2 and 3; Census Tract 5545.21, Block Groups 1 and 3; Census Tract 5547.00, Block Group 2; Census Tract 5548.01, Block Group 2; and Census Tract 5548.02 Block Groups 2 and 3) demonstrate three or more community cohesion indicators. Based on these data, the study area census tract block groups with one community cohesion indicator appear to exhibit a moderate degree of community cohesion. Census Tract 5545.12, Block Groups 1 and 2; Census Tract 5545.13, Block Group 1; Census Tract 5545.14, Block Groups 2 and 3; Census Tract 5545.21, Block Groups 1 and 3; Census Tract 5547.00, Block Group 2; Census Tract 5548.01, Block Group 2; and Census Tract 5548.02 Block Groups 2 and 3, which each have three or more community cohesion indicators, appear to exhibit a high degree of community cohesion.

### ***Other Demographics***

#### ***Employment***

Table 2.3.4 provides information regarding the civilian labor force in the study area cities, including the number of employed and unemployed persons and the unemployment rate, with comparisons to Los Angeles County and State employment statistics. Table 2.3.4 also provides the number of primary jobs in the cities, neighborhoods, and communities in the community impacts study area. Unlike the civilian labor force data, which is based on an area's resident labor force, primary jobs relate to the number of jobs physically located in an area. The U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Program defines a primary job as the job that earned an individual the most money.

As shown in Table 2.3.4, both of the study area cities had a lower unemployment rate (2.6 percent in the city of Artesia and 3.2 percent in the city of Cerritos) than Los Angeles County (4.4 percent) in November 2017.

Table 2.3.4 also shows that, as of 2015, the latest available data, the city of Artesia had approximately 4,472 primary jobs and the city of Cerritos had approximately 34,906 primary jobs. While the city of Cerritos functions as a regional employment center, the city of Artesia has a lower jobs-to-housing ratio.

**Table 2.3.4 Study Area Employment**

| Area                     | Employment Status    |            |            |                   |                           |
|--------------------------|----------------------|------------|------------|-------------------|---------------------------|
|                          | Civilian Labor Force | Employed   | Unemployed | Unemployment Rate | Primary Jobs <sup>1</sup> |
| <b>State and County</b>  |                      |            |            |                   |                           |
| California               | 19,353,400           | 18,516,000 | 837,400    | 4.3%              | 14,568,990                |
| Los Angeles County       | 5,164,000            | 4,939,000  | 225,000    | 4.4%              | 3,928,040                 |
| <b>Study Area Cities</b> |                      |            |            |                   |                           |
| City of Artesia          | 9,000                | 8,800      | 200        | 2.2%              | 4,472                     |
| City of Cerritos         | 25,200               | 24,400     | 800        | 3.2%              | 34,906                    |

Source 1: Employment Development Department, Labor Market Information Division. 2017. Monthly Labor Force Data for Counties, November 2017 – Preliminary. Website: <http://www.labormarketinfo.edd.ca.gov/file/lfmonth/1711pcou.pdf> (accessed December 16, 2017).

Source 2: Employment Development Department, Labor Market Information Division. 2017. Monthly Labor Force Data for Cities and Census-Designated Places, November 2017 – Preliminary. Website: <http://www.labormarketinfo.edd.ca.gov/file/lfmonth/allsubs.xls> (accessed December 16, 2017).

Source 3: United States Census Bureau. 2015. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. Website: <http://onthemap.ces.census.gov/> (accessed December 16, 2017).

Note: Civilian labor force, employed labor force, unemployed labor force, and unemployment rate (not seasonally adjusted) in August 2017, as reported by the California Employment Development Department. Primary jobs in 2015, as reported by the United States Census. The California Employment Development Department does not compile labor force data at the census tract level.

<sup>1</sup> The United States Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Program defines a primary job as the job that earned an individual the most money.

### *Income and Poverty Status*

Table 2.3.5 provides the median household income for Los Angeles County, the study area cities, and the census tract block groups. As shown in Table 2.3.5, the median household income in Los Angeles County is \$56,196. The median household incomes in the cities of Artesia and Cerritos (\$60,749 and \$90,321, respectively) are higher than in Los Angeles County. Table 2.3.5 also shows that the median household incomes in the 20 study area census tract block groups ranges from approximately \$44,756 in Census Tract 5546.00 Block Group 1 in the city of Artesia to \$115,089 in Census Tract 5545.14 Block Group 2 in the city of Cerritos, and that 15 of the 20 study area census tract block groups each has a higher median household income than in Los Angeles County.

The U.S. Department of Health and Human Services (HHS) 2017 Poverty Guidelines lists the median household income for a household of four as \$24,600 (HHS 2017). As shown in Table 2.3.5, there are no block groups in the cities of Artesia, Cerritos, or Norwalk with a median income below the HHS threshold. All households in these areas have a median income that ranges from \$44,756 to \$113,750.

**Table 2.3.5 Household Income**

| Area  |   | Median Household Income <sup>1</sup> |
|---|---|--------------------------------------|
| <b>County</b>                               |   |                                      |
| Los Angeles County                          |   | \$56,196                             |
| <b>Study Area Cities</b>                    |   |                                      |
| City of Artesia                             |   | <b>\$60,749</b>                      |
| City of Cerritos                            |   | <b>\$90,321</b>                      |
| <b>Study Area Census Tract Block Groups</b> |   |                                      |
| Census Tract 5530.00                        | Block Group 3 (City of Norwalk)               | <b>\$82,250</b>                      |
|   | Block Group 4 (City of Norwalk)               | <b>\$79,792</b>                      |
| Census Tract 5545.12                        | Block Group 1 (City of Cerritos)              | <b>\$113,750</b>                     |
|   | Block Group 2 (City of Cerritos)              | <b>\$97,574</b>                      |
| Census Tract 5545.13                        | Block Group 1 (City of Cerritos)              | <b>\$95,294</b>                      |
| Census Tract 5545.14                        | Block Group 1 (City of Cerritos)              | \$50,701                             |
|   | Block Group 2 (City of Cerritos)              | <b>\$115,089</b>                     |
|   | Block Group 3 (City of Cerritos)              | <b>\$88,056</b>                      |
| Census Tract 5545.21                        | Block Group 1 (City of Cerritos)              | <b>\$84,412</b>                      |
|   | Block Group 3 (City of Cerritos)              | <b>\$66,357</b>                      |
| Census Tract 5546.00                        | Block Group 1 (Cities of Norwalk and Artesia) | \$44,756                             |
|   | Block Group 2 (Cities of Norwalk and Artesia) | <b>\$70,476</b>                      |
| Census Tract 5547.00                        | Block Group 1 (City of Artesia)               | \$53,798                             |
|   | Block Group 2 (City of Artesia)               | <b>\$71,167</b>                      |
|   | Block Group 3 (City of Artesia)               | \$53,929                             |
| Census Tract 5548.01                        | Block Group 1 (City of Artesia)               | \$54,632                             |
|   | Block Group 2 (City of Artesia)               | <b>\$90,592</b>                      |
| Census Tract 5548.02                        | Block Group 1 (City of Artesia)               | <b>\$66,719</b>                      |
|   | Block Group 2 (City of Artesia)               | <b>\$60,905</b>                      |
|   | Block Group 3 (City of Artesia)               | <b>\$62,951</b>                      |

Source: United States Census Bureau, 2011–2015 ACS 5-Year Estimates; Table B19103.

<sup>1</sup> **Bold italicized numbers** indicate the values are higher than Los Angeles County as a whole.

ACS = American Community Survey

### **Community Facilities**

Table 2.3.6 lists the community facilities (i.e., libraries, hospitals, public and private schools, and privately operated community centers and recreation facilities) within 0.5 mile (mi) of the Build Alternative that were considered in the evaluation of potential effects to community facilities. These facilities are shown on Figure 2.3-2. Refer to Section 2.1, Land Use, for a list of public parks and recreational resources within 0.5 mi of the Build Alternative, and to Section 2.4, Utilities/Emergency Services, for a list of police and fire facilities within 0.5 mi of the Build Alternative.

### **Property Tax Base**

Property taxes are levied on the assessed value of privately owned property. Property taxes generated in the community impacts study area are collected by the County of Los Angeles (County) and apportioned to the applicable jurisdiction and other taxing agencies in which the property is located. The base property tax rate in the State of

**Table 2.3.6 Community Facilities**

| Community ID No. | Community Facility   | Address   | Owner/Operator                            |
|------------------|--|---|---|
| 1                | Helen Wittmann Elementary School                           | 16801 Yvette Avenue, Cerritos, CA 90703               | ABC Unified School District               |
| 2                | Benito Juarez Academy of Engineering and Technology        | 11939 Aclare Street, Cerritos, CA 90703               | ABC Unified School District               |
| 3                | Cecil B. Stowers Elementary School                         | 13350 Beach Street, Cerritos, C 90703                 | ABC Unified School District               |
| 4                | John F. Kennedy Elementary School                          | 17500 Belshire Avenue, Artesia, CA 90701              | ABC Unified School District               |
| 5                | Luther Burbank Elementary School                           | 17711 Roseton Avenue, Artesia, CA 90701               | ABC Unified School District               |
| 6                | Frank C. Leal Elementary School                            | 12920 Droxford Street, Cerritos, CA 90703             | ABC Unified School District               |
| 7                | Faye Ross Middle School Academy of Creative and Media Arts | 17707 Elaine Avenue, Artesia, CA 90701                | ABC Unified School District               |
| 8                | Tracy High School  | 12222 Cuesta Drive, Cerritos, CA 90703                | ABC Unified School District               |
| 9                | Gahr High School   | 11111 Artesia Boulevard, Cerritos, CA 90703           | ABC Unified School District               |
| 10               | Gretchen Whitney High School                               | 16800 Shoemaker Avenue, Cerritos, CA 90703            | ABC Unified School District               |
| 11               | ABC Adult School   | 12254 Cuesta Drive, Cerritos, CA 90703                | ABC Unified School District               |
| 12               | Bellflower High School                                     | 15301 McNab Avenue, Bellflower, CA 90706              | Bellflower Unified School District        |
| 12               | Anna M. Glazier Elementary School                          | 10932 East Excelsior Drive, Norwalk, CA 90650         | Norwalk-La Mirada Unified School District |
| 12               | Arturo Sanchez Elementary School                           | 11960 162 <sup>nd</sup> Street, Norwalk, CA 90650     | Norwalk-La Mirada Unified School District |
| 13               | Norwalk-La Mirada Adult School                             | 15711 Pioneer Boulevard, Norwalk, CA 90650            | Norwalk-La Mirada Unified School District |
| 14               | Cerritos Community College                                 | 11110 Alondra Boulevard, Norwalk, CA 90650            | Cerritos Community College                |
| 15               | Northwood University at Cerritos College                   | 11111 New Falcon Way, Cerritos, CA 90703              | Northwood University                      |
| 16               | PCI College  | 17215 Studebaker Road, Cerritos, CA 90703             | PCI College                               |
| 17               | Fremont College  | 18000 Studebaker Road, Suite 900A, Cerritos, CA 90703 | Fremont College                           |
| 18               | Kings Kids Preschool                                       | 18424 Bloomfield Avenue, Cerritos, CA 90703           | Private                                   |
| 19               | Nazarene Christian School                                  | 15014 Studebaker Road, Norwalk, CA 90650              | Private                                   |
| 20               | Field of Dreams Learning                                   | 15014 Studebaker Road, Norwalk, CA 90650              | Private                                   |
| 21               | Cerritos Institute of Religion                             | 16025 Studebaker Road, Cerritos, CA 90703             | Private                                   |
| 22               | Valley Christian Elementary                                | 17408 Grand Avenue, Bellflower, CA 90706              | Private                                   |
| 23               | Valley Christian High School                               | 10818 Artesia Boulevard, Cerritos, CA 90703           | Private                                   |
| 24               | Twigs to Trees Child Development Center                    | 15108 Studebaker Road, Norwalk, CA 90650              | Private                                   |
| 25               | Wonderland Preschool                                       | 10440 Artesia Boulevard, Bellflower, CA 90706         | Private                                   |
| 26               | CPC Preschool  | 11840 178 <sup>th</sup> Street, Artesia, CA 90701     | Private                                   |
| 27               | Cerritos KinderCare  | 18727 Carmenita Road, Cerritos, CA 90703              | Private                                   |

Compiled in 2017.

California is 1 percent of the assessed property’s value, while the total property tax rate, which includes additional debt service, varies by jurisdiction. The amount of property tax revenue allocated to each local jurisdiction also varies. According to the County Auditor-Controller’s Office, approximately 9.37 percent of each property tax dollar in Los Angeles County was allocated to cities in Fiscal Year (FY) 2016–2017. Table 2.3.7 provides a summary of the property tax revenue collected in the city of Cerritos in FY 2015–2016 and the city of Artesia in FY 2014–2015.

**Table 2.3.7 Property and Sales Tax Revenues**

| Jurisdiction     | Property Tax Revenue | Sales Tax Revenue | Average Sales Tax Revenue Per Business |
|------------------|----------------------|-------------------|--|
| City of Artesia  | \$1,698,157          | \$3,096,626       | \$5,035                                |
| City of Cerritos | \$11,278,384         | \$32,846,913      | \$18,932                               |

Source 1: California State Board of Equalization. Taxable Sales in California Cities, by Type of Business, 2015. June 13, 2017. Website: [http://www.boe.ca.gov/news/2015/t4\\_2015.pdf](http://www.boe.ca.gov/news/2015/t4_2015.pdf) (accessed December 16, 2017).

Source 2: California State Board of Equalization. Taxable Sales in California Cities, by Type of Business, Third Quarter 2016. Website: [http://www.boe.ca.gov/news/2016/t4\\_3Q16.pdf](http://www.boe.ca.gov/news/2016/t4_3Q16.pdf) (accessed December 16, 2017).

Source 3: City of Artesia. 2016. Comprehensive Annual Financial Report Fiscal Year Ended June 30, 2015. Website: <http://www.cityofartesia.us/DocumentCenter/View/1556> (accessed December 16, 2017).

Source 4: City of Cerritos. 2016. Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2016. Website: [http://www.cerritos.us/GOVERNMENT/\\_pdfs/CAFR\\_2016.pdf](http://www.cerritos.us/GOVERNMENT/_pdfs/CAFR_2016.pdf) (accessed December 16, 2017).

Note: Property and sales tax revenue for the City of Artesia is for Fiscal Year 2014–2015. Property and sales tax revenue for the City of Cerritos is for Fiscal Year 2015–2016. Average sales tax revenue per business is calculated by dividing the total sales tax revenue by the number of business outlets in the city as reported by the California State Board of Equalization in the same fiscal year.

### **Sales Tax Base**

Sales taxes are levied on taxable sales generated in each jurisdiction. Effective October 1, 2017, the sales tax rate in Los Angeles County and in each study area city is 9.5 percent,<sup>1</sup> of which 0.25 percentage point is allocated to County transportation funds and 1 percentage point is allocated to city or County operations.<sup>2</sup> Table 2.3.7 provides the sales tax revenue collected in each study area city in FY 2015–2016.

The California State Board of Equalization tabulates taxable sales transactions for each city and county in California and reports them on a quarterly and yearly basis.

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<sup>1</sup> California Department of Tax and Fee Administration. 2017. California Sales and Use Tax Rates by County and City, Operative October 1, 2017. Website: <http://www.cdtfa.ca.gov/formspubs/cdtfa95.pdf> (accessed December 26, 2017).

<sup>2</sup> California Department of Tax and Fee Administration, Detailed Description of the Sales & Use Tax Rate. Website: <https://www.cdtfa.ca.gov/taxes-and-fees/sut-rates-description.htm> (accessed December 26, 2017).



Table 2.3.7 reports the average sales tax revenue per business in each of the study area cities according to their latest published annual reports (2016).

### **2.3.1.3 Environmental Consequences**

#### ***Temporary Impacts***

##### ***Build Alternative (includes Design Options)***

Impacts to community cohesion generally depend on whether a project is likely to create a barrier within or disrupt the connectivity of a community. Either of these can result from disruptions to access or residential and/or business acquisitions.

Temporary impacts to community character and cohesion can occur from the temporary use of privately owned properties as temporary construction easements (TCEs), short-term air quality and noise effects, and temporary road and ramp closures/detours along and in the immediate vicinity of SR-91 and I-605 within the project limits.

The Build Alternative would require TCEs along the north side of SR-91 for certain areas of the project segment to allow for the construction of best management practices (BMPs) for water quality, retaining walls, and roadway and/or interchange widening adjacent to institutional and residential areas. Additionally, TCEs are required at the Alondra Boulevard/I-605 interchange northbound off-ramp. The locations of the parcels that would be affected by these TCEs are shown on Figure 2.3-3. There is a potential for the temporary use of such land to divide or create barriers between existing communities; however, in several instances, SR-91 and I-605 already bisect existing communities and would not likely result in adverse effects on community cohesion.

Construction activities would result in temporary impacts associated with construction equipment noise and air emissions at residences and businesses adjacent to SR-91 and I-605. These impacts would be temporary and would cease when the project construction is complete.

A Transportation Management Plan (TMP) is included as a project feature (i.e., PF-T-1) and is described in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. The TMP will be prepared in coordination with the affected cities and access to all businesses would be maintained during construction of the Build Alternative. The TMP will also address traffic delays; maintain traffic flow in the project area; manage detours and temporary road, lane, and ramp closures; provide

ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers.

Access to all nearby businesses would be maintained during any temporary mainline, ramp, and arterial closures. All businesses would be accessible from alternate freeway off-ramps and by using local streets. Based on the availability of a well-developed arterial roadway network in the vicinity of the potential closures to accommodate detoured traffic, the increased travel times and distances would be limited and would result in minimal disruption to neighborhoods and businesses adjacent to the project area and would not divide the study area cities or neighborhoods in those cities. Nevertheless, construction-related closures could impede movement within the study area cities. Although community members would still be able to use community services and facilities during the construction period, there would be some degree of inconvenience due to construction-related delays, temporary closures, and construction equipment operation.

Temporary public parking impacts would occur during construction at several locations within the project limits, including:

- 14 parking stalls at the LA Fitness property located along the I-605 northbound Alondra Boulevard off-ramp;
- Approximately 560 feet (ft) of curbside parking along the south side of Beach Street (this impact would not occur under Design Option 1, Reduced Lane/Shoulder Width);
- 6 parking stalls at the Artesia Inn and Suites property located north of SR-91 at the northbound Pioneer Boulevard off-ramp;
- Approximately 630 ft of curbside parking along both sides of 170th Street;
- Approximately 380 ft of curbside parking along both sides of Norwalk Boulevard north of SR-91;
- 76 parking stalls at the Tracy High School property located north of SR-91 at the northbound Norwalk Boulevard off-ramp; and
- 12 parking stalls at the ABC Adult School parking lot near the Cerritos Villas Condominiums.

The availability of parking at the above locations would be restored upon completion of construction.

Construction employment has two components: direct and indirect. The direct effect is the number of construction jobs created to complete the project. The indirect effect is the additional employment and business activity that would be generated in the regional economy by the initial construction expenditure.

Table 2.3.8 shows that construction of the Build Alternative is estimated to generate a total of 1,456 jobs. Design Option 1 (Reduced Lane/Shoulder Width) of the Build Alternative is estimated to generate a slightly lower number of jobs (1,364) when compared to the Build Alternative. The Preferred Alternative, which includes Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment), is estimated to generate a slightly lower number of jobs (1,352) when compared to the Build Alternative and just Design Option 1. In all three cases, approximately half of the jobs would be direct jobs, while the other half would be indirect employment. These construction jobs would generate temporary employment and revenues for both local and regional economies.

**Table 2.3.8 Estimated Construction Employment Under the Build Alternative**

| Estimated Project Costs <sup>1</sup> |               | Estimated Employment Generated |                            |            |
|--------------------------------------|---------------|--------------------------------|----------------------------|------------|
|                                      |               | Direct Jobs <sup>2</sup>       | Indirect Jobs <sup>2</sup> | Total Jobs |
| Build Alternative                    | \$140,600,000 | 914                            | 914                        | 1,828      |
| Preferred Alternative                | \$122,300,000 | 795                            | 795                        | 1,590      |

Source 1: *Draft Project Report* (2018).

Source 2: Federal Highway Administration. 2018. Employment Impacts of Highway Infrastructure Investment.

Website: <https://www.fhwa.dot.gov/policy/otps/pubs/impacts/> (accessed January 2018).

<sup>1</sup> Escalated capital construction costs without right-of-way acquisition costs.

<sup>2</sup> Employment impacts vary over time. Based on the latest data provided by the Federal Highway Administration (2018), \$1 billion in investments supports approximately 13,000 construction jobs, with approximately 50 percent each for direct and indirect jobs.

***No Build Alternative***

The proposed improvements would not be constructed under the No Build Alternative. Therefore, no temporary impacts related to community character and cohesion would occur.

***Permanent Impacts***

***Build Alternative (includes Design Options)***

The Build Alternative would result in beneficial effects related to community character and cohesion in terms of improved access and connectivity, improved safety, and decreased travel times. In addition, emergency services in the study area cities (fire and police protection, for example) would be more readily available with

the construction of the Build Alternative because mobility in the study area would improve over existing conditions. The Build Alternative would provide improvements to a segment of SR-91 and the SR-91/I-605 interchange where traffic operations are currently deficient. Therefore, the Build Alternative would not create any new or exacerbate any existing physical divisions in the study area or in the cities in the study area.

The widening of the existing Gridley Road overcrossing within the project limits, which is proposed as Design Option 5, would create visual changes for SR-91 drivers and the adjacent communities but would not create a barrier within or disrupt the connectivity of a community.

Permanent public parking impacts would occur at two locations within the project limits, including:

- Approximately 255 ft of curbside parking along both sides of Pioneer Boulevard (only with Design Option 1, Reduced Lane/Shoulder Width); and
- Approximately 630 ft of curbside parking along both sides of Norwalk Boulevard north of SR-91.

After approximately 255 ft of curbside parking is removed along both sides of Pioneer Boulevard, parking would remain available farther north along both sides of Pioneer Boulevard. After approximately 630 ft of curbside parking is removed along both sides of Norwalk Boulevard, parking would remain available farther north along both sides of Norwalk Boulevard.

As described in detail later in Section 2.3.2, Relocations and Real Property Acquisition, the Build Alternative would result in some property acquisition in the project area. The Build Alternative would result in the acquisition of 20 total units within the city of Artesia, including 18 residential units, with approximately 80 residential occupants, and 2 non-residential units, which include two commercial businesses. The Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would result in the acquisition of one non-residential unit. The Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would result in the acquisition of 25 total units within Artesia, including 23 residential units, with approximately 102 residential occupants, and 2 non-residential units, which include two commercial businesses. The Preferred Alternative, which includes both Design Option 1 and Design Option 3, would result in the acquisition of five residential homes.

The following Project Feature PF-REL-1 would minimize permanent impacts related to relocations and acquisitions under the Build Alternative and design options:

**PF-REL-1** Property acquisition will be conducted in compliance with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) (Public Law 91-646, 84 Statutes 1894). The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by federal or federally assisted projects. The Uniform Act provides for uniform and equitable treatment by federal or federally assisted programs of persons displaced from their homes, businesses, or farms and establishes uniform and equitable land acquisition policies.

**PF-REL-2** After construction, all temporary construction easements (TCEs) would be restored to their original pre-project or better conditions.

#### *Residential Acquisitions*

As described in the CIA (2018), the communities within the replacement areas (the cities of Artesia, Hawaiian Gardens, Norwalk, and Lakewood) are located within 3 mi of the acquisition area; therefore, the commute distance to jobs and schools would be reasonable and would not result in substantial hardships for the displacees. In addition, residential displacees would have access to schools within the same school district (i.e., the ABC Unified School District). From preliminary market research, it can be concluded that there are enough residential replacement properties, and it is expected that a similar number and type of properties would be available within the acquisition area at the time of property acquisitions.

Replacement neighborhoods are generally homogeneous to those in the acquisition area. The housing stock in the replacement areas' census tract block groups includes a total of 5,616 single-family residences, with a total of 148 vacant single-family homes, which translates to a 2.6 percent vacancy rate.

Median home values in the replacement areas range from \$262,100 to \$533,300, and current rental prices generally range from \$2,195 to \$2,800 per month for comparable rental homes in the replacement areas. The average ages of the residences within the replacement areas are 50 to 60 years, and the housing conditions range from average to good. All of the residences considered for

potential replacement homes are single-family residences, similar to those in the acquisition area.

Design Option 1 (Reduced Lane/Shoulder Width), described in Chapter 1, would not result in residential acquisitions and therefore would have no effect on community character or cohesion.

Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would require the acquisition of five residential properties within Census Tract 5548.01. These five properties are located along 168th Street in a cul-de-sac adjacent to the east side of Pioneer Boulevard in Artesia.

#### *Non-Residential Acquisitions*

The non-residential displaced properties in the project area include a race car parts dealer, which currently resides in a light industrial zoning area, and a gas station/auto service station. Based on preliminary research documented in the CIA, there are three potential properties with the same zoning and square footage to accommodate the displaced race car parts dealer. A review of available replacement properties for the gas station/auto service station did not result in the identification of a suitable site within the study area for the assessment of project effects related to property acquisition and relocation.

All of the displacees, with the exception of the gas station/auto service station, are anticipated to remain in the project area, which would minimize potential adverse effects to community character and cohesion. Due to the high likelihood of the availability of identical services provided by the gas station/auto service station by other existing gas stations/auto service stations throughout the project area, its relocation to a new area would not disrupt the social fabric of the surrounding communities in the project area.

Overall, it is unlikely that community character and cohesion would be permanently impacted by the project in any of the study area cities. It is also important to note that SR-91 has been a prominent transportation corridor in the area since 1968, and most of the communities in the study area have been established adjacent to the existing right-of-way (ROW). None of the relocations required under the Build Alternative would impact the cohesion of any of the communities in which it is located. Changes associated with the proposed project would result in minimal alterations to community character and cohesion, and no substantial adverse effects to communities would occur.

### *No Build Alternative*

No improvements to SR-91 or the SR-91/I-605 interchange are proposed under the No Build Alternative. Therefore, no permanent impacts to community character and cohesion would occur.

#### **2.3.1.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features as described above in Section 2.3.1.3, no substantial adverse impacts to community character and cohesion would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

### **2.3.2 Relocations and Real Property Acquisition**

#### **2.3.2.1 Regulatory Setting**

The Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of Caltrans Title VI Policy Statement.

#### **2.3.2.2 Affected Environment**

The information in this section is summarized from the CIA (2018) and *Relocation Impact Report* (RIR) (2018). As shown on Figure 2.3-1, the study area for the assessment of project effects related to property acquisition and relocation was defined as 20 census tract block groups (Census Tracts 5530.00 [Block Groups 3 and 4], 5545.12 [Block Groups 1 and 2], 5545.13 [Block Group 1], 5545.14 [Block Groups 1, 2, and 3], 5545.21 [Block Groups 1 and 3], 5546.00 [Block Groups 1 and 2], 5547.00 [Block Groups 1, 2, and 3], 5548.01 [Block Groups 1 and 2], and 5548.02 [Block Groups 1, 2, and 3]) in the cities of Artesia, Cerritos, and Norwalk and a 20 mi radius of these census tract block groups. This study area was selected because it covers the entire project area and includes areas in the vicinity of the project area that are likely to be considered for the relocation of businesses or residences displaced by the Build Alternative. As described earlier in Section 2.1, Land Use, the existing land

uses in the study area include primarily residential uses (both single-family and multi-family), with some commercial/service, industrial, and open space/recreational uses along SR-91 and single-family residential, commercial, institutional, religious, medical, and park uses along I-605, north of SR-91 in the project area.

### **2.3.2.3 Environmental Consequences**

#### ***Temporary Impacts***

##### *Build Alternative (includes Design Options)*

The Build Alternative would require TCEs along the north side of SR-91 for certain areas of the project segment to allow for the construction of BMPs for water quality, retaining walls, and roadway and/or interchange widening adjacent to institutional and residential areas. Additionally, TCEs are also required at the Alondra Boulevard/I-605 interchange northbound off-ramp. The locations of the parcels that would be affected by these TCEs for the Build Alternative are shown on Figure 2.3-3. Tables 2.3.9, 2.3.10, 2.3.11, and 2.3.12 provide detailed information regarding the TCEs required under the Build Alternative, the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width), the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment), and the Preferred Alternative, respectively, including the parcel numbers and street addresses of those parcels where TCEs would be required. The locations of the parcels that would be affected by these TCEs for the Build Alternative, the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width), and the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) are shown on Figure 2.3-4. Tables 2.3.9, 2.3.10, and 2.3.11 also provide the existing land uses on such parcels.

As shown in Tables 2.3.9, 2.3.10, 2.3.11, and 2.3.12, the proposed project would require TCEs of 30 (Build Alternative), 21 (Build Alternative with Design Option 1, Reduced Lane/Shoulder Width), 30 (Design Option 3, Pioneer Boulevard Westbound Ramps/168th Alignment), and 21 (Preferred Alternative) parcels, respectively, in the project area. While most of these TCEs would consist of small slivers of land that are currently being used for landscaping or parking lots, or land that is currently vacant, larger TCEs would be required for construction staging areas under the proposed project.



**Table 2.3.9 Build Alternative Proposed Right-of-Way Acquisition and Easements**

| APN          | Address                            | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|------------------------------------|-------------------|---|------------|
| 7011-004-076 | 11820 168th Street, Artesia        | Residential       | TCE   | No         |
| 7011-004-901 | No Address, Artesia                | Open Space        | TCE   | No         |
| 7011-004-902 | 11814 168th Street, Artesia        | Vacant            | TCE   | No         |
| 7011-004-903 | Pioneer Boulevard Artesia          | Vacant            | TCE   | No         |
| 7011-020-038 | 11947 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-040 | 11951 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-041 | 11955 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-044 | 11961 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-045 | 11965 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-049 | 11973 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-050 | 11977 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-057 | 11967 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-061 | 11957 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-062 | 11959 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-063 | 11971 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-064 | 11949 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-905 | 16912 Clarkdale Avenue, Artesia    | Open Space        | Partial/TCE                                       | No         |
| 7011-021-030 | 12017 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-031 | 12021 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-032 | 12021 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-059 | 12001 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-066 | 12027 170th Street, Artesia        | Industrial        | Full  | No         |
| 7011-021-067 | 12009 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-068 | 12011 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-069 | 12015 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7012-001-901 | 12222 Cuesta Drive, Cerritos       | Institutional     | Partial/TCE                                       | No         |
| 7012-003-009 | 16923 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-010 | 16921 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-011 | 16925 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-012 | 16927 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-013 | 12412 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-014 | 12410 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-015 | 12414 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-016 | 12408 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-017 | 12418 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-018 | 12416 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-019 | 12420 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-020 | 12422 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-021 | 12428 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-022 | 12426 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-023 | 12430 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-024 | 12424 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-025 | 12434 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-026 | 12432 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-027 | 12436 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-028 | 12438 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-029 | 12444 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-030 | 12442 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-031 | 12446 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-032 | 12440 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-033 | 12450 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-034 | 12448 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-035 | 12452 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |

**Table 2.3.9 Build Alternative Proposed Right-of-Way Acquisition and Easements**

| APN          | Address                            | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|------------------------------------|-------------------|---|------------|
| 7012-003-036 | 12454 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-037 | 12460 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-038 | 12458 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-039 | 12462 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-040 | 12456 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-020-026 | 12642 Palm Street, Cerritos        | Residential       | Partial/TCE                                       | No         |
| 7012-020-900 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7012-027-901 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7014-004-005 | 16809 Pioneer Boulevard, Artesia   | Commercial        | Full  | Yes        |
| 7014-004-032 | 16905 Pioneer Boulevard, Artesia   | Commercial        | TCE   | No         |
| 7014-006-005 | 11616 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-006 | 11612 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-007 | 11606 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-008 | 11602 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-009 | 11564 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-010 | 11558 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-011 | 11554 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-012 | 11548 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-013 | 11542 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-014 | 11536 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-022-197 | No Address, Cerritos               | Residential       | Partial   | No         |
| 7016-002-044 | 10802 Alondra Boulevard, Cerritos  | Commercial        | TCE   | No         |
| 7016-002-048 | 10802 College Place, Cerritos      | Commercial        | TCE   | Yes        |
| 7016-002-050 | 10930 Alondra Boulevard, Cerritos  | Commercial        | TCE   | No         |
| 7016-018-065 | 16923 Eric Avenue, Cerritos        | Residential       | TCE   | No         |
| 7016-020-046 | 16920 Harvest Avenue, Cerritos     | Residential       | TCE   | No         |
| 7016-020-900 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7016-023-041 | 16811 Westwinds Circle, Cerritos   | Residential       | TCE   | No         |
| 7016-023-045 | 16825 Leeward Avenue, Cerritos     | Residential       | TCE   | No         |
| 7016-023-901 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7030-001-048 | 12611 Artesia Boulevard, Cerritos  | Residential       | Partial/TCE                                       | No         |

Source: Westbound SR-91 Improvement Project Estimate Abstract (2017).

Access Impact = No garage access; replacement parking is available on site

APN = Assessor's Parcel Number

Full = Full acquisition

Partial = Partial Acquisition

PE = Permanent Easement

TCE = Temporary Construction Easement

**Table 2.3.10 Build Alternative With Design Option 1 (Reduced Lane/  
Shoulder Width) Proposed Right-of-Way  
Acquisition and Easements**

| APN          | Address                          | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|----------------------------------|-------------------|---|------------|
| 7011-004-076 | 11820 168th Street, Artesia      | Residential       | TCE   | No         |
| 7011-004-901 | No Address, Artesia              | Open Space        | TCE   | No         |
| 7011-004-902 | 11814 168th Street, Artesia      | Vacant            | TCE   | No         |
| 7011-004-903 | Pioneer Boulevard, Artesia       | Vacant            | TCE   | No         |
| 7011-020-905 | 16912 Clarkdale Avenue, Artesia  | Open Space        | Partial/TCE                                       | No         |
| 7012-001-901 | 12222 Cuesta Drive, Cerritos     | Institutional     | Partial/TCE                                       | No         |
| 7012-020-026 | 12642 Palm Street, Cerritos      | Residential       | Partial/TCE                                       | No         |
| 7012-020-900 | No Address, Cerritos             | Open Space        | TCE   | No         |
| 7012-027-901 | No Address, Cerritos             | Open Space        | TCE   | No         |
| 7014-004-005 | 16809 Pioneer Boulevard, Artesia | Commercial        | Full  | Yes        |
| 7014-004-032 | 16905 Pioneer Boulevard, Artesia | Commercial        | TCE   | No         |
| 7014-022-197 | No Address                       | Residential       | Partial/TCE                                       | No         |
| 7016-002-044 | 10802 Alondra Boulevard          | Commercial        | TCE   | No         |
| 7016-002-048 | 10802 College Place              | Commercial        | TCE   | No         |
| 7016-002-050 | 10930 Alondra Boulevard          | Commercial        | TCE   | No         |
| 7016-018-065 | 16923 Eric Avenue                | Residential       | TCE   | No         |
| 7016-020-046 | 16920 Harvest Avenue             | Residential       | TCE   | No         |
| 7016-020-900 | No Address                       | Open Space        | TCE   | No         |
| 7016-023-041 | 16811 Westwinds Circle           | Residential       | TCE   | No         |
| 7016-023-045 | 16825 Leeward Avenue             | Residential       | TCE   | No         |
| 7016-023-901 | No Address                       | Open Space        | TCE   | No         |
| 7030-001-048 | 12611 Artesia Boulevard          | Residential       | Partial/TCE                                       | No         |

Source: *Westbound SR-91 Improvement Project Estimate Abstract* (2017).

APN = Assessor's Parcel Number

Partial = Partial Acquisition

TCE = Temporary Construction Easement

**Table 2.3.11 Build Alternative With Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) Proposed Right-of-Way Acquisition and Easements**

| APN          | Address                            | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|------------------------------------|-------------------|---|------------|
| 7011-004-076 | 11820 168th Street, Artesia        | Residential       | TCE   | No         |
| 7011-004-901 | No Address, Artesia                | Open Space        | TCE   | No         |
| 7011-004-902 | 11814 168th Street, Artesia        | Vacant            | TCE   | No         |
| 7011-004-903 | Pioneer Boulevard Artesia          | Vacant            | TCE   | No         |
| 7011-020-038 | 11947 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-040 | 11951 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-041 | 11955 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-044 | 11961 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-045 | 11965 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-049 | 11973 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-050 | 11977 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-057 | 11967 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-061 | 11957 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-062 | 11959 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-063 | 11971 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-064 | 11949 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-020-905 | 16912 Clarkdale Avenue, Artesia    | Open Space        | Partial/TCE                                       | No         |
| 7011-021-030 | 12017 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-031 | 12021 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-032 | 12021 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-059 | 12001 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-066 | 12027 170th Street, Artesia        | Industrial        | Full  | No         |
| 7011-021-067 | 12009 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-068 | 12011 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-021-069 | 12015 170th Street, Artesia        | Residential       | Full  | Yes        |
| 7012-001-901 | 12222 Cuesta Drive, Cerritos       | Institutional     | Partial/TCE                                       | No         |
| 7012-003-009 | 16923 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-010 | 16921 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-011 | 16925 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-012 | 16927 Judy Way                     | Residential       | Access Impact                                     | No         |
| 7012-003-013 | 12412 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-014 | 12410 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-015 | 12414 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-016 | 12408 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-017 | 12418 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-018 | 12416 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-019 | 12420 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-020 | 12422 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-021 | 12428 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-022 | 12426 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-023 | 12430 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-024 | 12424 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-025 | 12434 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-026 | 12432 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-027 | 12436 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-028 | 12438 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-029 | 12444 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-030 | 12442 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-031 | 12446 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-032 | 12440 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-033 | 12450 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-034 | 12448 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-035 | 12452 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |

**Table 2.3.11 Build Alternative With Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) Proposed Right-of-Way Acquisition and Easements**

| APN          | Address                            | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|------------------------------------|-------------------|---|------------|
| 7012-003-036 | 12454 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-037 | 12460 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-038 | 12458 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-039 | 12462 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-003-040 | 12456 Rancho Vista Drive, Cerritos | Residential       | Access Impact                                     | No         |
| 7012-020-026 | 12642 Palm Street, Cerritos        | Residential       | Partial/TCE                                       | No         |
| 7012-020-900 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7012-027-901 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7014-004-005 | 16809 Pioneer Boulevard, Artesia   | Commercial        | Full  | Yes        |
| 7014-004-032 | 16905 Pioneer Boulevard, Artesia   | Commercial        | TCE   | No         |
| 7014-006-005 | 11616 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-006 | 11612 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-007 | 11606 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-008 | 11602 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-009 | 11564 169th Street, Artesia        | Residential       | TCE   | No         |
| 7014-006-010 | 11558 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-011 | 11554 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-012 | 11548 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-013 | 11542 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-006-014 | 11536 169th Street, Artesia        | Residential       | Partial/PE/TCE                                    | No         |
| 7014-022-197 | No Address, Cerritos               | Residential       | Partial   | No         |
| 7016-002-044 | 10802 Alondra Boulevard, Cerritos  | Commercial        | TCE   | No         |
| 7016-002-048 | 10802 College Place, Cerritos      | Commercial        | TCE   | Yes        |
| 7016-002-050 | 10930 Alondra Boulevard, Cerritos  | Commercial        | TCE   | No         |
| 7016-018-065 | 16923 Eric Avenue, Cerritos        | Residential       | TCE   | No         |
| 7016-020-046 | 16920 Harvest Avenue, Cerritos     | Residential       | TCE   | No         |
| 7016-020-900 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7016-023-041 | 16811 Westwinds Circle, Cerritos   | Residential       | TCE   | No         |
| 7016-023-045 | 16825 Leeward Avenue, Cerritos     | Residential       | TCE   | No         |
| 7016-023-901 | No Address, Cerritos               | Open Space        | TCE   | No         |
| 7030-001-048 | 12611 Artesia Boulevard, Cerritos  | Residential       | Partial/TCE                                       | No         |
| 7011-004-008 | 168th Street, Artesia              | Residential       | Full  | Yes        |
| 7011-004-051 | 168th Street, Artesia              | Residential       | Full  | Yes        |
| 7011-004-055 | 11826 168th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-004-069 | 11832 168th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-004-076 | 11820 168th Street, Artesia        | Residential       | Full  | Yes        |
| 7011-004-070 | No Address                         | Vacant            | Full  | No         |
| 7011-004-902 | No Address                         | Vacant            | Full  | No         |
| 7011-004-903 | No Address                         | Vacant            | Full  | No         |

Source: Westbound SR-91 Improvement Project Estimate Abstract (2017).

Access Impact = No garage access; replacement parking is available on site

APN = Assessor's Parcel Number

Full = Full acquisition

Partial = Partial Acquisition

PE = Permanent Easement

TCE = Temporary Construction Easement

**Table 2.3.12 Preferred Alternative [Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)]**

| APN          | Address                           | Existing Land Use | Acquisitions (Partial or Full) and Easements Type | Relocation |
|--------------|-----------------------------------|-------------------|---|------------|
| 7011-004-076 | 11820 168th Street, Artesia       | Residential       | TCE   | No         |
| 7011-004-901 | No Address, Artesia               | Open Space        | TCE   | No         |
| 7011-004-902 | 11814 168th Street, Artesia       | Vacant            | TCE   | No         |
| 7011-004-903 | Pioneer Boulevard, Artesia        | Vacant            | TCE   | No         |
| 7011-020-905 | 16912 Clarkdale Avenue, Artesia   | Open Space        | Partial/TCE                                       | No         |
| 7012-001-901 | 12222 Cuesta Drive, Cerritos      | Institutional     | Partial/TCE                                       | No         |
| 7012-020-026 | 12642 Palm Street, Cerritos       | Residential       | Partial/TCE                                       | No         |
| 7012-020-900 | No Address, Cerritos              | Open Space        | TCE   | No         |
| 7012-027-901 | No Address, Cerritos              | Open Space        | TCE   | No         |
| 7014-004-032 | 16905 Pioneer Boulevard, Artesia  | Commercial        | TCE   | No         |
| 7014-022-197 | No Address                        | Residential       | Partial/TCE                                       | No         |
| 7016-002-044 | 10802 Alondra Boulevard, Cerritos | Commercial        | TCE   | No         |
| 7016-002-048 | 10802 College Place, Cerritos     | Commercial        | TCE   | No         |
| 7016-002-050 | 10930 Alondra Boulevard, Cerritos | Commercial        | TCE   | No         |
| 7016-018-065 | 16923 Eric Avenue                 | Residential       | TCE   | No         |
| 7016-020-046 | 16920 Harvest Avenue, Cerritos    | Residential       | TCE   | No         |
| 7016-020-900 | No Address                        | Open Space        | TCE   | No         |
| 7016-023-041 | 16811 Westwinds Circle, Cerritos  | Residential       | TCE   | No         |
| 7016-023-045 | 16825 Leeward Avenue, Cerritos    | Residential       | TCE   | No         |
| 7016-023-901 | No Address                        | Open Space        | TCE   | No         |
| 7030-001-048 | 12611 Artesia Boulevard, Cerritos | Residential       | Partial/TCE                                       | No         |
| 7011-004-008 | 168th Street, Artesia             | Residential       | Full  | Yes        |
| 7011-004-051 | 168th Street, Artesia             | Residential       | Full  | Yes        |
| 7011-004-055 | 11826 168th Street, Artesia       | Residential       | Full  | Yes        |
| 7011-004-069 | 11832 168th Street, Artesia       | Residential       | Full  | Yes        |
| 7011-004-076 | 11820 168th Street, Artesia       | Residential       | Full  | Yes        |
| 7011-004-070 | No Address                        | Vacant            | Full  | No         |
| 7011-004-902 | No Address                        | Vacant            | Full  | No         |
| 7011-004-903 | No Address                        | Vacant            | Full  | No         |

Source: *Westbound SR-91 Improvement Project Estimate Abstract* (2017).

APN = Assessor's Parcel Number

Full = Full acquisition

Partial = Partial Acquisition

TCE = Temporary Construction Easement

After construction, the TCEs used for the Build Alternative and design options would be restored to their original pre-project conditions. None of the TCEs would require businesses, employees, or residents to relocate. Owners of the parcels affected by TCEs would be compensated for temporary use of their property during construction. For these reasons, the temporary use of land during construction of the Build Alternative and design options would not result in substantial adverse effects.

### *No Build Alternative*

The No Build Alternative would not construct any improvements to SR-91 and the SR-91/I-605 interchange and, therefore, would not require the temporary use of any privately owned land for TCEs or staging areas.

### **Permanent Impacts**

#### *Build Alternative (includes Design Options)*

As shown in Table 2.3.9, the Build Alternative would require the partial acquisition of 10 parcels and the full acquisition of 21 parcels resulting in the relocation of two non-residential properties.

As shown in Table 2.3.10, the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would require the partial acquisition of five parcels and the full acquisition of one parcel, resulting in the relocation of one non-residential property.

As shown in Table 2.3.11, the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would require the partial acquisition of 10 parcels and the full acquisition of 26 parcels, resulting in the relocation of two non-residential properties.

As shown in Table 2.3.12, the Preferred Alternative, which included Design Option 1 and Design Option 3, would require the partial acquisition of five residential parcels and the full acquisition of eight parcels, resulting in 3 vacant parcels with no relocation.

Table 2.3.13 provides a list of the permanent relocations required under the Build Alternative. Table 2.3.14 provides a list of the permanent relocations required under the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width). Table 2.3.15 provides the list of the permanent relocations required under the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). Table 2.3.16 provides a list of the permanent relocations required under the Preferred Alternative.

**Table 2.3.13 Build Alternative Acquisitions**

| APN                           | Address                          | Business Name(s)          | Businesses Displaced | Employees Displaced | Residents Displaced |
|-------------------------------|----------------------------------|---------------------------|----------------------|---------------------|---------------------|
| 7011-021-066                  | Race car parts dealer            | Elite Offroad Performance | 1                    | 20                  | N/A                 |
| 7014-004-005                  | Gas station/auto service station | Arco                      | 1                    | 20                  | N/A                 |
| 7011-020-038                  | 11947 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-064                  | 11949 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-040                  | 11951 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-041                  | 11955 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-061                  | 11957 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-062                  | 11959 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-044                  | 11961 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-045                  | 11956 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-057                  | 11967 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-063                  | 11971 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-049                  | 11973 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-050                  | 11977 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-059                  | 12001 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-067                  | 12009 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-068                  | 12011 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-069                  | 12015 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-030                  | 12017 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-031,<br>7011-021-032 | 12021 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| <b>Total</b>                  |                                  |                           | <b>2</b>             | <b>40</b>           | <b>80</b>           |

Source: *Relocation Impact Report* (2018).

APN = Assessor's Parcel Number

N/A = not applicable

**Table 2.3.14 Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) Acquisitions**

| APN          | Address                          | Business Name(s) | Businesses Displaced | Employees Displaced | Residents Displaced |
|--------------|----------------------------------|------------------|----------------------|---------------------|---------------------|
| 7014-004-005 | Gas station/auto service station | Arco             | 1                    | 20                  | N/A                 |
| <b>Total</b> |                                  |                  | <b>1</b>             | <b>20</b>           | <b>N/A</b>          |

Source: *Relocation Impact Report* (2018).

APN = Assessor's Parcel Number

N/A = not applicable



**Table 2.3.15 Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) Acquisitions**

| APN                           | Address                          | Business Name(s)          | Businesses Displaced | Employees Displaced | Residents Displaced |
|-------------------------------|----------------------------------|---------------------------|----------------------|---------------------|---------------------|
| 7011-021-066                  | Race car parts dealer            | Elite Offroad Performance | 1                    | 20                  | N/A                 |
| 7014-004-005                  | Gas station/auto service station | Arco                      | 1                    | 20                  | N/A                 |
| 7011-020-038                  | 11947 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-064                  | 11949 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-040                  | 11951 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-041                  | 11955 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-061                  | 11957 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-062                  | 11959 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-044                  | 11961 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-045                  | 11956 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-057                  | 11967 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-063                  | 11971 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-049                  | 11973 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-020-050                  | 11977 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-059                  | 12001 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-067                  | 12009 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-068                  | 12011 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-069                  | 12015 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-030                  | 12017 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-021-031,<br>7011-021-032 | 12021 170th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-008                  | 11834 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-051                  | 11836 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-055                  | 11826 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-069                  | 11832 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-076                  | 11820 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | 4.42                |
| 7011-004-070                  | Vacant, No Address               | N/A                       | N/A                  | N/A                 | N/A                 |
| 7011-004-902                  | 11814 168th Street, Artesia      | N/A                       | N/A                  | N/A                 | NA                  |
| 7011-004-903                  | Vacant, No Address               | N/A                       | N/A                  | N/A                 | N/A                 |
| <b>Total</b>                  |                                  |                           | <b>2</b>             | <b>40</b>           | <b>102</b>          |

Source: *Relocation Impact Report* (2018).

APN = Assessor's Parcel Number

N/A = not applicable

**Table 2.3.16 Preferred Alternative Acquisitions**

**[Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)]**

| APN          | Address                     | Business Name(s) | Businesses Displaced | Employees Displaced | Residents Displaced |
|--------------|-----------------------------|------------------|----------------------|---------------------|---------------------|
| 7011-004-008 | 11834 168th Street, Artesia | N/A              | N/A                  | N/A                 | 4.42                |
| 7011-004-051 | 11836 168th Street, Artesia | N/A              | N/A                  | N/A                 | 4.42                |
| 7011-004-055 | 11826 168th Street, Artesia | N/A              | N/A                  | N/A                 | 4.42                |
| 7011-004-069 | 11832 168th Street, Artesia | N/A              | N/A                  | N/A                 | 4.42                |
| 7011-004-076 | 11820 168th Street, Artesia | N/A              | N/A                  | N/A                 | 4.42                |
| <b>Total</b> |                             |                  | <b>N/A</b>           | <b>N/A</b>          | <b>22</b>           |

Source: *Final Relocation Impact Report* (2018).

APN = Assessor's Parcel Number

N/A = not applicable

As shown in Tables 2.3.13, 2.3.14, 2.3.15, and 2.3.16, these relocations would occur in Artesia. No relocations would occur in the city of Cerritos. The Build Alternative and the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) would result in the relocation of two businesses: a race car parts dealer and a gas station/auto service station. These non-residential acquisitions could affect up to 40 employees. The Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would result in the relocation of one business: the gas station/auto service station. The Preferred Alternative, which includes both Design Option 1 and Design Option 3, would result in the relocation of five residential homes.

These non-residential relocations in the city of Artesia would displace approximately 40 employees under the Build Alternative, which represents approximately 0.04 percent of the total number of primary jobs in the city of Artesia. Because non-residential relocations under the design options would result in the same or less non-residential relocations than that of the Build Alternative, impacts under the design options would be no greater in magnitude when compared to the Build Alternative. Based on the RIR (2018), there are three locations available for sale and three locations available for lease within 20 mi of the study area to which the displaced race car parts dealer could relocate. As of November 2017, there were three properties with a light industrial/manufacturing or an industrial/warehouse zoning designation for sale in the cities of Downey, Vernon, and South El Monte that could serve as replacement properties for the displaced race car parts dealer. Additionally there were three properties with an industrial/warehousing zoning designation for lease in the cities of Downey and Cerritos that could serve as replacement properties for the displaced race car parts dealer. Due to the specialty nature of the gas station and the fact that it is a franchise and not corporately owned, there are limited suitable replacement sites within a reasonable distance from the acquisition property.

Research shows there are currently no comparable properties for lease or sale within 20 mi of the acquisition property. Additional relocation sites could be sought farther from the acquisition site, or the business owner may consider purchasing a vacant property and constructing a new facility.

Project Feature PF-REL-1, provided earlier in Section 2.3.1.3, would minimize the permanent impacts related to relocations and acquisitions under the Build Alternative, including design options, by conducting property acquisitions and providing relocation assistance in compliance with the Uniform Act.

### *Property Tax*

The acquisition of privately owned properties along the alignment would result in property tax revenue losses for local taxing agencies because these parcels would be removed from the property tax assessment roll. The parcel acquisitions under the Build Alternative would result in the loss of an estimated \$399.99 in annual property tax revenue to the City of Artesia, which is approximately 0.024 percent of the City of Artesia's total annual property tax revenue. The County, ABC Unified School Districts, and other local taxing agencies that receive a share of property taxes from these parcels would also be affected.

### *Sales Tax*

The partial acquisitions associated with the Build Alternative would result in the acquisition of two sales tax-generating businesses (a race car parts dealer and a gas station/auto service station) within the city of Artesia. As discussed above, these businesses may need to be relocated outside the city of Artesia due to its specialty nature and lack of comparable properties within the city limits. In the event that the displaced businesses would be relocated within the city of Artesia, there would be no net loss of sales tax revenue to the City of Artesia. However, relocation to a different city would result in a net loss of sales tax revenue to the City of Artesia. Due to privacy laws, the California State Board of Equalization does not disclose sales tax revenues generated by individual businesses; therefore, the potential loss in sales tax revenue was estimated based upon the average sales tax per business in the city of Artesia. If the businesses were to relocate outside of the city of Artesia, the potential annual sales tax revenue loss would be approximately \$10,070 for the City of Artesia. This represents approximately 0.16 percent of the City of Artesia's total annual sales tax revenue. No relocation of businesses within the City of Artesia is proposed under the Preferred Alternative. Therefore, the Preferred Alternative would not result in sales tax revenue losses within the City of Artesia.

### *No Build Alternative*

No improvements to SR-91 or the SR-91/I-605 interchange are proposed under the No Build Alternative. Therefore, no acquisitions or property acquisitions would be necessary, and the No Build Alternative would also not result in property or sales tax revenue losses.

### **2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures**

After construction, all TCEs would be restored to their original pre-project or better conditions per Project Feature PF-REL-2. Because the project will incorporate Project Feature PF-REL-1 as described above in Section 2.3.1.3, no substantial adverse impacts related to relocations would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

## **2.3.3 Environmental Justice**

### **2.3.3.1 Regulatory Setting**

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2017, this was \$24,600 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964, and related statutes, have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

### **2.3.3.2 Affected Environment**

The environmental justice study area includes portions of the cities of Artesia, Cerritos, and Norwalk including the 20 census tract block groups shown previously on Figure 2.3-1 (Census Tracts 5530.00 [Block Groups 3 and 4], 5545.12 [Block Groups 1 and 2], 5545.13 [Block Group 1], 5545.14 [Block Groups 1, 2, and 3], 5545.21 [Block Groups 1 and 3], 5546.00 [Block Groups 1 and 2], 5547.00 [Block Groups 1, 2, and 3], 5548.01 [Block Groups 1 and 2], and 5548.02 [Block Groups 1, 2, and 3]).

The Council on Environmental Quality (CEQ), an advisory body that has oversight of the federal government's compliance with EO 12898 and NEPA, has developed

guidance for implementing environmental justice under NEPA.<sup>1</sup> The CEQ guidance recommends identifying minority populations where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. The CEQ guidance also recommends identifying low-income populations in an affected area by applying the annual statistical poverty thresholds from the U.S. Census Bureau Current Population Reports, Series P-60, Consumer Income and Poverty.

In January 2003, Caltrans published the *Desk Guide Environmental Justice in Transportation Planning and Investments* (Desk Guide), which provides information and examples of ways to promote environmental justice to those involved in making decisions about California's transportation system.<sup>2</sup> The Desk Guide notes that transportation agencies, particularly those in a state as diverse as California, may need to adapt the regulatory definitions of low-income and minority populations to conduct a meaningful analysis. In regions with high minority and low-income populations, for instance, use of the standard definitions to define such populations could result in the selection of most of the region. Because the study area cities contain substantial minority populations, a different standard is required to identify those census tract block groups in the study area where minority populations are present in meaningfully greater percentages than in the general population of Los Angeles County. For the analysis of the proposed project, the term "meaningfully greater" is used when the percentage of an environmental justice population or group in the project area is 5 percentage points greater than its share of the city's or Los Angeles County's population. The largest minority population in both the cities of Artesia and Cerritos is the Non-Hispanic Asian American population, which makes up 40 percent of the population in the city of Artesia and 60 percent of the population in the city of

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<sup>1</sup> Council on Environmental Quality. 1997. *Environmental Justice Under the National Environmental Policy Act*. December 10, 1997. Website: <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ej/justice.pdf> (accessed December 16, 2017).

<sup>2</sup> California Department of Transportation (Caltrans). 2003. *Desk Guide, Environmental Justice in Transportation Planning and Investments*. January 2003. Website: <http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/EnvironmentalJusticeDeskGuideJan2003.pdf> (accessed December 16, 2017).

Cerritos. In the city of Norwalk, Hispanic or Latino residents make up approximately 70 percent of the total population.

As noted previously in Table 2.3.5, there are no low-income households in the study area; therefore, the discussion of environmental justice focuses only on minority populations.

This environmental justice analysis applies the following methodology to identify minority populations:

- Census tract block groups are considered to have substantial minority populations if their percentage of minority residents is more than 10 percentage points higher than Los Angeles County as a whole (i.e., 83 percent or higher).

The environmental justice analysis was conducted using demographic information from the 2011–2015 ACS. The following populations were considered in assessing whether the Build Alternative would result in disproportionate impacts to environmental justice populations and whether that alternative would result in benefits for those populations:

- **Minority Population:** Defined as individuals who identify themselves as Black/African-American, Asian, Native Hawaiian/Pacific Islander, Native American/Native Alaskan, Some Other Race, two or more races, or of Hispanic/Latino origin (a descriptor of ethnic origin that may be applied to any race). As described in the methodology set forth above, study area census tract block groups are considered to have substantial minority populations if their aggregated percentage of minority residents is 83 percent or higher.

The percentages of the population in Los Angeles County, the study area cities, and the census tract block groups that consist of minorities are summarized in Table 2.3.17. The ***bold italicized*** percentages in Table 2.3.17 represent those study area cities and census tract block groups that contain substantial minority populations, as defined above, in comparison to Los Angeles County overall.

As shown in Table 2.3.16, minorities make up 73 percent of the population in Los Angeles County. Minorities are a higher percentage of the population in the city of Artesia (80 percent) and an even higher percentage of the population in the city of Cerritos (84 percent) than in Los Angeles County as a whole. Overall, substantial minority populations exist in 11 of the 20 study area census tract block groups.

Census Tracts 5545.12 Block Group 2 (87 percent), 5545.13 Block Group 1 (93 percent), 5545.14 Block Group 1 (88 percent), 5545.14 Block Group 2 (86 percent), and 5545.14 Block Group 3 (86 percent) in the city of Cerritos have substantial minority populations. Census Tracts 5546.00 Block Group 2 (93 percent), 5547.00 Block Group 1 (95 percent), 5547.00 Block Group 2 (96 percent), 5547.00 Block Group 3 (95 percent), 5548.01 Block Group 1 (99 percent), and 5548.02 Block Group 2 (87 percent) in the city of Artesia also have substantial minority populations.

**Table 2.3.17 Minority Populations**

| Area                     |   | Minorities <sup>1</sup> |
|--------------------------|---|-------------------------|
| County                   |   |                         |
| Los Angeles County       |   | 73%                     |
| Study Area Cities        |   |                         |
| City of Artesia          |   | 80%                     |
| City of Cerritos         |   | <b>84%</b>              |
| Study Area Census Tracts |   |                         |
| Census Tract 5530.00     | Block Group 3 (City of Norwalk)               | 78%                     |
|                          | Block Group 4 (City of Norwalk)               | 77%                     |
| Census Tract 5545.12     | Block Group 1 (City of Cerritos)              | 82%                     |
|                          | Block Group 2 (City of Cerritos)              | <b>87%</b>              |
| Census Tract 5545.13     | Block Group 1 (City of Cerritos)              | <b>93%</b>              |
| Census Tract 5545.14     | Block Group 1 (City of Cerritos)              | <b>88%</b>              |
|                          | Block Group 2 (City of Cerritos)              | <b>86%</b>              |
|                          | Block Group 3 (City of Cerritos)              | <b>86%</b>              |
| Census Tract 5545.21     | Block Group 1 (City of Cerritos)              | 75%                     |
|                          | Block Group 3 (City of Cerritos)              | 78%                     |
| Census Tract 5546.00     | Block Group 1 (Cities of Norwalk and Artesia) | 82%                     |
|                          | Block Group 2 (Cities of Norwalk and Artesia) | <b>93%</b>              |
| Census Tract 5547.00     | Block Group 1 (City of Artesia)               | <b>95%</b>              |
|                          | Block Group 2 (City of Artesia)               | <b>96%</b>              |
|                          | Block Group 3 (City of Artesia)               | <b>95%</b>              |
| Census Tract 5548.01     | Block Group 1 (City of Artesia)               | <b>99%</b>              |
|                          | Block Group 2 (City of Artesia)               | 77%                     |
| Census Tract 5548.02     | Block Group 1 (City of Artesia)               | 77%                     |
|                          | Block Group 2 (City of Artesia)               | <b>87%</b>              |
|                          | Block Group 3 (City of Artesia)               | 63%                     |

Source: United States Census Bureau, 2011–2015 ACS. Tables B03002 and B17001.

Note: **Bold italicized numbers** indicate the values that are substantially higher than the percentage for Los Angeles County as a whole. For minority populations, “substantially greater” means 10 percentage points higher than the percentage for Los Angeles County (i.e., 83%). For low-income populations, “substantially greater” means 5 percentage points higher than the percentage for Los Angeles County (i.e., 17.8%).

<sup>1</sup> Includes all individuals who identify themselves as Black/African-American, Asian, Native Hawaiian/Pacific Islander, Native American/Native Alaskan, Some Other Race, two or more races, or of Hispanic/Latino origin (persons of Hispanic/Latino origin may be of any race). ACS = American Community Survey

### 2.3.3.3 Environmental Consequences

#### **Temporary Impacts**

##### *Build Alternative (includes Design Options)*

Construction of the Build Alternative could have short-term effects on access and circulation, due to road closures; aesthetics, due to construction staging areas and equipment; and noise and exposure to hazardous materials, due to construction activities. As discussed in Section 2.3.1, Community Character and Cohesion, construction activities (including TCEs along the north side of SR-91 for certain areas of the project segment and at the Alondra Boulevard/I-605 interchange northbound off-ramp) associated with the Build Alternative would temporarily affect residents and businesses throughout the entire project area and would not be solely limited to minority populations in the area. The locations of the parcels that would be affected by these TCEs are shown on Figure 2.3-3. Those impacts would include temporary



disruptions of local traffic patterns and access to residences and businesses during overnight mainline, ramp, and local arterial closures as well as increased traffic congestion, noise levels, and dust. Existing access to adjacent residences and businesses would resume following construction.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Project Features PF-AQ-1 through PF-AQ-6, which are detailed in Section 2.12, Air Quality, would minimize the project's temporary air quality impacts. Implementation of Project Feature PF-T-1, described in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, would minimize the project's temporary impacts related to access disruptions. Short-term construction activities during the project would result in temporary noise from construction equipment and vehicles. However, the project would be required to comply with Caltrans Standard Specifications, Section 14-8.02, Noise Control, to minimize construction noise impacts on sensitive land uses adjacent to the project site. Implementation of Project Feature N-1, which is detailed in Section 2.13, Noise, would minimize the project's construction noise impacts. With implementation of these project features and minimization measure, low-income and minority populations would not be disproportionately impacted.

As described in Section 2.3.1, Community Character and Cohesion, the project construction activities would provide direct and indirect jobs that would benefit local economies, including low-income and minority populations.

As described in further detail in Section 2.11, Hazardous Waste/Materials, five properties that are located in the vicinity of the Build Alternative were identified as having hazardous waste concerns. Due to the nature of the businesses and the proximity of these properties to the maximum disturbance limits for the Build Alternative, there is potential that contaminated groundwater originating at those parcels could be encountered during project construction. One property of hazardous concern is located within or adjacent to Census Tracts 5545.14 Block Group 1, which has a substantial minority population. The remaining properties of hazardous concern are not located within census tract block groups that have substantial minority populations.

### ***No Build Alternative***

Under the No Build Alternative, the temporary construction-related adverse effects on all populations, including low-income and minority populations, during construction of the Build Alternative would not occur. However, the low-income and minority populations also would not gain any economic benefit from the construction of the Build Alternative.

### ***Permanent Impacts***

#### ***Build Alternative***

Potential long-term noise impacts associated with project operations are solely from traffic noise. Various receptor locations are adjacent to SR-91, and would be affected by the traffic noise from the project. These receptor locations would include areas that contain a meaningfully greater percentage of minority populations, including Census Tracts 5545.12 Block Group 2; 5545.14 Block Group 2; 5545.21 Block Groups 1 and 3; and 5548.01 Block Groups 1 and 2. The receptor locations would be or would continue to be exposed to noise levels that approach or exceed the Noise Abatement Criteria (NAC) under the Build Alternative and all design options. Impacts from traffic noise would affect all residents and businesses adjacent to westbound SR-91 and would not be solely limited to minority populations in the area. Therefore, the Build Alternative would not have disproportionately high and adverse noise impacts on minority populations in the project area.

The purpose of the project is to reduce congestion and improve freeway operations, improve safety, and improve local and system interchange operations. Potential traffic impacts associated with project operations would affect all residents and businesses adjacent to westbound SR-91 and would not be solely limited to minority populations in the area. Therefore, the Build Alternative would not have disproportionately high and adverse traffic impacts on minority populations in the project area.

Under the Build Alternative, the project would require full acquisition of 18 residential properties and 1 non-residential property along 170th Street in Census Tract 5548.01 Block Group 1, in the city of Artesia. These acquisitions would be required in order to expand the existing non-standard lane widths, currently in operation along westbound SR-91, to Caltrans' standard lane widths. The census tract block group where these properties are located contains a population that is 96 percent Hispanic or Latino, which is substantially higher than the city of Artesia's and Los Angeles County's percentages of 37 percent and 48 percent, respectively. Therefore, the Hispanic or Latino population in the census tract block group is

meaningfully greater than that of the city of Artesia and Los Angeles County. In addition, the project would also require the acquisition of one non-residential business in Census Tract 5548.01 Block Group 2. This area contains a substantially higher percentage of African-American residents, at 8 percent, when compared to the city of Artesia's 2 percent overall African-American population. Therefore, the African-American population in the census tract block group is meaningfully greater than those in the city of Artesia and Los Angeles County.

The permanent acquisition of the 18 residential and 2 non-residential properties would accommodate the expansion of the westbound lanes on SR-91 to develop standard lane widths in areas that currently have non-standard lane widths. Without the property acquisitions, the expansion of westbound SR-91 would require the relocation and reconstruction of the existing noise barrier along 170th Street, and the width of 170th Street would be inadequate for emergency vehicle access and unsafe for residents. Permanent acquisitions as a result of the project would be required in census tract block groups where the environmental justice population is meaningfully greater than its population in the city and Los Angeles County. According to the RIR, there are sufficient replacement properties within the cities of Artesia, Hawaiian Gardens, Norwalk, and Lakewood, and it is anticipated that a similar number and type of properties would be available within the acquisition area within the time of the acquisitions. Despite the availability of replacement properties, relocations may have physical, financial, and psychological effects on displaced residents. Physical effects may include finding and moving into suitable replacement housing, as well as an increase in commute and transportation to work. Possible financial impacts could include moving expenses, increased living expenses, increased commute to work, or increased property taxes. In addition, relocation may also be difficult due to overcrowded residences and high rents/mortgages compared to the incomes of the displacees. The median existing home value in the city of Artesia is \$422,500, and the median existing home values in the census tract block groups associated with the acquisition area range from \$262,100 to \$380,600. As discussed above in Section 2.3.1.3, Project Feature PF-REL-1 would minimize permanent impacts related to relocations and acquisitions under the Build Alternative for all affected populations. Therefore, the Build Alternative would not have disproportionately high and adverse relocation impacts on minority populations in the project area per EO 12898. No further environmental justice analysis is required.

*Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)*

Potential permanent impacts described above for the Build Alternative would be similar for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Widths) and would not be solely limited to minority populations in the area. However, this Design Option would eliminate the relocation impacts at 170th Street and would not require the acquisition of 18 homes and one business in Block Group 1, Census Tract 5548.01, in the City of Artesia. Therefore, this Design Option would not have disproportionately high and adverse impacts on minority populations in the project area.

*Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)*

Potential permanent impacts described above for the Build Alternative would be similar under the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) and would not be solely limited to minority populations in the area. However, this design option would require the acquisition of an additional eight properties along 168th Street, including five single-family residential units and three vacant lots within Census Tract 5584.01, Block Group 1, in the city of Artesia. As discussed above in Section 2.3.1.3, Project Feature PF-REL-1 would minimize permanent impacts related to relocations and acquisitions under the Build Alternative for all affected populations. Therefore, the Build Alternative would not have disproportionately high and adverse relocation impacts on minority populations in the project area.

In addition, various receptor locations adjacent to SR-91 would be affected by the traffic noise from the project, including Census Tract 5548.01, Block Group 1, which is affected by Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). The receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC under Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). Impacts from traffic noise would affect all residents and businesses adjacent to westbound SR-91 and would not be solely limited to minority populations in the area. Therefore, the Build Alternative would not have disproportionately high and adverse noise impacts on minority populations in the project area under Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment).

The Preferred Alternative includes Design Option 1 and Design Option 3. As stated above, neither Design Option 1 nor Design Option 3 would have disproportionately

high and adverse impacts on minority populations in the project area. Therefore, because the Preferred Alternative is a combination of Design Option 1 and Design Option 3, the Preferred Alternative would not have disproportionately high and adverse impacts on minority populations in the project area per EO 12898. No further environmental justice analysis is required.

As described in Project Feature PF-EJ-1 below, relocation assistance services would be available for all affected individuals and businesses in accordance with the Caltrans RAP.

**PF-EJ-1** To minimize potential impacts on environmental justice populations, the California Department of Transportation (Caltrans) Relocation Assistance Program (RAP) includes advisory services to assist individuals and businesses being displaced by a public project. Relocation assistance services would be provided to all displaced residents and would include provisions for identifying current real estate listings, payment programs for moving expenses (e.g., packing and unpacking, temporary storage, transportation, and moving insurance), purchase supplements, rental assistance, and down payments.

The Caltrans RAP includes advisory services to assist individuals and businesses being displaced by a public project. Relocation assistance services would be provided to all displaced residents and would include provisions for identifying current real estate listings, payment programs for moving expenses (e.g., packing and unpacking, temporary storage, transportation, and moving insurance), purchase supplements, rental assistance, and down payments. These services would be available to all members of the population, and environmental justice populations would not be denied benefits or receive fewer benefits than the general population. Therefore, relocation impacts on environmental justice populations would not be disproportionately high and adverse.

#### *No Build Alternative*

No improvements to SR-91 and the SR-91/I-605 interchange other than routine maintenance are proposed under the No Build Alternative. Therefore, the No Build Alternative would not result in property acquisition or permanent increases in noise levels that would impact populations in the area, including low-income and minority populations. However, the No Build Alternative would also not provide transportation

benefits to populations in the area, including to low-income and minority populations, which would occur under the Build Alternative.

#### **2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures**

Project features included in the Build Alternative would reduce temporary construction traffic, noise, and air quality impacts on all populations in the study area, including low-income and minority populations.

Temporary construction impacts on minority and low-income populations would be minimized by implementation of Project Feature PF-T-1, which is provided in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Temporary air quality effects would be minimized by Project Features PF-AQ-1 through PF-AQ-6, which are detailed in Section 2.12, Air Quality. These project features and measures require the control of dust and equipment emissions during construction of the Build Alternative. These features and measures would benefit all persons in the project area, including low-income and minority populations.

Temporary noise effects would be minimized by Project Feature N-1, which is detailed in Section 2.13, Noise. Project Feature PF-N-1 includes compliance with Caltrans Standard Specifications, Section 14-8.02, Noise Control, during construction of the Build Alternative. This project feature would benefit all persons in the project area, including low-income and minority populations.



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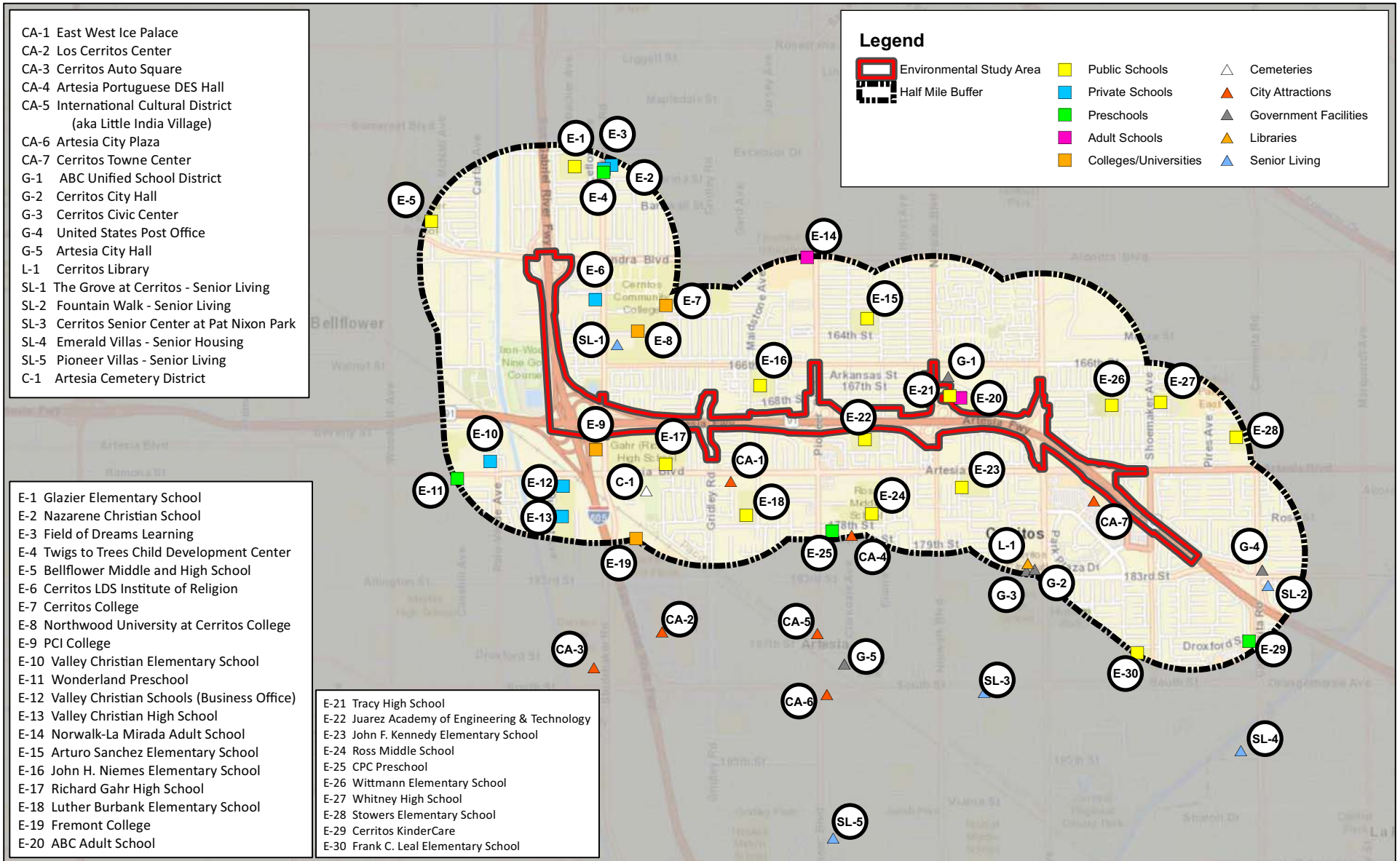
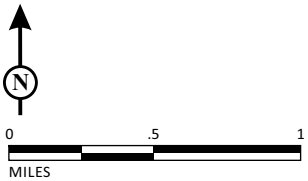


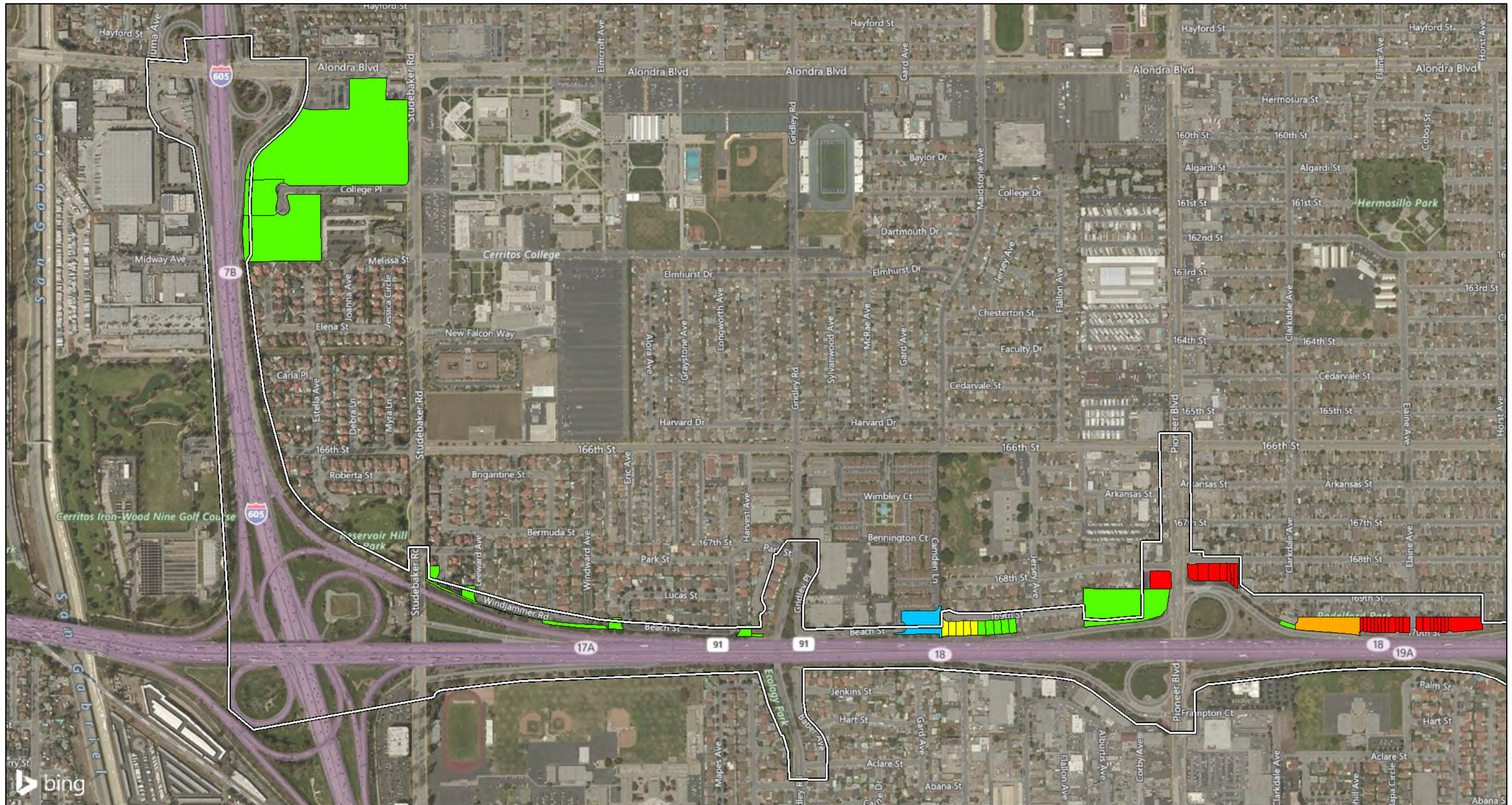
FIGURE 2.3-2



SOURCE: SCAG 2012; ESRI 2017.  
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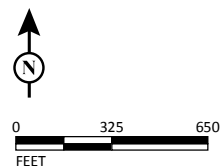


**LEGEND**

- Study Area Limits
- Full Acquisition
- Partial Acquisition
- Partial Acquisition/Permanent Easement (PE)/Temporary Construction Easement (TCE)
- Partial Acquisition/Temporary Construction Easement (TCE)
- Temporary Construction Easement (TCE)
- Access Impact

**FIGURE 2.3-3**  
Sheet 1 of 2

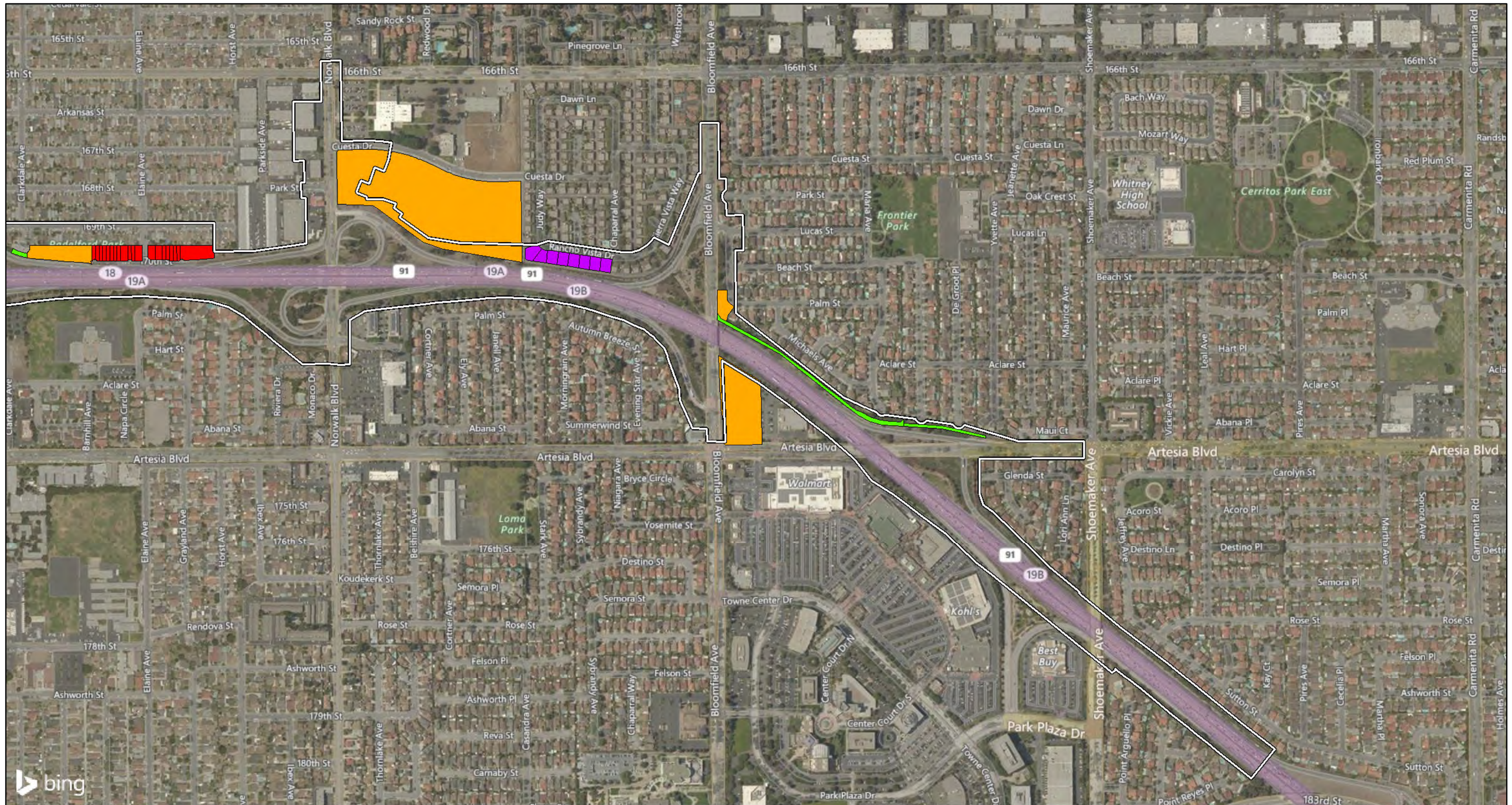
*Westbound SR-91 Improvement Project*  
Property Acquisitions and Temporary Construction Easements for the  
Build Alternative and the Build Alternative with Design Option 3  
(Pioneer Boulevard Westbound Ramps/168th Alignment)





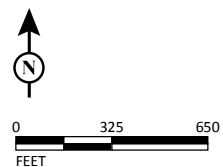
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**LEGEND**

- Study Area Limits
- Full Acquisition
- Partial Acquisition
- Partial Acquisition/Permanent Easement (PE)/Temporary Construction Easement (TCE)
- Partial Acquisition/Temporary Construction Easement (TCE)
- Temporary Construction Easement (TCE)
- Access Impact



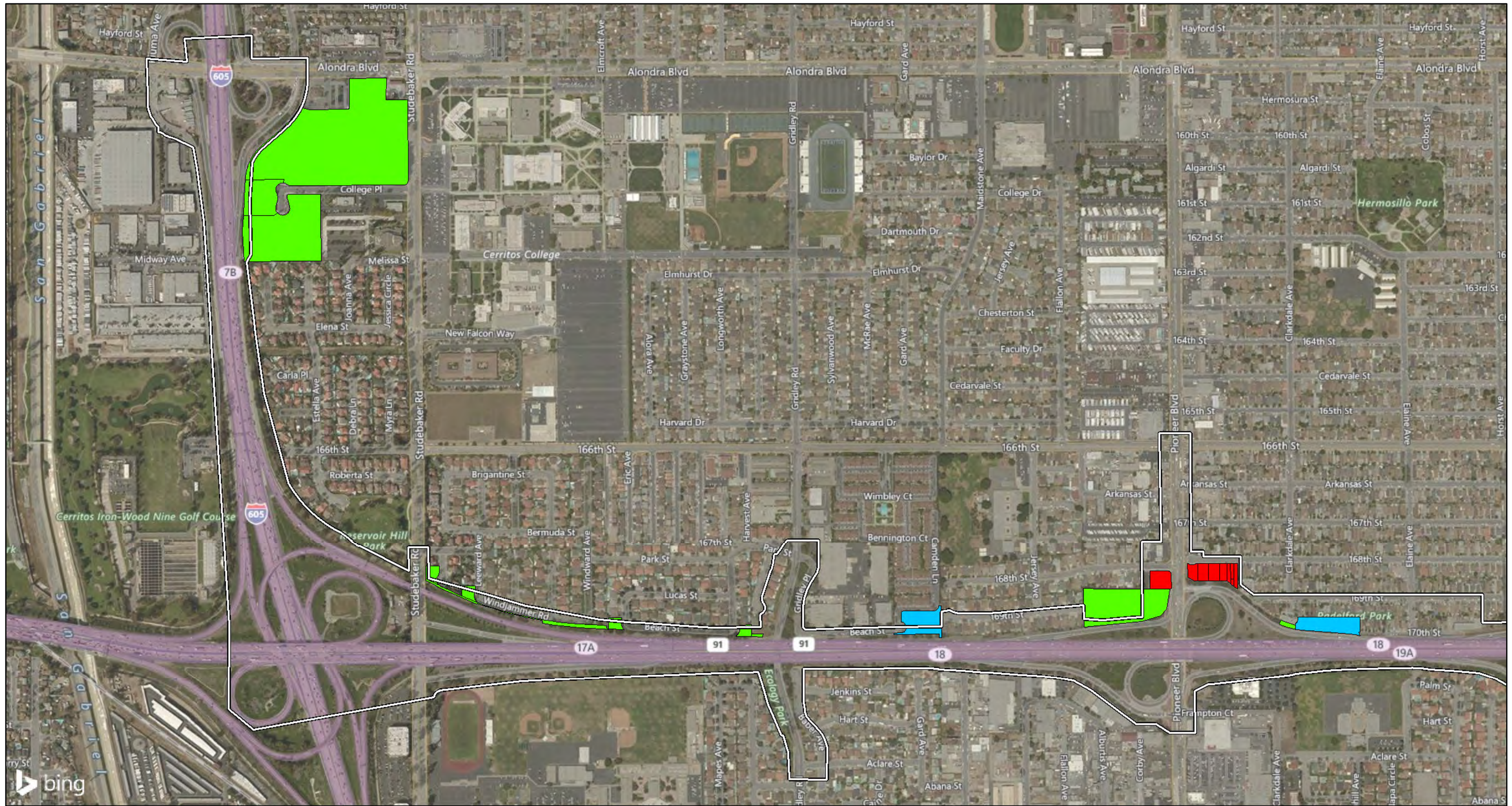
**FIGURE 2.3-3**  
Sheet 2 of 2

*Westbound SR-91 Improvement Project*  
Property Acquisitions and Temporary Construction Easements for the  
Build Alternative and the Build Alternative with Design Option 3  
(Pioneer Boulevard Westbound Ramps/168th Alignment)



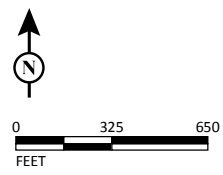
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**LEGEND**

- Study Area Limits
- Full Acquisition
- Partial Acquisition/Temporary Construction Easement (TCE)
- Temporary Construction Easement (TCE)



**FIGURE 2.3-4**

Sheet 1 of 2

**Westbound SR-91 Improvement Project**

Property Acquisitions and Temporary Construction Easements for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)

07-LA-91

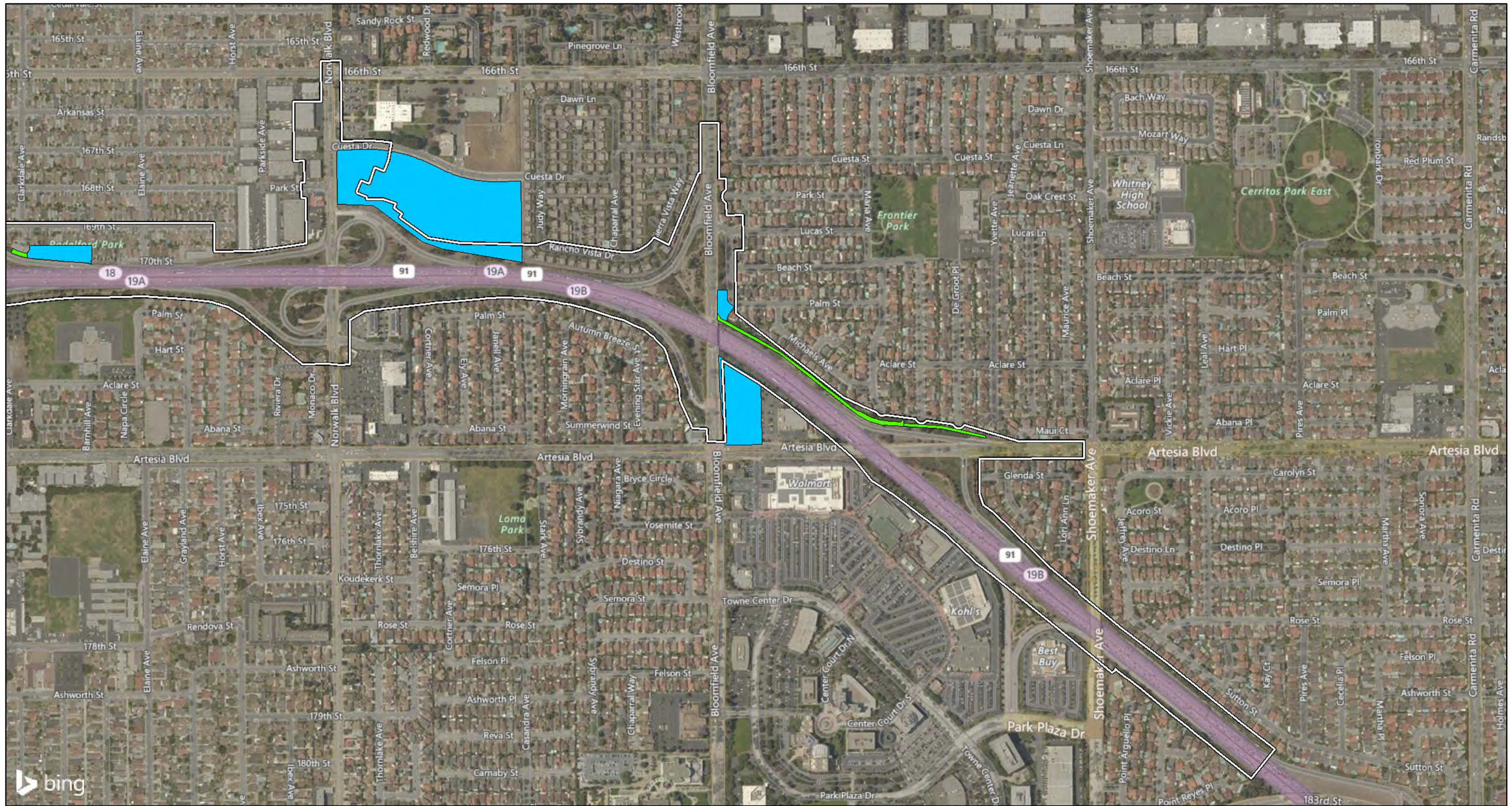
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0716000284; EA 29811



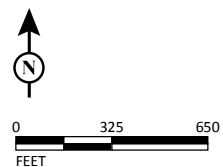
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**LEGEND**

- Study Area Limits
- Full Acquisition
- Partial Acquisition/Temporary Construction Easement (TCE)
- Temporary Construction Easement (TCE)



**FIGURE 2.3-4**  
Sheet 2 of 2

**Westbound SR-91 Improvement Project**

Property Acquisitions and Temporary Construction Easements for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) and Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0716000284; EA 29811



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## 2.4 Utilities/Emergency Services

### 2.4.1 Affected Environment

This section is based on information from the *Utility Impacts and Relocation Report* (2018) prepared for the proposed Westbound State Route 91 (SR-91) Improvement Project (project). This section describes the existing utilities and emergency services facilities and providers in the project footprint (the maximum disturbance limits for the Build Alternative) and study area. The study area extends 0.5 mile (mi) from the limits of the project footprint.

#### 2.4.1.1 Utilities

Existing utilities are located adjacent to and within the study area. The locations of utilities have been identified from as-built drawings and field reviews. Utility owners with facilities known to exist within the study area include the following:

- Central Basin Municipal Water District
- Chevron Pipe Line Company
- City of Norwalk
- Crown Castle
- Frontier Communications
- Kinder Morgan, Inc.
- County of Los Angeles Department of Public Works
- Shell Oil Pipeline Company
- Southern California Gas Company
- Wilshire Connection, LLC
- Charter Communications
- City of Cerritos
- City of Artesia
- City of Santa Fe Springs
- Crimson Pipeline
- Defense Fuel Support Point
- Golden State Water Company
- Liberty Utilities
- Los Angeles County Sanitation Districts
- Southern California Edison
- Time Warner Cable
- XO Communications

#### 2.4.1.2 Fire Protection and Emergency Services

Fire protection and emergency medical/paramedic services in the study area cities (Cerritos and Artesia) are provided by the Los Angeles County Fire Department. There are no fire stations or hospitals located within 0.5 mi of the proposed project. The nearest Los Angeles County Fire Department fire stations are located 0.58 mi east of the study area in Norwalk, 0.78 mi south of the study area in Cerritos, and 1.19 mi south of the study area in Cerritos. The nearest hospital that provides 24-hour emergency services is the La Palma Intercommunity Hospital at 7901 Walker Street in La Palma; the hospital is approximately 1.53 mi southeast of the proposed project.

### **2.4.1.3 Police Protection**

Police protection services in the study area are provided by the police departments in the study area cities of Cerritos and Artesia, as well as the Los Angeles County Sheriff's Department. There is one police station located within 0.5 mi of the proposed project: the Cerritos Sheriff's Station/ Community Safety Center at 18135 Bloomfield Avenue in Cerritos. The other nearest police stations are located 1.5 mi southeast of the proposed project in La Palma and 2.32 mi north of the proposed project in Norwalk.

## **2.4.2 Environmental Consequences**

### **2.4.2.1 Temporary Impacts**

#### ***Build Alternative***

Utilities (e.g., water lines, sewer laterals, electrical connections/lines/poles, natural gas service lines, street lights, fire hydrants, and cable television lines and utility boxes) in the project right-of-way (ROW) could be abandoned, removed, relocated or replaced due to the construction of the Build Alternative.

The utility facilities that could potentially be affected during construction of the Build Alternative are listed in Table 2.4.1. An updated utility search would be conducted during final design to determine all utilities that would require protection in place, removal or relocation. Completion of the utility work required for the affected utilities listed in Table 2.4.1 may result in temporary service disruptions to some utility users in the vicinity of the study area.

The following project feature has been incorporated into the Build Alternative to minimize the potential temporary adverse effects of the project construction on utilities.

**PF-UES-1** During final design, utility relocation plans will be prepared in consultation with the affected utility providers/owners for those utilities that will need to be relocated, removed, or protected in place. If relocation is necessary, the final design will focus on relocating utilities within existing public rights-of-way (ROWs) and/or easements. If relocation outside of existing ROWs or additional public ROWs and/or easements required for the proposed project are necessary, the final design will focus on relocating those facilities

**Table 2.4.1 Utilities Potentially Affected During Construction of the Build Alternative**

| <b>Utility Providers Within Project Limits</b>   | <b>Facility Impacted by Proposed Project</b>   |
|--|--|
| Central Basin Municipal Water District           | No impacted facilities   |
| Charter Communications                           | No impacted facilities   |
| Chevron Pipe Line Company                        | No impacted facilities   |
| City of Artesia                                  | 2-inch underground water   |
| City of Cerritos                                 | 33-inch underground sewer, fire hydrant  |
| City of Norwalk                                  | No impacted facilities   |
| City of Santa Fe Springs                         | 16-inch underground sewer  |
| County of Los Angeles Department of Public Works | Four 8-inch underground sewers   |
| Crimson Pipeline                                 | No impacted facilities   |
| Crown Castle                                     | No impacted facilities   |
| Defense Fuel Support Point                       | No impacted facilities   |
| Frontier Communications                          | Two telephone call boxes, underground telecom  |
| Golden State Water Company                       | No impacted facilities   |
| Kinder Morgan, Inc.                              | No impacted facilities   |
| Liberty Utilities                                | No impacted facilities   |
| Los Angeles County Sanitation Districts          | No impacted facilities   |
| Shell Oil Pipeline Company                       | No impacted facilities   |
| Southern California Edison                       | Four electric power poles, two 12 kilovolt (kV) overhead electrical lines, two 12 kV underground electrical lines, overhead electrical for street lighting, underground electrical for street lighting |
| Southern California Gas Company                  | Two 2-inch underground gas, 3-inch underground gas   |
| Time Warner Cable                                | Two overhead telecom, two underground telecom  |
| Wilshire Connection, LLC                         | Two underground telecom  |
| XO Communications                                | No impacted facilities   |

Source: *Utility Impacts and Relocation Report* (2018).

to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. Utility relocations are anticipated to be completed by the various utility owners prior to or during construction.

Prior to utility relocation activities, the Construction Contractor will coordinate with affected utility providers regarding potential utility relocations and inform affected utility users in advance about the date and timing of potential service disruptions.

During construction of the Build Alternative, some impairment to the delivery of emergency services, including fire and police response times, may occur due to limited lane closures on the mainline, ramps and arterials. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Emergency-services providers (including the local fire and police departments and the California Highway Patrol [CHP]) could experience these travel

delays when traveling to/from emergency scenes during these mainline freeway closures.

Closures would include the partial or complete closure of local streets and ramps during night time and off-peak hours during critical construction phases. During partial local street closures, the Construction Contractor would post signs to notify the public 5 working days prior to the closure. For complete local street or ramp closures, the Construction Contractor would coordinate and obtain prior authorization from Caltrans and notify the public of the full closure 5 working days prior to the closure. The Construction Contractor would implement traffic controls per approved traffic control plans. Emergency services providers, including the local fire and police departments and the CHP, could experience travel delays when traveling to/from emergency scenes during bridge closures. During construction of the Build Alternative, some impairment to the delivery of emergency services, including fire and response times, may occur due to limited lane closures on the mainline, ramps, and arterials. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Emergency service providers (including the local fire and police departments and CHP) could experience these travel delays when traveling to/from emergency scenes during the mainline freeway closures.

The Construction Contractor would coordinate and obtain prior authorization from Caltrans for any lane closures on the freeway mainline, and will notify local police, fire and emergency responders regarding the planned closures. The public will also be notified of any closures through public information outreach. In addition, construction alerts would be issued to local transit operators, local radio and cable television companies, emergency services (fire and police), schools, local major employers, and traffic navigation systems groups. Detour plans would be developed during final design to finalize detour routes. Currently, it is expected that detoured traffic would use major arterials in the vicinity of the proposed project, Interstate 605 (I-605), and SR-91. Emergency services providers, including the local fire and police departments and the CHP, could experience travel delays when traveling to/from emergency scenes during freeway closures.

The following project feature has been incorporated into the Build Alternative to minimize the potential temporary adverse effects of the project construction on emergency services:

**PF-UES-2** Prior to and during construction, the Construction Contractor will coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including the identification of alternative routes for emergency vehicles and routes across the construction areas that are developed in coordination with the affected agencies.

In addition, temporary construction impacts to emergency services would be minimized by implementation of Project Feature PF-T-1 in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. Project Feature PF-T-1 requires development and implementation of a Transportation Management Plan (TMP) during construction of the Build Alternative to address traffic delays; maintain traffic flow in the SR-91 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers.

### ***No Build Alternative***

No improvements to SR-91 and I-605 other than routine maintenance are proposed under the No Build Alternative, and the freeway would remain as it exists today. Therefore, the No Build Alternative would not result in temporary adverse effects on utilities and emergency services.

### **2.4.2.2 Permanent Impacts**

#### ***Build Alternative***

Any relocation or other effects to utility facilities (provided in Table 1.9, Potentially Affected Utilities by Type) under the Build Alternative would occur during the construction phase. All existing utility facilities would be anticipated to be perpetuated under the Build Alternative. The Build Alternative would not result in increased demand for domestic water services, wastewater facilities, or solid waste disposal. Therefore, the Build Alternative would not result in permanent adverse effects on utility providers or their facilities.

As required by Caltrans and the respective standards of the affected cities, emergency access would be maintained or provided as part of the final design of the Build Alternative. The improvements to the SR-91 mainline, I-605 connector ramps, and SR-91 arterials would reduce traffic congestion and result in decreased travel times

on SR-91 compared to the No Build Alternative. These improvements in traffic flow are likely to improve emergency response times within the study area. Therefore, the Build Alternative would not result in adverse effects to emergency services and providers.

***No Build Alternative***

No improvements to SR-91 are proposed under the No Build Alternative other than routine maintenance. The freeway would remain as it exists today, with the exception of other proposed projects that are under development or currently under construction. The No Build Alternative would have no immediate impacts to emergency services. As LOS on SR-91 deteriorates in the future, response times of emergency response vehicles could increase. However, the No Build Alternative would not result in permanent direct adverse effects related to emergency services, utility services, and their facilities.

**2.4.3 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate project features as outlined above in Section 2.4.2.1, no substantial adverse impacts to utilities and emergency services would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.



## **2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities**

### **2.5.1 Regulatory Setting**

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). 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. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The FHWA has enacted regulations for the implementation of the 1990 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.

### **2.5.2 Affected Environment**

This section is based on the *Traffic Operations Analysis Report* (2018) prepared for the project. The study area extends from the Shoemaker Avenue westbound on-ramp to Interstate 605 (I-605) and north on I-605 to Alondra Boulevard, although actual improvements may not be included along this entire length. The study area includes the ramp terminus intersections at key ramp locations in addition to the freeway mainline, arterial system connector ramps, and the westbound system connector ramp from State Route 91 (SR-91) to I-605. The traffic impact analysis in the *Traffic Operations Analysis Report* (2018) considered the following scenarios:

- Existing Baseline Conditions (2016)
- No Build Alternative – Opening Year (2024) and Horizon Year (2044)

- Build Alternative – Opening Year (2024) and Horizon Year (2044)
- Build Alternative with Design Options – Opening Year (2024) and Horizon Year (2044)

### **2.5.2.1 Existing Facility**

As previously stated in Chapter 1, Proposed Project, the project limits include westbound SR-91 (Post Mile [PM] 16.9–19.8) and northbound I-605 (PM 5.0–5.8) and traverse Cerritos and Artesia. The total length of the project is approximately 4 miles (mi), with the majority of the improvements along the westbound SR-91 3 mi segment. Within the project limits, westbound SR-91 has four mixed-flow lanes that are 11 feet (ft) wide, a 1.5 ft wide left median shoulder, one 12 ft wide high occupancy vehicle (HOV) lane, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps. Within the project limits, I-605 has four to five mixed-flow lanes and one HOV lane in each direction plus ramp merge and diverge lanes.

### **2.5.2.2 Existing Traffic Operations**

#### ***Existing Levels of Service***

Freeway traffic flow can be defined in terms of levels of service (LOS). For freeways, there are six defined LOS, ranging from LOS A to LOS F (based on the *Highway Capacity Manual* [HCM] methodology). LOS A represents free traffic flow with low traffic volumes and high speeds, and LOS F represents traffic volumes that exceed the facility capacity and result in forced flow operations at low speeds, as shown on Figure 1-2 in Chapter 1. As shown on Figure 1-2 in Chapter 1, traffic volumes on facilities such as SR-91 and I-605 substantially affect travel speeds and times.

#### ***Mainline and Ramps***

As discussed in Section 1.2.2.1, Capacity, Transportation Demand, and Safety, and also shown in Tables 2.5.1, 2.5.2, and 2.5.3 (all tables are provided at the end of this section), the results of the HCM analysis indicate that all but two existing freeway mainline, weaving, and merge/diverge segments are currently operating at LOS D or better during the peak hours. The exceptions are the weaving segment from the Pioneer Boulevard on-ramp to the I-605 off-ramp and the weaving segment from the SR-91 westbound on-ramp to the Alondra Boulevard off-ramp, for which the HCM results indicate LOS F. However, in areas with long vehicle queues, slow speeds, and higher levels of congestion, the HCM method of analysis can report LOS that is better than what drivers actually experience on the road. This is because the downstream traffic congestion and bottlenecks reduce the vehicle throughput in the study area and the volumes are constrained by the adjacent congested portions of the freeway. In

order to report LOS that more closely reflects what drivers experience, the speed method of analysis for determining LOS was also employed for current conditions along with a microsimulation model for future No Build and Build conditions. The speed method of analysis included observing existing speed profiles in the study area and comparing those speeds to likely LOS designations. Based on the speed method, the LOS for the existing mainline segments are mostly LOS E and F during both peak periods, as shown in Table 2.5.4. Note that the speed-based method is only used for existing conditions when actual speeds can be measured. The future analysis relies on HCM as well as the microsimulation model results.

### *Intersections*

A total of six study area intersections were evaluated and the LOS calculated using HCM 2010 methodology. As shown in Table 2.5.5, all westbound SR-91 and northbound I-605 study intersections perform at LOS C or better during the a.m. and p.m. peak hours, with the exception of the northbound I-605 off-ramp to Alondra Boulevard, which operates at LOS D during the p.m. peak hour.

#### **2.5.2.3 Pedestrian and Bicycle Facilities**

Pedestrian travel across the project limits where arterial streets cross I-605 is provided via sidewalks at the following location:

- Alondra Boulevard

Pedestrian travel across the project limits where arterial streets cross SR-91 is provided via sidewalks at the following locations:

- Studebaker Road
- Gridley Road
- Pioneer Boulevard
- Norwalk Boulevard
- Bloomfield Avenue
- Artesia Boulevard
- Shoemaker Avenue

These arterials generally include sidewalks on at least one side, and usually both sides, of the road as they cross I-605 or SR-91.

On-road bikeways within the project limits include:<sup>1</sup>

- A Class III<sup>2</sup> bikeway extends in both directions on 195<sup>th</sup> Street from the San Gabriel River Trail to Bloomfield Avenue. These bikeways then transition to a Class II bikeway before joining the Coyote Creek Bicycle Path.
- A Class II bikeway extends on Pioneer Boulevard from South Street before turning eastward onto Del Amo Boulevard.
- A Class II bikeway extends on Bloomfield Avenue starting at 183<sup>rd</sup> Street and ends at South Street before continuing east on South Street to Carmelita Avenue, where another bikeway extends southward on Shoemaker Avenue.

The study area is located between the following two major bike trails in the region:

- The San Gabriel River Bicycle Trail runs 30.2 mi along the San Gabriel River, from San Gabriel Canyon Road in Azusa to an access into El Dorado Park in Long Beach. There are numerous access points along the path. Within the study area, the Trail crosses under SR-91 just west of I-605, which it parallels for much of its length.
- The Coyote Creek Bicycle Trail is a 9.5 mi Class I bike path adjacent to the Coyote Creek flood control channel, extending from Santa Fe Springs to Long Beach, where it joins the San Gabriel River Bicycle Path. It crosses under SR-91 about 1 mi east of the study area, at Carmenita Road.

### 2.5.3 Environmental Consequences

The methodologies for forecasting and assessing future year with and without project traffic effects are described in detail in Chapters 3 and 4 of the *Traffic Operations Analysis Report* (2018). The methodologies of those analyses are summarized below.

#### *Methodology*

The analysis evaluation criteria used to determine acceptable traffic operation conditions are based on the LOS policies identified by Caltrans. Caltrans strives for freeway facilities to operate at either LOS C or D. Freeway LOS was shown on

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<sup>1</sup> County of Los Angeles. 2012. *Bicycle Master Plan*. Website: <https://dpw.lacounty.gov/pdd/bike/docs/bmp/BMP%20CHP%203.pdf> (accessed December 12, 2017).

<sup>2</sup> Class I (separate bike path), Class II (bike lane), and Class III (signed as bike route, no striping).

Figure 1-2 in Chapter 1. Based on Caltrans policy, LOS D was used as the threshold for the freeway facilities analysis. Any future freeway facilities projected to operate at an unacceptable LOS (i.e., LOS E or F) need to be mitigated. Per Caltrans, an impact to freeway facilities would occur if the project would:

- Degrade the LOS on the freeway facility from LOS D to LOS E or F, or
- Impact (worsen) a facility that is already operating at an unacceptable LOS (i.e., LOS E or F).

The six study area intersections noted previously were taken into account in the traffic impact analysis as they may be potentially impacted due to the proposed improvements to SR-91 and I-605. Intersections would be considered impacted if they are projected to operate at an unacceptable LOS (i.e., LOS E or F) under the Build Alternative and are not projected to operate at unsatisfactory LOS under the No Build Alternative scenario.

The 2024 No Build Alternative consists of projects included in the Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP); however, projects anticipated to be open to traffic after 2024 were removed from the 2024 roadway network for the traffic analysis.

The improvements included in the Build Alternative are described in more detail in Chapter 1, Proposed Project, in this environmental document. In addition to the Build Alternative, the proposed diamond ramp configurations (Diamond Ramps Design Option) at Pioneer Boulevard and Norwalk Boulevard in lieu of the proposed Type L-7 cloverleaf interchange configuration, the proposed Type L-9 westbound ramp configuration (Pioneer Boulevard L-9 Design Option), as well as the proposed alignment of SR-91 westbound ramps with 168th Street (Pioneer Westbound Ramps/168th Alignment Design Option) were analyzed.

### **2.5.3.2 Temporary Impacts**

#### ***Build Alternative (includes Design Options)***

During construction, the proposed project would result in temporary impacts to traffic circulation due to traffic diversions resulting from temporary closures to local roadways, sidewalks, bikeways, and freeway lanes. As described in the following project feature (PF-T-1), a Transportation Management Plan (TMP) will be implemented to address changes in traffic flows and pedestrian and bicycle circulation and to provide measures to minimize the adverse effects of construction activities on traffic flows and pedestrian and bicycle travel within the study area.

**PF-T-1 Transportation Management Plan.** A Final Transportation Management Plan (TMP) will be developed in detail during final design, which would be implemented by the Resident Engineer during project construction to address short-term traffic circulation and access effects during project construction. Specifically, when the TMP is prepared during final design, a Qualified Traffic Engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during project construction. The TMP would be approved by the Los Angeles County Metropolitan Transportation Authority (Metro) and the California Department of Transportation (Caltrans) District 7 during final design and would be incorporated into the plans, specifications, and estimates for implementation by the Resident Engineer.

The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to:

- Maintain traffic safety during construction,
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction,
- Minimize traffic delays and facilitate reduction of the overall duration of construction activities,
- Minimize detours and impacts to pedestrians and bicyclists,
- Foster public awareness of the project and related transportation and traffic impacts, and
- Achieve public acceptance of construction of the project and the TMP measures.

The TMP will contain, but not be limited to, the following elements, which are intended to reduce traveler delay and enhance traveler safety. These elements will be refined during final design and incorporated in the TMP for implementation during project construction.

- **Public Information/Public Awareness Campaign:** The primary goal of the Public Awareness Campaign (PAC) is to educate

motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. The PAC is an important tool for reaching target audiences with important construction project information and is anticipated to include but not be limited to the following:

- Rideshare information
  - Brochures and mailers
  - Media releases
  - Paid advertising, including radio, print, and social media
  - Public meetings
  - Broadcast fax and email services
  - A telephone hotline
  - Notification to targeted groups
  - Commercial traffic reporters/feeds
  - A project website
  - Visual information
  - Local cable television and news
  - Internet postings
  - Digital signage to inform commuters about closures
  - Print banners and signs
  - Business mitigation strategies
  - Social and digital media alerts
  - Parking mitigation strategies
- 
- **Traveler Information Strategies:** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; “businesses are open” signs; and other signs and information to assist travelers in navigating through, around, and in construction areas. Key components of the traveler information system are anticipated to include but not be limited to the following:



- Fixed and portable changeable message signs
- Ground-mounted signs
- Automated work zone information systems
- Highway advisory radio
- A lane-closure website
- The Caltrans highway information network
- Bicycle and pedestrian information
- A Commute Smart website
  
- **Incident Management:** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes but is not limited to the following:
  - A Caltrans Construction Zone Enhanced Enforcement Program (COZEEP)
  - A Freeway Service Patrol
  - Traffic surveillance stations
  - A Caltrans Transportation Management Center
  - A traffic management team
  - Towing services
  
- **Construction Strategies:** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include but not be limited to consideration of the following:
  - Conflicts with other projects and special events
  - Construction staging alternatives
  - Mainline lane closures
  - Local road closures
  - Ramp and connector closures (no two consecutive on- or off-ramps in the same direction would be closed at the same time)
  - Pedestrian and bicycle detours and facility closures
  - Traffic control improvements
  - Coordination with other projects and local municipalities

- Project phasing
- Traffic screens
- Truck traffic restrictions
  
- **Demand Management:** Temporarily reducing the overall traffic volumes on the project segment of SR-91 and I-605 could reduce the short-term adverse effects of construction on traffic operations. The TMP will include but not be limited to the following strategies that could reduce vehicular demand in the study area during project construction:
  - Rideshare incentives
  - Transit services
  - Shuttle services
  - Variable work hours and telecommuting
  - Park-and-ride lots
  
- **Alternate Route Strategies:** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following:
  - Mainline lane closures
  - Ramp/connector closures
  - Local road closures
  - Temporary highway or shoulder use
  - Local street improvements
  - Temporary detours and closures of bicycle and pedestrian facilities
  - Traffic signal coordination

The Construction Contractor will implement the measures in the TMP during construction.

The TMP, a standard measure implemented on all Caltrans construction projects, is designed to minimize construction-activity-related motorist delays, queuing, and accidents by the effective application of traditional traffic-handling practices and innovative approaches. The purpose of the TMP is to relieve congestion and maintain traffic flow throughout the alternative routing and surrounding area within the study area. The TMP will be finalized during final design but not until funding and final staging/phasing is determined at a later date. The TMP includes traffic mitigation strategies for the duration of construction, addresses lane closure requirements, and seeks to inform the public and motorists regarding the construction schedule, potential detours, and anticipated traffic delays during construction.

### **No Build Alternative**

None of the improvements proposed under the Build Alternative would be constructed under the No Build Alternative. As a result, the No Build Alternative would not result in temporary impacts related to traffic and circulation or to pedestrian and bicycle facilities.

### **2.5.3.3 Permanent Impacts**

The following tables provide detailed information on the traffic operations under the Existing (2016) conditions, 2024 Build Alternative, 2024 No Build Alternative, 2024 Diamond Ramps Design Option, 2024 Pioneer Boulevard L-9 Design Option, and 2024 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option:

- Table 2.5.6 summarizes the westbound SR-91 mainline LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2024 Build Alternative, 2024 No Build Alternative, 2024 Diamond Ramps Design Option, 2024 Pioneer Boulevard L-9 Design Option, and 2024 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.7 summarizes the westbound SR-91 and northbound I-605 weaving LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2024 Build Alternative, 2024 No Build Alternative, 2024 Diamond Ramps Design Option, 2024 Pioneer Boulevard L-9 Design Option, and 2024 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.8 summarizes the westbound SR-91 merge and diverge LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2024 Build Alternative, 2024 No Build Alternative, 2024

- Diamond Ramps Design Option, 2024 Pioneer Boulevard L-9 Design Option, and 2024 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.9 summarizes the westbound SR-91 and northbound I-605 intersection LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2024 Build Alternative, 2024 No Build Alternative, 2024 Diamond Ramps Design Option, 2024 Pioneer Boulevard L-9 Design Option, and 2024 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.

The following tables provide detailed information on the traffic operations under the Existing (2016) conditions, 2044 Build Alternative, 2044 No Build Alternative, 2044 Diamond Ramps Design Option, 2044 Pioneer Boulevard L-9 Design Option, and 2044 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option:

- Table 2.5.10 summarizes the westbound SR-91 mainline LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2044 Build Alternative, 2044 No Build Alternative, 2044 Diamond Ramps Design Option, 2044 Pioneer Boulevard L-9 Design Option, and 2044 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.11 summarizes the westbound SR-91 and northbound I-605 weaving LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2044 Build Alternative, 2044 No Build Alternative, 2044 Diamond Ramps Design Option, 2044 Pioneer Boulevard L-9 Design Option, and 2044 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.12 summarizes the westbound SR-91 merge and diverge LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2044 Build Alternative, 2044 No Build Alternative, 2044 Diamond Ramps Design Option, 2044 Pioneer Boulevard L-9 Design Option, and 2044 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.
- Table 2.5.13 summarizes the westbound SR-91 and northbound I-605 intersection LOS (using HCM methodology) during the a.m. and p.m. peak periods under the Existing (2016) conditions, 2044 Build Alternative, 2044 No Build Alternative, 2044 Diamond Ramps Design Option, 2044 Pioneer Boulevard L-9 Design Option, and 2044 Pioneer Boulevard Westbound Ramps/168th Alignment Design Option.

As indicated previously, 2024 has been identified as the opening year for the project, and 2044 has been identified as the design year. The traffic impacts and operations under the Build Alternative and No Build Alternative in 2024 and 2044 are discussed below. There are a few freeway mainline locations where the LOS based on the HCM results is forecast to worsen with the Build Alternative compared to the No Build Alternative. This is partly due to the fact that the projected future traffic volumes are higher under the Build Alternative due to the added capacity and improved operating conditions, which can cause traffic to shift from other routes. As previously mentioned, this is also partly due to the fact that in areas with long vehicle queues, slow speeds, and higher levels of congestion, the HCM method of analysis can report LOS that is better than what drivers actually experience on the road. Because the HCM methodology can be limited in its ability to assess corridors with significant congestion, such as westbound SR-91, the traffic microsimulation model was also used as a tool for assessing the corridor under future No Build and future Build conditions.

As demonstrated by the results of the microsimulation analysis, which is provided in Appendix C of the *Traffic Operations Analysis Report (2018)*, the proposed Build Alternative and design options would reduce congestion and improve local and system freeway operations. The improvements are expected to result in substantially improved operating conditions throughout the study corridor, including substantial reductions in vehicle delay, reductions in travel time, and increased operating speeds on all westbound SR-91 segments. Safety and high accident locations would also be improved via the reduction in congestion and the operational improvements in traffic flow and improvements to the geometric design features in the corridor.

The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations, which would occur based on the results of the microsimulation model analysis. The need for the project is due to the existing congestion on westbound SR-91 approaching the connector ramp for both northbound and southbound I-605 as a result of inadequate capacity of the existing two-lane connector for westbound SR-91 to northbound and southbound I-605 as well as the closely spaced freeway entrance and exit ramps, contributing to a high concentration of accidents. The Build Alternative would meet the purpose and need of the project because the proposed geometric design features are expected to result in improved operating conditions throughout the length of the project, with reductions in vehicle delay and travel time.

Safety would be improved as a result of increased weaving distances between interchanges as well as the improved operations.

### **Build Alternative**

#### *Mainline and Ramps*

##### *Opening Year 2024*

As identified in Table 2.5.6, all 14 of the westbound SR-91 mainline segments are projected to operate at LOS C or better during a.m. peak periods under the 2024 Build Alternative. All of the westbound SR-91 mainline segments are projected to operate at LOS D or better during p.m. peak periods under the 2024 Build Alternative. With the additional freeway mainline capacity proposed under the 2024 Build Alternative, traffic operations within the study area are proposed to improve at four freeway segments over the 2024 No Build Alternative.

As identified in Table 2.5.7, of the five existing ramps, three ramps under the 2024 Build Alternative during the a.m. and p.m. peak periods are projected to operate at the same LOS as compared to the 2024 No Build Alternative. Of the five existing ramps, two ramps under the 2024 Build Alternative during the a.m. and p.m. peak periods are projected to remain operating at LOS F. One ramp under the 2024 Build Alternative during the a.m. and p.m. peak periods is projected to operate at LOS D, as compared to LOS C under the 2024 No Build Alternative. One ramp under the 2024 Build Alternative during the a.m. peak period is projected to operate at LOS C as compared to LOS D under the 2024 No Build Alternative. As identified in Table 2.5.8, the generally consistent LOS on the existing ramps result in weaving segments and merge/diverge segments under the 2024 Build Alternative operating at similar LOS as under the 2024 No Build Alternative.

##### *Design Year 2044*

As identified in Table 2.5.10, all 14 of the westbound SR-91 freeway mainline segments are projected to operate at LOS D or better during the a.m. and p.m. peak periods under the 2044 Build Alternative. With the additional freeway mainline capacity proposed under the 2044 Build Alternative, traffic operations within the study area are proposed to improve at four freeway segments under the 2044 No Build Alternative.

As identified in Table 2.5.11, of the five existing ramps, three ramps under the 2044 Build Alternative during the a.m. and p.m. peak periods are projected to

operate at the same LOS as compared to the 2044 No Build Alternative. Of the five existing ramps, two ramps under the 2044 Build Alternative during the a.m. and p.m. peak periods are projected to remain operating at LOS F. One ramp under the 2044 Build Alternative during the a.m. and p.m. peak periods is projected to operate at LOS D, as compared to LOS C under the 2044 No Build Alternative. One ramp under the 2044 Build Alternative during the a.m. and p.m. peak periods is projected to operate at LOS C, as compared to LOS D under the 2044 No Build Alternative. As identified in Table 2.5.12, the generally consistent LOS on the existing ramps results in weaving segments and merge/diverge segments under the 2044 Build Alternative condition operating at similar LOS as under the 2044 No Build Alternative.

### *Intersections*

#### *Opening Year 2024*

As shown in Table 2.5.9, under the 2024 Build Alternative, zero study area intersections are projected to operate at LOS E or F in the a.m. or p.m. peak period. Compared to the 2024 No Build Alternative, none of the intersections would experience an improvement in LOS in one or both peak periods under the 2024 Build Alternative; however, one intersection was identified where a minor degradation in LOS would be experienced. At the intersection of the Studebaker Road/westbound SR-91 off-ramp, the LOS in the a.m. peak period would degrade to LOS C from LOS B, and in the p.m. peak period would degrade to LOS B from LOS A under the 2024 Build Alternative condition. However, this intersection would not reach LOS E or F and, therefore, would not be considered impacted.

#### *Design Year 2044*

As shown in Table 2.5.13, under the 2044 Build Alternative, a total of two study area intersections are projected to operate at LOS E or F in one peak period. Compared to the 2044 No Build Alternative, none of the intersections would experience an improvement in LOS in one or both peak periods under the 2044 Build Alternative; however, one intersection was identified where a minor degradation in LOS would be experienced. At the intersection of the Studebaker Road/westbound SR-91 off-ramp, the LOS in the a.m. peak period would degrade to LOS C from LOS B and in the p.m. peak period would degrade to LOS B from LOS A under the 2044 Build Alternative. However, this intersection would not reach LOS E or F and therefore would not be considered impacted.



### ***Bicycle and Pedestrian Facilities***

New construction will be ADA compliant, per Caltrans standards. This includes curb ramps that will be replaced as part of the project. The Build Alternative will replace existing bicycle and pedestrian facilities and construct new bicycle and pedestrian facilities at the locations described below.

The following sidewalks are proposed where sidewalks do not currently exist:

- 1,293 ft along westbound Gridley Road between Aclare Street and Park Avenue
- 1,643 ft along westbound Bloomfield Avenue between the SR-91 eastbound off-ramp and 250 ft north of Lucas Street

The following bicycle facilities are proposed where bicycle facilities do not currently exist:

- 210 ft long bike lane in the northbound direction at the intersection of Pioneer Boulevard and the westbound SR-91 off-ramp
- 128 ft long bike lane in the northbound direction at the intersection of Norwalk Boulevard and the westbound SR-91 off-ramp
- 110 ft long bike lane in the southbound direction at the intersection of Bloomfield Avenue and the westbound SR-91 on-ramp/Lucas Street
- 100 ft long bike lane in the northbound direction at the intersection of Bloomfield Avenue and the westbound SR-91 on-ramp/Lucas Street

### ***No Build Alternative***

#### ***Mainline and Ramps***

The freeway mainline segments are projected to operate at LOS D or better under the 2024 No Build Alternative based on the HCM results. Specific data for the 2024 No Build Alternative are provided in Table 2.5.6. Of the five weaving segments analyzed, two segments in the a.m. and p.m. peak periods are projected to operate at LOS F, as shown in Table 2.5.7. All five merge/diverge areas in the a.m. and p.m. peak periods would operate at LOS D or better under the 2024 No Build Alternative, as shown in Table 2.5.8.

The freeway mainline segments are projected to operate at LOS D or better under the 2044 No Build Alternative. Specific data for the 2044 No Build Alternative are provided in Table 2.5.10. Of the five weaving segments analyzed, two segments in the a.m. and p.m. peak periods are projected to operate at LOS F, as shown in Table

2.5.11. All five merge/diverge areas in the a.m. and p.m. peak periods would operate at LOS D or better under the 2024 No Build Alternative, as shown in Table 2.5.12.

### *Intersections*

As shown in Table 2.5.9, under the 2024 No Build Alternative, zero study area intersections are projected to operate at LOS F.

As shown in Table 2.5.13, under the 2044 No Build Alternative, zero study area intersections are projected to operate at LOS F.

### *Bicycle and Pedestrian Facilities*

None of the improvements proposed under the Build Alternative would be constructed under the No Build Alternative; therefore, no permanent impacts related to pedestrian or bicycle facilities would occur.

## **2.5.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features outlined above in Section 2.5.3, no adverse impacts to transportation would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

**Table 2.5.1 Year 2016 Existing Conditions Freeway Mainline Level of Service Analysis – HCM Method**

| Segment Location   | AM Peak Hour       |     | PM Peak Hour       |     |
|--|--------------------|-----|--------------------|-----|
|  | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| <b>Westbound SR-91</b>   |                    |     |                    |     |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | 23.8               | C   | 25.1               | C   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | 22.9               | C   | 24.4               | C   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | 25.3               | C   | 27.5               | D   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | 25.6               | C   | 27.9               | D   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | 27.2               | D   | 29.3               | D   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | 27.6               | D   | 30.0               | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | 28.6               | D   | 31.8               | D   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | 22.0               | C   | 26.4               | D   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | 19.6               | C   | 25.0               | C   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | 18.8               | C   | 25.4               | C   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605

NB = northbound

SR-91 = State Route 91

HCM = Highway Capacity Manual

pc/mi/ln = passengers car per mile per lane

WB = westbound

LOS = level of service

SB = southbound

**Table 2.5.2 Year 2016 Existing Conditions Freeway Weaving Analysis**

| Segment Location   | AM Peak Hour       |     | PM Peak Hour       |     |
|--|--------------------|-----|--------------------|-----|
|  | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| <b>Westbound SR-91</b>   |                    |     |                    |     |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | 26.7               | C   | 27.7               | C   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | 27.7               | C   | 30.1               | D   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | 28.8               | D   | 32.0               | D   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | –                  | F   | –                  | F   |
| <b>Northbound I-605</b>  |                    |     |                    |     |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | –                  | F   | –                  | F   |

Source: Intueor Consulting, Inc. (2017).

Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).

I-605 = Interstate 605

pc/mi/ln = passenger cars per mile per lane

WB = westbound

LOS = level of service

SB = southbound

NB = northbound

SR-91 = State Route 91

**Table 2.5.3 Year 2016 Existing Conditions Freeway Merge and Diverge Analysis**

| Junction                       | Merge/Diverge | AM Peak Hour       |     | PM Peak Hour       |     |
|--------------------------------|---------------|--------------------|-----|--------------------|-----|
|                                |               | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| <b>Westbound SR-91</b>         |               |                    |     |                    |     |
| Artesia Boulevard On-Ramp      | Merge         | 21.8               | C   | 24.4               | C   |
| Norwalk Boulevard Loop On-Ramp | Merge         | 22.1               | C   | 23.2               | C   |
| Pioneer Boulevard Loop On-Ramp | Merge         | 22.3               | C   | 24.7               | C   |
| Studebaker Road Off-Ramp       | Diverge       | 25.6               | C   | 29.0               | D   |
| I-605 NB On-Ramp               | Merge         | 20.3               | C   | 29.4               | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605

NB = northbound

SR-91 = State Route 91

LOS = level of service

pc/mi/ln = passenger cars per mile per lane

**Table 2.5.4 Year 2016 Existing Conditions Freeway Mainline Level of Service Analysis – Speed Method**

| Segment Location   | AM Peak Hour        |          | PM Peak Hour        |          |
|--|---------------------|----------|---------------------|----------|
|  | Average Speed (mph) | LOS      | Average Speed (mph) | LOS      |
| <b>Westbound SR-91</b>   |                     |          |                     |          |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | 40.0                | D        | 30.0                | <b>E</b> |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp                 | 29.0                | <b>F</b> | 27.0                | <b>F</b> |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | 25.0                | <b>F</b> | 22.0                | <b>F</b> |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | 22.0                | <b>F</b> | 21.0                | <b>F</b> |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp            | 20.0                | <b>F</b> | 22.0                | <b>F</b> |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | 28.0                | <b>F</b> | 32.0                | <b>E</b> |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp     | 39.0                | D        | 41.0                | D        |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | 33.0                | <b>E</b> | 37.0                | D        |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | 37.0                | D        | 46.0                | C        |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)       | 44.0                | D        | 47.0                | C        |
| <b>Northbound I-605</b>  |                     |          |                     |          |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                     | 32.0                | <b>E</b> | 40.0                | D        |

Source: Cambridge Systematics, Inc. (2017).

Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).

I-605 = Interstate 605

LOS = level of service

mph = miles per hour

NB = northbound

SB = southbound

SR-91 = State Route 91

WB = westbound

**Table 2.5.5 Year 2016 Existing Conditions Intersection Level of Service Analysis**

| Intersection                        | AM Peak Hour    |     | PM Peak Hour    |     |
|-------------------------------------|-----------------|-----|-----------------|-----|
|                                     | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| <b>Westbound SR-91</b>              |                 |     |                 |     |
| WB SR-91 Off-Ramp/Artesia Boulevard | 22.5            | C   | 19.0            | B   |
| Bloomfield Avenue/WB SR-91 On-Ramp  | 10.5            | B   | 8.4             | A   |
| Norwalk Boulevard/WB SR-91 Off-Ramp | 9.9             | A   | 6.9             | A   |
| Pioneer Boulevard/WB SR-91 Off-Ramp | 7.2             | A   | 6.4             | A   |
| Studebaker Road/WB SR-91 Off-Ramp   | 16.5            | B   | 8.3             | A   |
| <b>Northbound I-605</b>             |                 |     |                 |     |
| NB I-605 Off-Ramp/Alondra Boulevard | 25.1            | C   | 38.9            | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605

LOS = level of service

NB = northbound

sec/veh = seconds per vehicle

SR-91 = State Route 91

WB = westbound

**Table 2.5.6 Freeway Mainline Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| Westbound SR-91  |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | D                        | D             | -          | -                                | -                                   | -   | D                        | D             | -          | -                                | -                                   | -   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Direct On-Ramp     | -                        | -             | -          | -                                | -                                   | -   | -                        | -             | -          | C                                | -                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | D                        | D             | C          | C                                | C                                   | C   | D                        | D             | D          | -                                | D                                   | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | D                        | D             | -          | -                                | C                                   | -   | D                        | D             | -          | -                                | D                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Direct On-Ramp     | -                        | -             | -          | -                                | -                                   | -   | -                        | -             | -          | D                                | -                                   | -   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to Lane Drop                              | -                        | -             | B          | B                                | B                                   | B   | -                        | -             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | -                                   | -   |
| Lane Drop to I-605 NB On-Ramp                                      | -                        | -             | C          | C                                | C                                   | C   | -                        | -             | D          | D                                | D                                   | D   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).  
 I-605 = Interstate 605 LOS = level of service NB = northbound SB = southbound SR-91 = State Route 91 WB = westbound

**Table 2.5.7 Freeway Weaving Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| Westbound SR-91  |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | C                        | C             | D          | D                                | D                                   | D   | C                        | C             | D          | D                                | D                                   | D   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | D                        | D             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | D                        | D             | D          | D                                | D                                   | D   | D                        | D             | D          | D                                | D                                   | D   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |
| Northbound I-605   |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |

Source: Intueor Consulting, Inc. (2017).  
 Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).  
 I-605 = Interstate 605 LOS = level of service NB = northbound SB = southbound SR-91 = State Route 91 WB = westbound

**Table 2.5.8 Freeway Merge and Diverge Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Junction                       | Merge/Diverge | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--------------------------------|---------------|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|                                |               | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| Westbound SR-91                |               |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Artesia Boulevard On-Ramp      | Merge         | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | -                                   | -   |
| Pioneer Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | C                                   | -   |
| Studebaker Road Off-Ramp       | Diverge       | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| I-605 NB On-Ramp               | Merge         | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).  
 I-605 = Interstate 605 LOS = level of service NB = northbound SR-91 = State Route 91

**Table 2.5.9 Intersection Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Junction                               | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| Westbound SR-91                        |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| WB SR-91 Off-Ramp/Artesia Boulevard    | C                        | B             | B          | B                                | B                                   | B   | B                        | B             | B          | B                                | B                                   | B   |
| Bloomfield Avenue/WB SR-91 On-Ramp     | B                        | B             | B          | B                                | B                                   | B   | B                        | B             | B          | B                                | B                                   | B   |
| Norwalk Boulevard/WB SR-91 Off-Ramp    | A                        | A             | –          | –                                | –                                   | –   | A                        | A             | –          | –                                | –                                   | –   |
| Norwalk Boulevard/WB SR-91 On-Off Ramp | –                        | –             | C          | A                                | C                                   | C   | –                        | –             | B          | A                                | B                                   | B   |
| Pioneer Boulevard/WB SR-91 Off-Ramp    | A                        | A             | –          | –                                | –                                   | –   | A                        | A             | –          | –                                | –                                   | –   |
| Pioneer Boulevard/WB SR-91 On-Off Ramp | –                        | –             | C          | B                                | B                                   | C   | –                        | –             | C          | A                                | B                                   | C   |
| Studebaker Road/WB SR-91 Off-Ramp      | B                        | B             | C          | C                                | C                                   | C   | A                        | A             | B          | B                                | B                                   | B   |
| Northbound I-605                       |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| NB I-605 Off-Ramp/Alondra Boulevard    | C                        | C             | C          | C                                | C                                   | C   | D                        | C             | C          | C                                | C                                   | C   |

Source: Intueor Consulting, Inc. (2017).  
 I-605 = Interstate 605  
 LOS = level of service  
 NB = northbound  
 SR-91 = State Route 91  
 WB = westbound

**Table 2.5.10 Freeway Mainline Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2044 Pioneer Blvd L-9 Design Option | 2044 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2044 No-Build | 2044 Build | 2044 Diamond Ramps Design Option | 2044 Pioneer Blvd L-9 Design Option | 2044 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| Westbound SR-91  |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | C                        | D             | C          | –                                | –                                   | C   | D                        | D             | D          | –                                | D                                   | D   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | D                        | D             | –          | –                                | –                                   | –   | D                        | D             | –          | –                                | –                                   | –   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Direct On-Ramp     | –                        | –             | –          | C                                | –                                   | –   | –                        | –             | –          | D                                | –                                   | –   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | D                        | D             | C          | –                                | C                                   | C   | D                        | D             | –          | –                                | D                                   | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | D                        | D             | –          | –                                | D                                   | –   | D                        | D             | –          | –                                | D                                   | –   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Direct On-Ramp     | –                        | –             | –          | C                                | –                                   | –   | –                        | –             | –          | D                                | –                                   | –   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to Lane Drop                              | –                        | –             | C          | C                                | C                                   | C   | –                        | –             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | C                        | C             | –          | –                                | –                                   | –   | C                        | C             | –          | –                                | –                                   | –   |
| Lane Drop to I-605 NB On-Ramp                                      | –                        | –             | C          | C                                | C                                   | C   | –                        | –             | D          | D                                | D                                   | D   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).  
 I-605 = Interstate 605  
 LOS = level of service  
 NB = northbound  
 SB = southbound  
 SR-91 = State Route 91  
 WB = westbound

**Table 2.5.11 Freeway Weaving Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |  | PM Peak-Hour LOS         |               |            |                                  |                                     |  |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option |
| <b>Westbound SR-91</b>   |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | C                        | C             | D          | D                                | D                                   | D  | C                        | D             | D          | D                                | D                                   | D  |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | C                        | D             | C          | C                                | C                                   | C  | D                        | D             | D          | D                                | D                                   | D  |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | D                        | D             | D          | D                                | D                                   | D  | D                        | D             | D          | D                                | D                                   | D  |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | F                        | F             | F          | F                                | F                                   | F  | F                        | F             | F          | F                                | F                                   | F  |
| <b>Northbound I-605</b>  |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | F                        | F             | F          | F                                | F                                   | F  | F                        | F             | F          | F                                | F                                   | F  |

Source: Intueor Consulting, Inc. (2017).

Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).

I-605 = Interstate 605 SB = southbound  
 LOS = level of service SR-91 = State Route 91  
 NB = northbound WB = westbound

**Table 2.5.12 Freeway Merge and Diverge Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Junction                       | Merge/Diverge | AM Peak-Hour LOS         |               |            |                                  |                                     |  | PM Peak-Hour LOS         |               |            |                                  |                                     |  |
|--------------------------------|---------------|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|
|                                |               | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option |
| <b>Westbound SR-91</b>         |               |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| Artesia Boulevard On-Ramp      | Merge         | C                        | C             | C          | C                                | C                                   | C  | C                        | C             | D          | D                                | D                                   | D  |
| Norwalk Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | -                                   | -  | C                        | C             | -          | -                                | -                                   | -  |
| Pioneer Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | C                                   | -  | C                        | C             | -          | -                                | C                                   | -  |
| Studebaker Road Off-Ramp       | Diverge       | C                        | C             | C          | C                                | C                                   | C  | D                        | D             | C          | C                                | C                                   | C  |
| I-605 NB On-Ramp               | Merge         | C                        | C             | C          | C                                | C                                   | C  | D                        | D             | D          | D                                | D                                   | D  |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605 NB = northbound  
 LOS = level of service SR-91 = State Route 91

**Table 2.5.13 Intersection Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Junction                               | AM Peak-Hour LOS         |               |            |                                  |                                     |  | PM Peak-Hour LOS         |               |            |                                  |                                     |  |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option |
| <b>Westbound SR-91</b>                 |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| WB SR-91 Off-Ramp/Artesia Boulevard    | C                        | B             | B          | B                                | B                                   | B  | B                        | B             | B          | B                                | B                                   | B  |
| Bloomfield Avenue/WB SR-91 On-Ramp     | B                        | B             | B          | B                                | B                                   | B  | B                        | B             | B          | B                                | B                                   | B  |
| Norwalk Boulevard/WB SR-91 Off-Ramp    | A                        | A             | -          | -                                | -                                   | -  | A                        | A             | -          | -                                | -                                   | -  |
| Norwalk Boulevard/WB SR-91 On-Off Ramp | -                        | -             | C          | B                                | C                                   | C  | -                        | -             | B          | A                                | B                                   | B  |
| Pioneer Boulevard/WB SR-91 Off-Ramp    | A                        | A             | -          | -                                | -                                   | -  | A                        | A             | -          | -                                | -                                   | -  |
| Pioneer Boulevard/WB SR-91 On-Off Ramp | -                        | -             | C          | B                                | B                                   | C  | -                        | -             | C          | B                                | B                                   | C  |
| Studebaker Road/WB SR-91 Off-Ramp      | B                        | B             | C          | C                                | C                                   | C  | A                        | A             | B          | B                                | B                                   | B  |
| <b>Northbound I-605</b>                |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| NB I-605 Off-Ramp/Alondra Boulevard    | C                        | C             | C          | C                                | C                                   | C  | D                        | C             | C          | C                                | C                                   | C  |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605 SR-91 = State Route 91  
 LOS = level of service WB = westbound  
 NB = northbound

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## 2.6 Visual/Aesthetics

### 2.6.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with ... enjoyment of *aesthetic*, natural, scenic and historic environmental qualities” (CA Public Resources Code [PRC] Section 21001[b]).

### 2.6.2 Affected Environment

The information in this section is based on the *Visual Impact Assessment* (VIA) (2018) and the General Plans of the Cities of Artesia and Cerritos. The VIA follows the recommended methodology in the publication *Visual Impact Assessment for Highway Projects* (FHWA 2015).

#### 2.6.2.1 Visual Setting

The proposed project is located on State Route 91 (SR-91) between Shoemaker Avenue and the Interstate 605 (I-605) interchange, and on northbound I-605 at the Alondra Boulevard off-ramp in the cities of Artesia and Cerritos, Los Angeles County, California. The project is located in the central portion of the Los Angeles Basin in Southern California, approximately 8.5 miles (mi) north of the Pacific Ocean. The landscape is characterized by developed land and an extensive transportation network. The land uses within the corridor are primarily urban residential and transportation uses, but also include areas of commercial and recreational uses.

The study area is on a lowland coastal plain which slopes gradually southward and westward toward the Pacific Ocean. It is a relatively flat alluvial plain with ground surface elevations along the corridor ranging from approximately 52 feet (ft) above mean sea level (amsl) near Shoemaker Avenue to approximately 70 ft amsl at the SR-91 and I-605 interchange. The study area is urban in character. There are no

distinct natural open spaces or natural features commonly found in designated scenic highways, such as undulating landforms or immediate open views of lakes, mountains, or preserved vegetation. As a result, existing views within and surrounding the study area are limited.

No scenic resources have been identified for this project, and no scenic corridors or designated scenic highways (specifically, SR-91) are located within the study area.

The City of Artesia General Plan (as amended in 2008) Circulation Element includes the following policies to enhance aesthetics and imagery of the city of Artesia's circulation network that are relevant to the proposed project:

**Community Policy CIR 2.1:** Provide landscaped medians and greenbelts along major arterials, highways, and freeways where economically feasible.

**Policy Action CIR 2.1.4:** Work with Caltrans to ensure that sound walls along State facilities are landscaped and maintained with plant materials.

**Policy Action CIR 2.1.5:** Maintain and replace street trees as needed to achieve their aesthetic purpose and avoid damage to streets and sidewalks.

The City of Cerritos General Plan's (2004) Land Use Element, Community Design Element, and Conservation Element include the following policies to protect visual resources that are relevant to the proposed project:

**Policy LU-16.1:** Work with Caltrans to provide and maintain an attractive freeway environment in Cerritos, including access ramps and freeway interchanges.

**Policy CD-1.1:** Develop a comprehensive gateway improvement program to select significant gateways along major arterials for improvements including monument-type "City of Cerritos" identification signs, special enhanced landscaping and paving, public art and unique private development standards.

**Policy CD-1.2:** Cooperate with Caltrans to improve freeway landscaping, especially at the on- and off-ramps and at the I-605/SR-91 interchange.

**Policy CON-6.1:** Enforce the City's Tree Preservation Ordinance in order to preserve the City's existing urban forest.

In addition to the policies listed above, the City of Cerritos has a tree protection ordinance as part of its municipal code. Sections 9.75.190 (City Tree Removal) and 9.75.200 (Protection of City Trees) of the Cerritos Municipal Code require all tree removal and tree protection activities to be conducted in compliance with City of Cerritos standards. Cerritos Municipal Code Sections 9.75.190 and 9.75.200 respectively prohibit the removal of City trees unless authorized by the City of Cerritos and require City tree removal activity to be conducted by City of Cerritos personnel. In addition, Cerritos Municipal Code Section 9.75.200 requires all City trees, shrubs, or plants in the construction vicinity to be properly handled and supported to prevent injury to the tree.

### **2.6.2.2 Visual Assessment Unit**

The project corridor can be treated as a single landscape unit due to the lack of off-site views (variation in land form and land cover) and homogenous nature character of the project area at the SR-91/I-605 interchange and as SR-91 traverses through the landscape. Although there are multiple land uses within the Visual Assessment Unit (VAU), all are within similar proximity to the project limits and have similar views to the project site. Figure 2.6-1 depicts the project limits of the Build Alternative and the associated key views used to assess potential visual impacts as a result of project implementation. The characteristics of the landscape unit identified are consistent throughout the project limits, comprised primarily of a built environment, such as commercial, industrial, residential, parks, and highway components. Though the built environment is complemented with other features, such as landscaping, to soften the appearance of structures, reduce scale, and provide needed visual diversity to all general viewer groups, there are no outstanding off-site features closely oriented to the project limits of the Build Alternative. The following single VAU has been identified.

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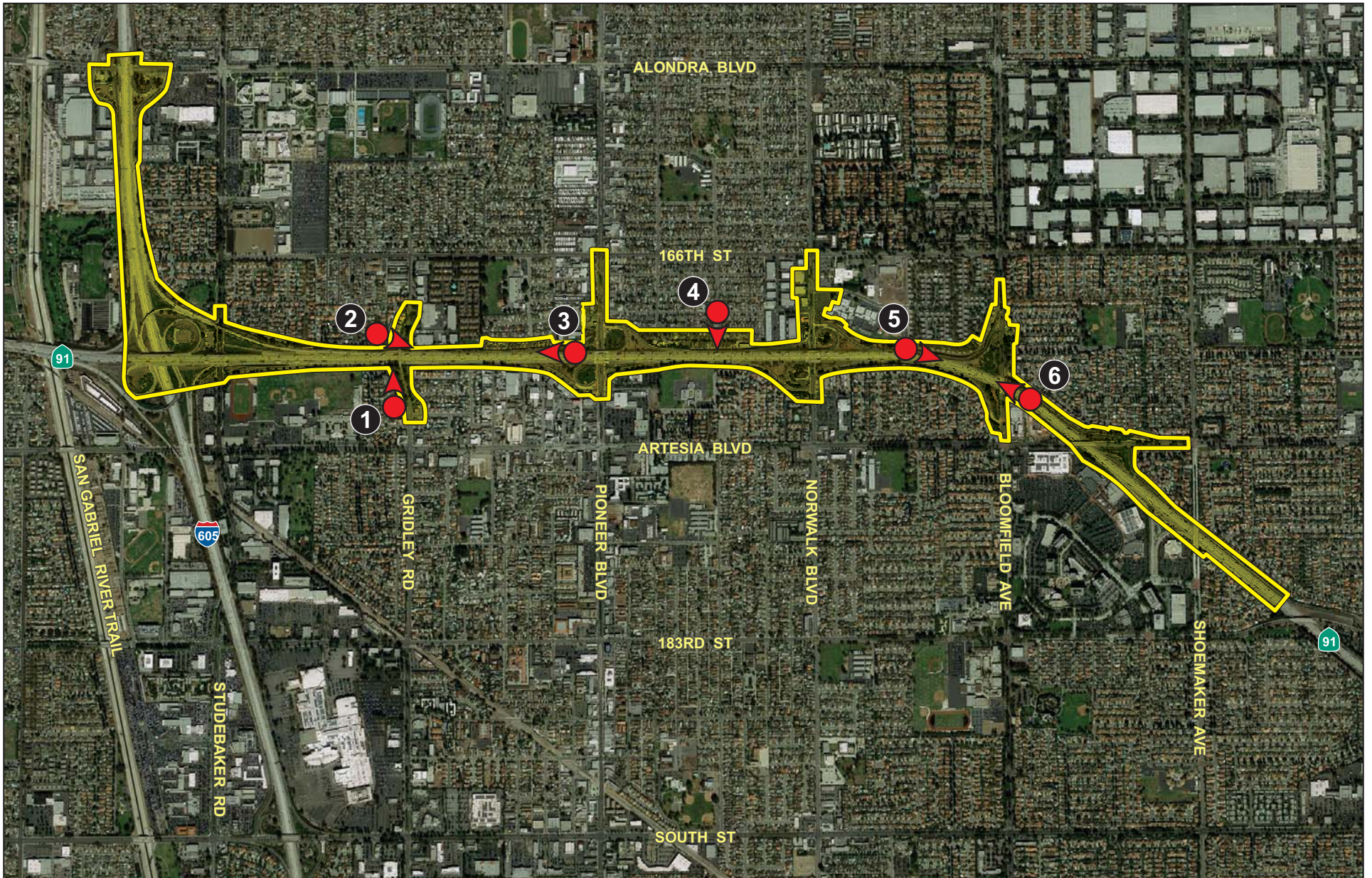


FIGURE 2.6-1



- Project Site
- Direction of Photo
- Key View Location
- 1 Key View Number



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### **Visual Assessment Unit 1**

Visual Assessment Unit 1 (VAU1) is located in the northern portion of the city of Artesia and in the eastern and western portions of the city of Cerritos. VAU1 is located within a highly developed area and is surrounded by residential, commercial, recreational, and institutional uses to the north; residential uses to the east; residential, commercial, institutional, light industrial, and transportation (I-605) uses to the south; and residential, commercial, recreational, and light industrial uses to the west of VAU1. The landscape in VAU1 is generally characterized by surrounding urban development, transportation uses, and other man-made features. Background views of the Angeles National Forest hillsides and ridgelines to the north are afforded throughout VAU1. The relatively flat topography of VAU1 provides for visually uniform views for viewers within the study area. Vegetation within VAU1 generally consists of ornamental landscaping, consisting primarily of hottentot-fig (*Carpobrotus edulis*), as well as mature pine (*Pinus* sp.) and eucalyptus (*Eucalyptus* sp.) trees.

#### **2.6.2.3 Key Views**

Because it is not feasible to analyze all the views in which the Build Alternative would be seen, it is necessary to select a number of key views associated with VAU1 that would most clearly demonstrate the change in the project's visual resources. Key views also represent the viewer groups that have the highest potential to be affected by the Build Alternative, considering visual exposure and visual sensitivity.

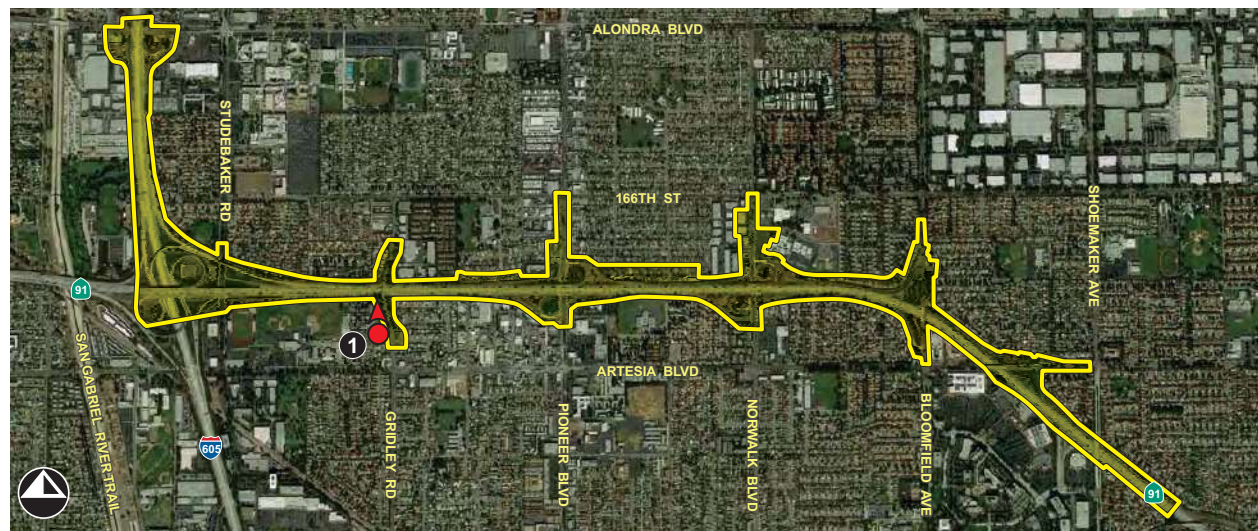
The location and direction of each key view is shown on Figure 2.6-1. Descriptions of the existing key views with further details are provided below and on Figures 2.6-2 through 2.6-7.

#### **Key View 1**

Key View 1 is located in the western portion of VAU1 on the south side of SR-91 at Ecology Park in the city of Cerritos. Key View 1 represents a typical northern view as viewed by Ecology Park visitors. Key View 1 provides a view of the Gridley Road/SR-91 overcrossing structure.

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- ▲ Direction of Photo
- Key View Location
- 1 Key View Number

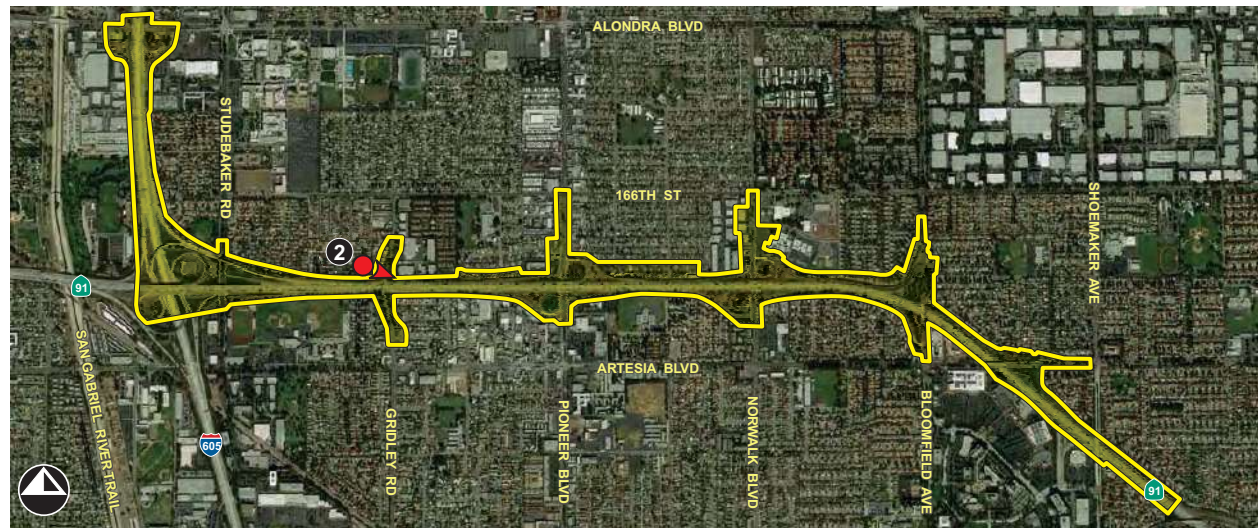
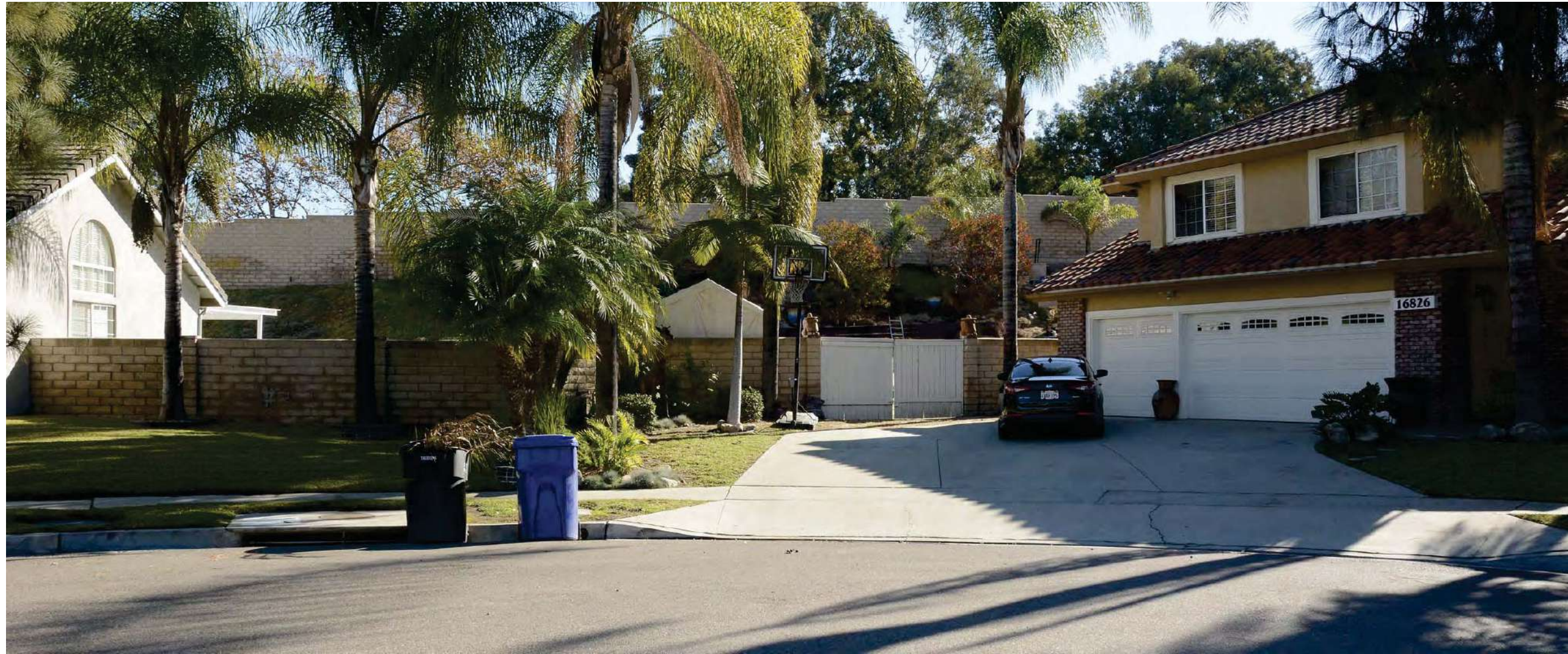
FIGURE 2.6-2

Westbound SR-91 Improvement Project  
Key View 1 - Existing Condition



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-  Direction of Photo
-  Key View Location
-  Key View Number

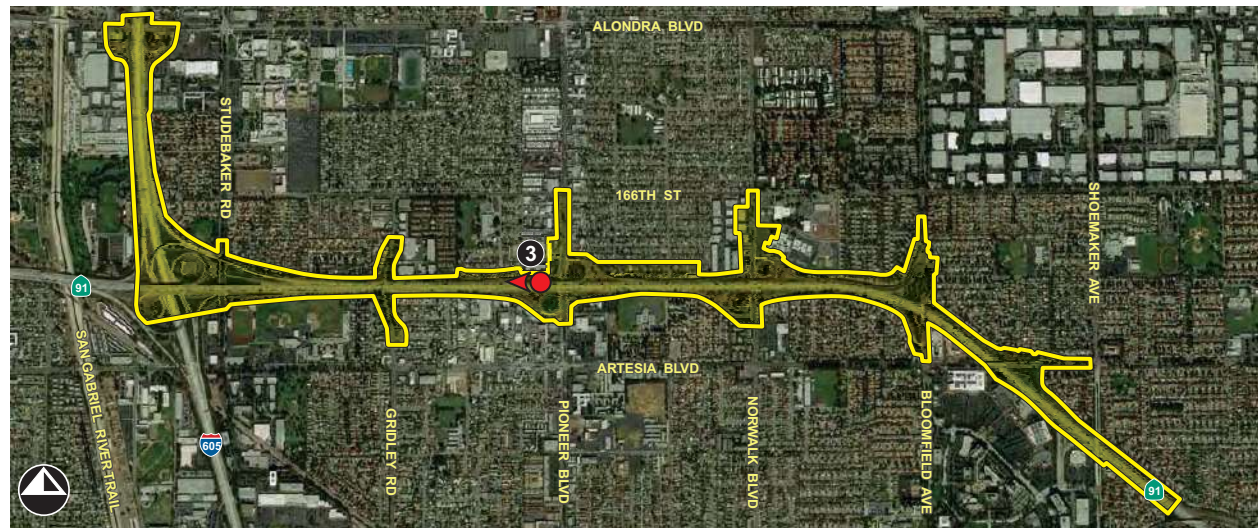
FIGURE 2.6-3

Westbound SR-91 Improvement Project  
Key View 2 - Existing Condition



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- ▲ Direction of Photo
- Key View Location
- 1** Key View Number

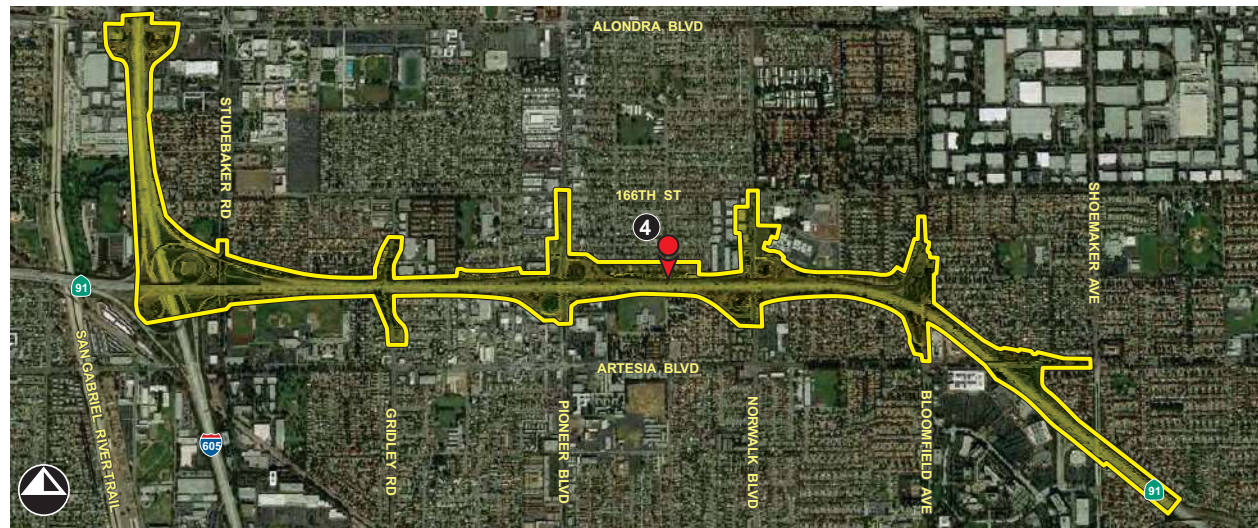
FIGURE 2.6-4

Westbound SR-91 Improvement Project  
Key View 3 - Existing Condition



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- ▲ Direction of Photo
- Key View Location
- ① Key View Number

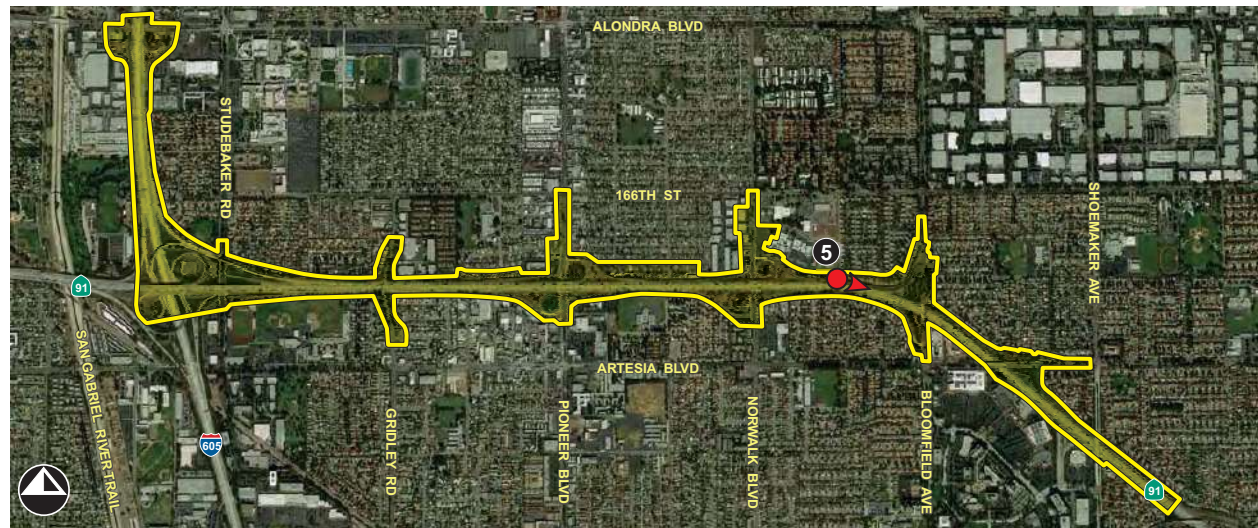
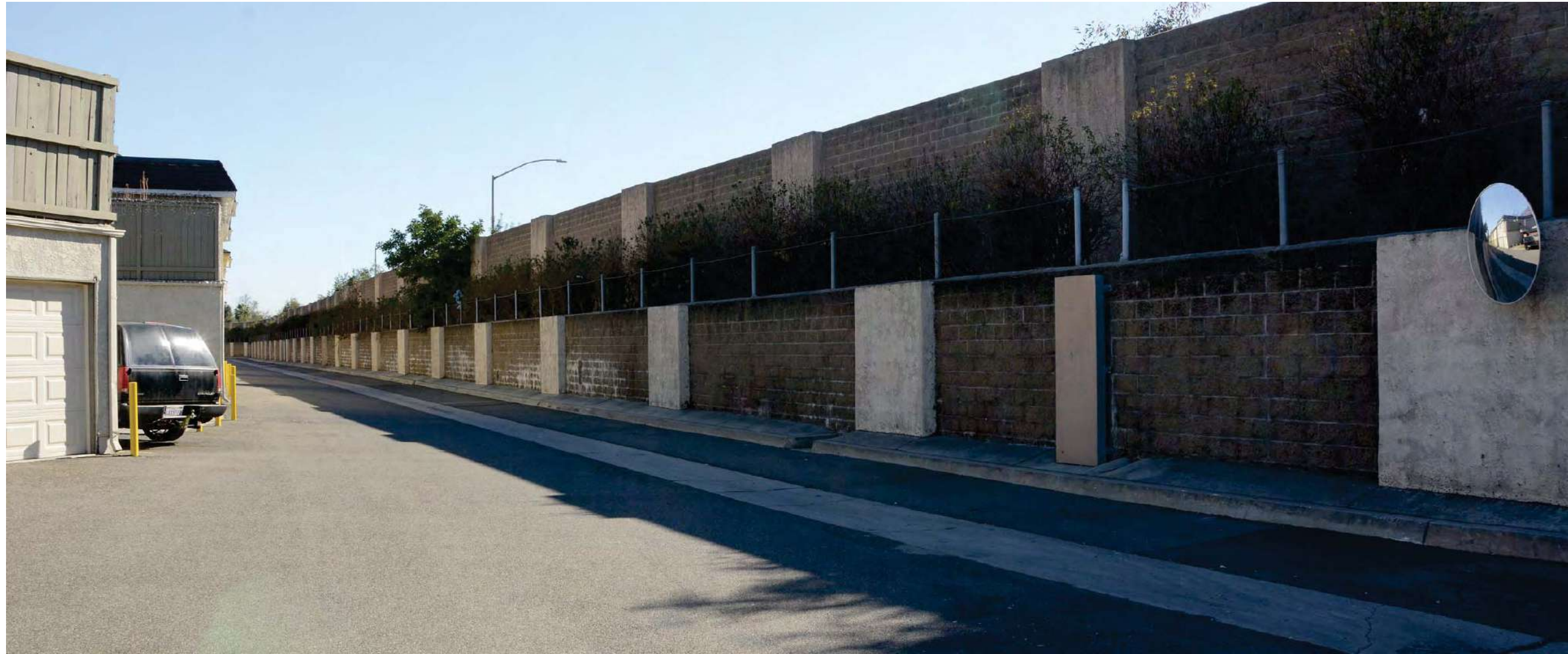
FIGURE 2.6-5

Westbound SR-91 Improvement Project  
Key View 4 - Existing Condition



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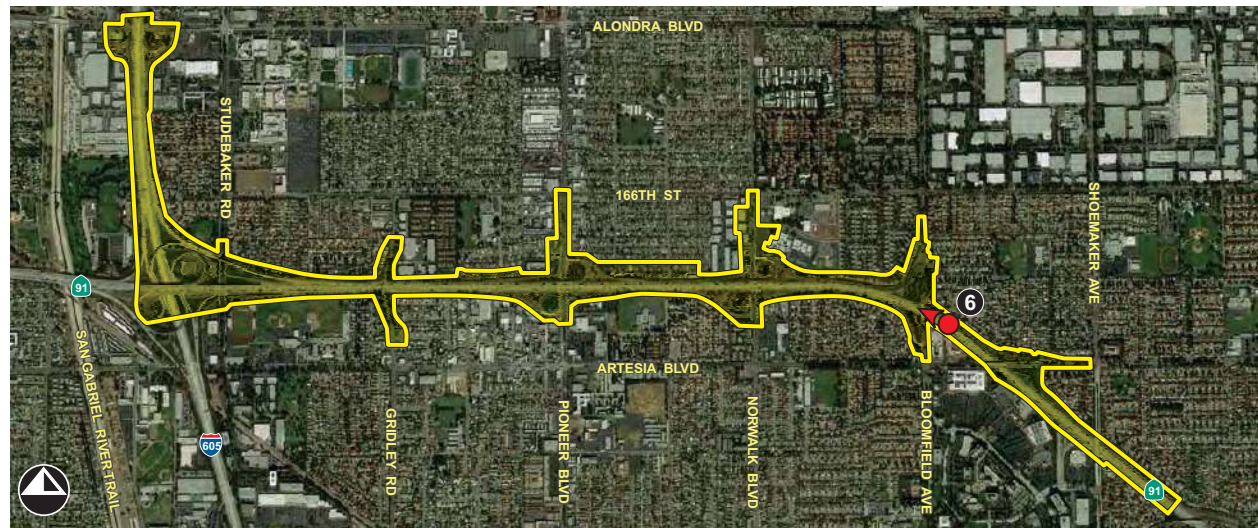
-  Direction of Photo
-  Key View Location
-  Key View Number

FIGURE 2.6-6

Westbound SR-91 Improvement Project  
Key View 5 - Existing Condition

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- ▲ Direction of Photo
- Key View Location
- 1 Key View Number

FIGURE 2.6-7

Westbound SR-91 Improvement Project  
Key View 6 - Existing Condition



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### **Key View 2**

Key View 2 is located in the western portion of VAU1 on the north side of SR-91 along Sunny Ridge Court in the city of Cerritos. Key View 2 represents a typical eastern view from residential uses along Sunny Ridge Court. Key View 2 provides a view of the Gridley Road/SR-91 overcrossing structure as seen from residential uses along Sunny Ridge Court.

### **Key View 3**

Key View 3 is located in the central portion of VAU1 along the westbound lanes of SR-91 in the city of Artesia. Key View 3 represents a typical view from westbound SR-91 motorists.

### **Key View 4**

Key View 4 is located in the central portion of VAU1 on the north side of SR-91 along Elaine Avenue in the city of Artesia. Key View 4 represents a typical southern view from residential uses, motorists, bicyclists, and pedestrians along Elaine Avenue.

### **Key View 5**

Key View 5 is located in the eastern portion of VAU1 near the southern boundary of the Cerritos Villas residential community in the city of Cerritos. Key View 5 represents an eastern view from residential uses bordering SR-91 at the Cerritos Villas residential community.

### **Key View 6**

Key View 6 is located in the eastern portion of VAU1 along the westbound lanes of SR-91 in the city of Cerritos, just east of the Bloomfield Avenue/SR-91 overcrossing structure. Key View 6 represents a typical view from westbound SR-91 motorists. Key View 6 provides a view of the Bloomfield Avenue/SR-91 overcrossing structure.

#### **2.6.2.4 Visual Character**

Visual character includes attributes such as form, line, color, texture, and is used to describe, not evaluate a key view; that is, these attributes are considered neither positive nor negative. However, a change in visual character can be evaluated in the context of the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as indicators. For this project, the following attributes were considered:

- **Form:** Visual mass or shape
- **Line:** Edges or linear definition
- **Color:** Reflective brightness (light, dark) and hue (red, green)
- **Texture:** Surface coarseness
- **Dominance:** Position, size, or contrast
- **Scale:** Apparent size as it relates to the surroundings
- **Diversity:** A variety of visual patterns
- **Continuity:** Uninterrupted flow of form, line, color, or textural pattern

The surrounding uses include residential, commercial, recreational, institutional, and light industrial. On-site uses consist of freeway (SR-91 and I-605), local roadway crossings (Gridley Road, Pioneer Boulevard, Norwalk Boulevard, and Bloomfield Avenue), and residential and commercial areas. Existing visual resources visible within the project viewshed include the hillsides and ridgelines of the Angeles National Forest to the north of the study area. Overall, the distant views toward these hills and ridgelines provide some visual diversity in form, line, and color compared to the flat topography within VAU1. Vegetation within the area generally consists of ornamental landscaping, consisting primarily of hottentot-fig (*Carpobrotus edulis*), mature pine (*Pinus* sp.), and eucalyptus (*Eucalyptus* sp.) trees. These various vegetation types generally vary in color (brown, green, and pink) and height (from grasses/shrubs to tall standing trees).

Visual mass is dominated by buildings, bridges, walls, other freeway components, and landscaping, which all contribute to the uniformity of VAU1's visual character. The existing alignment of SR-91 is very linear from a bird's eye view and the same is true from a motorist's perspective. The only occurrence in which SR-91 may slightly deviate from this linearity is at the ramps and connectors. The walls, buildings, and other freeway components that protrude perpendicularly from the ground are also linear and angular and bound the edges of the freeway.

Since VAU1 is situated in an urbanized environment, viewer groups are exposed to artificial light at night. During the day, motorists are exposed to glare from reflective surfaces, such as windows and metallic details on cars travelling on the roadway.

The existing textural pattern of VAU1 has typical characteristics of an urban environment. Concrete and vegetation are the primary visual surface treatments used throughout VAU1.

### **2.6.2.5 Visual Quality**

Visual quality is evaluated by identifying the vividness, intactness, and unity present within VAU1. Public attitudes validate the assessed level of quality and predict how changes within VAU1 can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the Build Alternative. The three criteria for evaluating visual quality are defined below:

- Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- Intactness is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- Unity is the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

Due to the developed nature and relatively flat topography of VAU1, the vividness in VAU1 is low. The only visual resource within VAU1 is the Angeles National Forest, approximately 25 mi to the north. However, due to the developed nature of the study area and visual obstructions (noise barriers, freeway signage, power lines, etc.), the intactness of northerly views to the Angeles National Forest is low. VAU1 is fairly unified, as a combination of low-lying development (one to two stories in height) and the horizontal alignment of the freeway creates a sense of linear form. The existing visual quality of VAU1 can be considered as low.

### **2.6.2.6 Viewer Groups**

The population affected by the Build Alternative is composed of viewers. Viewers are people whose views of the landscape may be altered by the Build Alternative—either because the landscape itself has changed or their perception of the landscape has changed.

There are two major types of viewer groups for highway projects: highway neighbors (views to the project area) and highway users (views from the project area). Highway neighbors are people who have daily or routine views of the road. For this project, the following highway neighbors were considered:

- Residential neighbors
- Commercial and light industrial neighbors
- Recreational neighbors
- Institutional neighbors



Highway users are people who have daily or routine views from the road. For this project, the following highway users were considered:

- Freeway motorist users
- Local roadway users

### 2.6.2.7 Viewer Response

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment. Each viewer group has its own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group, which, in turn, help to predict the group's responses to visual changes.

#### **Viewer Exposure**

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Location relates to the position of the viewer in relationship to the object being viewed. The nearer viewers are to the object, the greater the exposure. Quantity refers to how many people see the object. The more people who can see an object or the greater frequency at which an object is seen, the greater its exposure to viewers. Duration refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the greater the exposure. High viewer exposure helps predict viewers that could have a response to a visual change.

- **Residential Viewers:** Several residential uses to the north and south of SR-91 in the study area have direct views of the project limits. These residents would have direct, long-duration views to project changes and would likely have a high concern for the Build Alternative and its effect on views from their homes and neighborhood.
- **Commercial and Light Industrial Viewers:** Views of the project limits are afforded from light industrial uses located to the northeast of the Gridley Road overcrossing structure of SR-91 and northwest of the SR-91/Norwalk Boulevard interchange; commercial uses are positioned to the northwest of the SR-91/Pioneer Boulevard interchange, northwest of the SR-91/Norwalk Boulevard interchange, and at the intersection of Bloomfield Avenue and Artesia Boulevard. These uses attract hundreds of visitors daily. Viewers include employees and customers walking to and from the parking lot to the commercial and light industrial buildings. These users would have direct views of the project limits. However, the duration of views from these users are considered to be short, as

commercial and light industrial patrons are not typically visually engaged in their surroundings. These users are usually more focused on getting to and from their destination.

- **Recreational Viewers:** Ecology Park, Reservoir Hill Park, and A.J. Padelford Park adjoin SR-91 to the south, north, and north, respectively. These parks serve the local communities (the cities of Cerritos and Artesia), and contain areas for barbecuing, picnic tables, children’s playgrounds, basketball courts, and bathrooms. Visitors at these recreational park facilities would have direct views of the project limits. The duration of views from recreational park visitors would be short to moderate.
- **Institutional Viewers:** Gahr High School is located to the south of SR-91 (between Studebaker Road and Gridley Road), and Tracy High School is located to the northeast of the SR-91/Norwalk Boulevard interchange. Employees and students at Gahr High School and Tracy High School would have recurrent views of the project limits, as these viewers visit their respective schools on a daily basis (typically Monday through Friday). Although most of their time is spent inside, employees and students at Gahr High School and Tracy High School have recurring, long-duration views of the project limits.
- **Freeway Motorist Viewers:** As noted above, SR-91 provides commuters, haulers, and local residents several connections to the Greater Los Angeles metropolitan area. This viewer group is composed of a large quantity of viewers, as existing average daily traffic (ADT) volumes along SR-91 in the study area range between approximately 255,000 and 288,000 vehicles.<sup>1</sup> Daily commuters may have an increased awareness of views from the road due to the amount of time spent on the freeway (near the project area) each day. Drivers traveling in congested traffic conditions would likely perceive detailed views of the project elements for longer durations of time. Drivers traveling at normal freeway speeds usually focus attention on long-range non-peripheral views and would have short durations of views to project elements.
- **Local Roadway Viewers:** Local roadways in the study area with views of the project limits include Studebaker Road, Gridley Road, Pioneer Boulevard, Elaine Avenue, Norwalk Boulevard, Bloomfield Avenue, and Artesia Boulevard. These roadways provide direct views of the project limits from motorists, bicyclists, and pedestrians. This viewer group is composed of a low-to-medium quantity of

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<sup>1</sup> California Department of Transportation (Caltrans). Traffic Counts. Website: <http://traffic-counts.dot.ca.gov/> (accessed January 4, 2018).

viewers, as ADT volumes range from a low of 7,900 along Gridley Road to 53,000 along Bloomfield Avenue (in the study area).<sup>1,2</sup> Drivers traveling along these roadways would likely have detailed views of the project elements for short durations of time. As such, local roadway travelers would have an increased awareness of views to the project changes.

### **Viewer Sensitivity**

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. Activity relates to the preoccupation of viewers—whether they are preoccupied, thinking of something else, or truly engaged in observing their surroundings. The more viewers actually observe their surroundings, the more sensitivity they will have for changes to those visual resources. Awareness relates to the focus of the view—whether the focus is wide and the view general or whether the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes can also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by a local, State, or national designation, it is likely that viewers will be more sensitive to visible changes to that resource. High viewer sensitivity helps predict viewers that could have a high concern for any visual change.

- **Residential Viewers:** Residential viewers are usually attentive of their surrounding visual environment. Residential viewers along Baber Avenue, Sunny Ridge Court, Elaine Avenue, 169th Street, Palm Street, Sierra Vista Way, as well as those to the southeast of the SR-91/Bloomfield Avenue interchange and to the north and south of Artesia Boulevard, are considered to be highly aware of change due to their awareness and local values. In general, the awareness of residential viewers in the study area is characterized by a narrow focus of their immediate surroundings in the project area. However, more wide-ranging views with a broad focus of the surrounding area are afforded at the upper levels of the residential uses located to the southeast of the SR-91/Bloomfield Avenue interchange. Based on the City of Artesia General Plan and City of Cerritos General Plan, community residents are concerned with the visual character and quality of their

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<sup>1</sup> City of Cerritos. 2004. *City of Cerritos General Plan*. Adopted January 2004.

<sup>2</sup> City of Artesia. 2010. *City of Artesia General Plan 2030 Environmental Impact Report*. July.

neighborhoods and surroundings. Viewer sensitivity for residential viewers is considered high.

- **Commercial and Light Industrial Viewers:** Employees and customers at commercial and light industrial uses are typically preoccupied (e.g., at work, in the store, etc.), and are not engaged in the surrounding outdoor visual environment. These viewers naturally have a narrow focus and a specific viewshed. As such, commercial and light industrial viewers in the study area are considered to have a generally low concern for visual change and viewer sensitivity for commercial and light industrial users is considered low.
- **Recreational Viewers:** Park visitors at Ecology Park, Reservoir Hill Park, and A.J. Padelford Park are expected to be engaged in active (playing sports, etc.) or passive (picnicking, barbecuing, etc.) recreational activities. As such, the focus and viewshed of these viewers are considered to be narrow or wide-ranging depending on the activity. Therefore, visitors at recreational uses in the study area would be cognizant of visual changes associated with the Build Alternative. Viewer sensitivity for recreational viewers is considered moderate.
- **Institutional Viewers:** Employees and students at Gahr High School and Tracy High School spend most of their time inside of school buildings and are preoccupied with their schoolwork. However, students and teachers also engage in physical education and sports activities at their respective school sites. As such, the focus and viewshed of these viewers can be narrow or wide-ranging depending on the activity. Viewers at these institutional uses would be aware of the visual changes from the Build Alternative. Viewer sensitivity for institutional viewers is considered moderate.
- **Freeway Motorist Viewers:** Freeway motorists are generally considered to be engaged in their surrounding visual environment, depending on speed of travel and traffic conditions. The awareness of SR-91 motorists in the study area includes a narrow focus and broad view of the surroundings. SR-91 is not designated as a State Scenic Highway by the California Department of Transportation (Caltrans) and/or in the local General Plans (i.e., of the Cities of Artesia or Cerritos). In addition, there are no designated scenic vistas or other resources located in the cities of Artesia or Cerritos. However, the Cities of Artesia and Cerritos value motorists' views along freeway corridors in the project corridor, as outlined in the City of Artesia General Plan (Community Goal CIR 2 and Policy Action 2.1.4) and the City of Cerritos General Plan (Goal LU-16, Policy LU-16.1, and Policy CD-1.2). Therefore, SR-91 motorists' views are somewhat sensitive and viewer sensitivity is considered moderate.

- **Local Roadway Viewers:** Motorists along the local roadways in the study area (i.e., Studebaker Road, Gridley Road, Pioneer Boulevard, Elaine Avenue, Norwalk Boulevard, Bloomfield Avenue, and Artesia Boulevard) are usually engaged in their visual surroundings due to a slower speed of travel (25 to 40 miles per hour [mph]). In general, the focus of views along these roadways is wide and consists of a variety of objects and elements. Although there are no City-designated scenic or visual resources in the project area, the Cities of Artesia and Cerritos value local motorists', bicyclists', and pedestrians' views within the circulation network, as outlined in the City of Artesia General Plan (Community Planning Principle CIR 2, Community Goal CIR 2, Community Policy CIR 2.1, and Policy Action 2.1.5) and the City of Cerritos General Plan (Goal LU-11, Goal LU-13, Policy CD-1.1, Goal CD-2, Goal CON-6, and Policy CON-6.1). As such, local roadway travelers are expected to be aware of visual changes from the Build Alternative and viewer sensitivity is considered moderate.

### ***Overall Viewer Response***

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

- **Residential Viewers:** As previously noted, residential uses have long-term, direct views of the project limits, and would likely have a high concern for visual changes from the Build Alternative. In general, these viewers are engaged in their visual environment, and have narrow to wide-ranging views of the project limits and surroundings. As such, the overall viewer response for this viewer group is high.
- **Commercial and Light Industrial Viewers:** Employees and customers at the commercial and light industrial uses in the study area would have direct views of the project limits, but are typically preoccupied and not engaged in their surrounding visual environment. These viewers have a narrow focus and specific viewshed. Therefore, the overall viewer response for this viewer group is moderate-low.
- **Recreational Viewers:** Visitors at Ecology Park, Reservoir Hill Park, and A.J. Padelford Park would have direct views of the project limits. These viewers can be visually engaged in their surrounding environment during passive recreational activities, but can also have a narrow focus and viewshed during active recreational activities. Therefore, the overall viewer response for this viewer group is moderate.

- **Institutional Viewers:** Employees and students at Gahr High School and Tracy High School would have direct views of the project limits. Although these viewers spend most of their time inside and have a narrow focus (in their classes, school work, etc.), some spend time outdoors for physical activities (physical education, sports, etc.) and are exposed to the surrounding outdoor visual environment. In addition, these viewers have generally long-term views of the project limits due to their trip frequency (to and from their schools, typically Monday through Friday), and long duration of stay (several hours daily) at the schools. As such, the overall viewer response for this viewer group is moderate.
- **Freeway Motorist Viewers:** Highway motorists would have direct and frequent views of the project limits. The viewer duration for motorists is ultimately dependent on the density of traffic (especially during peak travel periods); therefore, motorists' views can range from short to long depending on traffic conditions. As noted above, there are no designated scenic or visual resources in the study area. However, freeway motorists compose a large viewing group (approximately 255,000 to 288,000 ADT), and the General Plans for the Cities of Artesia and Cerritos contain goals and policies to enhance motorists' views from SR-91. Therefore, the overall viewer response for this viewer group is moderate.
- **Local Roadway Viewers:** Motorists, bicyclists, and pedestrians traveling along Studebaker Road, Gridley Road, Pioneer Boulevard, Elaine Avenue, Norwalk Boulevard, Bloomfield Avenue, and Artesia Boulevard are generally engaged in their visual surroundings. These viewers would have would have short, direct, and rather frequent views of the project limits. As noted above, there are no designated scenic vistas or visual resources in the project area. However, local motorists, bicyclists, and pedestrians that travel these roadways frequently would be aware of visual changes from the project. Therefore, the overall viewer response for this viewer group is moderate.

## **2.6.3 Environmental Consequences**

### **2.6.3.1 Temporary Impacts**

#### ***Build Alternative (including Design Options)***

Construction of the Build Alternative, including design options, would result in temporary visual impacts as a result of construction activities, including removing vegetation, grading, the use of night lighting, dust control, temporary structures, hauling equipment, construction staging or laydown yards, and signs indicating traffic



detours. Even though the visual impacts from construction activities may be unavoidable to some extent to highway users and highway neighbors, avoidance and minimization would not be necessary during the construction period due to the temporary nature of these impacts. Once construction is complete, permanent highway planting and replacement planting measures would be implemented to reduce the impacts of construction. Additionally, the project would be required to comply with the Caltrans Standard Specifications for Construction, which would minimize visual impacts through the use of opaque temporary construction fencing that would be situated around construction staging areas. The Build Alternative would implement the Project Features PF-VIS-1 and PF-VIS-2 to ensure all landscaping plans and architectural treatments would be designed by the Caltrans District Landscape Architect in cooperation with the Cities of Artesia and Cerritos and that all tree removal activities and roadway improvements would be conducted in compliance with the applicable City codes and policies. The Build Alternative would implement Project Feature PF-VIS-3 to ensure that construction lighting types, plans, and placement are reviewed by the Caltrans District Landscape Architect to minimize potential impacts from light and glare.

**PF-VIS-1 Landscaping.** Freeway landscape palettes and concept plans shall be implemented during the Plans, Specifications, and Estimates (PS&E) phase in consultation with the City of Cerritos and/or City of Artesia and the California Department of Transportation (Caltrans) District Landscape Architect. The freeway landscape palettes and concept plans shall be designed in correspondence with the goals, policies, and actions of the City of Artesia General Plan (Community Goal CIR 2, Community Policy CIR 2.1, Policy Action 2.1.4, and Policy Action 2.1.5), City of Cerritos General Plan (Goal LU-13, Goal LU-16, Goal CD-2, Goal CON-6, Policy LU-16.1, Policy CD-1.2, and Policy Con-6.1), and Cerritos Municipal Code (Sections 9.75.190 [City Tree Removal] and 9.75.200 [Preservation of City Trees]).

**PF-VIS-2 Architectural Treatments and Review.** All proposed Architectural Treatments proposed shall be developed during the PS&E phase in consultation with the City of Cerritos and/or City of Artesia and the Caltrans District Landscape Architect. All proposed architectural treatments shall be reviewed and approved by Caltrans prior to final design and implementation.

**PF-VIS-3 Construction Lighting.** Construction lighting types, plans, and placement shall be reviewed at the discretion of the Caltrans District Landscape Architect in order to minimize light and glare impacts on surrounding sensitive uses.

### ***No Build Alternative***

The No Build Alternative would not include the construction of any of the project improvements on SR-91, I-605, or local roadways; therefore, the visual character and quality within VAU1 will remain similar to the existing condition. The No Build Alternative would not result in temporary visual impacts within the study area.

### **2.6.3.2 Permanent Impacts**

#### ***Build Alternative***

Visual impacts associated with a project are determined by a measurement of the resource change and viewer response. The following analysis describes and illustrates visual impacts of the Build Alternative by key view, compares existing conditions to the proposed Build Alternative design options (Build Alternative, Non-Standard Lane and Shoulder Widths Design Option, and Pioneer Boulevard Type L-9 Interchange Configuration Design Option) and includes the predicted viewer responses.

Visual elements of the Build Alternative would include a new mixed-flow lane on westbound SR-91, two new overcrossing structures (replacing the existing structures along Gridley Road and Bloomfield Avenue), reconfigured interchanges (at Pioneer Boulevard and Norwalk Boulevard), full right-of-way (ROW) acquisition of 18 residences and a business along 170th Street, partial acquisition of an ARCO Gas Station, upgraded traffic signals, the construction of several noise barriers (up to 16 ft in height) and a combination noise barrier/retaining wall, and some vegetation removal. The project would result in an increase in hardscape within VAU1 that would be visible to local residents, local roadway travelers (roadway motorists, bicyclists and pedestrians), freeway motorists, recreational uses, institutional (school) uses, and commercial and light industrial uses. Permanent visual impacts under the Build Alternative are discussed below for each key view.

#### ***Key View 1***

Existing views at Key View 1 mainly consist of Ecology Park, the graded slope of the Gridley Road overcrossing structure, and mature vegetation. The visual form in Key View 1 is dominated by the graded slope for the Gridley Road overcrossing structure and mature vegetation that surrounds Ecology Park. Uniform colors are visible

throughout Key View 1, including green colors associated with grass, mature trees, and the graded slope of Gridley Road; brown colors of tree trunks and branches, picnic tables, and dirt; tan colors of the sandbox; and blue colors associated with the children's swing set. Textures throughout Key View 1 consist of the granular grass and tree foliage and coarse sandbox area of the park. A mixture of mature trees, various textures, dominance of the Gridley Road overcrossing structure, and variety of colors provide some diversity in Key View 1. The unity is decreased from the visible vertical elements (i.e., mature trees, pedestrian lighting, and children's swing set), although the mature trees and vegetation increase the intactness in Key View 1. The vividness of Key View 1 is characterized by the contrasting mix of abundant mature trees and dominance of the Gridley Road overcrossing structure.

#### *Viewer Response*

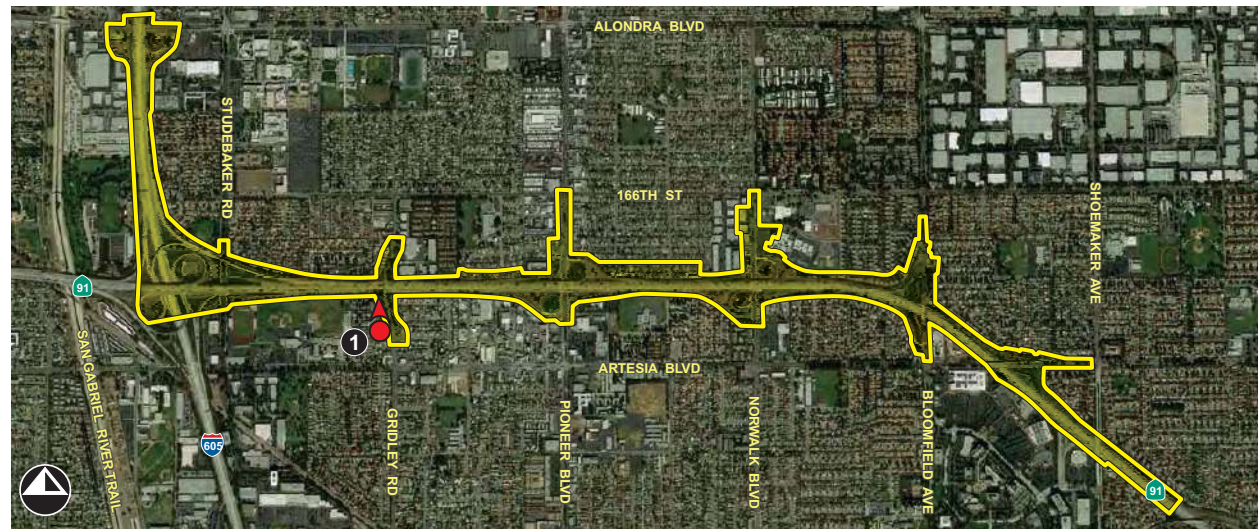
Key View 1 represents a typical view from Ecology Park visitors to the southwest of the new Gridley Road overcrossing structure. Ecology Park visitors in Key View 1 would be directly exposed to the changes along Gridley Road in VAU1. Frequent visitors to Ecology Park would have long-term views of the visual changes associated with the Build Alternative. As such, overall viewer response in Key View 1 would be moderate.

#### *Resource Change*

Under the Build Alternative, the visible form of Key View 1 would be altered due to the new Gridley Road overcrossing structure. Refer to Figure 2.6-8. The proposed condition would appear similar to the existing condition with respect to colors and textures, although an increase in hardscape from the Gridley Road overcrossing retaining wall could occur. The diversity in Key View 1 would be slightly degraded, as several trees on the graded slope of the Gridley Road overcrossing structure would be removed. In addition, the scale and dominance of the Gridley Road overcrossing structure would increase in Key View 1, as the new Gridley Road overcrossing retaining wall would result in increased hardscape and additional vertical elements.

The intactness would be decreased in Key View 1 as a result of the new Gridley Road overcrossing retaining wall structure. The vividness and unity in Key View 1 would be slightly decreased, as the new Gridley Road overcrossing structure would reduce the amount of natural vegetation and green colors in the area and increase the hardscape. No visual resources or scenic views would be obstructed from implementation of the Build Alternative in Key View 1, and








-  Direction of Photo
-  Key View Location
-  Key View Number

FIGURE 2.6-8

Westbound SR-91 Improvement Project  
Key View 1 - Proposed Condition



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tree removal activities would be required to comply with Sections 9.75.190 (City Tree Removal) and 9.75.200 (Protection of City Trees) of the Cerritos Municipal Code. The resource change in Key View 1 as a result of the Build Alternative is considered to be moderate due to a slight decrease in diversity and intactness from Ecology Park viewers. As such, the overall visual impact at Key View 1 would be moderate. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 1 would not be adverse.

### *Key View 2*

Existing views at Key View 2 mainly consist of single-family residences on Sunny Ridge Court, mature trees/vegetation, the graded slope area of the Gridley Road overcrossing structure, and an existing combined noise barrier/retaining wall abutting the west side of Gridley Road. The visual form in Key View 2 is dominated by the single-family residence and graded slope and noise barrier/retaining wall for the Gridley Road overcrossing structure. The linear continuity in Key View 2 is characterized by horizontal fence lines and rooflines in the foreground and middle ground views, and horizontal lines created by the Gridley Road overcrossing noise barrier/retaining wall. Vertical elements such as mature palm trees are shown in Key View 2 and slightly decrease the intactness of this view. A variety of colors are visible throughout Key View 2, including green colors associated with grass and mature trees/vegetation; brown colors of palm tree stems and the graded slope of the Gridley Road overcrossing; tan colors of the Gridley Road overcrossing noise barrier/retaining wall, single-family residential structure, and perimeter wall; and white/light-gray colors associated with the residential garage door, backyard fence, and driveway area. Textures throughout Key View 2 consist of the granular grass and tree foliage; rough noise barrier/retaining wall, and residential perimeter wall and roof; coarse Gridley Road graded slope dirt area and palm trees; and smooth pavement areas. The diversity and vividness of Key View 2 is characterized by a mixture of mature trees, various textures, a variety of colors, and the scale and dominance of the Gridley Road overcrossing and single-family residence. The unity in Key View 2 is slight, as the variety of vertical elements, contrasting linear form, and scale and dominance of the Gridley Road overcrossing structure detract from the unity of the visual pattern in Key View 2.

### *Viewer Response*

Key View 2 represents a typical view from residential uses along Sunny Ridge Court toward the new Gridley Road overcrossing structure. Residential viewers in



Key View 2 would be directly exposed to the changes along Gridley Road in VAU1, which include the replaced retaining wall/noise barrier. Residential uses along Sunny Ridge Court would have long-term views of the visual changes associated with the Build Alternative. As such, overall viewer response in Key View 2 would be high.

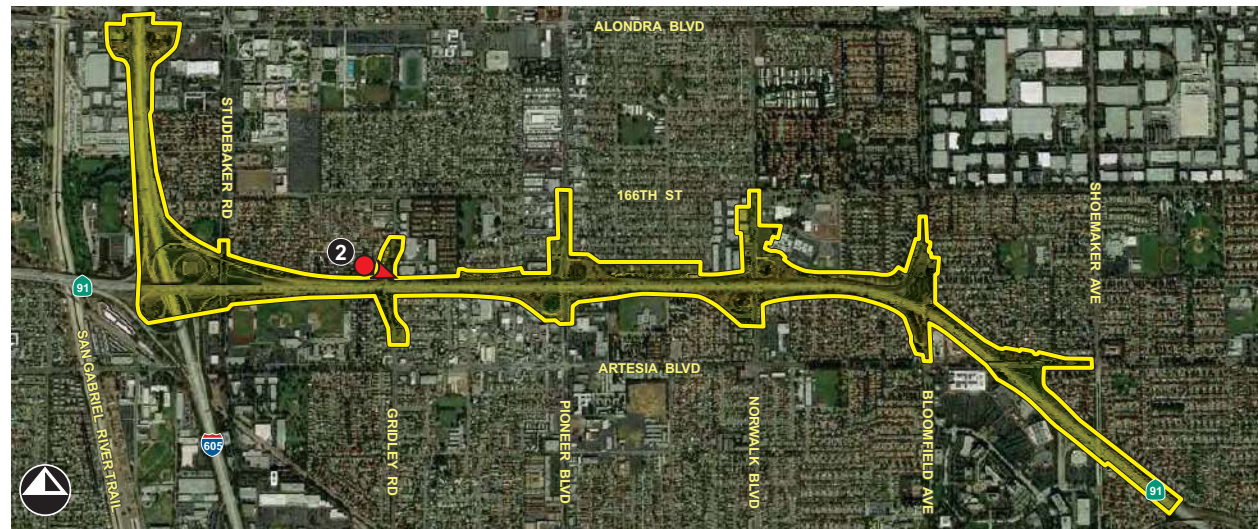
### *Resource Change*

Under the Build Alternative, the visible form of Key View 2 would not be altered due to the new Gridley Road overcrossing structure. Refer to Figure 2.6-9. The proposed condition would appear similar to the existing condition with respect to colors and texture, although a slight increase in tan colors from the Gridley Road overcrossing retaining wall would occur. The diversity, intactness, vividness, and unity in Key View 2 would remain similar to existing conditions, as the new Gridley Road overcrossing structure would not have physical structures or impeding features that would increase the dominance or scale of Gridley Road. The resource change in Key View 2 as a result of the Build Alternative is considered to be low, as the new Gridley Road overcrossing structure would appear similar to existing conditions from Key View 2. As such, the overall visual impact at Key View 2 would be moderate. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 2 would not be adverse.

### *Key View 3*

Existing views at Key View 3 predominantly consist of the westbound SR-91 travel lanes and ROW, roadside vegetation, freeway signage, a noise barrier, and mature trees in background views. The linear continuity in Key View 3 appears to be consistent throughout the view. The SR-91 freeway, shoulder areas, and roadside vegetation create a linear focus along westbound SR-91. Edges are defined by transitional texture and color schemes along the paved area of SR-91, roadside vegetation areas, and noise barrier along westbound SR-91. The color scheme throughout Key View 3 is dominated by light gray, brown, green, and tan colors associated with the paved SR-91 travel lanes, disturbed roadside vegetation, mature vegetation, and noise barrier located along westbound SR-91. Textures in Key View 3 are dominated by the smooth surfaces along SR-91 and the adjoining noise barrier and the granular foliage of roadside vegetation (mature and disturbed) along the SR-91 shoulders. Due to a lack of various visual patterns (other than linear patterns) in Key View 3, there is a lack of diversity. However, linear elements such as the SR-91 travel lanes, mature roadside vegetation, and adjoining noise barrier create





- ▲ Direction of Photo
- Key View Location
- ① Key View Number

FIGURE 2.6-9

Westbound SR-91 Improvement Project  
Key View 2 - Proposed Condition



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some visual unity in Key View 3. Vertical elements such as roadway signage, power poles, and mature trees are visible, and nominally decrease the intactness in Key View 3. Due to a lack of prominent visual features and the flat topography in Key View 3, the visual landscape is not very vivid.

### Viewer Response

Key View 3 represents a typical view from westbound SR-91 motorists to the west of Pioneer Boulevard. Westbound SR-91 motorists in Key View 3 would be directly exposed to the changes along westbound SR-91, including the construction of a new travel lane and potential noise barrier up to 16 ft in height along the westbound SR-91 shoulder. As noted above, approximately 255,000 to 288,000 vehicles travel this portion of SR-91 each day. The viewer quantity is high and the duration of views from SR-91 commuters and other motorists is ultimately dependent on the density of traffic, especially during peak travel periods. Although westbound SR-91 motorists may or may not be highly aware in Key View 3 depending on the speed of travel, the viewshed of SR-91 motorists does not include any designated visual resources, and SR-91 is not designated as a State or local scenic highway. However, the City of Artesia values motorists' views along freeway corridors in the project corridor, as outlined in the City of Artesia General Plan (Community Goal CIR 2 and Policy Action 2.1.4). As such, overall viewer response in Key View 3 would be moderate.

### Resource Change

Under the Build Alternative, the visible form, diversity, texture, color, and linear continuity would be altered in Key View 3. The visible form has changed due to the scale and dominance of the new noise barrier along westbound SR-91, and the blockage of mature roadside trees has decreased the diversity in Key View 3. Refer to Figure 2.6-10. An increase in smooth texture and a decrease in middle-ground granular foliage have occurred due to the new westbound SR-91 noise barrier. In addition, a decrease in green colors and an increase in tan colors has occurred as a result of the new noise barrier. The linear continuity in this key view remains, although the new noise barrier dominates the visual pattern along westbound SR-91. The vividness and intactness has decreased in Key View 3 as a result of the new westbound SR-91 noise barrier. The noise barrier dominates this view, and has decreased middle-ground and background views of mature tree vegetation. The visual unity remains similar to existing conditions, as the linear form of the new noise barrier creates a visual pattern for westbound SR-91

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-  Direction of Photo
-  Key View Location
-  Key View Number

FIGURE 2.6-10

Westbound SR-91 Improvement Project  
Key View 3 - Proposed Condition



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motorists. No visual resources or scenic views are obstructed from the Build Alternative in Key View 3. Therefore, the resource change in Key View 3 for the project is considered to be moderate due to an increase in hardscape features (i.e., the new noise barrier and westbound SR-91 lane addition) in the area. The overall visual impact in Key View 3 would be moderate. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 3 would not be adverse.

#### *Key View 4*

Existing views at Key View 4 mainly consist of Elaine Avenue, residential uses to the east and west of Elaine Avenue, and some mature vegetation. Background views of the existing westbound SR-91 noise barrier are also provided at Key View 4. The visual form in Key View 4 appears to be relatively consistent throughout this view. The Elaine Avenue ROW and sidewalks appear to be linear and continuous toward SR-91 and the westbound SR-91 noise barrier. The uniform size and height of the single-family residences create a pedestrian-friendly scale in Key View 4. The visual corridor is defined by the residences to the east and west of Elaine Avenue, and the westbound SR-91 noise barrier in background views. The color scheme throughout Key View 4 is dominated by light gray, tan/light brown, and green colors associated with the paved roadway, single-family residences and sidewalks, and mature vegetation, respectively. Textures in Key View 4 mostly consist of the smooth surfaces of roadway pavement and painted areas of exterior residences along Elaine Avenue and the granular foliage of surrounding vegetation. The vividness and intactness in Key View 4 are minute, as the visual elements (street ROW, residences, and some vegetation) fail to create a diverse viewshed.

#### *Viewer Response*

Key View 4 represents a typical view from residential uses along Elaine Avenue and southbound Elaine Avenue motorists, bicyclists, pedestrians. The southbound Elaine Avenue traveler and residential viewers in Key View 4 would be directly exposed to the changes along Elaine Avenue and 170th Street as a result of the Build Alternative, which include the acquisition and demolition of 18 residences and a business along 170th Street to accommodate standard lane and shoulder widths along westbound SR-91, a new noise barrier up to 16 ft high abutting residences along 169th Street, and relocation of the existing westbound SR-91 noise barrier to the north. Elaine Avenue is a local residential street and

experiences a low amount of daily traffic (less than 5,000 ADT),<sup>1</sup> but residents along Elaine Avenue, 168th Street, 169th Street, and 170th Street would have long-term (permanent) views of the Build Alternative. As such, overall viewer response in Key View 4 would be moderate.

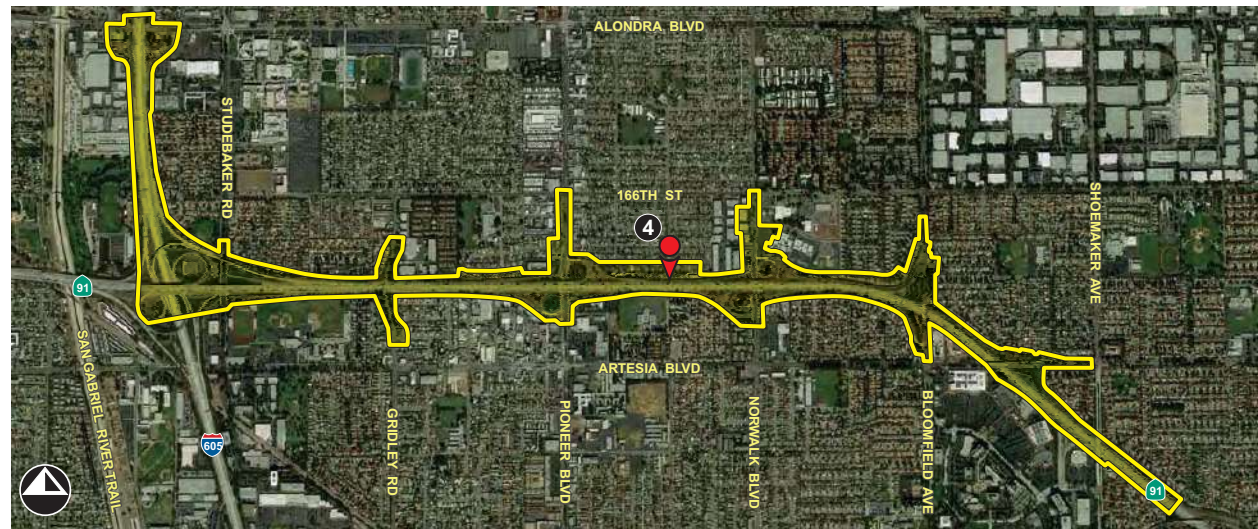
### *Resource Change*

Under the Build Alternative, the visible form of Key View 4 would be altered due to the demolition of 18 residences and a business along 170th Street, the construction of a new noise barrier up to 16 ft in height abutting the residences on 169<sup>th</sup> Street, and the relocation of the existing westbound SR-91 noise barrier to the north. As shown on Figure 2.6-11, the new noise barrier associated with the Build Alternative would result in an increase in hardscape features, and a slight decrease in mature vegetation. The visual form in Key View 4 would be altered, as the scale and dominance of the new noise barrier would encroach onto the residences positioned along 169th Street. This would also result in a decrease in diversity, vibrant (green) colors, and textural variety, as the new noise barrier and relocated westbound SR-91 noise barrier would remove and obstruct views of mature trees, increase the amount of light brown/tan colors, and decrease the background, granular foliage of trees in Key View 4. The linear continuity in Key View 4 remains, although the new noise barrier and residential ROW acquisition decreases the depth of views in Key View 4. The vividness and intactness has decreased in Key View 4 as a result of the new westbound SR-91 noise barrier and relocated westbound SR-91 noise barrier. The visual unity remains similar to existing conditions in Key View 4, and no visual resources or scenic views are obstructed from the Build Alternative in Key View 4. The overall visual character in Key View 4 would be similar to existing conditions. The resource change in Key View 4 for the Build Alternative is considered to be moderate, as the project would increase the hardscape features (i.e., the new noise barrier) in the area, but the overall visual character would be similar to existing conditions. Therefore, the overall visual impact in Key View 4 would be moderate. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 4 would not be adverse.

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<sup>1</sup> City of Artesia. 2010. City of Artesia General Plan 2030 Environmental Impact Report. July.





- ▲ Direction of Photo
- Key View Location
- 1 Key View Number

FIGURE 2.6-11

Westbound SR-91 Improvement Project  
Key View 4 - Proposed Condition



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### *Key View 5*

Existing views from Key View 5 mainly consist of the existing westbound SR-91 noise barrier and retaining wall positioned in the foreground and middle-ground views. The back alley/driveway area and garage areas of the Cerritos Villas residential community are also shown in Key View 5. The visual form in Key View 5 is dominated by the height, scale, and hardscape of the existing westbound SR-91 noise barrier and retaining wall. The horizontal alignment and straight edges of the westbound SR-91 noise barrier provide linear continuity in Key View 5 looking east. The colors visible in Key View 5 are fairly uniform, as the westbound SR-91 noise barrier, Cerritos Villas residences, and back alley/driveway consist of tan and light gray colors. Landscaping between the westbound SR-91 noise barrier and retaining wall provides some green colors and softens the appearance of hardscape in Key View 5. Textures throughout Key View 5 consist of the rough and bumpy masonry on the westbound SR-91 noise barrier and retaining wall, granular foliage of landscaping, and coarse surface of the Cerritos Villas back alley/driveway. Vividness is lacking in Key View 5 due to absent diverse visual elements, natural features (landscaping, mature vegetation, etc.), and the encroachment of hardscape features (noise barrier and retaining wall). Easterly views from Key View 5 are fairly unified and intact due to the uninterrupted linear flow of the westbound SR-91 noise barrier and retaining wall, and visual obstructions are absent.

### *Viewer Response*

Key View 5 represents a typical view from residential uses in the Cerritos Villas residential community to the north of SR-91. Residential uses in Key View 5 would be directly exposed to the changes along westbound SR-91 in VAU1 which include a new combination noise barrier/retaining wall (i.e., merging the westbound SR-91 noise barrier and retaining wall) along westbound SR-91 up to approximately 20 to 22 ft in height. Although the residences along the southern boundary of the Cerritos Villas residential community do not have backyard areas or balconies with views of the project limits, these residential viewers access the back alley/driveway area of Cerritos Villas residential community on a daily basis, and would have long-term views of the visual changes associated with the Build Alternative. As such, overall viewer response in Key View 5 would be moderate-high.

### *Resource Change*

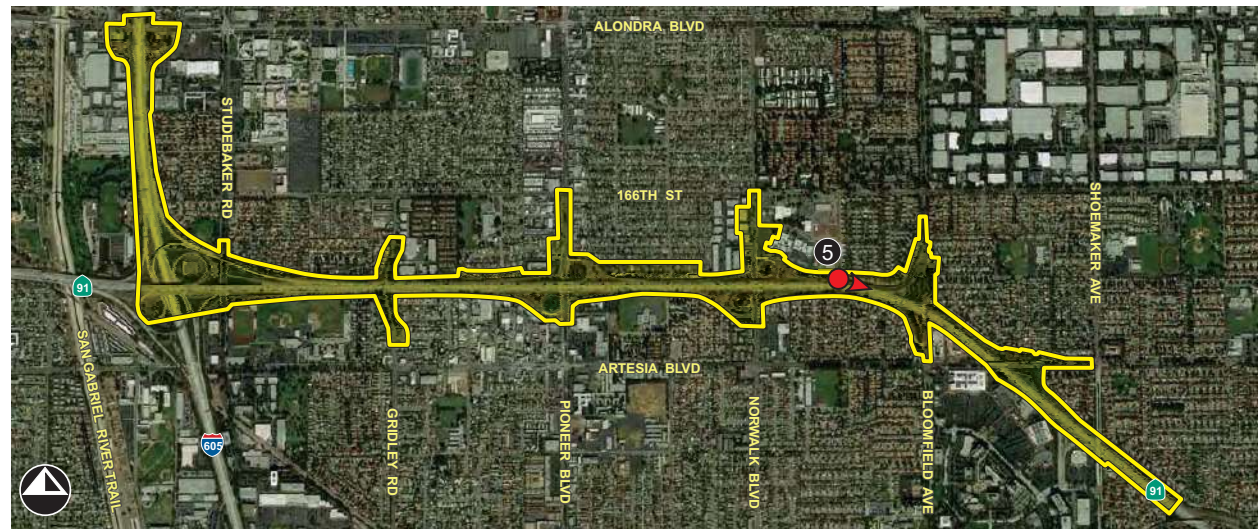
Under the Build Alternative, the visible form of Key View 5 would be changed due to the construction of a new combination noise barrier/retaining wall. Due to



the widening and added westbound SR-91 travel lane, the westbound SR-91 noise barrier would be relocated and combined with the existing retaining wall along the southern boundary of the Cerritos Villas property. The existing landscaping between the westbound SR-91 noise barrier and retaining wall would also be removed for construction of the new noise barrier/retaining wall. As shown on Figure 2.6-12, construction of the new noise barrier/retaining wall would decrease the color diversity and textural variety in Key View 5. Specifically, a decrease in green colors and granular foliage and an increase in tan colors and rough texture would occur. The height, scale, mass, and added hardscape of the new combination noise barrier/retaining wall portrays visual dominance over its surroundings and dominates the view, as the new wall would be approximately 20 to 22 ft in height. Encroachment of this new combination noise barrier/retaining wall would be increased. Overall, construction of the new combination noise barrier/retaining wall would reduce the visual diversity, intactness, unity, and vividness in Key View 5. The resource change in Key View 5 as a result of the Build Alternative is considered to be moderate-high, as the new noise barrier/retaining wall would increase the hardscape from Key View 5 and visually encroach onto the viewers at the Cerritos Villas. As such, the overall visual impact at Key View 5 would be moderate-high. To minimize visual impacts from the new noise barrier/retaining wall at Key View 5, the new combination noise barrier/retaining wall should be architecturally treated to lessen the increased hardscape appearance at the adjoining residential viewers to the north. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 5 would not be adverse.

### *Key View 6*

Existing views from Key View 6 mostly consist of the westbound SR-91 travel lanes, mature roadside vegetation, freeway signage, and the Bloomfield Avenue overcrossing structure. The visual form in Key View 6 is defined by a linear focus from the SR-91 freeway and roadside vegetation toward Bloomfield Avenue. The Bloomfield Avenue overcrossing structure provides the viewer a sense of depth, although it decreases the intactness of Key View 6. The color scheme throughout Key View 6 is dominated by grey, brown, and green colors associated with the paved SR-91 travel lanes, disturbed roadside vegetation, and mature vegetation areas along SR-91. Textures in Key View 6 are dominated by the smooth pavement along SR-91 and the Bloomfield Avenue overcrossing structure and granular foliage of roadside vegetation (mature and disturbed) along the SR-91 shoulders. Due to a lack of various visual patterns (other than linear patterns), there is a lack of diversity in Key View 6.






-  Direction of Photo
-  Key View Location
-  Key View Number

FIGURE 2.6-12

Westbound SR-91 Improvement Project  
Key View 5 - Proposed Condition

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However, linear elements such as the SR-91 travel lanes and mature roadside vegetation create some visual unity in Key View 6. The views along SR-91 are fairly intact in Key View 6, although the Bloomfield Avenue overcrossing structure somewhat impedes more profound background views. Due to a lack of distinct visual features in Key View 6, westbound SR-91 motorists' views are not vivid.

### *Viewer Response*

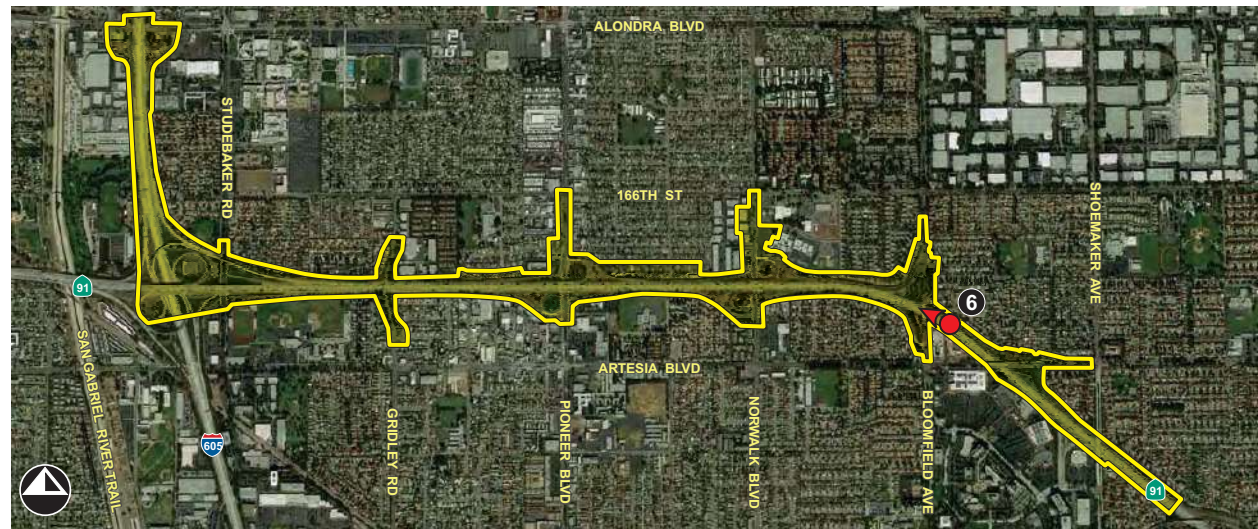
Key View 6 represents a typical view from westbound SR-91 motorists. The westbound SR-91 traveler would be directly exposed to the new Bloomfield Avenue overcrossing structure in VAU1. As noted above, approximately 255,000 to 288,000 vehicles travel this portion of SR-91 each day. The viewer duration is ultimately dependent on the density of traffic, especially during peak travel periods. Although westbound SR-91 motorists may or may not be highly aware in Key View 6 depending on the speed of travel, the viewshed of SR-91 motorists does not include any designated visual resources, and SR-91 is not designated as a State or local scenic highway. However, the City of Cerritos values motorists' views along freeway corridors in the project corridor, as outlined in the City of Cerritos General Plan (Goal LU-16, Policy LU-16.1, and Policy CD-1.2). As such, it is anticipated that SR-91 freeway motorists would be aware of the visual changes associated with the Build Alternative. Overall viewer response in Key View 6 would be moderate.

### *Resource Change*

The new Bloomfield Avenue overcrossing structure would be similar to the existing overcrossing structure, although the structure would appear to be slightly larger in terms of mass, scale, and height; refer to Figure 2.6-13. The visible form remains largely intact compared to existing conditions. However, some vegetation/tree removal would occur on the westbound SR-91 shoulder, and background views of the new westbound SR-91 noise barrier/retaining wall near the Cerritos Villas residential community would be afforded. Only a slight change in color would occur, as some brown/green colors associated with roadside vegetation would be removed, the new westbound SR-91 noise barrier/retaining wall in background views would add tan colors, and the new overcrossing structure would increase the amount of gray color in the view. The existing textures would remain relatively unchanged, although an increase in the smooth pavement of SR-91 and the larger Bloomfield Avenue overcrossing structure would occur. The linear focus of views along westbound SR-91 would not be altered in Key View 6. The visual unity would remain similar to existing

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- ▲ Direction of Photo
- Key View Location
- ① Key View Number

FIGURE 2.6-13

Westbound SR-91 Improvement Project  
Key View 6 - Proposed Condition



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conditions, as the new Bloomfield Avenue overcrossing would not dominate westerly views from westbound SR-91 motorists. The intactness of views would remain fair, and the vividness of Key View 6 would increase as a result of the mass, height, and scale of the new Bloomfield Avenue overcrossing structure.

No visual resources or scenic views would be obstructed from the Build Alternative in Key View 6. Therefore, the resource change in Key View 6 for the Build Alternative would be low. The overall visual impact in Key View 6 would be moderate-low. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative at Key View 6 would not be adverse.

Although visual impacts associated with the alteration to scale and increased pavement would remain, the project features would allow the Build Alternative to integrate well with the existing landscape and ensure visual compatibility with the surrounding environment. Even with the Build Alternative in place, the alignment and topography of the SR-91 freeway mainline would remain consistent with the existing condition and VAU1's existing urbanized setting would remain relatively unchanged. As a result, the Build Alternative would not drastically alter the existing visual character and visual quality of the project corridor, resulting in a moderate overall visual impact.

#### *Non-Standard Lane and Shoulder Widths Design Option*

Similar to the Build Alternative, the Non-Standard Lane and Shoulder Widths Design Option would result in the construction of a new mixed-flow lane on westbound SR-91, two new overcrossing structures (replacing the existing structures along Gridley Road and Bloomfield Avenue), reconfigured interchanges (at Pioneer Boulevard and Norwalk Boulevard), partial acquisition of an ARCO Gas Station, upgraded traffic signals, the construction of several noise barriers (up to 16 ft in height) and a combination noise barrier/retaining wall, and some vegetation removal. The Non-Standard Lane and Shoulder Widths Design Option varies from the Build Alternative in that the new westbound SR-91 travel lane would be constructed using non-standard lane widths. Using non-standard lane widths on westbound SR-91 would eliminate any ROW impacts on 170th Street, and the 18 residences and a business on this roadway would remain intact. There is no visible difference between the Non-Standard Lane and Shoulder Widths Design Option and the Standard Lane Widths Design Option from the vantage point in Key View 4.

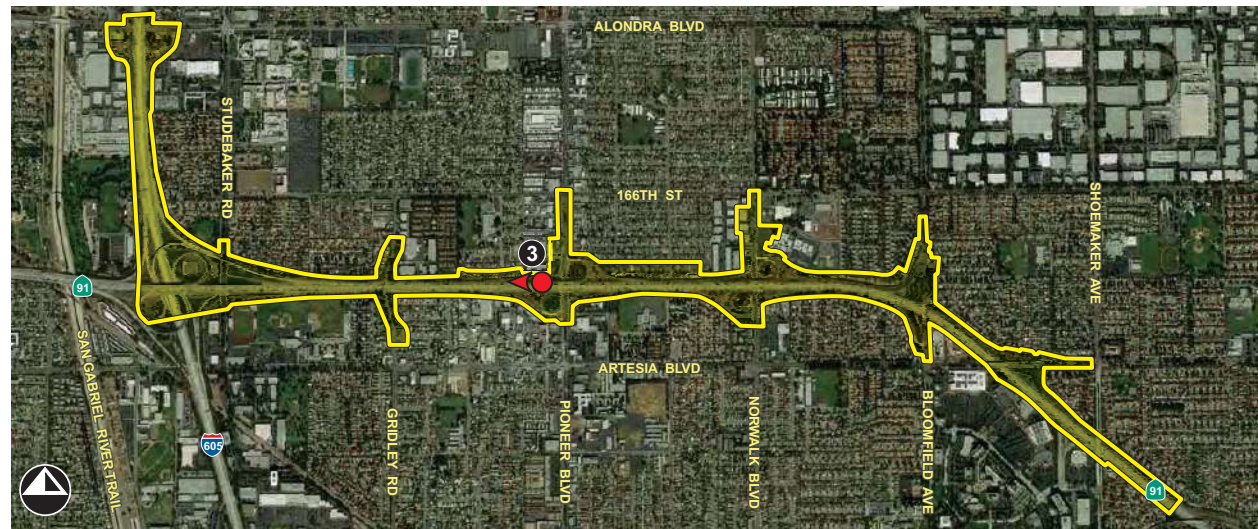
The use of non-standard lane widths would result in minimal visual impacts to the residences along 169th and 170th Street, and the existing visual environment in this area would be preserved. As such, the visual character and quality of the project corridor from Key View 4 would remain similar to existing conditions (refer to Figure 2.6-5). As such, the resource change with implementation of the Non-Standard Lane and Shoulder Widths Design Option would be low, and the overall visual impact would be moderate-low. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative with the Non-Standard Lane and Shoulder Widths Design Option at Key View 4 would not be adverse.

#### *Pioneer Boulevard L-9 Design Option*

Similar to the Build Alternative, the Pioneer Boulevard L-9 Design Option would result in the construction of a new mixed-flow lane on westbound SR-91, two new overcrossing structures (replacing the existing structures along Gridley Road and Bloomfield Avenue), reconfigured interchanges (at Pioneer Boulevard and Norwalk Boulevard), full ROW acquisition of 18 residences and a business along 170th Street, partial acquisition of an ARCO Gas Station, upgraded traffic signals, construction of several noise barriers (up to 16 ft in height) and a combination noise barrier/retaining wall, and some vegetation removal. The Pioneer Boulevard L-9 Design Option varies from the Build Alternative in that the westbound SR-91 direct on-ramp from Pioneer Boulevard would remain intact, and a new noise barrier along the westbound SR-91 shoulder would not be constructed. The visible difference between the Pioneer Boulevard L-9 Design Option and the Standard Lane Widths Design Option would be seen from Key View 3.

Under the Pioneer Boulevard L-9 Design Option, the visual character and quality would remain similar to existing conditions at Key View 3 (refer to Figure 2.6-14). Under this design option, the existing direct westbound SR-91 on-ramp from Pioneer Boulevard would remain, and a new noise barrier would not be constructed along the westbound SR-91 shoulder. An increase in hardscape and some textural change would occur, as some roadside vegetation would be removed to construct the new westbound SR-91 travel lane. However, this change would not alter the visual form, linear continuity, diversity, or scale, and the vividness, intactness, and unity would not be degraded. No visual resources or scenic views are obstructed from the Pioneer Boulevard L-9 Design Option in Key View 3. Therefore, the resource change in Key View 3 for the Pioneer Boulevard L-9 Design Option is considered to be low, as a nominal increase in hardscape features (i.e., the new westbound SR-91 lane addition)





- ▲ Direction of Photo
- Key View Location
- ① Key View Number

FIGURE 2.6-14

Westbound SR-91 Improvement Project  
 Key View 3 - Proposed Condition  
 Pioneer Boulevard Type L-9 Interchange Configuration Design Option

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would occur. The overall visual impact in this key view would be moderate-low. With implementation of Project Features PF-VIS-1 and PF-VIS-2, the permanent visual impacts of the Build Alternative Pioneer Boulevard L-9 Design Option at Key View 3 would not be adverse.

**No Build Alternative**

The No Build Alternative would not include the construction of any of the project improvements on SR-91, I-605, or local roadways; therefore, the visual character and quality of VAU1 will remain similar to the existing condition. The No Build Alternative would not result in permanent visual impacts within the study area.

**2.6.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features outlined above in Section 2.6.3.1, no substantial adverse impacts related to visual quality would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.



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## 2.7 Cultural Resources

This section is based on the *Historic Property Survey Report (HPSR)* completed in April 2018 and concurred on by the State Historic Preservation Officer (SHPO) on July 24, 2018.

### 2.7.1 Regulatory Setting

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

- The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration (FHWA), the ACHP, the SHPO, and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).
- Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties (in Section 4(f) terminology—historic sites). See Appendix A for specific information about Section 4(f).
- The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as “unique” archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources

(CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term “tribal cultural resources” to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

- PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires Caltrans to inventory state-owned structures in its rights-of-way.

## **2.7.2 Affected Environment**

The cultural resource studies completed for the project include the HPSR completed in April 2018 and concurred on by SHPO on July 24, 2018

### **2.7.2.1 Methods**

#### ***Area of Potential Effects***

The Area of Potential Effects (APE) for cultural resources was established to identify the geographic area within which the proposed project may directly or indirectly cause alterations in the character or use of cultural resources. The APE for the proposed project totals 190.23 acres (ac), of which the Direct APE<sup>1</sup> comprises 74.84 ac. Specifically, the vertical APE<sup>2</sup> includes: segments of northbound Interstate 605 (I-605), westbound State Route 91 (SR-91), Pioneer Boulevard, Park Street, Norwalk Boulevard, Artesia Boulevard, Studebaker Road, Gridley Road, Gridley Place, Beach Street, Bloomfield Avenue, Alondra Boulevard, Westwinds Circle, 170th Street, and adjacent parcels where right-of-way (ROW) acquisition, construction staging, or temporary construction easements would occur. The adjacent parcels in the horizontal APE are located along Hyde Park Court, 169th Street, Cuesta Drive, Palm Street, Leeward Avenue, Eric Avenue, Harvest Avenue, College Place,

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<sup>1</sup> The Direct APE is the area that potentially would be directly and physically impacted by the proposed project.

<sup>2</sup> The vertical APE refers to the depth of ground disturbance.

and Clarkdale Avenue. In total, there are 85 private parcels within the horizontal APE. Buildings in the horizontal APE consist largely of single-family residences, but also include low-rise commercial buildings and institutional facilities. The horizontal APE also includes the Gridley Road overcrossing, Bloomfield Avenue overcrossing, Studebaker Road overcrossing, SR-91/I-605 connector, Pioneer Boulevard overcrossing, Norwalk Boulevard overcrossing, Artesia Boulevard overcrossing, and Alondra Boulevard overcrossing. The vertical APE will extend to a maximum depth of 20 feet (ft) for retaining wall and sound wall piles and 30 ft for piles for the Gridley Road overcrossing and Bloomfield Avenue overcrossing piers.

### **Record Search**

On May 12, 2017, a record search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) located at California State University, Fullerton. The record search included a review of all recorded prehistoric and historic cultural resources within a 0.5-mile (mi) radius of the project APE, as well as a review of known cultural resource survey and excavation reports. Additionally, the following inventories were examined during the SCCIC record search:

- National Register of Historic Places (National Register)
- California Register of Historical Resources (California Register)
- California Historical Landmarks (CHL)
- California Points of Historical Interest (SPHI)
- California Historic Resources Inventory (HRI)

In addition to the research conducted at the SCCIC, further background research was conducted using published literature on local and regional history, online resources regarding the history and development of the study area, and historic aerial photographs and historic maps of the project vicinity. On the basis of this research, a historic context was developed in which cultural resources could be evaluated for significance. This context was used during the analysis of historic archaeological resources and the historic built environment. The general history of the study area is followed by the contexts identified as relevant to the evaluated properties: Postwar Commercial and Industrial Development in Artesia and Cerritos, School Development in Artesia and Cerritos, Hospital Development in Artesia and Cerritos, and Mid-Century Modern Architecture. For further details of the historic context of the project APE, refer to the *Historical Resources Evaluation Report* (HRER) (2018). The following repositories and resources were contacted and utilized to access

historical information pertinent to the parcels within the project APE and the project vicinity:

- Cerritos Public Library
- City of Artesia Department of Building and Safety
- City of Cerritos Department of Building and Safety
- ABC Unified School District
- Los Angeles Public Library
- Historic Aerials (<https://historicaerials.com>)

### **Field Surveys**

On May 31, 2017, a Qualified Archaeologist completed a pedestrian survey of portions of the Direct APE, which is described in the *Archaeological Survey Report* (ASR) (2018). Because much of the APE is within active freeway and street ROWs, access was not safely available in all areas. Areas of exposed ground that could be accessed safely, even if vegetated, were surveyed by walking linear transects separated by 22.5–33 ft over larger areas and by more intensive and narrower transects over smaller areas. Inaccessible areas were visually inspected from a distance. Special attention was given to areas that exhibited exposed sediment, cut slopes, or rodent burrow back-dirt. Areas within the Direct APE that were not surveyed include existing freeways, paved roads and sidewalks, concrete-lined drainage channels, buildings, and structures.

On July 6 and 21, 2017, a pedestrian field survey of the buildings, structures, and other architectural features located within the APE was completed by a Qualified Architectural Historian and is described in the HRER (2018). During the survey, built environment resources within the APE that appeared to be 45 years of age or older were inspected and photographed, and their locational information noted on APE maps. For detailed notations of their structural and architectural characteristics and current conditions, as well as their settings and associated features, please refer to the HRER (2018).

### **Native American Consultation**

In conjunction with the project, consultation was conducted with the Native American Heritage Commission (NAHC) and with a number of Native American Tribes (groups and individuals) to comply with Section 106 of the NHPA and Assembly Bill (AB) 52. The NAHC was contacted on May 18, 2017, to conduct a Sacred Lands File (SLF) search of the APE. On May 22, 2017, the NAHC responded by stating that the

SLF review identified no Native American cultural resources within the project APE. The NAHC also recommended that seven Native American individuals representing the Gabrielino and Juaneño groups be contacted for information regarding cultural resources that could be affected by the project.

Chapter 4, Comments and Coordination, provides detailed information regarding Native American consultation, which is summarized below. The following Native American Tribes, groups, and individuals were contacted via letter sent by certified mail on May 24, 2017, and again by two rounds of follow-up emails or telephone calls on June 12 and 19, 2017, depending on whether the previous contact was successful:

- Gabrieleno Band of Mission Indians – Kizh Nation, Andrew Salas, Chairperson
- Gabrieleno/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson
- Gabrielino/Tongva Nation, Sandonne Goad, Chairperson
- Gabrielino Tongva Indians of California Tribal Council, Robert Dorame, Chairperson
- Gabrielino-Tongva Tribe, Linda Candelaria, Co-Chairperson
- Juaneño Band of Mission Indians Acjachemen Nation – Belardes, Joyce Perry, Tribal Manager
- Juaneño Band of Mission Indians Acjachemen Nation – Belardes, Matias Belardes, Chairperson

## **2.7.2.2 Results**

### ***Archaeological Results***

No archaeological resources were identified within the APE through archival research, Native American Consultation, or field survey. The majority of the Direct APE is within California Department of Transportation (Caltrans) ROW along the north side of westbound SR-91 from a point just east of I-605 to Artesia Boulevard, the transition from westbound SR-91 to northbound I-605, and along the east side of northbound I-605 south of Alondra Boulevard.

Pedestrian surveys for archaeological resources showed that all surveyable areas in the Direct APE exhibited high levels of disturbance from the freeway, adjacent drainages, and nearby road construction. The disturbance included bulldozed local sediment mixed with gravel, asphalt, concrete, and other debris, as well as Artificial



Fill and recent trash. The entire Direct APE has been substantially altered due to previous construction activities.

**Built Environment Results**

Archival research and field surveys resulted in the identification of a number of built environment resources within the project APE. The entire project APE was researched and surveyed for historic-period (45 years of age or older) built environment resources. Based on a review of the Caltrans Historic Highway Bridge Inventory (2016), all bridges within the APE for this project have been previously determined ineligible for National Register listing (designated as Category 5). Further, field surveys identified six historic-period built environment resources within the APE that required evaluation under the Section 106 PA. The rest of the built environment resources in the APE were exempt from evaluation pursuant to Attachment 4 of the Section 106 PA. Pursuant to the Section 106 PA, none of the built environment resources evaluated during studies associated with the proposed project is eligible for listing in the National Register or the California Register. Under Section 106 PA Stipulation VIII.C.6, Caltrans requested SHPO’s concurrence in eligibility determinations in the HPSR completed in April 2018. SHPO concurrence was received on July 24, 2018 Table 2.7.1 summarizes these built environment resources and eligibility determinations.

**Table 2.7.1 Built Resources Within the Project APE**

| Name              | Address/Location                             | National Register/California Register Eligibility <sup>1</sup> |
|-------------------|--|--|
| College Hospital  | 10802 College Place<br>APN: 7016-022-048     | Determined ineligible as a historic property                   |
| N/A               | 16706 Pioneer Boulevard<br>APN: 7011-005-044 | Determined ineligible as a historic property                   |
| N/A               | 16712 Pioneer Boulevard<br>APN: 7011-005-902 | Determined ineligible as a historic property                   |
| N/A               | 12111 Park Street<br>APN: 7011-001-005       | Determined ineligible as a historic property                   |
| N/A               | 12120 Park Street<br>APN: 7011-001-017       | Determined ineligible as a historic property                   |
| Tracy High School | 12222 Cuesta Drive<br>APN: 7012-001-901      | Determined ineligible as a historic property                   |

Source 1: *Historical Resources Evaluation Report* (2018)

Source 2: *Historic Property Survey Report* (2018).

<sup>1</sup> These determinations are a result of studies conducted for the Westbound SR-91 Improvement Project.

APE = Area of Potential Effects

APN = Assessor’s Parcel Number

California Register = California Register of Historical Resources

N/A = not applicable

National Register = National Register of Historic Places

PA = Programmatic Agreement

Section 106 = Section 106 of the National Historic Preservation Act of 1966

SR-91 = State Route 91

## **2.7.3 Environmental Consequences**

### **2.7.3.1 Temporary Impacts**

#### ***Build Alternative (includes Design Options)***

The Build Alternative would require ground disturbance and modification to existing freeway structures. There are no historic properties within the project APE that are eligible for inclusion in the National Register; therefore, the construction of the Build Alternative would not affect historic properties.

#### ***No Build Alternative***

Under the No Build Alternative, none of the proposed improvements would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in temporary impacts related to historic properties as a result of construction activities.

### **2.7.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

There are no historic properties within the project APE that are eligible for inclusion in the National Register. Therefore, the operation of the Build Alternative would not affect historic properties. Based on the findings of the HPSR (2018) and pursuant to Section 106 PA Stipulation IX.A and as applicable PRC 5024 MOU Stipulation IX.A.2, the Build Alternative would not affect historic properties per 36 CFR 800.4. Therefore, Caltrans has made a finding of No Historic Properties Affected for the project.

#### ***Previously Undocumented Cultural Materials***

There is always a potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation for the Build Alternative. Those potential effects would be avoided or minimized through the following project features:

- PF-CR-1      **Discovery of Cultural Materials.**** If cultural materials are discovered during site preparation, grading, or excavation, the construction contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. The California Department of Transportation (Caltrans) District 7 Environmental Branch Chief or the District 7 Native American Coordinator will then determine an appropriate course of action. If the discovery of cultural materials

occurs outside the Caltrans right-of-way, then coordination with the appropriate local agency will be conducted.

**PF-CR-2 Discovery of Human Remains.** If human remains are discovered during site preparation, grading, or excavation, State Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the Los Angeles County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), who pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 7 Environmental Branch Chief or the District 7 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

#### **Section 4(f) Resources**

No National Register-listed and eligible resources were identified within the APE (HPSR 2018). Therefore, there are no cultural resources present within the APE that would trigger the requirements for protection under Section 4(f), and no further discussion of those types of resources is provided relative to the requirements of Section 4(f).

#### **No Build Alternative**

Under the No Build Alternative, none of the proposed improvements would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in permanent impacts related to cultural resources as a result of construction activities.

#### **2.7.4 Avoidance, Minimization, and/or Mitigation Measures**

As the Build Alternative would not result in any temporary or permanent cultural resource related impacts, no avoidance, minimization, or mitigation measures are required.

## **PHYSICAL ENVIRONMENT**

### **2.8 Water Quality and Storm Water Runoff**

#### **2.8.1 Regulatory Setting**

##### **2.8.1.1 Federal Requirements: Clean Water Act**

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source<sup>1</sup> unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a

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<sup>1</sup> A point source is any discrete conveyance such as a pipe or a man-made ditch.

general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent<sup>1</sup> standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

### **2.8.1.2 State Requirements**

#### ***Porter-Cologne Water Quality Control Act***

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered

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<sup>1</sup> The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

### ***State Water Resources Control Board and Regional Water Quality Control Boards***

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

### ***National Pollutant Discharge Elimination System (NPDES) Program Municipal Separate Storm Sewer Systems (MS4)***

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a



state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans’ MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans’ MS4 Permit, Order No. 2012-0011-DWQ as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, and Order WQ 2015-0036-EXEC, NPDES No. CAS000003, effective April 7, 2015, has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

### *Construction General Permit*

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ

(effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Caltrans SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

#### *Section 401 Permitting*

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan

submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

## **2.8.2 Affected Environment**

The information in this section is from the Water Quality Assessment Report prepared for the project (November 2017).

The proposed project is located in the San Gabriel River watershed, which is bound by the Santa Ana River watershed to the east and the Los Angeles River watershed to the west. Land uses within the watershed are diverse and range from open space near the San Gabriel River headwaters in the San Gabriel Mountains, and become more dense and urbanized in the south, wherein impaired water quality can be seen due to pollutants from dense areas of residential and commercial activities. The watershed is covered under two municipal storm water NPDES permits.<sup>1</sup> The project is also within the Lower San Gabriel Hydrologic Area (CalWater watershed hydrologic sub-area 405.15). When storm water falls on the existing State Highway system within the study area, it sheet flows where it is captured by Caltrans drains, culverts, curbs, and/or gutters. Underground pipes direct this flow directly to the local city and/or county flood control drainage network. Storm water that falls onto the study area will ultimately be discharged into Artesia-Norwalk Drain, Coyote Creek, and San Gabriel River Reach 1. From those drainage facilities, eventually the flow path leads to the Pacific Ocean. Within the study area for the proposed Westbound State Route 91 (SR-91) Improvement Project (project), runoff from SR-91 is not discharged directly or indirectly to an Area of Biological Significance.

Existing beneficial uses apply to the water bodies to which the proposed project discharges. Beneficial uses are defined in the Los Angeles RWQCB's Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include the following:

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<sup>1</sup> State Water Resources Control Board (SWRCB). San Gabriel River Watershed. Website: [https://www.waterboards.ca.gov/rwqcb4/water\\_issues/programs/regional\\_program/Water\\_Quality\\_and\\_Watersheds/san\\_gabriel\\_river\\_watershed/summary.shtml](https://www.waterboards.ca.gov/rwqcb4/water_issues/programs/regional_program/Water_Quality_and_Watersheds/san_gabriel_river_watershed/summary.shtml) (accessed November 13, 2017).

- **Municipal and Domestic Supply:** Municipal and domestic supply waters are used for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
- **Industrial Service Supply:** Industrial service supply waters are used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Industrial Process Supply:** Industrial process supply waters are used for industrial activities that depend primarily on water quality.
- **Navigation:** Navigation waters are used for shipping, travel, or other transportation by private, military, or commercial vessels.
- **Commercial and Sport Fishing:** Commercial and sport fishing waters are used for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- **Warm Freshwater Habitat:** Warm freshwater habitat waters support warm-water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Estuarine Habitat:** Estuarine habitat waters support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, and shorebirds).
- **Marine Habitat:** Marine habitat waters support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals and shorebirds).
- **Wildlife Habitat:** Wildlife habitat waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
- **Rare, Threatened, or Endangered Species:** Rare, threatened, or endangered species waters include the uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal laws as rare, threatened, or endangered.
- **Migration of Aquatic Organisms:** Migration of aquatic organisms waters support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms (e.g., anadromous fish).

- **Spawning, Reproduction, and/or Early Development:** Spawning, reproduction, and/or early development waters support high-quality aquatic habitats suitable for the reproduction and early development of fish.
- **Shellfish Harvesting:** Shellfish harvesting waters support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption or commercial or sports purposes.
- **Water Contact Recreation:** Water contact recreation waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and using natural hot springs.
- **Non-Contact Water Recreation:** Non-contact water recreation waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.

For Coyote Creek, beneficial uses identified include municipal and domestic supply; industrial service supply; industrial process supply; warm freshwater habitat; wildlife habitat; rare, threatened, or endangered species; water contact recreation; and non-contact water recreation. For the San Gabriel River Reach 1, beneficial uses include municipal and domestic supply, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation. For the San Gabriel River estuary, existing beneficial uses include industrial service supply; navigation; commercial and sport fishing; estuarine habitat; marine habitat; wildlife habitat; rare, threatened, or endangered species; migration of aquatic organisms; spawning, reproduction, and/or early development; shellfish harvesting; water contact recreation; and non-contact water recreation. No existing beneficial uses were identified for the Artesia-Norwalk Drain.

Some segments of the San Gabriel River and its tributaries within the watershed exceed water quality objectives for various pollutants and have been identified as impaired under Section 303(d) of the CWA. To address these impairments, TMDLs have been established for some pollutants. The Artesia-Norwalk Drain is a Section 303(d) list constituent and TMDL constituent for both indicator bacteria and selenium. Coyote Creek is a Section 303(d) list constituent for ammonia, dissolved copper, diazinon, indicator bacteria, lead, pH, and toxicity, and is a TMDL

constituent for lead, copper, and zinc. The San Gabriel River Reach 1 is a Section 303(d) list constituent for coliform bacteria and pH, and a TMDL constituent for copper. The San Gabriel River Estuary is a Section 303(d) list constituent for copper, dioxin, nickel, and dissolved oxygen, and is similarly a TMDL constituent for copper.

Previous corridor storm water management studies have estimated the depth to historically high groundwater in the vicinity of the study area to range from 8 feet (ft) below ground surface (bgs) to 35 ft bgs at various site locations where infiltration basins were the selected Treatment BMPs. Per the California Department of Water Resources (DWR) Water Data Library, the nearest groundwater wells with current groundwater level and quality data are located approximately 1.8 miles (mi) south of the southern boundary of the study area, adjacent to the Cerritos Regional County Park. In June 2017, depth to groundwater at various stations at the wells ranged from 24.55 ft bgs to 90.88 ft bgs. The Basin Plan also identifies beneficial uses for groundwater where the project is located, as follows:

- **Municipal and Domestic Supply:** Municipal and domestic supply waters are used for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
- **Agricultural Supply:** Agricultural supply waters are used for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply:** Industrial service supply waters are used for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well re-pressurization.
- **Industrial Process Supply:** Industrial process supply waters are used for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, all uses of water related to product manufacture or food preparation.

Groundwater in the Coastal Plain of Los Angeles Groundwater Basin, Central Sub-Basin, in which the project is located, is characterized by the DWR as having Total Dissolved Solids (TDS) content in the sub-basin that range from 200 to 2,500 milligrams per liter (mg/l), according to data from 293 public supply wells. The average of these wells is 453 mg/l. The water quality impairments include inorganic



compounds, radiological constituents, nitrates, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).

There are no drinking water reservoirs and recharge facilities that exist within the study area; however, several flood-control reservoirs are located within the upper part of the watershed.

## **2.8.3 Environmental Consequences**

### **2.8.3.1 Temporary Impacts**

#### ***Build Alternative (includes Design Options)***

During construction of the Build Alternative, the proposed project's total DSA is estimated to be 29.25 ac. Work in this area will include the construction of mixed flow and auxiliary lanes, reconstruction of ramps and interchange improvements, widening of overhead bridge structures, construction of drainage structures, and creation of permanent water quality Treatment BMPs. Existing drainage facilities will be protected in place where possible and extended to the widening limits. During construction, sediment and sediment exposure are likely to occur while roadways are demolished and new structures are built. Other pollutants likely to occur during construction include metals, trash, petroleum products, wet and dry concrete waste, sanitary waste, and chemicals (e.g., gasoline, oils, grease, solvents, lubricants, and soap). Each of these pollutants on its own or in combination with others can have a detrimental effect on water quality.

Based on currently available information, the proposed project is classified as a Risk Level 1 project, which is considered low risk due to the project's location in an area with moderately erosive soils, but no sediment impairments. Under the Construction General Permit (CGP), the proposed project is required to prepare a SWPPP and implement erosion and sediment control BMPs during construction. When properly designed, implemented, and maintained, these BMPs serve as a project feature and avoid or minimize any temporary impacts to water quality. In addition, implementation of non-storm-water management and material management BMPs during construction would minimize the amount of chemical pollutants, such as concrete waste, and prevent them from entering surface waters. Non-storm-water management BMPs are source-control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharges, and also include procedures and practices designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, and maintenance

operations to storm water drainage systems or watercourses. Furthermore, waste management BMPs consist of implementing procedural and structural BMPs for handling, storage, and disposal of waste generated by a construction project to prevent the release of waste materials and pollutants during storm water and non-storm-water discharges.

As described in the following project features (PF-WQ-1 and PF-WQ-2), construction activities would comply with the CGP and implementation of the SWPPP, Erosion Control Plan, the BMPs described above, and performance standards from Caltrans and the County of Los Angeles storm water ordinances would avoid and minimize the potential for temporary construction-related surface water pollution and ensure that water quality in the receiving water bodies would not be adversely impacted by erosion, sedimentation, or chemical pollutants during construction.

**PF-WQ-1** Prior to commencement of construction activities, the proposed project shall comply with the provisions of the California Department of Transportation (Caltrans) National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit (Order No. 2012-0011-DWQ, as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, and Order WQ 2015-0036-EXEC, NPDES No. CAS000003) and the NPDES General Permit for Storm Water Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 2009-0009-DWQ, as amended by 2012-0006-DWQ), and any subsequent permits in effect at the time of construction.

**PF- WQ-2** Prior to commencement of construction activities, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to impact water quality. It shall be prepared per the requirements stated in the NPDES General Permit for Storm Water Discharges of Storm Water Runoff Associated with Construction Activities and any subsequent permit in effect at the time of construction. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include the construction site Best Management Practices (BMPs) to control pollutants such as sediment control, catch basin inlet protection, construction materials management and non-storm-water BMPs. All construction site BMPs

shall follow the latest edition of the *Caltrans Project Planning and Design Guide* (PPDG) (2017) and *Caltrans Construction Manual* (2017). These include but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.

Dewatering is not anticipated during construction. In the event that groundwater and any other non-storm-water dewatering activities become necessary, these activities would be subject to the requirements and permitting authority of the RWQCB.

Drainage features within the study area all have low aquatic values, primarily due to their concrete linings and lack of habitat. One drainage feature is earthen-bottomed with very little vegetation and almost no structural complexity, indicating a low aquatic habitat value. Therefore, no short-term impacts to the biological aquatic environment would occur. The BMPs outlined above identified as part of the SWPPP would avoid any impacts to aquatic species that may be present in existing downstream suitable habitat, if any.

### ***No Build Alternative***

Construction-related activities would not occur under the No Build Alternative; therefore, there would be no temporary impact to water quality or storm water runoff.

### **2.8.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

The Build Alternative represents a 5.83 ac increase in impervious surface over existing conditions due to new roadway area, interchanges, and bridges, as well as an alteration of drainage patterns on roadways. This permanent increase in impervious surface area will result in a permanent increase in runoff and pollutant loading by increasing peak loads and runoff volumes, in turn increasing the potential for erosion and sedimentation in surface waters. Contaminants in the runoff from the widened roadway could include sediments, oils, grease, and metals, similar to existing contaminants within the study area. Targeted Design Constituents are defined in the Caltrans NPDES Permit as pollutants that are expected to be generated by the proposed project and may “cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters,” or their properties, or may cause the impairment of Section 303(d) listed receiving waters. Targeted Design Constituents anticipated to be generated by the proposed project include copper, lead, pesticides, and nutrients. As required by the Caltrans NPDES Permit, the proposed

project is required to prepare a Storm Water Data Report (SWDR) and evaluate the project for the feasibility of Treatment BMPs that will be implemented during construction to the maximum extent practicable.

As described in the following project feature (PF-WQ-3), the SWDR will document the Caltrans-approved Treatment BMPs that will treat the Targeted Design Constituents listed above. Also included as a project element is the incorporation of Design Pollution BMPs that include the preservation of existing vegetation and slope and surface protection systems (e.g., permanent soil stabilization), as well as the use of 4:1 or flatter slopes. A new substantial source of pollutants would not be introduced, as the project is proposed to accommodate existing uses. Turbidity in downstream water bodies may increase due to the increase in impervious surface area. Overall, once Treatment and Design Pollution BMPs are properly designed, implemented, and maintained, no permanent adverse water quality impacts would occur.

**PF-WQ-3** Caltrans *Project Planning and Design Guide* (2017) Approved Treatment BMPs shall be implemented to the Maximum Extent Practicable (MEP) and documented in the Storm Water Data Report (SWDR), meeting requirements in the Caltrans NPDES Permit and any subsequent permits.

### ***No Build Alternative***

The No Build Alternative would not result in changes to existing drainage systems or an increase in impervious surface areas; therefore, no substantial adverse water quality-related impacts would occur.

## **2.8.4 Avoidance, Minimization, and/or Mitigation Measures**

Because potential temporary and permanent adverse impacts to water quality would be addressed by construction and permanent BMPs included as project features, no avoidance, minimization, and/or mitigation measures are necessary.

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## **2.9 Geology/Soils/Seismic/Topography**

### **2.9.1 Regulatory Setting**

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using Caltrans’ Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans’ Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

The City of Cerritos General Plan (January 2004) and City of Artesia General Plan (September 2010) both require new structures and alterations to existing structures to comply with the Los Angeles County Building Code and California Building Code in order to minimize seismic hazards.

### **2.9.2 Affected Environment**

This section summarizes information provided in the *Preliminary Geotechnical Report* (2018) and *Preliminary Geotechnical Materials Report* (2017). This section discusses the existing geologic and soils conditions within the study area.

#### **2.9.2.1 Regional Geology, Topography, and Soils**

The study area is located within the Peninsular Ranges Geomorphic Province of California, which stretches from the Los Angeles Basin to the tip of Baja California. This province is characterized as a series of northwest-trending mountain ranges separated by subparallel fault zones and a coastal plain of subdued landforms. The mountain ranges are underlain primarily by Mesozoic metamorphic rocks that were intruded by plutonic rocks of the Southern California batholith, while the coastal plain is underlain by subsequently deposited marine and non-marine sedimentary formations.



The Los Angeles Basin is a large, relatively flat, low-lying coastal plain surrounded by mountains on the north, east, and southeast. The western margin of the Los Angeles Basin is bordered by the Pacific Ocean and the Palos Verdes Hills. The floor of the Los Angeles Basin slopes gradually southwesterly from approximately 300 to 600 feet (ft) in elevation along the margins of the surrounding hills to sea level along the coastline.

Based on regional geological maps, geologic materials within the vicinity of the study area consist of predominantly sands, silts and some clay associated with the thick alluvial fan, alluvial basin, and alluvial outwash deposits derived from the San Gabriel River. These deposits consist of moderately dense to dense, porous to very porous, massive to crudely layered, slightly silty, coarse to fine sand and gravels. Old and Very Old Alluvial Fan Deposits consist of moderately to well consolidated gravel and cobble deposits within a dirty sand matrix. These materials are over 3,000 ft thick and are underlain by Tertiary-age marine formations of the San Pedro, Fernando, and Puente Formations to depths on the order of 11,000 ft, which in turn are underlain by early Tertiary formations. Mesozoic-age crystalline basement rocks are at depths of about 15,000 ft.

### **2.9.2.2 Local Geology, Topography, and Soils**

The study area is within an embayment on the central part of the Los Angeles Basin. Holocene to Late Pleistocene Young Alluvial Fan Deposits underlie the study area. The alluvial deposits are unconsolidated to slightly consolidated and are generally associated with the San Gabriel River. The State Route 91 (SR-91) elevations within the study area range from approximately 60–95 ft above mean sea level (amsl). According to the Log of Test Borings (LOTBs) for the study area, the upper 60 ft of the underlying soils generally consist of fine- to medium-grained, loose to medium dense, silty and clayey sand, sandy silt, poorly graded sand, and clayey silt. Interbeds of soft silt and clay and occasionally organic materials were also observed. Below 60 ft, the soils become generally fine to coarse, dense silty sand with varying amount of gravel.

### **2.9.2.3 Geologic Hazards**

Geologic hazards relevant to the proposed project include seismic ground shaking, localized soil liquefaction, and seismic settlement. The following geologic hazards were reviewed and determined not to be relevant to the proposed project; therefore, they are not discussed later in 2.9.3, Environmental Consequences:

- **Tsunami and Seiches:** Seiches are large waves generated in enclosed bodies of waters, such as lakes, in response to ground shaking. Tsunamis are waves generated in large bodies of water as a result of fault displacement or major ground movement. There are no enclosed bodies of water near the study area and the Pacific Ocean is approximately 17.25 miles (mi) west of the study area. As a result, the existing potential risks related to tsunamis and seiches are considered negligible.
- **Seismically-induced Landslides:** The study area is not located within an earthquake-induced landslide zone (California Geological Survey 1999). Evidence of landslides was not observed during the site investigation and the study area topography is relatively flat. Additionally, according to the City of Cerritos General Plan Safety Element (January 2004), Cerritos does not have the potential for landslides. The City of Artesia General Plan Geology and Soils Element (September 2010) states that Artesia is not located within a mapped Earthquake-Induced Landslide Zone of Required Investigation and earthquake-induced landsliding is not anticipated to occur.
- **Rock Falls:** The City of Cerritos General Plan (January 2004) and the City of Artesia General Plan (September 2010) do not document rock fall areas. As discussed above, the study area consists of relatively flat topography, and geologic hazards (e.g., landslide areas as a result of steep slopes) have not been mapped in the project area. Therefore, rock fall hazards are unlikely to occur in the project area.
- **Slope Instability:** The existing embankment slopes along the proposed project alignment are generally inclined 1.5:1 (horizontal:vertical) or flatter and are generally vegetated. No sign of slope instability was observed during site investigation. No hazardous geologic structure exists near the surface that may cause instability of the existing embankments.
- **Scour:** Scour is not anticipated because no drainage channels or creeks cross the study area.
- **Soil Corrosion:** According to the *Preliminary Geotechnical Materials Report* (2017), due to a predominance of granular soils throughout the study area, the soils are not expected to be corrosive.
- **Volcanic Hazards:** There are no active, potentially active, or inactive volcanoes in Los Angeles County. Therefore, volcanic hazards would not affect the study area.

- **Economical Resources/Mineral Hazards:** The City of Cerritos and City of Artesia General Plans as well as the map of Aggregate Sustainability in California<sup>1</sup> do not identify economical resources/mineral resources in the study area.

### ***Faulting and Seismicity***

The study area is located in a seismically active region of Southern California. Historical epicenter maps show widespread seismicity throughout the Los Angeles Basin. Although historical earthquakes occur in proximity to known faults, they are difficult to directly associate with mapped faults. Part of this difficulty is due to the fact that the Los Angeles Basin is underlain by several subsurface thrust faults (blind faults). Earthquakes in the region occur primarily as loose clusters along the Newport-Inglewood Structural Zone (NISZ), along the southern margin of the Santa Monica Mountains, the southern margin of the Santa Susana and San Gabriel Mountains, and in the Coyote Hills-Puente Hills area.

The study area is not located within an Alquist-Priolo Fault Zone. The closest significant active fault with Holocene surface rupture is the Newport-Inglewood-Rose Canyon Fault, crossing approximately 6.3 mi southwest of the Interstate 605 (I-605)/SR-91 interchange. This fault zone is believed to be capable of producing a 7.2 magnitude earthquake. The closest mapped active fault with surface rupture is the late Quaternary Los Alamitos Fault, located approximately 3 mi southwest of the I-605/SR-91 interchange. In addition, the Anaheim Fault crosses SR-91 at the on-ramp of Bloomfield Avenue; however, the top of the rupture plane of this Holocene-age fault is approximately 2.4 mi below ground surface. The locations of these faults are shown on Figure 2.9-1.

The nearest substantial local sources of earthquakes and estimated peak ground acceleration (PGA) are summarized in Table 2.9.1.

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<sup>1</sup> California Geological Survey. Aggregate Sustainability in California. 2012. Website: [http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS\\_52\\_2012.pdf](http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS_52_2012.pdf) (accessed December 18, 2017).

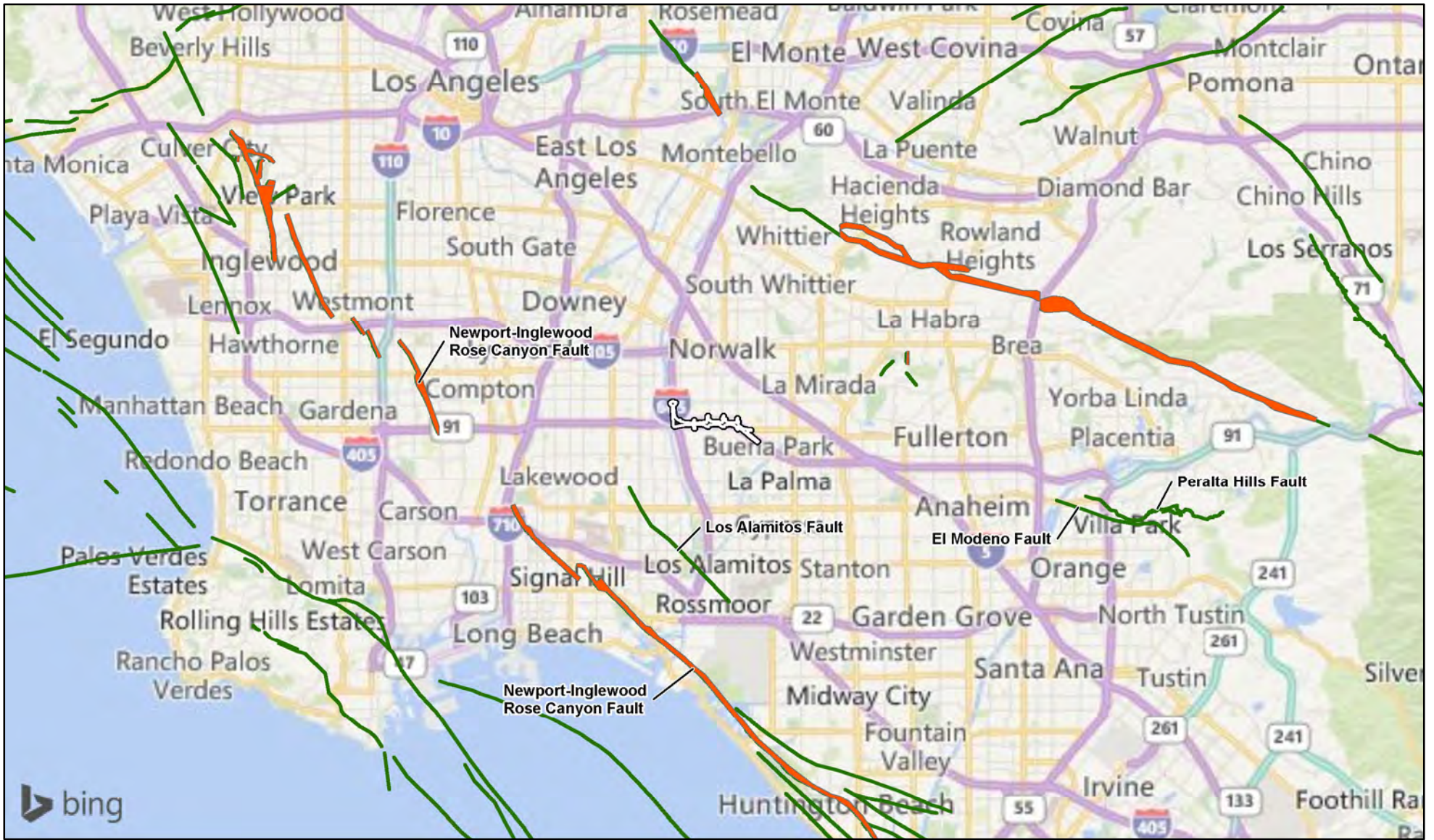



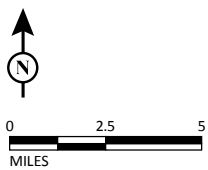


FIGURE 2.9-1

LEGEND

-  Project Location
-  Alquist-Priolo Earthquake Fault Zones
-  Quaternary Faults (>6 Magnitude in Last 1.6 Million Years)



SOURCE: Bing Maps (2015); Michael Baker (11/2017)  
 I:\RBF1601\GIS\MXD\ISEA\Faults.mxd (3/30/2018)

Westbound SR-91 Improvement Project  
 Active Fault Map

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811

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**Table 2.9.1 Closest Active Faults Information**

| Controlling Deterministic Faults | Fault ID | Fault Type | Dip  | Mmax | RRUP (km) | Factors Used      | Basin Effect         |                      | PGA (g) |      |      |
|----------------------------------|----------|------------|------|------|-----------|-------------------|----------------------|----------------------|---------|------|------|
|                                  |          |            |      |      |           |                   | Z <sub>1.0</sub> (m) | Z <sub>2.5</sub> (m) | D       | P    | C    |
| Puente Hills (Santa Fe Springs)  | 359      | Rev        | 29°V | 6.6  | 4.863     | Basin, Near Fault | 800                  | 5.43                 | 0.54    | 0.61 | 0.61 |
| Puente Hills (Coyote Hills)      | 361      | Rev        | 26°V | 6.8  | 6.115     | Basin Near Fault  |                      |                      | 0.51    |      |      |
| Compton                          | 367      | Rev        | 20°V | 6.9  | 10.548    | Basin Near Fault  |                      |                      | 0.55    |      |      |

Source: *Preliminary Geotechnical Report* (2018).

°V = degrees vertical

C = Controlling

D = Deterministic

g = value of acceleration equal to 32 feet/second<sup>2</sup>

km = kilometers

m = meters

Mmax = maximum magnitude

P = Probabilistic

PGA = peak ground acceleration

Rev = Reverse

RRUP = closest distance to a fault rupture plane

Z<sub>1.0</sub> = depth to a shear-wave velocity of 1.0 kilometer/second

Z<sub>2.5</sub> = depth to a shear-wave velocity of 2.5 kilometers/second

PGA is a measurement of maximum ground acceleration in a particular area and is an important factor for structural engineering against earthquake damage for things such as roads, bridges, and buildings. It can be described as how hard the ground may shake in a given geographic area based on several factors (e.g., the distance from an active fault, the maximum expected earthquake from that fault, and the underlying geologic units). The study area is likely to experience strong ground motion with an approximate PGA of 0.61 g.<sup>1</sup>

### **Groundwater**

Neither SR-91 nor I-605 cross over a drainage channel or creek within the study area. Coyote Creek is located approximately 1.35 mi east of the SR-91/Shoemaker Avenue interchange, and the San Gabriel River is located approximately 1,500 ft west of the I-605/SR-91 interchange. Excavations and cut slopes from the proposed project are not anticipated to encounter seepage from these concrete-lined channels. Based on 1960s LOTBs, the groundwater elevation along SR-91 ranged from 38 ft amsl at the I-605 interchange to 53 ft amsl at Bloomfield Avenue. The groundwater elevation at I-605/Alondra Avenue was approximately 46 ft amsl. Per the GeoTracker database (2017), groundwater elevations are generally in the range of 49–53 ft amsl within the study area, or approximately 7 to 12 ft below the existing ground surface in the vicinity of SR-91 and approximately 20 ft below the existing ground surface at I-605/Alondra Boulevard. Based on available data, the historical high groundwater elevation appears to be higher than today.

<sup>1</sup> “g” is a common value of acceleration equal to 32 feet/second<sup>2</sup>.



According to the California Water Science Center (2017), the study area is located within the Los Angeles/Santa Ana basin, which is known to be subject to subsidence due to groundwater pumping. Therefore, there is a potential for subsidence within the study area.

### ***Liquefaction Potential and Seismic Settlement***

Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid, potentially resulting in large total and differential ground surface settlements as well as possible lateral spreading during an earthquake. Based on the California Geological Survey (CGS) Seismic Hazard Maps, the study area is located within a liquefaction study zone. Underlying soils within the study area are expected to consist of fine- to medium-grained, loose to medium dense sand. The groundwater table is relatively shallow, and the site is subject to strong ground motion. Therefore, liquefaction potential is high. The preliminary estimate for free-field liquefaction settlement ranges between 4 and 8 inches at different locations of the study area.

According to the City of Cerritos General Plan Safety Element (January 2004), the entire city of Cerritos is located within a Liquefaction Hazard Zone. According to the City of Artesia General Plan (September 2010), Artesia is located within a mapped Liquefaction Zone of Required Investigation.

## **2.9.3 Environmental Consequences**

### **2.9.3.1 Temporary Impacts**

#### ***Build Alternative (includes Design Options)***

##### ***Soil Erosion***

Construction of the Build Alternative would result in a total disturbed soil area (DSA) of approximately 29.25 acres (ac). Excavated soil in the construction areas would be exposed and, as a result, there would be an increased potential for soil erosion during construction compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. Temporary cut slopes would follow the guidelines of the California Department of Transportation's (Caltrans) *Trenching and Shoring Manual* (Caltrans 2011), and the Occupational Safety and Hazard Administration (OSHA) 29 Code of Federal Regulations (CFR) 1926 Subpart P would be followed for temporary excavations.

During all construction activities for the Build Alternative, the construction contractor will be required to adhere to the requirements of the General Construction Permit and

to implement erosion and sediment control best management practices (BMPs) specifically identified in the project Storm Water Pollution Prevention Plan (SWPPP) to keep sediment from moving off site into receiving waters and impacting water quality. Refer to Section 2.8, Water Quality and Storm Water Runoff, for additional discussion regarding construction-related water quality issues and mitigation, including BMPs.

Worker safety hazards resulting from erosion during construction of the Build Alternative would be minimized based on implementation of the requirements in the General Construction Permit and erosion and sediment control BMPs in the SWPPP.

#### *Ground Motion*

Construction activities could be affected by ground motion from seismic activities. Possible ground rupture, liquefaction, and consolidation settlement could occur in the study area if an earthquake were to occur during construction. Implementation of safe construction practices and compliance with Caltrans and the California Division of Occupational Safety and Health Administration (Cal/OSHA) safety requirements would minimize the impacts to worker safety during construction activities.

#### **No Build Alternative**

Under the No Build Alternative, the temporary construction-related impacts discussed above for the Build Alternative would not occur because there would be no construction of the proposed project improvements under this alternative.

### **2.9.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

##### *Local Geology, Topography, and Soils*

The Build Alternative would not result in permanent substantive changes to the topography in the study area because the improvements would generally be constructed at or close to the same grade as the existing SR-91 and I-605.

The proposed grading is not anticipated to increase the potential for erosion within the study area because the proposed slopes would be flatter than the existing slopes. In addition, no excessive erosion was observed for the existing slopes. Caltrans requirements for erosion protection such as control of irrigation and surface runoff, surface soil compaction, and slope planting/paving would be followed. These measures would be sufficient to reduce erosion potential effectively.

As discussed in Section 2.9.2, soils within the study area are predominantly silty and clayey sand, sandy silt, poorly graded sand, and clayey silt. The sandy soils are primarily silty sand, which are not considered to be expansive. The clayey soils consist of sandy and clayey silt and silty clay; the corresponding expansion potential is considered to be moderate to high. Design and construction of the proposed improvements would comply with the Caltrans *Highway Design Manual* (HDM) (December 2016) and other required standards, and recommendations from the *Preliminary Geotechnical Report* (2018), as included in Project Feature PF-GEO-1.

**PF-GEO-1 Geotechnical Investigation.** During the Plans, Specifications, and Estimates (PS&E) phase, a detailed geotechnical investigation will be conducted by qualified geotechnical personnel to further assess the geotechnical conditions at the project area. The geotechnical investigation will include exploratory borings and cone penetration test soundings to investigate site-specific soils and conditions and to collect samples of subsurface soils for laboratory testing. Those soil samples will be tested to evaluate moisture content and dry density, grain-size distribution, percent passing No. 200 sieve, Atterberg limits, expansion index, corrosivity, consolidation, and direct shear. The project-specific findings and recommendations of the geotechnical investigation will be summarized in a structure foundation report and a geotechnical design report to be submitted to the California Department of Transportation (Caltrans) for review and approval. Those findings and recommendations will be incorporated in the final design of the selected Build Alternative.

Adherence to recommendations within these reports would substantially reduce substantial adverse effects from geologic hazards. In addition, surficial soils that are sandy can be susceptible to soil erosion produced by running water. The clayey surficial soils are expected to expand when wet and to crack upon drying. Cracking allows infiltration of water from storms and irrigation, ultimately causing loosening of the surficial soils. This results in an increase of soil erodibility. Proposed fill slopes are generally 4:1 (horizontal:vertical), which satisfies the Caltrans HDM requirements for side slopes. Other proposed grading requires 1.5:1 (horizontal:vertical) or flatter cut slopes. The revegetation and engineering of graded slopes specified in Project Feature PF-GEO-2 will be performed prior to construction to minimize the soil erodibility and slope stability.

**PF-GEO-2 Slope Protection.** Prior to construction, revegetation of graded slopes should be performed to minimize erosion. In addition, slopes along the northbound extent of the Pioneer Boulevard and Norwalk Boulevard undercrossings are recommended to either have slopes of at least 2:1 (horizontal:vertical) or the slopes should be benched or paved to have an adequate factor of safety. Alternatively, a slope stability analysis would be performed per the specifications listed in the Preliminary Geotechnical Report. An engineering geologist would observe all cut slopes during grading to ensure no unforeseen adverse conditions occur.

Additionally, Section 2.8, Water Quality and Storm Water Runoff, contains additional project features related to soil erosion, including BMPs; and Section 2.11, Hazardous Waste/Materials, contains additional project features related to hazardous wastes and materials.

*Faulting and Seismicity, Settlement, Groundwater, and Liquefaction*

The main geotechnical considerations for the study area are the presence of potentially compressible (shallow and deep) and liquefiable soils. Settlement is anticipated at the SR-91 crossing street on-/off-ramps where approach fills are required. Preliminary liquefaction settlement estimates indicate settlements between 4 inches and 8 inches could occur within the study area. As mentioned above, future subsidence of the site should also be expected. Recommendations to reduce the compressibility of soils and potential for liquefaction would be followed, as included in Project Feature PF-GEO-3.

**PF-GEO-3 Soil Settlement and Liquefaction.** Surcharge loading in combination with wick drains should be utilized in areas with compressible soils to reduce settlement potential. Embankment areas could also be over-excavated and backfilled with lightweight materials. Remedial grading beneath the walls foundation will be required if shallow foundations are considered. In addition, deep foundations may be recommended depending on the results of the site-specific geotechnical investigation (see project feature PF-GEO-1 above). The top 5 feet of existing soil will need to be excavated in areas that will receive embankment fill and retaining walls, and be recompacted to 95 percent relative compaction. All recommendations listed in the *Preliminary Geotechnical Report* (2018) and site-specific geotechnical

investigation related to remedial grading, foundations, and earth pressures would be implemented as included in the project specifications.

Although subsidence and liquefaction can be expected within the study area due to the presence of groundwater, no adverse effects to groundwater are expected to occur. This is because groundwater is expected to be at least 7 ft below the ground surface in the study area. Because the anticipated earthwork is minimal and mostly consists of fill placement rather than deep excavations, installation of dewatering systems and adverse effects to groundwater are not anticipated.

### ***No Build Alternative***

Under the No Build Alternative, the permanent impacts discussed above for the Build Alternative would not occur because none of the proposed permanent improvements provided in the Build Alternative would be implemented and operated under this alternative.

### **2.9.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features described in Section 2.9.3.2, no substantial adverse impacts related to geology, soils, and seismicity would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

## 2.10 Paleontology

This section is based on the *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER) (2017 and 2018 Errata).

### 2.10.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized project.

- 23 United States Code (USC) 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.
- 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

### 2.10.2 Affected Environment

A paleontological resource locality search for any known localities within and surrounding the study area was completed through the Natural History Museum of Los Angeles County (LACM) in May 2017. Relevant geologic maps and geological and paleontological literature were reviewed. A pedestrian survey of the study area was conducted on May 31, 2017.

The study area is within the northern Peninsular Ranges Geomorphic Province, a large structural block that extends from the Transverse Ranges in the north to the tip of Baja California. Within this larger region, the study area is located in the Los Angeles Basin, which is a broad alluvial plain bounded by mountains to the north and east and the Pacific Ocean to the west and south.

Geologic mapping indicates the entire study area is underlain by Holocene to late Pleistocene (less than 126,000 years ago) Alluvial Fan and Valley Deposits, Undivided. Although not mapped, Artificial Fill is likely present from the surface to varying depths throughout much of the study area where it was placed during construction of the existing freeways, streets, overcrossings, and undercrossings. Because of its disturbed context, Artificial Fill does not have the potential to contain



scientifically important paleontological resources. The upper 10 feet (ft) of the Young Alluvial Fan and Valley Deposits, Undivided are unlikely to contain scientifically important paleontological resources because of their young age (likely less than 4,200 years). However, the sediments of the Young Alluvial Fan and Valley Deposits, Undivided below a depth of 10 ft may be old enough to contain scientifically important paleontological resources.

The results of the locality search through the LACM indicated that the study area contains Younger Quaternary Alluvium overlain by Older Quaternary Alluvium (i.e., Young Alluvial Fan and Valley Deposits, Undivided). According to the locality search conducted by the LACM, there are no vertebrate fossil localities within the study area. However, LACM has records of several fossil localities near the project site from deposits similar to those found in the study area. The museum notes that these deposits are not usually paleontologically sensitive in the uppermost layers, but that scientifically important fossils may be encountered in the older deposits found at varying depths. The closest vertebrate fossil locality recorded by the LACM in these older deposits is located southwest of the study area on the northwest side of the Long Beach Airport, along Cover Street between Pixie Avenue and Paramount Boulevard. This locality, LACM 3660, produced a specimen of fossil mammoth (*Mammuthus*) at a depth of 19 ft below the surface. Farther southwest of the study area, near Bixby Road between Atlantic Avenue and Orange Avenue, locality LACM 6802 produced fossil specimens of undetermined vertebrates at a depth of 16 ft below the surface. South-southwest of the study area, near the intersection of Spring Street and Cherry Avenue south of the San Diego Freeway (Interstate 405 [I-405]), locality LACM 1021 produced fossil specimens of bird (*Aves*) and mammoth (*Mammuthus*) at an unknown depth. LACM 3347 is located where Older Quaternary deposits are mapped at the surface to the northeast of the project area, north of Leffingwell Road east of La Mirada Boulevard. This locality produced a fossil specimen of horse (*Equus*) at a depth of only 2 ft below the surface.

The pedestrian survey indicated that most of the study area is underlain by Artificial Fill. Other sediments observed are consistent with the Young Alluvial Fan and Valley Deposits, Undivided mapped in the study area.

## **2.10.3 Environmental Consequences**

### **2.10.3.1 Temporary Impacts**

#### ***Build Alternative (includes Design Options)***

The construction of the Build Alternative would not result in temporary impacts to paleontological resources because the impacts to those types of resources during construction would be considered permanent as described in Section 2.10.3.2.

#### ***No Build Alternative***

Under the No Build Alternative, none of the proposed improvements to State Route 91 (SR-91) and Interstate 605 (I-605) would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in temporary impacts related to paleontological resources as a result of construction activities.

### **2.10.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

Excavation that extends more than 10 ft below the original ground surface could result in impacts to paleontological resources. Construction of the Build Alternative requires a maximum depth of 20 ft for retaining wall and sound wall piles and 30 ft for piles for the Gridley Road overcrossing and Bloomfield Avenue overcrossing piers. As such, excavation for these construction activities may have the potential to impact paleontological resources. The potential impacts would be avoided or minimized through the following project feature:

**PF-PAL-1 Paleontological Mitigation Plan.** A Qualified Paleontologist shall prepare a Paleontological Mitigation Plan (PMP) following the guidelines in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (June 2016 or more current) and guidelines developed by the Society of Vertebrate Paleontology (SVP 2010). The PMP shall be prepared concurrently with final design plans during the Plans, Specifications, and Estimates (PS&E) phase.

#### ***No Build Alternative***

Under the No Build Alternative, none of the proposed improvements to SR-91 and I-605 would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in permanent adverse impacts related to paleontological resources as a result of construction activities.

#### **2.10.4 Avoidance, Minimization, and/or Mitigation Measures**

As the Build Alternative would not result in any temporary or permanent paleontological resources related impacts, no avoidance, minimization, or mitigation measures are required.

## 2.11 Hazardous Waste/Materials

### 2.11.1 Regulatory Setting

Hazardous materials, including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 as amended, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as “Superfund,” is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

### 2.11.2 Affected Environment

The information presented in this section is based on the *Phase I Initial Site Assessment* (ISA) (2018) prepared for the project.

#### 2.11.2.1 Field Survey and Record Search Methodology

The following were conducted as part of the ISA:

- **Reconnaissance-Level Visit:** On July 14, 2017, October 12, 2017, January 12, 2018, and January 18, 2018, a site reconnaissance visit consisting of both the visual observation and photographic documentation of existing conditions and the nature of the development within the study area was conducted. The visit included observations of specific properties for evidence of release(s) and assessment of the potential for on-site releases of hazardous materials and petroleum products.
- **Environmental Database Review:** A regulatory database search of known potential hazardous materials on site, including federal and State environmental databases for the study area, was conducted on June 23, 2017 and October 10, 2017.
- **Agency Records Review:** The California Department of Toxic Substances Control (DTSC) Hazardous Materials Division and the Los Angeles Regional Water Quality Control Board (RWQCB) were contacted to obtain documentation for properties within and adjacent to the existing and proposed right-of-way (ROW) for the Build Alternative.
- **Historical Research:** Aerial photographs, Sanborn Fire Insurance Maps, and historical topographic maps of the study area were reviewed.
- **Aerially Deposited Lead Site Investigation Report Review:** Soil sampling results from an aerially deposited lead (ADL) site investigation within the study area were reviewed.
- **Interview:** Interviews were conducted with key site personnel, as available, regarding current and previous uses of the study area, particularly activities involving hazardous substances and petroleum products.

Based upon records searches and field surveys, issues include the potential occurrence of ADL, yellow traffic striping, asbestos-containing materials (ACM),

lead based paint (LBP), pesticides, treated wood waste (TWW), and polychlorinated biphenyls (PCBs) as presented in Table 2.11.1.

**Table 2.11.1 Hazardous Waste/Materials of Concern**

| Hazardous Waste/Materials of Concern | Occurrence   |
|--------------------------------------|--|
| Aerially Deposited Lead (ADL)        | ADL contamination is generally found in unpaved soil due to historical use of lead-containing fuel.  |
| Yellow Traffic Striping              | Yellow traffic stripes that need to be removed may contain lead and chromium at concentrations that are considered hazardous.  |
| Asbestos Containing Material (ACM)   | ACMs were used in construction until the late 1970s.   |
| Lead Based Paint (LBP)               | Building materials used prior to 1978 may contain LBP.   |
| Pesticides                           | The potential exists for persistent pesticides to be present in soil as a result of using pesticides for weed control. It is recommended that the soil be sampled and analyzed for organochlorine pesticides (OCPs). |
| Treated Wood Waste (TWW)             | TWW comes from old wood that has been treated with chemical preservatives.   |
| Polychlorinated Biphenyls (PCBs)     | PCBs were used in the past as insulating oils in electrical transformers, fluorescent light ballasts, and/or as hydraulic oils in elevator equipment prior to the 1980s.   |

Source: *Phase I Initial Site Assessment* (2018).

### 2.11.3 Environmental Consequences

#### 2.11.3.1 Temporary Impacts

##### ***Build Alternative (includes Design Options)***

Temporary impacts related to hazardous waste/materials during project construction could occur within the maximum disturbance limits for the Build Alternative and design options on individual properties identified for full acquisition, as described in the following sections. No hazardous waste/materials concerns were observed or reported within parcels proposed for temporary construction easements (TCEs) and/or partial acquisitions under the Build Alternative and design options. The temporary impacts discussed below apply to the Build Alternative and all design options.

##### ***Aerially Deposited Lead***

The *ADL Site Investigation Report* (2014) indicated that soil samples with concentrations of lead that exceed regulatory limits were taken at a majority of the on- and off-ramp locations along State Route 91 (SR-91) between Interstate 605 (I-605) and Shoemaker Road. Project Feature PF-HAZ-1 would minimize this effect.

Aerially deposited lead (ADL) from the historical use of leaded gasoline exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of ADL on the state highway system right of way within the limits of the Build Alternative. Soil determined to contain lead



concentrations exceeding stipulated thresholds must be managed in a manner to determine whether such soils may be safely reused within the project limits.

**PF-HAZ-1** During construction, excess aerially deposited lead (ADL) contaminated soils require special handling and waste management, especially when disturbed during earthmoving activities. California Department of Transportation (Caltrans) Office of Environmental Engineering will initiate a project-specific ADL site investigation to evaluate whether the excess ADL-contaminated soils generated can be reused within the project limits. If the excess ADL soils cannot be reused within the project limits, the site investigation will also determine whether they are classified as federal or State hazardous waste that requires off-site disposal at a permitted Class I California hazardous waste disposal facility or can be relinquished to the contractor with or without restrictions on use.

#### *Pavement Marking Materials*

Yellow traffic striping and pavement-marking materials (e.g., paint, thermoplastic, permanent tape, and temporary tape) that would be removed during construction of the Build Alternative may contain elevated concentrations of metals such as lead. Removal of these materials during construction could affect construction workers and the surrounding environment. Project Feature PF-HAZ-2 would minimize this effect.

**PF-HAZ-2** During construction, yellow traffic striping and pavement marking materials will be tested for lead and lead chromate. If hazardous materials are discovered, the project specifications will direct the Construction Contractor to remove and properly dispose of any materials in accordance with the Caltrans *Construction Manual* (July 2017), Chapter 7, Section 7-107, Hazardous Waste and Contamination.

#### *Asbestos-Containing Materials and Lead-Based Paint Related to Structures*

The Build Alternative will require the relocation of 18 single-family residences and two commercial parcels located within the northern portion of Artesia, north of the project segment of SR-91. The Build Alternative would also require improvements to the following bridges: Studebaker Road (both the SR-91 mainline Undercrossing [Br. No. 53-1706] and the westbound SR-91 to I-605 Connector Undercrossing [Br. No. 53-1707F]), Gridley Road Overcrossing (Br. No. 53-1324), Pioneer Boulevard Undercrossing (Br. No. 53-1335), Norwalk Boulevard Undercrossing (Br. No. 53-

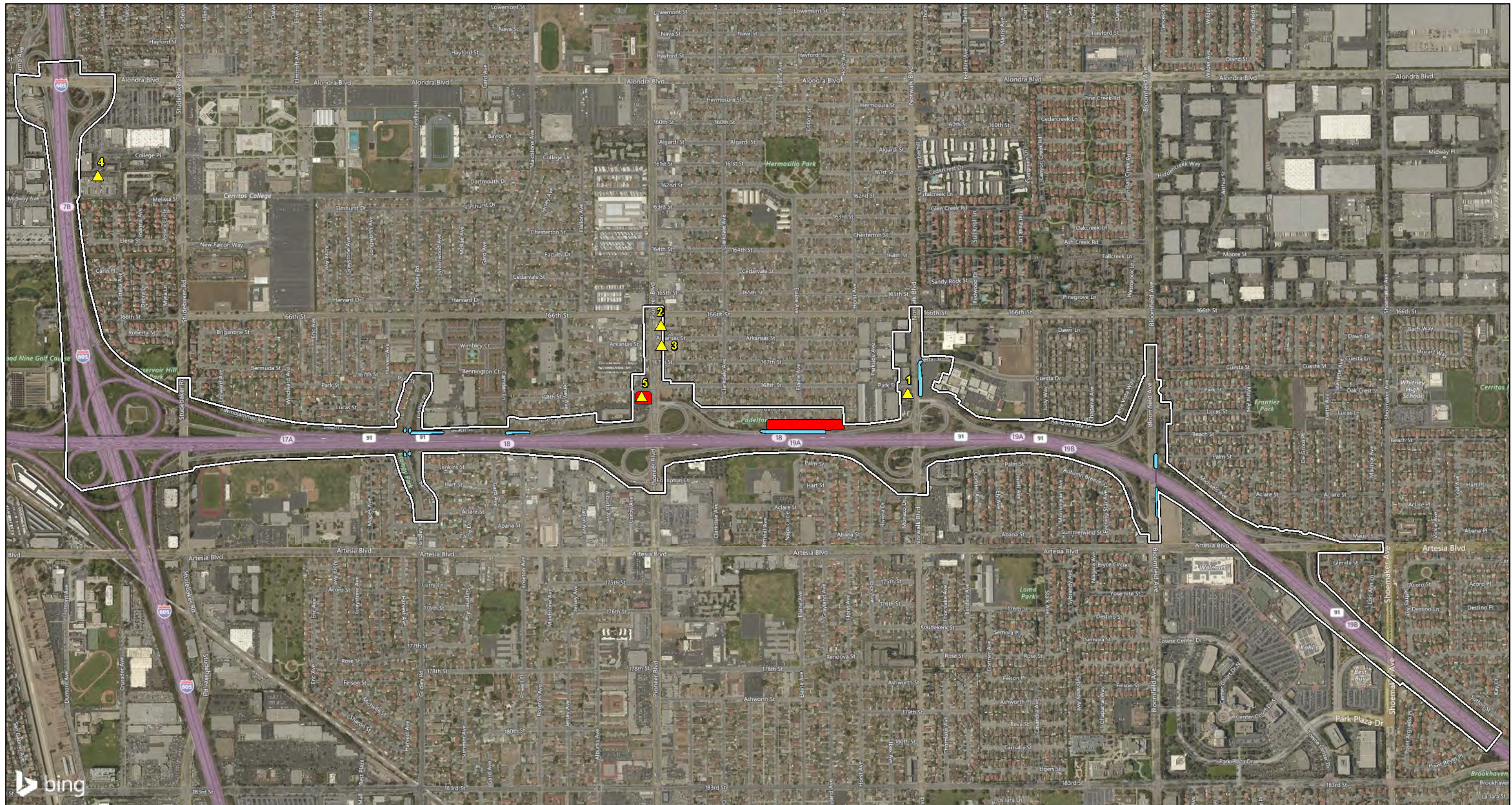
1334), and Bloomfield Avenue Overcrossing (Br. No. 53-1433). . The Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would result in five residential displacements. Based on the construction dates of these structures, ACMs and LBP may be present in these bridges and structures. ACMs and LBP represent a concern during demolition of these bridges and structures. The acquired parcels are shown on Figure 2.11-1. Project Features PF-HAZ-3, PF-HAZ-4, PF-HAZ-5, PF-HAZ-6, and PF-HAZ-7 specifically require proper testing, monitoring, removal, disposal of ACMs and LBP, as well as focused ISAs and recommended site investigations.

**PF-HAZ-3** After property acquisition and prior to demolition, structures and bridges that are proposed to be demolished and/or modified within State Route 91 (SR-91) right-of-way (ROW) will be assessed for the possible presence of asbestos-containing materials (ACMs) and lead-based paint (LBP). These studies will be conducted by trained and/or licensed professionals and will comply with the United States Environmental Protection Agency (EPA), the National Emission Standards for Hazardous Air Pollutants (NESHAPs), Title 40 of the Code of Federal Regulations (CFR), the Southern California Air Quality Management District (SCAQMD) Rule 1403, and guidelines from the Department of Housing and Urban Development (HUD) and California Department of Public Health (CDPH). The results of these studies will provide a description of the locations of the ACMs and LBP; their estimated quantities; and recommendations for their removal, containment, and off-site transportation and disposal.

**PF-HAZ-4** Qualified Professionals will complete an ACM and LBP survey on the structures and bridges that were constructed before 1979 during the Plans, Specifications, and Estimates (PS&E) phase. The ACM and LBP study will be conducted by trained and/or licensed professionals and will comply with the EPA, HUD, and CDPH guidelines. The ACM and LBP study report will provide a description of the ACM and LBP locations; the estimated quantities of ACM and LBP; and specific requirements for the removal, containment, and off-site transport and disposal of materials containing ACM and LBP from the acquired properties. The requirements from that study will be included in the project specifications for implementation during project construction.

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**LEGEND**

- Study Area Limits
- Full Acquisition
- Partial Acquisition
- ▲ Potential Hazardous Materials Sites



0 525 1050  
FEET

SOURCE: Bing Maps (2015); Michael Baker (11/2017)

I:\RBF1601\GIS\MXD\ISEA\HazSites.mxd (3/26/2018)

**FIGURE 2.11-1**

**Westbound SR-91 Improvement Project  
Potential Hazardous Materials Sites**

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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**PF-HAZ-5** The Construction Contractor will implement the requirements in the ACM and LBP survey report as included in the project specifications.

**PF-HAZ-6** During Plans, Specifications, and Estimates (PS&E), a focused Initial Site Assessment (ISA) will be prepared for all commercial/industrial properties and, based on the focused ISA, a Phase II Site Investigation may be recommended. A Phase II Site Investigation shall be prepared for all commercial/industrial properties proposed for partial or full acquisition, including any necessary highway easements, utility easements, and/or temporary construction easements associated with the property.

**PF-HAZ-7** During construction, the Construction Contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the Construction Contractor will be required to cease work in the area and to have a Qualified Professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 of the Caltrans *Construction Manual* (July 2017). Adequate protection for construction workers will be provided with the implementation of a Health and Safety Plan and Soil Management Plan.

### *Pesticide Use*

Due to the historical use of many areas within or in the vicinity of the study area as agricultural land, soils within the study area may contain residue pesticide. However, it is likely that the previous construction of SR-91 and I-605 will have reduced the potential for pesticide contamination within the project limits. Project Features PF-HAZ-8 and PF-HAZ-9 require a site investigation be performed for any undeveloped areas that might contain elevated contaminations of pesticide to identify whether any residual contamination from the past agricultural uses is still present, and to determine if any potential hazards may occur during construction activities associated with residual contamination. As a result, the Build Alternative would not result in adverse impacts related to residual contamination from the past agricultural uses within the study area.



- PF-HAZ-8** Soil sampling for pesticides on any former agricultural parcels will be completed during the PS&E phase. Samples will be collected and analyzed to evaluate the presence or absence of residual organochlorine pesticides and arsenical herbicides. The soil sampling will be conducted in general accordance with DTSC Interim Guidance for Sampling Agricultural Fields for School Sites (August 26, 2002). The performance standard of soil sampling for this measure complies with applicable federal, State, and local regulations regarding the removal, handling, transport, and disposal of soils contaminated with pesticides. The analytical results of the soil sampling will determine the appropriate handling and disposal of the soil.
- PF-HAZ-9** During construction, the construction contractor will properly dispose of all soils exceeding the criteria for State or federal hazardous waste at an appropriate State-certified landfill facility.

#### *Treated Wood Waste*

Removal of sign posts and/or guard rails located along the SR-91 and I-605 ROW as well as at on/off ramps during construction of the Build Alternative would generate TWW. Removal of these materials during construction could affect construction workers and the surrounding environment. Project Feature PF-HAZ-10 would minimize this effect.

- PF-HAZ-10** Caltrans follows regulations adopted by the California Department of Toxic Substances Control (DTSC) when managing treated wood waste (TWW) to prevent releases of hazardous chemical preservatives, scavenging, and harmful exposure to people, aquatic life and animals. During construction, TWW may be handled as a regulated solid waste. TWW may be disposed in a State Water Resources Control Board certified solid waste landfill, rather than a hazardous waste landfill.

#### *PCBs*

Polychlorinated biphenyls (PCBs) were used in the past as insulating oils in electrical transformers, fluorescent light ballast, and/or as hydraulic oils in elevator equipment prior to the 1980s. There are 21 electrical distribution transformers (both ground-mounted and utility pole-mounted) present within the project area along the north side of SR-91 and east side of I-605. Of these 21, 8 are located over bare soil and 1 is located partially over bare soil. Soil disturbance during construction activities may

affect construction workers and the surrounding environment. Project Feature PF-HAZ-11 would minimize this effect.

**PF-HAZ-11** Prior to site disturbance activities, the soil beneath transformers that are located over bare soils shall be sampled for polychlorinated biphenyls (PCBs). Soil samples shall be collected using either hand auger or direct-push methodology. The samples will be collected from the upper 6 inches, followed by a 1-foot depth, and then 1-foot intervals thereafter to a total depth not to exceed 4 feet below surface grade (bsg). The soil samples will be analyzed for PCBs using United States Environmental Protection Agency (USEPA) Method 8082.

*Potentially Contaminated Soil and/or Groundwater*

Five properties that have contributed to known groundwater impacts are located in the vicinity of the maximum disturbance limits of the Build Alternative. These five properties are located at 16821 Norwalk Boulevard, 16604/16620 Pioneer Boulevard, 16632 Pioneer Boulevard, 10802 College Place, and 16809 Pioneer Boulevard. Due to the nature of the businesses and the proximity of these properties to the maximum disturbance limits for the Build Alternative, there is potential that contaminated groundwater originating at those parcels could be encountered during construction of the project. Project Feature PF-HAZ-12 specifically requires that a site investigation be performed on these parcels to identify potential hazards that may occur during project construction associated with contaminated soil and groundwater.

**PF-HAZ-12** A preliminary site investigation will be initiated and completed during PS&E on the five properties that will not be fully or partially acquired or used during construction but are adjacent to the maximum disturbance limits. The preliminary site investigation will assess the presence or absence of impacts associated with the hazardous waste concerns.

The site investigation will provide the appropriate avoidance, minimization, or mitigation for those hazards. As a result, the Build Alternative would not result in adverse impacts related to contaminated soil and/or groundwater at these parcels.

Hazardous materials present in the study area or in the project vicinity based on the database search, historical records review, reconnaissance-level visit, and interviews are listed in Table 2.11.2 and shown on Figure 2.11-1.

**Table 2.11.2 Hazardous Materials in the Study Area**

| Figure 2.11-1 ID | Property Name and Address  | Description  |
|------------------|--|--|
| 1                | Shell Gas Station<br>16821 Norwalk Boulevard                             | The property is listed as a previous leaking underground storage tank (LUST); the current status of the case is open with eligibility for closure. An enclosure is present with a National Fire Protection Association (NFPA) placard identifying a flammable hazardous material. The property appeared well-maintained and clean, with no obvious spills or leaks. The LUST site is considered a potential Recognized Environmental Condition (REC) and would be dependent on issuing of site closure by the regulatory agency.   |
| 2                | Diamond Tire Center/Dae Lim Auto Repair<br>16604/16620 Pioneer Boulevard | The property is listed as an open LUST case. According to GeoTracker, the location has been under investigation for 28 years. Reconnaissance of the location revealed two monitoring wells and one grated drain location. Some type of runoff suggestive of motor oil was observed leaking around and onto a monitoring well box in the parking lot area, and staining from previous leaking was also observed; therefore, this property is considered a REC.  |
| 3                | Artesia Building Materials<br>16632 Pioneer Boulevard                    | Site reconnaissance indicated the property was clean and well maintained with no obvious spills or leaks. However, this property is listed as a LUST case and is considered open and has been under site assessment as of 2012. The case cannot be closed until a secondary source of contamination has been removed; therefore, this property is considered a REC.  |
| 4                | College Hospital<br>10802 College Place                                  | Hazardous material and unmarked waste were observed during the site visit. No additional information was available. Based on the available information, this is considered a potential REC.  |
| 5                | Arco Gas Station<br>16809 Pioneer Boulevard                              | According to the <i>Environmental Data Resources Corridor Report</i> (i.e., Appendix B of the <i>Phase I Initial Site Assessment</i> ) this property was previously listed as a LUST site in 2002 and the case closed in 2012. According to GeoTracker, the property was previously listed as a LUST site with soil and groundwater fuel hydrocarbon contamination. Although the site has received LUST site closure, residual impact may remain in the soil and groundwater beneath the site. This property is considered a Historical Recognized Environmental Condition (HREC). |

Source: *Phase I Initial Site Assessment* (2018).

**No Build Alternative**

The No Build Alternative would not result in the disturbance or removal of any soils, groundwater, or structures and therefore would not result in temporary impacts related to hazardous waste/materials.

### **2.11.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

Routine maintenance activities during operation of the Build Alternative would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the Build Alternative would not result in adverse impacts related to hazardous waste/materials.

#### ***No Build Alternative***

The No Build Alternative would not change the existing physical environment, and therefore there would be no permanent impacts related to hazardous waste/materials under this alternative. Similar to the Build Alternatives, routine maintenance activities would continue under the No Build Alternative, including compliance with applicable regulations regarding the handling and disposal of potentially hazardous materials.

### **2.11.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the Build Alternative would not result in any temporary or permanent impacts related to hazardous materials, no avoidance, minimization, or mitigation measures are required.

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## 2.12 Air Quality

### 2.12.1 Regulatory Setting

The Federal Clean Air Act (FCAA) of 1970 (42 United States Code [USC] 7401 et seq.), as amended, is the primary Federal law that governs air quality while the California Clean Air Act (CCAA) is its companion State law. These laws, and related regulations by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), set standards for the concentration of pollutants in the air. At the Federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM) which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM<sub>10</sub>) and particles of 2.5 micrometers and smaller (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). In addition, national and State standards exist for lead (Pb), and State standards exist for visibility-reducing particles, sulfates, hydrogen sulfide (H<sub>2</sub>S), and vinyl chloride. The NAAQS and State standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both State and Federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

#### 2.12.1.1 Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other Federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern



the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for State standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO<sub>2</sub>, O<sub>3</sub>, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and in some areas (although not in California), SO<sub>2</sub>. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO<sub>2</sub>, and also has a nonattainment area for Pb; however, Pb is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP), and four years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and Transportation Improvement Program (TIP); the project has a design concept and scope<sup>1</sup> that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses)

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<sup>1</sup> “Design concept” refers to the type of facility that is proposed, such as a freeway or arterial highway. “Design scope” refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

## **2.12.2 Affected Environment**

This section is based on the *Air Quality Analysis* (2018) prepared for the project.

### **2.12.2.1 Climate**

The project site is located within the South Coast Air Basin, which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District (SCAQMD), a regional agency created for the Basin.

The South Coast Air Basin climate is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains surround the rest of the Basin. The region lies in the semipermanent high pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur in the Basin.

The annual average temperature varies little throughout the South Coast Air Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site-monitoring temperature is the Anaheim Station.<sup>1</sup> The annual average maximum temperature recorded at this station is 77.4°F, and the annual average minimum is 55.4°F. January is typically the coldest month in this area of the Basin.

The majority of annual rainfall in the South Coast Air Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin along the coastal side of the mountains. The climatological station closest to the site that monitors precipitation is the Anaheim Station. Average rainfall measured at this station varied from 3.47 inches in February to 0.72 inch or less

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<sup>1</sup> Western Regional Climatic Center. Website: <http://www.wrcc.dri.edu> (accessed March 2018).

between May and October, with an average annual total of 14.09 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The South Coast Air Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed from midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Inversion layers are important in determining O<sub>3</sub> formation. O<sub>3</sub> and its precursors will mix and react to produce higher concentrations under an inversion. The inversion will also simultaneously trap and hold directly emitted pollutants (e.g., CO). PM<sub>10</sub> is both directly emitted and indirectly created in the atmosphere as a result of chemical reactions. Concentration levels of these pollutants are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The ground goes through a radiative process on clear nights, when heat energy is transferred from the ground to a cooler night sky. As the ground cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low inversions produces the greatest concentration of pollutants. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in Los Angeles and Orange Counties are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and oxides of nitrogen (NO<sub>x</sub>) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO<sub>x</sub> to form photochemical smog.

### 2.12.2.2 Monitored Air Quality

The SCAQMD operates several air quality monitoring stations in the project area. The Compton Air Quality Monitoring Station at 700 North Bullis Road monitors four of the five criteria pollutants (CO, O<sub>3</sub>, NO<sub>2</sub>, and PM<sub>2.5</sub>). The closest monitoring station with PM<sub>10</sub> data is the Anaheim-Pampas Lane Station. Figure 2.12-1 shows the locations of the air quality monitoring stations near the project. Air quality trends identified from data collected at both air quality monitoring stations between 2011 and 2016 are listed in Table 2.12.1.

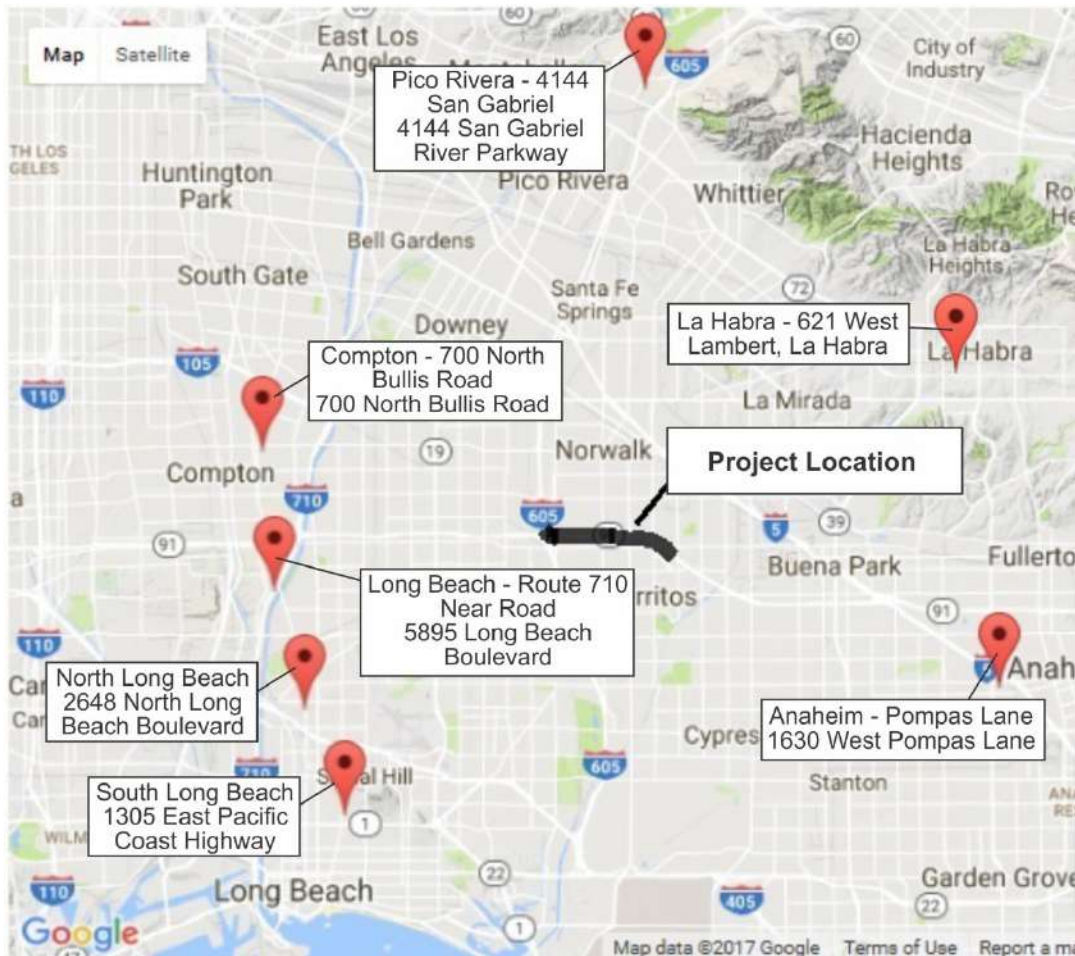


Figure 2.12-1: Air Quality Monitoring Stations in the Project Vicinity

**Table 2.12.1 Ambient Air Quality Levels In Project Vicinity**

| Pollutant  | Standard                | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  |
|--|-------------------------|-------|-------|-------|-------|-------|-------|
| <b>Carbon Monoxide</b>   |                         |       |       |       |       |       |       |
| Max 1-hr concentration (ppm)   |                         | 5.8   | 5.2   | 5.8   | 5.8   | 4.4   | 4.4   |
| No. days exceeded: State   | > 20 ppm/1-hr           | 0     | 0     | 0     | 0     | 0     | 0     |
| Federal  | > 35 ppm/1-hr           | 0     | 0     | 0     | 0     | 0     | 0     |
| Max 8-hr concentration (ppm)   |                         | 4.7   | 4.0   | 3.5   | 3.8   | 3.3   | 3.9   |
| No. days exceeded: State   | >9.1 ppm/8-hr           | 0     | 0     | 0     | 0     | 0     | 0     |
| Federal  | >9.5 ppm/8-hr           | 0     | 0     | 0     | 0     | 0     | 0     |
| <b>Ozone</b>   |                         |       |       |       |       |       |       |
| Max 1-hr concentration (ppm)   |                         | 0.082 | 0.086 | 0.090 | 0.087 | 0.087 | 0.079 |
| No. days exceeded: State   | > 0.09 ppm/1-hr         | 0     | 0     | 0     | 0     | 0     | 0     |
| <b>Ozone</b>   |                         |       |       |       |       |       |       |
| Max 8-hr concentration (ppm)   |                         | 0.065 | 0.070 | 0.069 | 0.063 | 0.066 | 0.059 |
| No. days exceeded: State   | > 0.07 ppm/8-hr         | 0     | 0     | 0     | 0     | 0     | 0     |
| Federal  | > 0.075 ppm/8-hr        | 0     | 0     | 0     | 0     | 0     | 0     |
| <b>Particulate matter less than 10 microns in size (PM<sub>10</sub>)</b>   |                         |       |       |       |       |       |       |
| Max 24-hr concentration (µg/m <sup>3</sup> )                               |                         | 53.0  | 48.0  | 77.0  | 85.0  | 59.0  | 74.0  |
| No. days exceeded: State   | > 50 µg/m <sup>3</sup>  | 2     | 0     | 1     | 2     | 2     | N/A   |
| Federal  | > 150 µg/m <sup>3</sup> | 0     | 0     | 0     | 0     | 0     | 0     |
| Annual avg. concentration (µg/m <sup>3</sup> )                             |                         | 24.7  | 22.3  | 25.2  | 26.7  | 25.3  | N/A   |
| Exceeds Standard? State  | > 20 µg/m <sup>3</sup>  | Yes   | Yes   | Yes   | Yes   | Yes   | N/A   |
| <b>Particulate matter less than 2.5 microns in size (PM<sub>2.5</sub>)</b> |                         |       |       |       |       |       |       |
| Max 24-hr concentration (µg/m <sup>3</sup> )                               |                         | 35.3  | 51.2  | 52.1  | 35.8  | 41.3  | 36.3  |
| No. days exceeded:   | > 35 µg/m <sup>3</sup>  | 2     | 1     | 1     | 1     | 3     | 1     |
| Federal  |                         |       |       |       |       |       |       |
| Annual avg. concentration (µg/m <sup>3</sup> )                             |                         | 13.0  | 11.7  | N/A   | N/A   | N/A   | N/A   |
| Exceeds Standard?  | > 12 µg/m <sup>3</sup>  | Yes   | No    | N/A   | N/A   | N/A   | N/A   |
| State  | > 15 µg/m <sup>3</sup>  | No    | No    | N/A   | N/A   | N/A   | N/A   |
| Federal  |                         |       |       |       |       |       |       |
| <b>Nitrogen Dioxide</b>  |                         |       |       |       |       |       |       |
| Max 1-hr concentration: State  | > 180 ppb               | 75.4  | 79.3  | 69.8  | 68.2  | 73.6  | 63.7  |
| No. days exceeded  |                         | 0     | 0     | 0     | 0     | 0     | 0     |
| Annual avg. concentration: Federal   | > 53 ppb                | 18    | 17    | 17    | N/A   | 16    | 15    |
| No. days exceeded  |                         | 0     | 0     | 0     | N/A   | 0     | 0     |

Source 1: United States Environmental Protection Agency. Air Quality Data. Website: <https://www.epa.gov/outdoor-air-quality-data> (accessed March 2018).

Source 2: California Air Resources Board, iADAM: Air Quality Data Statistics. Website: [www.arb.ca.gov/adam/index.html](http://www.arb.ca.gov/adam/index.html) (accessed March 2018).

PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

ppb = parts per billion

ppm = parts per million

### 2.12.2.3 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Land uses in the project area include residential, schools (i.e., John H. Niemes Elementary School, Tracy High School, Richard Gahr High School, Juarez Academy of Engineering & Technology), parks and community

centers, agriculture, office, utility, and vacant land. The majority of the sensitive receptors in or adjacent to the project area are residential uses and schools.

#### **2.12.2.4 Criteria Pollutant Attainment/Nonattainment Status**

As noted earlier, the six criteria pollutants are O<sub>3</sub>, CO, PM (including both PM<sub>2.5</sub> and PM<sub>10</sub>), NO<sub>2</sub>, SO<sub>2</sub>, and lead. The primary standards for these criteria pollutants are shown in Table 2.12.2 along with a brief description of the health effects associated with exposures to these pollutants and the typical sources of these pollutants. The NAAQS are two-tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (e.g., impairment of visibility and damage to vegetation and property).

Air quality monitoring stations are located throughout the nation and maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the EPA to identify regions as “attainment,” “nonattainment,” or “maintenance,” depending on whether the regions meet the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. In addition, different classifications of nonattainment (e.g., marginal, moderate, serious, severe, and extreme) are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. The South Coast Air Basin’s attainment status for each of the criteria pollutants is listed in Table 2.12.2.

### **2.12.3 Environmental Consequences**

#### **2.12.3.1 Short-Term Impacts**

##### ***Build Alternatives (includes Design Options)***

##### ***Construction Air Quality Conformity***

Under the transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions are not required in a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last five years or less at any individual site. They typically fall into two main categories:



**Table 2.12.2 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

| Pollutant   | Averaging Period | California Standard <sup>1</sup>      | Federal Standard <sup>2</sup>         | Basin Attainment Status <sup>3</sup> |                          | Principal Health and Atmospheric Effects  | Typical Sources   |
|---|------------------|---------------------------------------|---------------------------------------|--------------------------------------|--------------------------|---|---|
|   |                  |                                       |                                       | California Standard                  | Federal Standard         |   |   |
| Ozone (O <sub>3</sub> )                           | 1-hour           | 0.09 ppm<br>(180 µg/m <sup>3</sup> )  | Revoked                               | Non-Attainment                       | Non-Attainment (Extreme) | High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.                    | Low-altitude ozone is almost entirely formed from ROG or VOC and NO <sub>x</sub> in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.   |
|   | 8-hour           | 0.070 ppm<br>(137 µg/m <sup>3</sup> ) | 0.070 ppm<br>(137 µg/m <sup>3</sup> ) | Non-Attainment                       | Non-Attainment (Extreme) |   |   |
| Respirable Particulate Matter (PM <sub>10</sub> ) | 24-hour          | 50 µg/m <sup>3</sup>                  | 150 µg/m <sup>3</sup>                 | Non-Attainment                       | Attainment / Maintenance | Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM <sub>10</sub> .                                      | Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).                            |
|   | Annual           | 20 µg/m <sup>3</sup>                  | ---                                   | Non-Attainment                       | ---                      |   |   |
| Fine Particulate Matter (PM <sub>2.5</sub> )      | 24-hour          | ---                                   | 35 µg/m <sup>3</sup>                  | ---                                  | Non-Attainment (Serious) | Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM <sub>2.5</sub> size range. Many aerosol and solid compounds are part of PM <sub>2.5</sub> . | Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO <sub>x</sub> , SO <sub>x</sub> , ammonia, and ROG. |
|   | Annual           | 12 µg/m <sup>3</sup>                  | 12.0 µg/m <sup>3</sup>                | Non-Attainment                       | Non-Attainment (Serious) |   |   |
| Carbon Monoxide (CO)                              | 1-hour           | 20 ppm<br>(23 mg/m <sup>3</sup> )     | 35 ppm<br>(40 mg/m <sup>3</sup> )     | Attainment                           | Attainment / Maintenance | CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O <sub>3</sub> .  | Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.   |
|   | 8-hour           | 9.0 ppm<br>(10 mg/m <sup>3</sup> )    | 9 ppm<br>(10 mg/m <sup>3</sup> )      | Attainment                           | Attainment / Maintenance |   |   |

**Table 2.12.2 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

| Pollutant                           | Averaging Period                     | California Standard <sup>1</sup>  | Federal Standard <sup>2</sup>      | Basin Attainment Status <sup>3</sup>    |  | Principal Health and Atmospheric Effects  | Typical Sources  |
|-------------------------------------|--------------------------------------|-----------------------------------|------------------------------------|---|--|---|--|
|                                     |                                      |                                   |                                    | California Standard                     | Federal Standard                         |   |  |
| Nitrogen Dioxide (NO <sub>2</sub> ) | 1-hour                               | 0.18 ppm (339 µg/m <sup>3</sup> ) | 0.10 ppm (188 µg/m <sup>3</sup> )  | Attainment                              | Unclassifiable / Attainment              | Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NO <sub>x</sub> " group of O <sub>3</sub> precursors. | Motor vehicles and other mobile sources; refineries; industrial operations.  |
|                                     | Annual                               | 0.030 ppm (57 µg/m <sup>3</sup> ) | 0.053 ppm (100 µg/m <sup>3</sup> ) | Attainment                              | Attainment / Maintenance                 |   |  |
| Lead (Pb)                           | 30-day average                       | 1.5 µg/m <sup>3</sup>             | ---                                | Nonattainment (Los Angeles County only) | ---                                      | Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.      | Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.   |
|                                     | Rolling 3-month average <sup>6</sup> | ---                               | 0.15 µg/m <sup>3</sup>             | ---                                     | Non-Attainment (Los Angeles County only) |   |  |
| Sulfur Dioxide (SO <sub>2</sub> )   | 1-hour                               | 0.25 ppm (655 µg/m <sup>3</sup> ) | 0.075 ppm (196 µg/m <sup>3</sup> ) | Attainment <sup>5</sup>                 | Attainment                               | Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.             | Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used. |
|                                     | 3-hour <sup>9</sup>                  | ---                               | 0.5 ppm (1,300 µg/m <sup>3</sup> ) | ---                                     | Attainment                               |   |  |
|                                     | 24-hour                              | 0.04 ppm (105 µg/m <sup>3</sup> ) | 0.14 ppm                           | Attainment <sup>5</sup>                 | Attainment                               |   |  |
| Hydrogen Sulfide (H <sub>2</sub> S) | 1-hour                               | 0.03 ppm (42 µg/m <sup>3</sup> )  | ---                                | Attainment                              | ---                                      | Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.   | Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.   |
| Vinyl Chloride                      | 24-hour                              | 0.01 ppm (26 µg/m <sup>3</sup> )  | ---                                | Attainment                              | ---                                      | Neurological effects, liver damage, cancer.<br>Also considered a toxic air contaminant.   | Industrial processes   |
| Sulfates                            | 24-hour                              | 25 µg/m <sup>3</sup>              | ---                                | Attainment                              | ---                                      | Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.                                 | Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.   |

**Table 2.12.2 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

| Pollutant                     | Averaging Period | California Standard <sup>1</sup>   | Federal Standard <sup>2</sup> | Basin Attainment Status <sup>3</sup> |                  | Principal Health and Atmospheric Effects  | Typical Sources               |
|-------------------------------|------------------|--|-------------------------------|--------------------------------------|------------------|---|-------------------------------|
|                               |                  |  |                               | California Standard                  | Federal Standard |   |                               |
| Visibility-Reducing Particles | ---              | Extinction coefficient of 0.23 per kilometer (visibility of 10 miles or more due to particles when relative humidity is less than 70%) | ---                           | Attainment                           | ---              | Reduces visibility. Produces haze.<br><br>Note: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. | See particulate matter above. |

Source: *Air Quality Analysis* (2018).

<sup>1</sup> California standard levels obtained from CARB CAAQS webpage. Website: <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm> (accessed March 2018).

<sup>2</sup> Federal standard levels obtained from the EPA NAAQS table. Note that some Federal standards include a level (such as the concentrations shown in the table) and a form (often a statistical form or based on excluding a certain number of exceedances of the standard level over a given number of years). Exceedances of the standard level are not necessarily violations or exceedances of the standard. Website: <https://www.epa.gov/criteria-air-pollutants/naaqs-table> (accessed March 2018).

<sup>3</sup> Attainment status obtained from SCAQMD NAAQS and CAAQS Attainment Status for the South Coast Air Basin. Website: <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf> (accessed March 2018).

<sup>4</sup> Designation is pending; Non-Attainment (Extreme) classification is expected.

<sup>5</sup> Attainment status obtained from CARB Area Designation Maps. Website: <http://www.arb.ca.gov/desig/adm/adm.htm> (accessed March 2018).

<sup>6</sup> Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

<sup>7</sup> According to the CARB website, the Los Angeles County portion of the South Coast Air Basin is designated "Nonattainment" only for near-source monitors. Expect to remain in attainment based on current monitoring data.

<sup>8</sup> Designation is pending; Unclassifiable/Attainment classification is expected.

<sup>9</sup> This is a secondary standard. Not to be exceeded more than once per year.

µg/m<sup>3</sup> = micrograms per cubic meter

CARB = California Air Resources Board

Basin = South Coast Air Basin

CAAQS = California ambient air quality standards

EPA = United States Environmental Protection Agency

mg/m<sup>3</sup> = milligrams per cubic meter

NAAQS = national ambient air quality standards

NO<sub>x</sub> = oxides of nitrogen

ppm = parts per million

ROG = reactive organic gases

SCAQMD = South Coast Air Quality Management District

SO<sub>x</sub> = oxides of sulfur

VOC = volatile organic compounds

- **Fugitive Dust:** A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit “visible emissions” exceeding three minutes in one hour – this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line.

Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM<sub>10</sub> emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM<sub>10</sub> emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

- **Construction Equipment Emissions:** Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis.

### *Construction Emissions*

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NO<sub>x</sub>, volatile organic compounds (VOCs), directly emitted PM (PM<sub>2.5</sub> and PM<sub>10</sub>), and toxic air contaminants (TACs) (e.g., diesel exhaust PM).

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, and paving roadway surfaces. Construction-related effects on air quality from most roadway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM<sub>2.5</sub>, PM<sub>10</sub>, CO, SO<sub>2</sub>, NO<sub>x</sub>, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying

uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could become an additional source of airborne dust after drying. PM<sub>10</sub> emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM<sub>10</sub> emissions would depend on soil moisture, the silt content of soil, wind speed, and the amount of equipment operating at the time. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. SCAQMD Rule 403 regarding fugitive dust minimization requirements would reduce potential dust emissions during construction. The following project features will be implemented during construction activities.

**PF-AQ-1** During clearing, grading, earthmoving, or excavation operations, excessive fugitive dust emissions will be controlled by regular watering or other dust-preventive measures using the following procedures, as specified in the South Coast Air Quality Management District's (SCAQMD) Rule 403. All material excavated or graded will be sufficiently watered to prevent excessive amounts of dust. Watering will occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site will be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized so as to prevent excessive amounts of dust. These control techniques will be indicated in project specifications. Visible dust beyond the property line emanating from the project will be prevented to the maximum extent feasible. Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions. Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used. A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

- PF-AQ-2** Project grading plans will show the duration of construction. Ozone (O<sub>3</sub>) precursor emissions from construction equipment vehicles will be controlled by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications. All construction equipment will use low sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114.
- PF-AQ-3** All trucks that are to haul excavated or graded material on site will comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads. All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (i.e., space from the top of the material to the top of the truck) will be provided to minimize dust emissions during transportation.
- PF-AQ-4** The Construction Contractor will adhere to the California Department of Transportation (Caltrans) Standard Specifications for construction in Section 14-9 (2015). Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including Air Pollution Control District and Air Quality Management District regulations and local ordinances.
- PF- AQ-5** Should the project geologist determine that asbestos-containing materials (ACMs) are present at the project study area during final inspection prior to construction, the appropriate methods will be implemented to remove ACMs.
- PF-AQ-6** All construction vehicles both on and off site shall be prohibited from idling in excess of 5 minutes. To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times. Environmentally sensitive areas will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited to the extent feasible.



**PF-AQ-7** The Construction Contractor will locate equipment and materials storage sites as far away from adjacent residential and park uses as practical. The Construction Contractor will keep construction areas clean and orderly.

If construction activities were to increase traffic congestion in the study area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. However, based on the amount of daily work trips required for project construction (between 26 and 56 daily trips, depending on the activities), construction worker trips are not anticipated to increase traffic congestion in the study area.

SO<sub>2</sub> is generated by oxidation during combustion of the organic sulfur compounds contained in diesel fuel. Under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and additional standards as on-road diesel fuel (not more than 15 parts per million [ppm] sulfur), and as such, SO<sub>2</sub>-related issues due to diesel exhaust would be minimal.

The construction emissions were estimated for the project using the Sacramento Metropolitan Air Quality Management District's (AQMD) Road Construction Emissions Model, Version 8.1.0, which is consistent with the guidance provided by SCAQMD for evaluating construction impacts from roadway projects. The maximum amount of construction-related emissions during a peak construction day is presented in Table 2.12.3 (model data are provided in Appendix D of the *Air Quality Analysis* [2018]). The PM<sub>2.5</sub> and PM<sub>10</sub> emissions assume a 50 percent control of fugitive dust as a result of watering and associated dust-control measures. The emissions presented below are based on the best information available at the time of calculations and specify that the schedule for the Build Alternative is anticipated to take approximately 37 months, beginning in May 2021 and ending in June 2024. California Department of Transportation (Caltrans) Standard Specifications for construction (Section 14-9.02 [Air Pollution Control] and Section 14-9.03 [Dust Control]) will be adhered to in order to reduce emissions generated by construction equipment. Additionally, SCAQMD has established rules for reducing fugitive dust emissions. With the implementation of standard construction measures (providing 50 percent effectiveness) such as frequent watering (e.g., a minimum of twice per day) as well as Project Features PF-AQ-1 through PF-AQ-6, fugitive dust and exhaust emissions from construction activities would not result in any adverse air quality impacts.

**Table 2.12.3 Estimated Daily Construction Emissions**

| Construction Phase                       | Pollutant <sup>1</sup> (lbs/day) |              |                 |                                 |                                  |
|--|----------------------------------|--------------|-----------------|---------------------------------|----------------------------------|
|  | ROG                              | CO           | NO <sub>x</sub> | PM <sub>10</sub> <sup>2,3</sup> | PM <sub>2.5</sub> <sup>2,3</sup> |
| Grubbing/Land Clearing                   | 1.50                             | 12.55        | 14.05           | 50.63                           | 10.96                            |
| Grading/Excavation                       | 6.29                             | 54.41        | 63.60           | 53.05                           | 13.15                            |
| Drainage/Utilities/Sub-Grade             | 3.50                             | 33.94        | 31.46           | 51.58                           | 11.84                            |
| Paving                                   | 1.69                             | 19.59        | 14.82           | 0.81                            | 0.71                             |
| <i>Maximum</i>                           | <i>6.29</i>                      | <i>54.41</i> | <i>63.60</i>    | <i>53.05</i>                    | <i>13.15</i>                     |
| <b>Total (Tons/Construction Project)</b> | <b>1.18</b>                      | <b>10.69</b> | <b>11.46</b>    | <b>12.25</b>                    | <b>2.93</b>                      |

Source: *Air Quality Analysis* (2018).

<sup>1</sup> Emissions were calculated using the Roadway Construction Emissions Model (RCEM) (Version 8.1.0) developed by the Sacramento Metropolitan Air Quality Management District.

<sup>2</sup> PM<sub>10</sub> and PM<sub>2.5</sub> estimates assume control of fugitive dust from watering and associated dust control measures.

<sup>3</sup> Emissions include the sum of exhaust and fugitive dust.

CO = carbon monoxide

lbs/day = pounds per day

NO<sub>x</sub> = oxides of nitrogen

PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

ROG = reactive organic gases

Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable thresholds as distance from the site(s) increases.

The estimated peak-day construction emissions for the Build Alternative are summarized in Table 2.12.3.

### *Naturally Occurring Asbestos*

The project is in Los Angeles County, which is among the counties listed as containing serpentine and ultramafic rock. However, the portion of Los Angeles County in which the project lies is not known to contain serpentine or ultramafic rock, according to the California Department of Conservation, Division of Mines and Geology (2000). Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none. In the unlikely event that naturally occurring asbestos, serpentine, or ultramafic rock is discovered, SCAQMD will be notified per Section 93105, Title 17 of the California Code of Regulations (CCR).

### **No Build Alternative**

The No Build Alternative would not result in construction related to the project and, therefore, would not result in temporary impacts to air quality.

### **2.12.3.2 Permanent Impacts**

#### ***Build Alternatives (includes Design Options)***

##### *Regional Air Quality Conformity*

The project is listed in Amendment #3 to the 2016 RTP/Sustainable Communities Strategy (SCS) with Project ID1163S012. Its description is as follows:

“Improvements to the I-605/SR-91 interchange consist of adding an additional general purpose lane, adding auxiliary lanes, and on/ off ramp improvements. PM SR-91 16.9/19.8; I-605 PM 5.0/5.8” (Southern California Association of Governments 2016a). The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and was adopted on September 6, 2018. The project is also in the 2017 FTIP, Amendment No. 17-22, which was approved by SCAG on July 31, 2018, and the FTA and FHWA approved the FTIP on December 17, 2018. A regional conformity analysis covering the designated Non-Attainment or Maintenance for ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> was carried out that includes this project, and all reasonably foreseeable and financially constrained regionally significant projects for at least 20 years from the date that the analysis was started. The analysis used the latest planning assumptions, and the most recent emission models and appropriate analysis methods, as determined by Interagency Consultation on September 25, 2018.

Based on this analysis, the region will be in conformity with the SIP, including this project, as described in 40 CFR 93.109(1). The design concept and scope of the proposed project is consistent with the project design concept and scope used in the regional conformity analysis. TCM Timely Implementation evaluation was reviewed and concurred with by Interagency Consultation on September 25, 2018. . The RTP/SCS and FTIP listings and FHWA’s Project Level Conformity Determination are included in Chapter 4 of this document.

##### *Project-Level Conformity*

Because the project limits are within an attainment/maintenance area for CO and PM<sub>10</sub> and a nonattainment area for PM<sub>2.5</sub> federal standards, local hot-spot analyses for CO, PM<sub>2.5</sub>, and PM<sub>10</sub> are required for conformity purposes. The results of these hot-spot analyses are provided below. Based on these analyses, FHWA made a project-level air quality conformity determination on January 9, 2019 that the project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

### *Carbon Monoxide*

The methodology required for a CO local analysis is summarized in the Caltrans Transportation Project-Level Carbon Monoxide Protocol (Protocol), Section 3 (Determination of Project Requirements) and Section 4 (Local Analysis). In Section 3, the Protocol provides two conformity requirement decision flowcharts designed to assist project sponsors in evaluating the requirements that apply to specific projects. The flowchart on Figure 1 (Appendix A of the *Air Quality Analysis*) of the Protocol applies to new projects and was used in this analysis. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the project (Caltrans 1998).

The flowchart begins with Section 3.1.1.

- **3.1.1. Is this project exempt from all emissions analyses?**

NO.

Table 1 of the Protocol is Table 2 of 40 CFR, Section 93.126. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The Build Alternative widens an existing highway, which is not one of the exempt projects listed in Table 1. Therefore, the project is not exempt from all emissions analyses.

- **3.1.2. Is the project exempt from regional emissions analyses?**

NO.

Table 2 of the Protocol is Table 3 of 40 CFR, Section 93.127. The question is attempting to determine whether the project is listed in Table 2. Projects that are included in Table 2 of the Protocol are exempt from regional conformity. Because the project would widen an existing highway, it is not exempt from regional emissions analysis.

- **3.1.3. Is the project locally defined as regionally significant?**

YES.

As mentioned above, the proposed project would widen an existing highway. Therefore, the project is potentially significant.

- **3.1.4. Is the project in a federal attainment area?**

NO.

The project is in an attainment/maintenance area for the federal CO standard; therefore, the project is subject to a regional conformity determination.

- **3.1.5. Is there a currently conforming RTP and TIP?**

YES.

- **3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?**

YES.

The project is listed in Amendment #3 to the 2016 RTP/SCS with Project ID 1163S012. Its description is listed as: “Improvements to the I-605/SR-91 interchange consist of adding an additional general purpose lane, adding auxiliary lanes, and on/off ramp improvements. PM SR-91 16.9/19.8; I-605 PM 5.0/5.8”.

The proposed project is included in the Federal Transportation Improvement Program (FTIP) , Amendment #17-22, which was approved by the SCAG on July 31, 2018, and the FTA and FHWA approved the FTIP on December 17, 2018.

The RTP/SCS and FTIP listings are included in Appendix B.

- **3.1.7. Has the project design concept and/or scope changed significantly from that in the regional analysis?**

NO.

As discussed in 3.1.6, regional conformity for the proposed project has been demonstrated for the RTP and the FTIP.

- **3.1.9. Examine local impacts.**

Section 3.1.9 of the flowchart directs the project evaluation to Section 4 (Local Analysis) of the Protocol. This concludes Figure 1.

Section 4 contains Figure 3 (Local CO Analysis [Appendix A]). This flowchart is used to determine the type of CO analysis required for the Build Alternative.

Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the Build Alternative. The flowchart begins at Level 1.

- **Level 1. Is the project in a CO non-attainment area?**

NO.

The project site is in an area that has demonstrated attainment with the federal CO standards.

- **Level 1 (cont.). Was the area redesignated as “attainment” after the 1990 Clean Air Act?**

YES.

The project is located in the South Coast Air Basin, under the jurisdiction of the SCAQMD, and was classified nonattainment after the 1990 CAA. The Basin was granted federal redesignation to attainment/maintenance on June 11, 2007.

- **Level 1 (cont.). Has “continued attainment” been verified with the local Air District, if appropriate?**

YES.

The South Coast Air Basin was designated as attainment/maintenance by the EPA on June 11, 2007. (Proceed to Level 7).

- **Level 7. Does the project worsen air quality?**

YES.

Because the proposed project would increase traffic volumes on the freeway by 5 percent or more, as well as on the local intersections, the project would potentially worsen air quality.

*a. The project significantly increases the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2% should be considered potentially significant.*

All vehicles on the freeway and in the intersections are assumed to be in a fully warmed-up mode. Therefore, this criterion is not met.

*b. The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5% should be considered potentially significant. Increasing the traffic volume by less than 5% may still be potentially significant if there is also a reduction in average speeds.*



The proposed project would improve State Route 91 (SR-91) by changing the existing highway. As shown in Tables 2.12.4 and 2.12.5, traffic volumes along SR-91 would exceed 125,000 average daily traffic (ADT). As shown, all roadway segments would have a 5 percent or lower total ADT increase, except for the two shaded roadway segments in each table. These segments are between two existing on-ramps. The Build Alternative would combine the southbound on-ramp with the northbound on-ramp, thus putting the combined traffic volumes onto these segments. This traffic volume combination would have a lesser effect on the corresponding roadway segments east of the intersections. As shown in Tables 2.12.6 and 2.12.7, the intersections affected by the project would not change substantially with the Build Alternative compared to the No Build Alternative.

**Table 2.12.4 Opening Year (2024) Traffic Volumes**

| Roadway Segment                  | No Build (2024) |           |         | Build (2024) Both Without and With Diamond Ramps Design Option |           |         | Project Increase (Percent) |           |
|----------------------------------|-----------------|-----------|---------|--|-----------|---------|----------------------------|-----------|
|                                  | Total ADT       | Truck ADT | Truck % | Total ADT  | Truck ADT | Truck % | Total ADT                  | Truck ADT |
| <b>Westbound SR-91</b>           |                 |           |         |  |           |         |                            |           |
| East of Studebaker Road          | 106,700         | 11,240    | 10.5    | 109,700  | 11,590    | 10.6    | 2.8                        | 3.1       |
| West of Pioneer Boulevard        | 136,400         | 13,570    | 9.9     | 149,000  | 13,590    | 9.1     | 9.2                        | 0.1       |
| East of Pioneer Boulevard        | 132,400         | 13,120    | 9.9     | 139,300  | 13,880    | 10.0    | 5.2                        | 5.8       |
| West of Norwalk Boulevard        | 131,100         | 12,980    | 9.9     | 144,400  | 13,120    | 9.1     | 10                         | 1.1       |
| East of Norwalk Boulevard        | 128,500         | 12,820    | 10.0    | 135,200  | 12,340    | 9.1     | 5.2                        | -3.7      |
| West of Bloomfield Avenue        | 124,800         | 12,410    | 9.9     | 130,200  | 13,020    | 10.0    | 4.3                        | 4.9       |
| East of Artesia Boulevard        | 116,800         | 11,530    | 9.9     | 119,500  | 11,840    | 9.9     | 2.3                        | 2.7       |
| West of 183 <sup>rd</sup> Street | 126,400         | 12,580    | 10.0    | 128,400  | 12,830    | 10.0    | 1.6                        | 2.0       |
| <b>Northbound I-605</b>          |                 |           |         |  |           |         |                            |           |
| North of Westbound SR-91 On-Ramp | 153,900         | 11,790    | 7.7     | 155,200  | 11,880    | 7.7     | 0.8                        | 0.8       |

Source: *Air Quality Analysis* (2018).

Note: ■ = Roadway segments that are between two existing on-ramps.

ADT = average daily trips      I-605 = Interstate 605      SR-91 = State Route 91

**Table 2.12.5 Future Year (2044) Traffic Volumes**

| Roadway Segment                  | No Build (2044) |           |         | Build (2044) Both Without and With Diamond Ramps Design Option |           |         | Project Increase (Percent) |           |
|----------------------------------|-----------------|-----------|---------|--|-----------|---------|----------------------------|-----------|
|                                  | Total ADT       | Truck ADT | Truck % | Total ADT  | Truck ADT | Truck % | Total ADT                  | Truck ADT |
| <b>Westbound SR-91</b>           |                 |           |         |  |           |         |                            |           |
| East of Studebaker Road          | 108,500         | 14,960    | 13.8    | 111,200  | 15,250    | 13.7    | 2.5                        | 1.9       |
| West of Pioneer Boulevard        | 137,700         | 17,320    | 12.6    | 150,600  | 17,960    | 11.9    | 9.4                        | 3.7       |
| East of Pioneer Boulevard        | 133,600         | 17,140    | 12.8    | 140,300  | 17,570    | 12.5    | 5.0                        | 2.5       |
| West of Norwalk Boulevard        | 132,100         | 16,950    | 12.8    | 145,300  | 17,780    | 12.2    | 10.0                       | 4.9       |
| East of Norwalk Boulevard        | 129,400         | 17,390    | 13.4    | 135,900  | 18,390    | 13.5    | 5.0                        | 5.8       |
| West of Bloomfield Avenue        | 125,200         | 15,990    | 12.8    | 130,400  | 16,330    | 12.5    | 4.2                        | 2.1       |
| East of Artesia Boulevard        | 116,400         | 15,580    | 13.4    | 119,000  | 15,840    | 13.3    | 2.2                        | 1.7       |
| West of 183 <sup>rd</sup> Street | 126,700         | 16,040    | 12.7    | 128,800  | 16,310    | 12.7    | 1.7                        | 1.7       |
| <b>Northbound I-605</b>          |                 |           |         |  |           |         |                            |           |
| North of Westbound SR-91 On-Ramp | 154,900         | 21,800    | 9.5     | 155,100  | 21,800    | 10.5    | 1.0                        | 11        |

Source: *Air Quality Analysis* (2018).

Note: ■ = Roadway segments that are between two existing on-ramps.

ADT = average daily trips      I-605 = Interstate 605      SR-91 = State Route 91

**Table 2.12.6 Existing (2016) and 2024 Intersection Turn Volumes**

| Intersections and Time of Day         |    |    | Vehicles Per Hour |     |     |      |     |     |      |     |     |      |     |
|---------------------------------------|----|----|-------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
|                                       |    |    | EBL               | EBT | EBR | WBL  | WBT | WBR | NBL  | NBT | NBR | SBL  | SBT |
| <b>Existing (2016)</b>                |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| <b>Existing (2016) Scenario</b>       |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM | 0  | 863               | 0   | 0   | 544  | 0   | 572 | 0    | 188 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 99  | 0    | 232 | 0   | 1206 | 0   | 0   | 1098 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 102 | 0    | 130 | 16  | 873  | 0   | 0   | 1034 | 8   |
| Studebaker Road & WB SR-91 Off-Ramp   | AM | 1  | 0                 | 0   | 367 | 0    | 98  | 0   | 892  | 0   | 0   | 1012 | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM | 38 | 1331              | 0   | 0   | 1510 | 8   | 302 | 48   | 284 | 1   | 0    | 115 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM | 0  | 875               | 0   | 0   | 697  | 0   | 485 | 0    | 79  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 69  | 0    | 152 | 0   | 919  | 0   | 0   | 1152 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 96  | 0    | 113 | 12  | 979  | 0   | 0   | 1069 | 4   |
| Studebaker Road & WB SR-91 Off-Ramp   | PM | 0  | 0                 | 0   | 165 | 0    | 60  | 0   | 1123 | 0   | 0   | 1097 | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM | 79 | 1338              | 0   | 0   | 1645 | 10  | 414 | 153  | 391 | 3   | 0    | 92  |
| <b>2024</b>                           |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| <b>No Build Scenario</b>              |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM | 0  | 778               | 0   | 0   | 507  | 0   | 410 | 0    | 134 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 88  | 0    | 204 | 0   | 973  | 0   | 0   | 1075 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 103 | 0    | 112 | 30  | 812  | 0   | 0   | 885  | 9   |
| Studebaker Road & WB SR-91 Off-Ramp   | AM | 3  | 0                 | 2   | 299 | 0    | 101 | 0   | 845  | 0   | 0   | 946  | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM | 32 | 1292              | 0   | 0   | 1535 | 9   | 278 | 44   | 259 | 2   | 0    | 120 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM | 0  | 733               | 0   | 0   | 780  | 0   | 422 | 0    | 70  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 71  | 0    | 189 | 0   | 743  | 0   | 0   | 998  | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 91  | 0    | 151 | 8   | 890  | 0   | 0   | 1019 | 4   |
| Studebaker Road & WB SR-91 Off-Ramp   | PM | 0  | 0                 | 0   | 173 | 0    | 57  | 0   | 969  | 0   | 0   | 949  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM | 72 | 1167              | 0   | 0   | 1571 | 14  | 325 | 92   | 345 | 4   | 0    | 70  |
| <b>Build Scenario</b>                 |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM | 0  | 778               | 0   | 0   | 507  | 0   | 410 | 0    | 134 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 88  | 0    | 204 | 0   | 973  | 0   | 0   | 1075 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 103 | 0    | 112 | 30  | 812  | 0   | 0   | 885  | 9   |
| Studebaker Road & WB SR-91 Off-Ramp   | AM | 3  | 0                 | 2   | 299 | 0    | 101 | 0   | 845  | 0   | 0   | 946  | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM | 32 | 1292              | 0   | 0   | 1535 | 9   | 278 | 44   | 259 | 2   | 0    | 120 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM | 0  | 733               | 0   | 0   | 780  | 0   | 422 | 0    | 70  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 71  | 0    | 189 | 0   | 743  | 0   | 0   | 998  | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM | 0  | 0                 | 0   | 91  | 0    | 151 | 8   | 890  | 0   | 0   | 1019 | 4   |
| Studebaker Road & WB SR-91 Off-Ramp   | PM | 0  | 0                 | 0   | 173 | 0    | 57  | 0   | 969  | 0   | 0   | 949  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM | 72 | 1167              | 0   | 0   | 1571 | 14  | 325 | 92   | 345 | 4   | 0    | 70  |
| <b>Diamond Ramps</b>                  |    |    |                   |     |     |      |     |     |      |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM | 0  | 786               | 0   | 0   | 431  | 0   | 360 | 0    | 128 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 88  | 0    | 188 | 192 | 974  | 0   | 0   | 1075 | 665 |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM | 0  | 0                 | 0   | 135 | 0    | 109 | 250 | 833  | 0   | 0   | 763  | 619 |
| Studebaker Road & WB SR-91 Off-Ramp   | AM | 3  | 0                 | 2   | 438 | 0    | 111 | 0   | 837  | 0   | 0   | 901  | 1   |

**Table 2.12.6 Existing (2016) and 2024 Intersection Turn Volumes**

| Intersections and Time of Day            | Vehicles Per Hour |      |     |     |      |     |     |     |     |     |      |     |
|--|-------------------|------|-----|-----|------|-----|-----|-----|-----|-----|------|-----|
|  | EBL               | EBT  | EBR | WBL | WBT  | WBR | NBL | NBT | NBR | SBL | SBT  | SBR |
| NB I-605 Off-Ramp & Alondra Boulevard AM | 32                | 1294 | 0   | 0   | 1490 | 9   | 293 | 44  | 260 | 2   | 0    | 120 |
| WB SR-91 Off-Ramp & Artesia Boulevard PM | 0                 | 757  | 0   | 0   | 703  | 0   | 342 | 0   | 39  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp PM | 0                 | 0    | 0   | 71  | 0    | 150 | 97  | 784 | 0   | 0   | 936  | 486 |
| Pioneer Boulevard & WB SR-91 Off-Ramp PM | 0                 | 0    | 0   | 95  | 0    | 144 | 204 | 890 | 0   | 0   | 1050 | 447 |
| Studebaker Road & WB SR-91 Off-Ramp PM   | 0                 | 0    | 0   | 273 | 0    | 103 | 0   | 951 | 0   | 0   | 910  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard PM | 72                | 1179 | 0   | 0   | 1459 | 14  | 343 | 92  | 355 | 4   | 0    | 70  |

Source: *Air Quality Analysis* (2018).

- EBL = eastbound left
- EBR = eastbound right
- EBT = eastbound through
- I-605 = Interstate 605
- NB = northbound
- NBL =northbound left
- NBR =northbound right
- NBT =northbound through
- SBL = southbound left
- SBR = southbound right
- SBT = southbound through
- SR-91 = State Route 91
- WB = westbound
- WBL = westbound left
- WBR = westbound right
- WBT = westbound through

**Table 2.12.7 2044 Intersection Turn Volumes**

| Intersections and Time of Day         |    |  | Vehicles per hour |      |     |     |      |     |     |     |     |     |      |     |
|---------------------------------------|----|--|-------------------|------|-----|-----|------|-----|-----|-----|-----|-----|------|-----|
|                                       |    |  | EBL               | EBT  | EBR | WBL | WBT  | WBR | NBL | NBT | NBR | SBL | SBT  | SBR |
| <b>2044</b>                           |    |  |                   |      |     |     |      |     |     |     |     |     |      |     |
| <b>No Build Scenario</b>              |    |  |                   |      |     |     |      |     |     |     |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM |  | 0                 | 794  | 0   | 0   | 517  | 0   | 418 | 0   | 136 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM |  | 0                 | 0    | 0   | 90  | 0    | 208 | 0   | 992 | 0   | 0   | 1097 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM |  | 0                 | 0    | 0   | 105 | 0    | 115 | 31  | 828 | 0   | 0   | 903  | 9   |
| Studebaker Road & WB SR-91 Off-Ramp   | AM |  | 3                 | 0    | 2   | 305 | 0    | 103 | 0   | 862 | 0   | 0   | 965  | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM |  | 33                | 1318 | 0   | 0   | 1566 | 9   | 283 | 45  | 264 | 2   | 0    | 122 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM |  | 0                 | 748  | 0   | 0   | 796  | 0   | 431 | 0   | 72  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM |  | 0                 | 0    | 0   | 73  | 0    | 193 | 0   | 758 | 0   | 0   | 1018 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM |  | 0                 | 0    | 0   | 92  | 0    | 154 | 8   | 908 | 0   | 0   | 1039 | 4   |
| Studebaker Road & WB SR-91 Off-Ramp   | PM |  | 0                 | 0    | 0   | 176 | 0    | 58  | 0   | 988 | 0   | 0   | 968  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM |  | 76                | 1190 | 0   | 0   | 1602 | 14  | 332 | 93  | 352 | 4   | 0    | 71  |
| <b>Build Scenario</b>                 |    |  |                   |      |     |     |      |     |     |     |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM |  | 0                 | 797  | 0   | 0   | 481  | 0   | 0   | 132 | 0   | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM |  | 0                 | 0    | 0   | 90  | 0    | 192 | 0   | 993 | 209 | 655 | 1106 | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM |  | 26                | 0    | 130 | 117 | 0    | 108 | 146 | 848 | 251 | 641 | 793  | 93  |
| Studebaker Road & WB SR-91 Off-Ramp   | AM |  | 3                 | 0    | 2   | 450 | 0    | 113 | 0   | 863 | 0   | 0   | 915  | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM |  | 33                | 1314 | 0   | 0   | 1530 | 9   | 307 | 45  | 264 | 2   | 0    | 122 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM |  | 0                 | 750  | 0   | 0   | 727  | 0   | 345 | 0   | 70  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM |  | 0                 | 0    | 0   | 73  | 0    | 141 | 0   | 797 | 104 | 488 | 952  | 0   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM |  | 12                | 0    | 55  | 83  | 0    | 214 | 90  | 872 | 213 | 466 | 1073 | 50  |
| Studebaker Road & WB SR-91 Off-Ramp   | PM |  | 0                 | 0    | 0   | 279 | 0    | 83  | 0   | 984 | 0   | 0   | 919  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM |  | 73                | 1206 | 0   | 0   | 1487 | 14  | 350 | 93  | 356 | 4   | 0    | 71  |
| <b>Diamond Scenario</b>               |    |  |                   |      |     |     |      |     |     |     |     |     |      |     |
| WB SR-91 Off-Ramp & Artesia Boulevard | AM |  | 0                 | 797  | 0   | 0   | 481  | 0   | 399 | 0   | 132 | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | AM |  | 0                 | 0    | 0   | 90  | 0    | 192 | 209 | 993 | 0   | 0   | 1106 | 655 |
| Pioneer Boulevard & WB SR-91 Off-Ramp | AM |  | 0                 | 0    | 0   | 117 | 0    | 108 | 251 | 848 | 0   | 0   | 793  | 641 |
| Studebaker Road & WB SR-91 Off-Ramp   | AM |  | 3                 | 0    | 2   | 450 | 0    | 113 | 0   | 863 | 0   | 0   | 915  | 1   |
| NB I-605 Off-Ramp & Alondra Boulevard | AM |  | 33                | 1314 | 0   | 0   | 1530 | 9   | 307 | 45  | 264 | 2   | 0    | 122 |
| WB SR-91 Off-Ramp & Artesia Boulevard | PM |  | 0                 | 750  | 0   | 0   | 727  | 0   | 345 | 0   | 70  | 0   | 0    | 0   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | PM |  | 0                 | 0    | 0   | 73  | 0    | 141 | 104 | 797 | 0   | 0   | 952  | 488 |
| Pioneer Boulevard & WB SR-91 Off-Ramp | PM |  | 0                 | 0    | 0   | 83  | 0    | 214 | 213 | 872 | 0   | 0   | 1073 | 466 |
| Studebaker Road & WB SR-91 Off-Ramp   | PM |  | 0                 | 0    | 0   | 279 | 0    | 83  | 0   | 984 | 0   | 0   | 919  | 0   |
| NB I-605 Off-Ramp & Alondra Boulevard | PM |  | 73                | 1206 | 0   | 0   | 1487 | 14  | 350 | 93  | 356 | 4   | 0    | 71  |

Source: Air Quality Analysis (2018).

EBL = eastbound left      NB = northbound      NBT = northbound through      SBT = southbound through      WBL = westbound left  
 EBR = eastbound right      NBL = northbound left      SBL = southbound left      SR-91 = State Route 91      WBR = westbound right  
 EBT = eastbound through      NBR = northbound right      SBR = southbound right      WB = westbound      WBT = westbound through  
 I-605 = Interstate 605

As shown in Tables 2.12.8 and 2.12.9, the same ramp changes affect the change to the LOS of the freeway ramps and nearby arterials. However, for the unaffected ramps and nearby arterials, the LOS is unchanged with the Build Alternative compared to the No Build Alternative.

- c. *The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.*

As Tables 2.12.8 and 2.12.9 show, the proposed project would increase delay and LOS for some of the affected intersections. Therefore, this criterion is not met.

- **Level 7 (cont.): Is the project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration?**  
NO.

The following four intersections in the same region as the project location were evaluated in the 1997 CO Attainment Demonstration: Wilshire Boulevard at Veteran Avenue, Sunset Boulevard at Highland Avenue, La Cienega Boulevard at Century Boulevard, and Long Beach Boulevard at Imperial Highway. CO concentrations at the intersections under study would be lower than those reported for the maximum of the intersections analyzed in the CO attainment plan because all of the following conditions, listed in Section 4.7.2 of the Protocol, are satisfied:

- The receptor locations at the intersections under study are at the same distance or farther from the traveled roadway than the receptor locations used in the intersections in the attainment plan. The attainment plan evaluates the CO concentrations at a distance of 10 feet (ft) from the edge of the roadways. The Protocol does not permit the modeling of receptor locations closer than this distance.
- The project intersection traffic volumes and geometries are not substantially different from those included in the attainment plan. Also, the intersections under study have less total traffic and the same number of lanes or fewer than the intersections in the attainment plan.



**Table 2.12.8 Intersection Level of Service (LOS) Analysis – AM Period**

| Intersection                          | Existing (2016) |     | 2024 No Build   |     | 2024 Build      |     | 2024 Diamond Ramps |     | 2044 No Build   |     | 2044 Build      |     | 2044 Diamond Ramps |     |
|---------------------------------------|-----------------|-----|-----------------|-----|-----------------|-----|--------------------|-----|-----------------|-----|-----------------|-----|--------------------|-----|
|                                       | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh)    | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh)    | LOS |
| WB SR-91 Off-Ramp & Artesia Boulevard | 22.5            | C   | 15.7            | B   | 14.9            | B   | 14.9               | B   | 15.9            | B   | 15.5            | B   | 15.5               | B   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | 9.9             | A   | 7.2             | A   | 24.3            | C   | 9.8                | A   | 7.3             | A   | 24.6            | C   | 10.3               | B   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | 7.2             | A   | 6.7             | A   | 71.4            | E   | 14.0               | B   | 6.7             | A   | 65.8            | E   | 13.5               | B   |
| Studebaker Road & WB SR-91 Off-Ramp   | 16.5            | B   | 15.2            | B   | 20.5            | C   | 20.5               | C   | 15.8            | B   | 21.2            | C   | 21.2               | C   |
| NB I-605 Off-Ramp & Alondra Boulevard | 25.1            | C   | 22.9            | C   | 24.5            | C   | 24.5               | C   | 23.6            | C   | 26.2            | C   | 26.2               | C   |

Source: *Traffic Operations Analysis Report (2018)*.

I-605 = Interstate 605

NB = northbound

SR-91 = State Route 91

LOS = level of service

sec/veh = seconds/vehicle

WB = westbound

**Table 2.12.9 Intersection Level of Service (LOS) Analysis – PM Period**

| Intersection                          | Existing (2016) |     | 2024 No Build   |     | 2024 Build      |     | 2024 Diamond Ramps |     | 2044 No Build   |     | 2044 Build      |     | 2044 Diamond Ramps |     |
|---------------------------------------|-----------------|-----|-----------------|-----|-----------------|-----|--------------------|-----|-----------------|-----|-----------------|-----|--------------------|-----|
|                                       | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh)    | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh)    | LOS |
| WB SR-91 Off-Ramp & Artesia Boulevard | 19.0            | B   | 15.2            | B   | 13.0            | B   | 13.0               | B   | 15.6            | B   | 13.2            | B   | 13.2               | B   |
| Norwalk Boulevard & WB SR-91 Off-Ramp | 6.9             | A   | 6.9             | A   | 16.4            | B   | 6.9                | A   | 6.9             | A   | 16.0            | B   | 6.8                | A   |
| Pioneer Boulevard & WB SR-91 Off-Ramp | 6.4             | A   | 6.5             | A   | 34.3            | C   | 9.7                | A   | 6.4             | A   | 34.8            | C   | 10.5               | B   |
| Studebaker Road & WB SR-91 Off-Ramp   | 8.3             | A   | 8.7             | A   | 12.6            | B   | 12.6               | B   | 8.8             | A   | 12.7            | B   | 12.7               | B   |
| NB I-605 Off-Ramp & Alondra Boulevard | 38.9            | D   | 25.9            | C   | 26.3            | C   | 26.3               | C   | 26.8            | C   | 27.0            | C   | 27.0               | C   |

Source: *Traffic Operations Analysis Report (2018)*.

I-605 = Interstate 605

NB = northbound

SR-91 = State Route 91

LOS = level of service

sec/veh = seconds/vehicle

WB = westbound

- The assumed meteorology for the intersections under study is the same as the assumed meteorology for the intersections in the attainment plan. Both use the worst-case scenario meteorology settings in the California Line Source Dispersion Model, Version 4 (CALINE4) and/or the EPA's CO hot-spot analysis model (a combination of the California Line Source Dispersion Model, Version 3 [CALINE3] dispersion modeling and the queueing algorithms from the *Highway Capacity Manual* [HCM]) (CAL3QHC).
- As shown in Table 2.12.10, the intersection traffic lane volumes are similar to or lower for the intersections under study than those assumed for the Wilshire Boulevard/Veteran Avenue intersection (the intersection with the highest traffic volumes) in the attainment plan.
- The percentages of vehicles operating in cold-start mode are the same or lower for the intersections under study compared to those used for the intersections in the attainment plan. All vehicles in the intersection are assumed to be in a fully warmed-up mode.
- The percentage of heavy duty gas trucks in the intersections under study is the same or lower than the percentages used for the intersections in the attainment plan analysis. It is assumed that the traffic distribution at the intersections under study do not vary from the California Emission Factor Model (EMFAC) standards.
- The average delay and queue length for each approach are the same or less for the intersections under study compared to those found in the intersections in the attainment plan. The predicted LOS for the intersections under study range from A to F. The LOS for the intersections in the attainment plan are not listed; however, the traffic counts and intersection geometries correspond to LOS F for three out of four intersections in the attainment plan.
- The background CO concentrations in the vicinity of the project were 4.4 ppm for 1 hour and 3.9 ppm for 8 hours in 2016, which is lower than the background concentrations for the intersections in the attainment plan, which varied from 5.3 ppm to 13.2 ppm for 1 hour and 3.7 ppm to 9.9 ppm for 8 hours.

The project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis is not required.

**Table 2.12.10 Comparison of Peak-Hour Intersection Departure Traffic Volumes**

| Intersection                       | Scenario Year | Average Peak-Hour Lane Volume (AM/PM) |            |           |           | Total Departure Intersection Volume and Percent Change <sup>1</sup> |          |              |          |
|------------------------------------|---------------|---------------------------------------|------------|-----------|-----------|---|----------|--------------|----------|
|                                    |               | Northbound                            | Southbound | Eastbound | Westbound | AM Peak-Hour  |          | PM Peak-Hour |          |
|                                    |               |                                       |            |           |           | Volume  | % Change | Volume       | % Change |
| <b>2003 AQMP</b>                   |               |                                       |            |           |           |   |          |              |          |
| Wilshire Blvd & Veteran Ave        | N/A           | 362/507                               | 178/328    | 1,188/477 | 559/1,035 | 2,285   | N/A      | 2,347        | N/A      |
| <b>EXISTING</b>                    |               |                                       |            |           |           |   |          |              |          |
| WB SR-91 Off-Ramp & Artesia Blvd   | N/A           | 380/282                               | 0/0        | 432/438   | 272/349   | 1,084   | (-53%)   | 1,068        | (-54%)   |
| Norwalk Blvd & WB SR-91 Off-Ramp   | N/A           | 603/460                               | 549/576    | 0/0       | 166/111   | 1,318   | (-42%)   | 1,146        | (-51%)   |
| Pioneer Blvd & WB SR-91 Off-Ramp   | N/A           | 445/496                               | 521/537    | 0/0       | 116/115   | 1,082   | (-53%)   | 1,137        | (-52%)   |
| Studebaker Rd & WB SR-91 Off-Ramp  | N/A           | 446/562                               | 507/549    | 1/0       | 233/113   | 1,186   | (-48%)   | 1,223        | (-48%)   |
| NB I-605 Off-Ramp & Alondra Blvd   | N/A           | 317/479                               | 58/48      | 456/472   | 506/552   | 1,337   | (-41%)   | 1,551        | (-34%)   |
| <b>PROPOSED PROJECT</b>            |               |                                       |            |           |           |   |          |              |          |
| <b>No Build Alternative</b>        |               |                                       |            |           |           |   |          |              |          |
| WB SR-91 Off-Ramp & Artesia Blvd   | 2024          | 272/246                               | 0/0        | 389/367   | 254/390   | 915   | (-60%)   | 1,003        | (-57%)   |
|                                    | 2044          | 277/252                               | 0/0        | 397/374   | 259/398   | 933   | (-59%)   | 1,024        | (-56%)   |
| Norwalk Blvd & WB SR-91 Off-Ramp   | 2024          | 487/372                               | 538/499    | 0/0       | 146/130   | 1,170   | (-49%)   | 1,001        | (-57%)   |
|                                    | 2044          | 496/379                               | 549/509    | 0/0       | 149/133   | 1,194   | (-48%)   | 1,021        | (-56%)   |
| Pioneer Blvd & WB SR-91 Off-Ramp   | 2024          | 421/449                               | 447/512    | 0/0       | 108/121   | 976   | (-57%)   | 1,082        | (-54%)   |
|                                    | 2044          | 623/588                               | 764/795    | 78/34     | 113/149   | 1,577   | (-31%)   | 1,564        | (-33%)   |
| Studebaker Rd & WB SR-91 Off-Ramp  | 2024          | 423/485                               | 474/475    | 3/0       | 200/115   | 1,099   | (-52%)   | 1,074        | (-54%)   |
|                                    | 2044          | 431/494                               | 483/484    | 3/0       | 52/29     | 968   | (-58%)   | 1,007        | (-57%)   |
| NB I-605 Off-Ramp & Alondra Blvd   | 2024          | 291/381                               | 61/37      | 441/413   | 515/528   | 1,308   | (-43%)   | 1,359        | (-42%)   |
|                                    | 2044          | 296/389                               | 61/38      | 450/422   | 525/539   | 1,332   | (-42%)   | 1,387        | (-41%)   |
| <b>Build Alternative</b>           |               |                                       |            |           |           |   |          |              |          |
| WB SR-91 Off-Ramp & Artesia Blvd   | 2024          | 272/246                               | 0/0        | 389/367   | 254/390   | 915   | (-60%)   | 1,003        | (-57%)   |
|                                    | 2044          | 226/208                               | 0/0        | 399/375   | 241/364   | 845   | (-63%)   | 946          | (-60%)   |
| Norwalk Blvd & WB SR-91 Off-Ramp   | 2024          | 487/372                               | 538/499    | 0/0       | 146/130   | 1,170   | (-49%)   | 1,001        | (-57%)   |
|                                    | 2044          | 601/208                               | 881/720    | 0/0       | 141/107   | 1,623   | (-29%)   | 1,035        | (-56%)   |
| Pioneer Blvd & WB SR-91 Off-Ramp   | 2024          | 421/449                               | 447/512    | 0/0       | 108/121   | 976   | (-57%)   | 1,082        | (-54%)   |
|                                    | 2044          | 623/588                               | 764/795    | 78/34     | 113/149   | 1,577   | (-31%)   | 1,564        | (-33%)   |
| Studebaker Rd & WB SR-91 Off-Ramp  | 2024          | 423/485                               | 474/475    | 3/0       | 200/115   | 1,099   | (-52%)   | 1,074        | (-54%)   |
|                                    | 2044          | 432/492                               | 458/460    | 3/0       | 282/181   | 1,174   | (-49%)   | 1,133        | (-52%)   |
| NB I-605 Off-Ramp & Alondra Blvd   | 2024          | 291/381                               | 61/37      | 441/413   | 515/528   | 1,308   | (-43%)   | 1,359        | (-42%)   |
|                                    | 2044          | 308/400                               | 62/38      | 449/426   | 513/500   | 1,332   | (-42%)   | 1,364        | (-42%)   |
| <b>Diamond Ramps Design Option</b> |               |                                       |            |           |           |   |          |              |          |
| WB SR-91 Off-Ramp & Artesia Blvd   | 2024          | 272/246                               | 0/0        | 389/367   | 254/390   | 915   | (-60%)   | 1,003        | (-57%)   |
|                                    | 2044          | 277/252                               | 0/0        | 397/374   | 259/398   | 933   | (-59%)   | 1,024        | (-56%)   |
| Norwalk Blvd & WB SR-91 Off-Ramp   | 2024          | 583/441                               | 870/711    | 0/0       | 138/111   | 1,591   | (-30%)   | 1,262        | (-46%)   |
|                                    | 2044          | 601/451                               | 881/720    | 0/0       | 141/107   | 1,623   | (-29%)   | 1,278        | (-46%)   |
| Pioneer Blvd & WB SR-91 Off-Ramp   | 2024          | 542/547                               | 691/749    | 0/0       | 122/120   | 1,355   | (-41%)   | 1,415        | (-40%)   |
|                                    | 2044          | 550/543                               | 717/770    | 0/0       | 113/149   | 1,379   | (-40%)   | 1,461        | (-38%)   |

**Table 2.12.10 Comparison of Peak-Hour Intersection Departure Traffic Volumes**

| Intersection                      | Scenario Year | Average Peak-Hour Lane Volume (AM/PM) |            |           |           | Total Departure Intersection Volume and Percent Change <sup>1</sup> |        |              |        |
|-----------------------------------|---------------|---------------------------------------|------------|-----------|-----------|---|--------|--------------|--------|
|                                   |               | Northbound                            | Southbound | Eastbound | Westbound | AM Peak-Hour  |        | PM Peak-Hour |        |
| Studebaker Rd & WB SR-91 Off-Ramp | 2024          | 419/476                               | 451/455    | 3/0       | 275/188   | 1,147   | (-50%) | 1,119        | (-52%) |
|                                   | 2044          | 432/492                               | 458/460    | 3/0       | 282/181   | 1,174   | (-49%) | 1,133        | (-52%) |
| NB I-605 Off-Ramp & Alondra Blvd  | 2024          | 299/395                               | 61/37      | 442/417   | 500/491   | 1,301   | (-43%) | 1,340        | (-43%) |
|                                   | 2044          | 308/400                               | 62/38      | 449/426   | 513/500   | 1,332   | (-42%) | 1,364        | (-42%) |

Source 1: *Transportation Project-Level Carbon Monoxide Protocol User Workbook* (U.C. Davis, 1998)

Source 2: *Traffic Operations Analysis Report* (2018).

<sup>1</sup> Percent reduction is in comparison to the Wilshire Boulevard/Veteran Avenue intersection contained in the 2003 AQMP.

AQMP = Air Quality Management Plan

Ave = Avenue

Blvd = Boulevard

I-605 = Interstate 605

N/A = not applicable

NB = northbound

Rd = road

SR-91 = State Route 91

WB = westbound

### *Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>)*

The proposed project is in a nonattainment area for federal PM<sub>2.5</sub> and is in an attainment/maintenance area for federal PM<sub>10</sub> standards (South Coast Air Basin portion only). Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses (either qualitative or quantitative) for those that are not listed in Section 93.123(b)(1) as a project of air quality concern (POAQC). The EPA defines POAQCs as the following:

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- (ii) Projects affecting intersections that are LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or
- (v) Projects in or affecting locations, areas, or categories of sites that are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The project does not qualify as a POAQC for the following reasons:

- The proposed project would improve SR-91 by changing the existing highway. As Tables 2.12.4 and 2.12.5 show, while traffic volumes along SR-91 would exceed the 125,000 ADT criteria for a POAQC and the truck percentage exceeds 8 percent, the truck traffic volumes and percentages would not change substantially with the project. The two shaded roadway segments in each table are between two existing on-ramps. The Build Alternative would combine the southbound on-ramp with the northbound on-ramp, thus putting the combined traffic volumes onto these segments. Thus, while the project would result in

shifting some traffic (both truck and auto) from other routes to westbound SR-91 as a result of the increased capacity of the roadway and enhanced operating conditions, the project would not result in a higher proportion of trucks overall. While some segments could experience a very small increase in truck percentage (0.1 percent), other segments would experience a decrease in truck percentage due to a proportionally larger increase in shifted auto volumes as compared to truck volumes. Finally, the trucks that would operate on the improved corridor under the Build Alternative would experience much less congestion, higher speeds, less delay, and lower travel times in the corridor.

- The proposed project does not affect intersections that are at LOS D, E, or F that have a significant number of diesel vehicles. Based on the *Traffic Operations Analysis Report* (2018), the proposed project would reduce delay and improve the LOS at intersections in the project vicinity. Tables 2.12.8 and 2.12.9 show the LOS conditions in the project vicinity with and without the proposed project. While some of the road segments show a worsening of LOS, all of the segments where the LOS worsens are outside the area where the project results in physical changes (improvements) to the roadway network. These locations are either to the east or west of the area of improvement. The improvements themselves, by adding capacity (due to the new freeway lane and other measures which improve operating conditions), attract traffic to the westbound corridor. The attraction of trips extends beyond the limits of the physical improvements themselves because these improvements alleviate a major bottleneck in the corridor. Each of the segments that show a degradation in LOS are forecast to experience an increase in travel demand of approximately 5 percent to 7.5 percent. In these segments, without a physical or operational improvement to go along with the increase in traffic flow, the HCM analysis will result in a degraded LOS (higher traffic flow, but the same capacity). However, the HCM does not account for upstream or downstream improvements that would occur as a result of the project. The traffic microsimulation model that was developed to assess the project area showed improvements in traffic flow, increased speeds, and decreased delay in the study area and outside the study area, which is not captured by the HCM results. Thus, while the HCM shows a slight worsening of LOS for these segments, the microsimulation model demonstrates that they will likely improve in operation conditions in the future.
- The proposed project does not include the construction of a new bus or rail terminal.
- The proposed project does not expand an existing bus or rail terminal.



- The proposed project is not in or affecting locations, areas, or categories of sites that are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

On July 25, 2017, the Transportation Conformity Working Group (TCWG) determined that the project is not a POAQC. Per the transportation conformity rules and regulations, all nonexempt projects must go through review by the TCWG. This project was approved and concurred upon by interagency consultation at the TCWG meeting as a project not having adverse impacts on air quality, and this project meets the requirements of the federal Clean Air Act (CAA) and 40 CFR, Section 93.116. A copy of the TCWG finding is included in Appendix C of the *Air Quality Analysis* (2018).

Therefore, the proposed Build Alternative meets the CAA requirements and 40 CFR, Section 93.116, without any explicit hot-spot analysis. As shown in Table 2.12.11, the PM<sub>2.5</sub> and PM<sub>10</sub> exhaust emissions would be lower under the Build and No Build Alternatives than they are in the Existing (2016) condition. Exhaust emissions are the same under the Build and No Build Alternatives. Thus, the proposed Build Alternative would not create a new violation of the federal standards for PM<sub>2.5</sub> or PM<sub>10</sub>.

The South Coast Air Basin region is in nonattainment for the State PM<sub>2.5</sub> and PM<sub>10</sub> air quality standards. As Table 2.12.1 shows, the background PM<sub>10</sub> concentrations currently exceed the State 24-hour and annual standards. Therefore, the increased emissions listed in Table 2.12.11 would likely contribute to violations of the State PM<sub>10</sub> ambient air quality standards (CAAQS) in the Basin region. Similarly, the increase in PM<sub>2.5</sub> emissions from the project as listed in Table 2.12.11 would likely worsen the existing violation of the PM<sub>2.5</sub> CAAQS in the Basin region. However, as listed in Table 2.12.11 for both PM<sub>2.5</sub> and PM<sub>10</sub> the future emissions would be less than the existing condition.

As shown in Tables 2.12.4 and 2.12.5, an overall increase in total ADT and truck ADT is expected with the project. The primary reason for increases in either auto or truck traffic along SR-91 is the increase in capacity due to the proposed additional westbound traffic lane as well as the improved traffic operating conditions that will occur along SR-91 in the project area. The improved freeway operations and increased capacity will attract trips that are currently being made on parallel routes,

including arterial roadways and other freeways. Because the length of the project is relatively short, it is not expected that new travel would be induced or new automobile or truck trips would be made as a result of the project, but some trips will divert to ST-91 to take advantage of the improved operations as a result of the higher peak-hour speeds and also as a result of the expected reduction in delay. The forecasted increases in truck traffic along SR-91 are generally equal to or less than the forecasted increases in overall traffic, and range in 2024 from a reduction of 3.7 percent on one segment up to an increase of 4.9 percent, and in 2044 from a 1.7 percent increase to a 5.8 percent increase (varies by segment). The projected truck traffic increases along SR-91 are generally lower than the overall traffic increases predicted along SR-91 due to the project. These effects are reflected in the emissions changes shown in Table 2.12.11

### *Mobile-Source Air Toxics*

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories and refineries).

Controlling air toxic emissions became a national priority with the passage of the CAA Amendments of 1990, whereby Congress mandated the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in its latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Volume 73, No. 201, page 61,358; October 16, 2008) and identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System (IRIS). In addition, the EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 2011 National Air Toxics Assessment. These are acrolein, benzene, 1,3-butadiene, acetaldehyde, diesel PM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While the FHWA considers these the priority Mobile Source Air Toxics (MSAT), the list is subject to change and may be adjusted in consideration of future EPA rules.

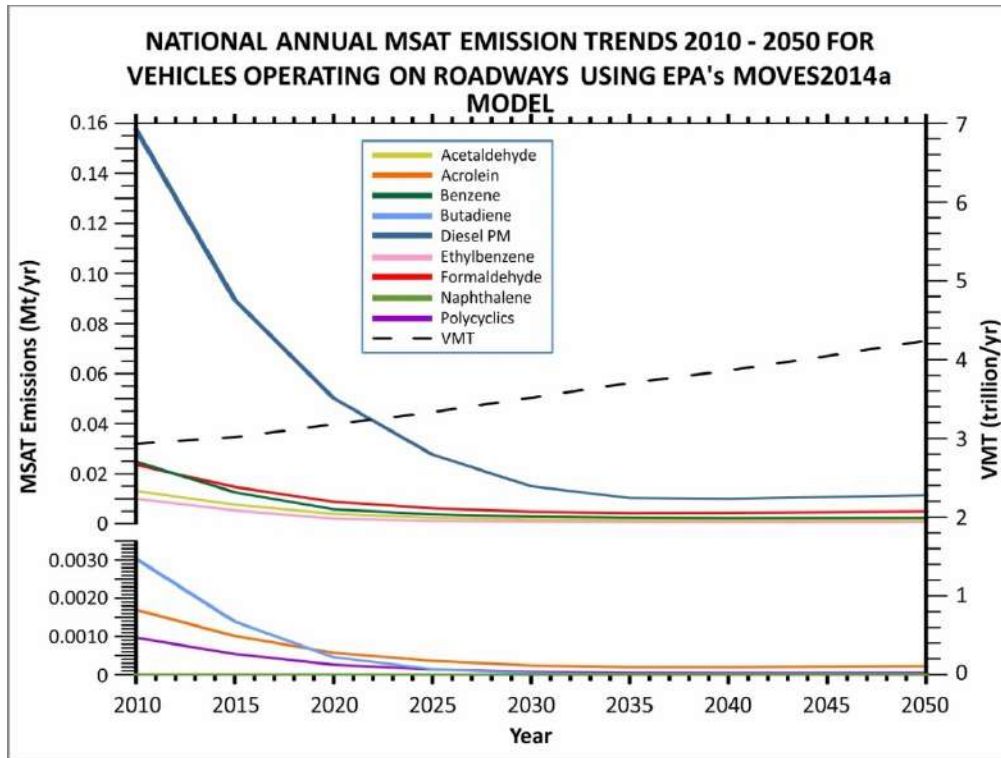
The 2008 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines.

**Table 2.12.11 2024 Opening Year and 2044 Horizon Year Regional Vehicle Emissions**

| Alternative  | 2024 Opening Year (lbs/day) |            |                 |                  |                        |                   |                        | 2044 Horizon Year (lbs/day) |             |                 |                  |                        |                   |                        |
|--|-----------------------------|------------|-----------------|------------------|------------------------|-------------------|------------------------|-----------------------------|-------------|-----------------|------------------|------------------------|-------------------|------------------------|
|  | CO                          | ROG        | NO <sub>x</sub> | PM <sub>10</sub> |                        | PM <sub>2.5</sub> |                        | CO                          | ROG         | NO <sub>x</sub> | PM <sub>10</sub> |                        | PM <sub>2.5</sub> |                        |
|  |                             |            |                 | Exhaust          | Tire Wear & Brake Dust | Exhaust           | Tire Wear & Brake Dust |                             |             |                 | Exhaust          | Tire Wear & Brake Dust | Exhaust           | Tire Wear & Brake Dust |
| Existing (2016)  | 1,018                       | 36         | 384             | 5.0              | 41.7                   | 4.7               | 16.6                   | 1,018                       | 36          | 384             | 5.0              | 41.7                   | 4.7               | 16.6                   |
| No Build Alternative   | 441                         | 16         | 101             | 1.4              | 34.4                   | 1.3               | 13.6                   | 242                         | 11          | 46              | 0.6              | 34.2                   | 0.6               | 13.5                   |
| <i>Change from Existing (2016)</i>                                     | <i>-577</i>                 | <i>-20</i> | <i>-283</i>     | <i>-3.6</i>      | <i>-7.4</i>            | <i>-3.5</i>       | <i>-3.0</i>            | <i>-776</i>                 | <i>-25</i>  | <i>-339</i>     | <i>-4.4</i>      | <i>-7.6</i>            | <i>-4.2</i>       | <i>-3.1</i>            |
| Build Alternatives (Both Without and With Diamond Ramps Design Option) | 435                         | 16         | 99              | 1.4              | 36.1                   | 1.3               | 14.3                   | 238                         | 11          | 41              | 0.6              | 35.9                   | 0.6               | 14.2                   |
| <i>Change from Existing (2016)</i>                                     | <i>-583</i>                 | <i>-21</i> | <i>-285</i>     | <i>-3.6</i>      | <i>-5.6</i>            | <i>-3.5</i>       | <i>-2.3</i>            | <i>-780</i>                 | <i>-26</i>  | <i>-343</i>     | <i>-4.4</i>      | <i>-5.9</i>            | <i>-4.2</i>       | <i>-2.4</i>            |
| <i>Change from No Build Alternative</i>                                | <i>-6</i>                   | <i>0.3</i> | <i>-2.2</i>     | <i>0.0</i>       | <i>1.7</i>             | <i>0.0</i>        | <i>0.7</i>             | <i>-3.9</i>                 | <i>-0.4</i> | <i>-4.7</i>     | <i>0.0</i>       | <i>1.7</i>             | <i>0.0</i>        | <i>0.7</i>             |

Source: Compiled using CT-EMFAC Version 6 (2017).  
 Note: Totals may not appear to sum correctly due to rounding.  
 Caltrans = California Department of Transportation  
 CO = carbon monoxide  
 CT-EMFAC = Caltrans Emission Factors Model  
 lbs/day = pounds per day  
 NO<sub>x</sub> = oxides of nitrogen  
 PM<sub>10</sub> = particulate matter less than 10 microns in size  
 PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size  
 ROG = reactive organic gases

Based on an FHWA analysis using the EPA’s Motor Vehicle Emission Simulator, Version 2014a (MOVES2014a) (Figure 2.12-2), even if vehicle miles traveled (VMT) increases by 45 percent as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period. The projected reduction in MSAT emissions would be slightly different in California due to the use of the EMFAC in place of the MOVES model.



Source: Federal Highway Administration (2016).

Diesel PM = diesel particulate matter

EPA = United States Environmental Protection Agency

MOVES2014a = Motor Vehicle Emission Simulator, version 2014a

MSAT = Mobile Source Air Toxics

Mt/yr = million tons per year

trillion/yr = trillion per year

VMT = vehicle miles traveled

**Figure 2.12-2 National Mobile Source Air Toxics Emission Trends**

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making in the context of NEPA.

Nonetheless, air toxics concerns continue to be raised regarding highway projects during the NEPA process. Even as the science emerges, transportation agencies are

duly expected by the public and other agencies to address MSAT impacts in environmental documents. The FHWA, the EPA, the Health Effects Institute (HEI), and others have funded and conducted research studies in order to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the federal government be interpreted and administered in accordance with its environmental protection goals. NEPA also requires federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. NEPA requires, and the FHWA is committed to, the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, Caltrans must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulations in 23 CFR, Part 771.

On October 18, 2016, the FHWA issued guidance to advise FHWA division offices as to when and how to analyze MSAT in the NEPA process for highways. That document is an update to the guidance released in February 2006, September 2009, and December 2012. The guidance is described as interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance. This analysis follows the FHWA guidance.

*Information that is Incomplete or Unavailable*

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. The EPA is the lead authority for administering the CAA and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual

process of assessing human health effects, exposures, and risks posed by air pollutants. The agency maintains the IRIS, which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects.”<sup>1</sup> Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the HEI. Two HEI studies are summarized in Appendix D of the FHWA *Updated Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents* (2016). Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious are the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts; each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, because such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways, to determine the portion of time that people are actually exposed at a specific location, and to establish the extent

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<sup>1</sup> United States Environmental Protection Agency (EPA). Volatile Organic Compounds’ Impact on Indoor Air Quality. Website: <https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality> (accessed March 2018).

attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT because of factors including low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the HEI. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA and the HEI have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also a lack of national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards (e.g., benzene emissions from refineries). The decision framework is a two-step process. The first step requires the EPA to determine a “safe” or “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in 1 million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in 1 million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in 1 million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in 1 million. In a June 2008 decision, the United States Court of Appeals for the District of Columbia Circuit upheld the EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits such as reducing traffic congestion, accident rates, and fatalities plus



improved access for emergency response, which are better suited for quantitative analysis.

### *Quantitative Project-Level MSAT Analysis*

Emissions factors for each of the MSAT were obtained for the project area using emission rates generated by the Caltrans Emission Factors Model (CT-EMFAC), Version 6, and the VMT associated with each of the project alternatives. Results of the analyses are tabulated in Table 2.12.12 for the Existing (2016), 2024, and 2044 conditions.

The analysis indicates that a substantial decrease in MSAT emissions can be expected between the Existing (2016) and future (2024 and 2044) No Build Alternative conditions. This decrease is prevalent throughout the highest priority MSAT and the analyzed alternatives. This decrease is also consistent with the aforementioned EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, between the Existing (2016) and No Build Alternative (2044) conditions, the expected reductions in MSAT are 92 percent of diesel PM, 65 percent of benzene, 65 percent of 1,3 butadiene, 63 percent of naphthalene, 74 percent of polycyclic organic matter, 65 percent of acrolein, and 66 percent of formaldehyde. These projected reductions are achieved while the total VMT in the project area increases by 17 percent.

As Table 2.12.12 shows, the Build Alternative (2024 and 2044) conditions MSAT emissions are lower than the Existing (2016) condition emissions. All of the Build Alternative (2024 and 2044) conditions MSAT emissions are equal to or less than the corresponding No Build Alternative conditions emissions. In addition to the Build Alternative resulting in a decrease in localized MSAT emissions, the EPA's vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time that would cause region-wide MSAT levels to be substantially lower than under the Existing (2016) conditions.

As shown in Tables 2.12.4 and 1.12.5, an overall increase in total ADT and truck ADT is expected with the project. The primary reason for increases in either auto or truck traffic along SR-91 is the increase in capacity due to the proposed additional westbound traffic lane as well as the improved traffic operating conditions that will occur along SR-91 in the project area. The improved freeway

operations and increased capacity will attract trips that are currently being made on parallel routes including arterial roadways and other freeways. Because the length of the project is relatively short, it is not expected that new travel would be induced or new auto or truck trips would be made as a result of the project, but some trips will divert to SR-91 to take advantage of the improved operations as a result of the higher peak-hour speeds and also as a result of the expected reduction in delay. These effects are reflected in the emissions changes shown in Table 2.12.12.

### *Long-Term Regional Vehicle Emissions Impacts*

The potential impact of the proposed project on regional vehicle emissions was calculated using traffic data for the project region and emission rates from the CT-EMFAC, Version 6, which uses emission factors developed by the CARB in its Emission Factor Model, Version 2014 (EMFAC2014).

The regional VMTs for Existing (2016), the No Build Alternative, and the Build Alternative were estimated using the daily traffic volumes included in the *Traffic Operations Analysis Report* (2018). The VMT calculations include SR-91 westbound traffic between Carmenita Road on the east and I-605 on the west. These roadway segments represent areas where the traffic volumes would be affected by the proposed project. The VMT data, along with the CT-EMFAC (based on EMFAC2014) emission rates, were used to calculate the CO, reactive organic gases (ROGs), NO<sub>x</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> emissions for the Existing (2016), 2024, and 2044 conditions. The modeling results are summarized in Table 2.12.11.

As Table 2.12.11 shows, both the No Build and Build Alternative criteria pollutant emissions are all lower than the Existing (2016) condition emissions. With the exception of PM<sub>2.5</sub> and PM<sub>10</sub>, the Build Alternative criteria pollutant emissions are all less than the No Build Alternative emissions. The increased PM<sub>2.5</sub> and PM<sub>10</sub> emissions are due to the increase in re-entrained dust emissions (modeled as tire wear and brake dust) associated with the increased regional VMT.

### **No Build Alternative**

The No Build Alternative does not include any planned improvements to the westbound SR-91 corridor. Under the No Build Alternative, there would be no reconstruction or improvements to the SR-91 corridor. As shown in Table 2.12.11, with the exception of PM<sub>2.5</sub> and PM<sub>10</sub>, the Build Alternative criteria pollutant emissions are all less than the No Build Alternative emissions.

**Table 2.12.12 Existing (2016), 2024 Opening Year, and 2044 Horizon Year  
Mobile Source Air Toxics Emissions (lbs/day)**

| Scenario                           | Diesel PM | Benzene | 1,3-Butadiene | Naphthalene | POM    | Acrolein | Formaldehyde | Ethyl benzene | Acetaldehyde |
|------------------------------------|-----------|---------|---------------|-------------|--------|----------|--------------|---------------|--------------|
| <b>Existing (2016)</b>             | 3.96      | 1.20    | 0.24          | 0.03        | 0.06   | 0.05     | 2.30         | 10.8          | 0.97         |
| <b>2024 Opening Year</b>           |           |         |               |             |        |          |              |               |              |
| <b>No Build Alternative</b>        | 0.46      | 0.53    | 0.11          | 0.02        | 0.02   | 0.02     | 1.04         | 0.05          | 0.44         |
| <i>Change from Existing (2016)</i> | -3.51     | -0.66   | -0.14         | -0.02       | -0.03  | -0.03    | -1.26        | -10.75        | -0.53        |
| <b>Build Alternative</b>           | 0.46      | 0.53    | 0.11          | 0.02        | 0.02   | 0.02     | 0.95         | 0.04          | 0.39         |
| <i>Change from Existing (2016)</i> | -3.50     | -0.67   | -0.14         | -0.02       | -0.03  | -0.03    | -1.34        | -10.76        | -0.58        |
| <i>Change from No Build</i>        | 0.00      | -0.01   | 0.00          | 0.00        | -0.001 | 0.00     | -0.08        | -0.01         | -0.04        |
| <b>2044 Horizon Year</b>           |           |         |               |             |        |          |              |               |              |
| <b>No Build Alternative</b>        | 0.25      | 0.37    | 0.07          | 0.01        | 0.01   | 0.02     | 0.78         | 0.04          | 0.34         |
| <i>Change from Existing (2016)</i> | -3.72     | -0.83   | -0.17         | -0.02       | -0.04  | -0.04    | -1.51        | -10.76        | -0.63        |
| <b>Build Alternative</b>           | 0.25      | 0.36    | 0.07          | 0.01        | 0.01   | 0.02     | 0.69         | 0.03          | 0.29         |
| <i>Change from Existing (2016)</i> | -3.72     | -0.84   | -0.17         | -0.02       | -0.04  | -0.04    | -1.61        | -10.77        | -0.68        |
| <i>Change from No Build</i>        | 0.00      | -0.01   | -0.001        | -0.001      | -0.001 | 0.00     | -0.09        | -0.01         | -0.05        |

Source: Compiled using CT-EMFAC Version 6 (2017).

Note: Totals may not appear to sum correctly due to rounding.

Caltrans = California Department of Transportation

CT-EMFAC = Caltrans Emission Factors Model

Diesel PM = diesel particulate matter

lbs/day = pounds per day

POM = polycyclic organic matter

#### **2.12.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features as outlined above in Section 2.12.3, no adverse impacts to air quality would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

#### **2.12.5 Climate Change**

Neither the EPA nor the FHWA has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. The FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the California Environmental Quality Act (CEQA) chapter of this document. The CEQA analysis may be used to inform the NEPA determination for the project.

## **2.13 Noise**

### **2.13.1 Regulatory Setting**

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

#### **2.13.1.1 California Environmental Quality Act**

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA/23 Code of Federal Regulations Part 772 (23 CFR 772) noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

#### **2.13.1.2 National Environmental Policy Act and 23 CFR 772**

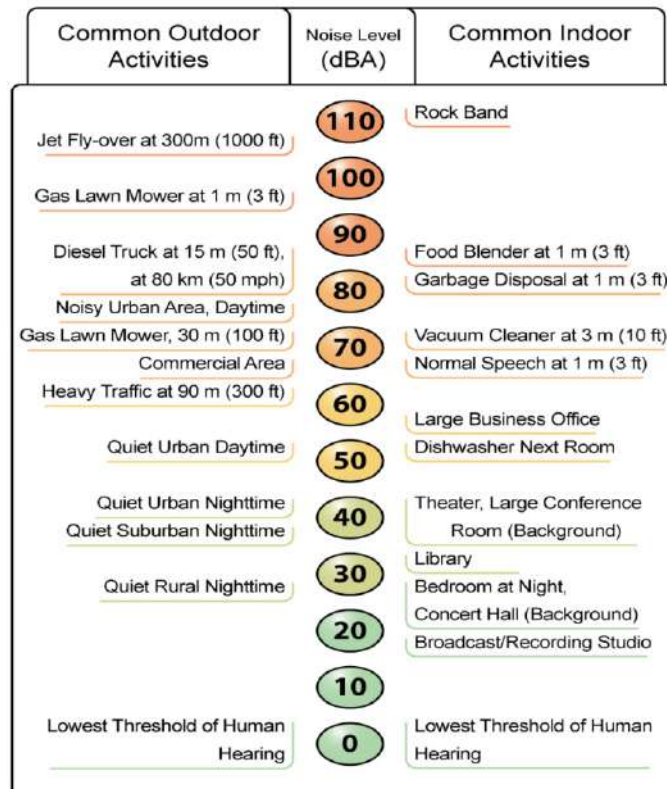
For highway transportation projects with the Federal Highway Administration (FHWA) involvement (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.13.1 lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

Figure 2.13-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

**Table 2.13.1 Noise Abatement Criteria**

| Activity Category | NAC, Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$ | Description of Activity Category   |
|-------------------|---|--|
| A                 | 57 (Exterior)                                       | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.  |
| B1                | 67 (Exterior)                                       | Residential.   |
| C1                | 67 (Exterior)                                       | Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. |
| D                 | 52 (Interior)                                       | Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.  |
| E                 | 72 (Exterior)                                       | Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.  |
| F                 | No NAC—reporting only                               | Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.   |
| G                 | No NAC—reporting only                               | Undeveloped lands that are not permitted.  |

<sup>1</sup> Includes undeveloped lands permitted for this activity category.  
 dBA = A-weighted decibels  
 $L_{eq}(h)$  = one-hour A-weighted equivalent continuous sound level  
 NAC = Noise Abatement Criteria



**Figure 2.13-1 Noise Levels of Common Activities**

According to the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated into the project.

Caltrans *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

## **2.13.2 Affected Environment**

This section is based on the May 2018 *Noise Study Report (NSR)* and the June 2018 *Noise Abatement Decision Report (NADR)* prepared for the proposed project. The NSR followed Caltrans 2011 *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (Noise Protocol) and the 2013 Caltrans *Technical Noise Supplement*.

### **2.13.2.1 Surrounding Land Use and Receptors**

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Receptors were identified within each land use category. Existing land uses in the study area include single- and multifamily residences, schools, a hospital, a day-care facility, a community center, parks, sports areas, a golf course, recreational areas, a hotel, restaurants, vacant land,



retail, office, utility, commercial, and light industrial uses. Existing land uses in the study area are described below in further detail.

- **Northbound Side of Interstate 605 (I-605) Between Alondra Boulevard and State Route 91 (SR-91):** Land uses in this area include single-family residences, a park, a hospital, a restaurant, and retail. Land uses in this area are from 14 feet (ft) lower to 22 ft higher in elevation than I-605. Currently, existing 5.6 to 8.3 ft high walls shield the single-family residences and park from traffic noise generated by I-605 and SR-91. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$  (equivalent continuous sound level measured in A-weighted decibels). Areas of frequent human use in the park were evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . Other areas of the park, which have no frequent human use areas, were classified under Activity Category C for reporting purposes. The interior area of the hospital was evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ . The restaurants with outdoor seating were evaluated under Activity Category E, which has an exterior NAC of 72 dBA  $L_{eq}$ . Retail uses were classified under Activity Category F for reporting purposes.
- **Southbound Side of I-605 Between Alondra Boulevard and SR-91:** Land uses in this area include a golf course, a sanitation facility, a gas station, retail, and light industry. Land uses in this area are from 19 ft lower to 4 ft higher in elevation than I-605. Currently, no existing walls shield these uses from traffic noise. The golf course was classified as Activity Category C for reporting purposes. The sanitation facility, the gas station, retail, and light industrial uses were classified as Activity Category F for reporting purposes.
- **Westbound Side of SR-91 Between I-605 and Gridley Road:** Land uses in this area include single-family residences. Land uses in this area are from 1 to 17 ft lower in elevation than SR-91. Currently, a 3 to 11 ft high existing wall shields these residences from traffic noise. The single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ .
- **Eastbound Side of SR-91 Between I-605 and Gridley Road:** Land uses in this area include single-family residences, a school and associated active sports areas, and a park. Land uses in this area are 3 to 19 ft lower in elevation than SR-91. Currently, a combination of a 16.8 ft high existing wall at the edge of the shoulder, a 13.5 ft high existing wall at the property line, and a 6.2 to 6.9 ft high wall at the property line shields the school and associated outdoor sports areas

from traffic noise. An existing 8.9 to 12.7 ft high wall shields the residences and the park. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The active sports areas associated with the school and the outdoor frequent human use areas associated with the park were evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . The classrooms were evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ .

- **Westbound Side of SR-91 Between Gridley Road and Pioneer Boulevard:** Land uses in this area include single- and multifamily residences, a park, a hotel, restaurants, gas stations, and light industry. Land uses in this area are 3 to 21 ft lower in elevation than SR-91. Currently, an existing 8.8 to 15.7 ft high wall and an existing 5 to 6.1 ft high wall located along the State right-of-way (ROW), the edge of the shoulder, and the private property line shield some of these uses from traffic noise. The single- and multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The park was evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . The hotel swimming pool was evaluated under Activity Category E, which has an exterior NAC of 72 dBA  $L_{eq}$ . Restaurants that have no outdoor eating areas and retail uses were classified under Activity Category E for reporting purposes. Light industrial uses were classified under Activity Category F for reporting purposes.
- **Eastbound Side of SR-91 Between Gridley Road and Pioneer Boulevard:** Land uses in this area include single-family residences, a park, and light industry. Land uses in this area are 1 to 20 ft lower in elevation than SR-91. Currently, an existing 5.6 to 18.1 ft high wall shields the park and single-family residences from traffic noise. The single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The park was evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . Light industrial uses were classified under Activity Category F for reporting purposes.
- **Westbound Side of SR-91 Between Pioneer Boulevard and Norwalk Boulevard:** Land uses in this area include single-family residences, a day-care center, a park, a community center, a gas station, vacant land, and light industrial uses. Land uses in this area are 4 to 24 ft lower in elevation than SR-91. Currently, an existing 15.8 to 16.2 ft high wall along the State ROW and an 11.3 to 13.4 ft high wall along the edge of the shoulder shield the residences, park, community center, day-care center, and some of the light industrial uses. The single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The park was evaluated under Activity Category C,

which has an exterior NAC of 67 dBA  $L_{eq}$ . The community center and day-care center were evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ . The gas station and light industrial uses were classified under Activity Category F for reporting purposes. Vacant uses were classified under Activity Category G for reporting purposes.

- **Eastbound Side of SR-91 Between Pioneer Boulevard and Norwalk Boulevard:** Land uses in this area include single- and multifamily residences, a school, a restaurant, and an office building that includes a school. Land uses in this area are 3 to 22 ft lower in elevation than SR-91. Currently, an existing 15 ft high wall along the edge of the shoulder shields the offices and schools from traffic noise. Existing 5.9 to 10 ft high walls along the edge of the shoulder and the private property line shield the residences. The single- and multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The school playground was evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . The classrooms were evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ . The restaurant, with an outdoor eating area, was evaluated under Activity Category E, which has an exterior NAC of 72 dBA  $L_{eq}$ . The office has no outdoor active use areas and was evaluated under Activity Category E for reporting purposes.
- **Westbound Side of SR-91 Between Norwalk Boulevard and Bloomfield Avenue:** Land uses in this area include multifamily residences, schools, a school playground, and an active sports area associated with a school. Land uses in this area are 5 to 20 ft lower in elevation than SR-91. Currently, an existing 10.8 to 14.7 ft high wall along the State ROW shields the school from traffic noise, and existing 6.9 to 13.5 ft high walls along the edge of the shoulder shield the residences. The multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The active sports areas associated with the schools were evaluated under Activity Category C, which has an exterior NAC of 67 dBA  $L_{eq}$ . The classrooms were evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ .
- **Eastbound Side of SR-91 Between Norwalk Boulevard and Bloomfield Avenue:** Land uses in this area include single-family residences and an office building that includes a school. Land uses in this area are 3 to 18 ft lower in elevation than SR-91. Currently, an existing 5.4 to 7.3 ft high wall along the edge of the shoulder and the private property line shields the residences from traffic noise. An existing 6 ft high wall along the State ROW and the private property line shields the office building and the school from traffic noise. The single-

family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . The classrooms were evaluated under Activity Category D, which has an interior NAC of 52 dBA  $L_{eq}$ . Offices that have no outdoor frequent human use areas were classified under Activity Category E for reporting purposes.

- **Westbound Side of SR-91 Between Bloomfield Avenue and South of Artesia Boulevard:** Land uses in this area include single-family residences. Land uses in this area are from 4 ft lower in elevation than SR-91 to 4 ft higher in elevation than SR-91. Currently, an existing 8.3 to 8.7 ft high wall along the private property line shields some of the residences from traffic noise. An existing 7 to 8.5 ft high wall along the State ROW shields some of the residences from traffic noise. The single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ .
- **Eastbound Side of SR-91 Between Bloomfield Avenue and South of Artesia Boulevard:** Land uses in this area include multifamily residences and retail. Land uses in this area are from 5 ft lower in elevation than SR-91 to elevations similar to SR-91. Currently, no existing walls shield these uses from traffic noise. A field inspection was conducted for the multifamily residential complex representing the Aria and Sage Apartments on June 25, 2017. Tables and chairs were observed and documented on the ground floor patios and upper floor balconies for the two apartment complexes and were determined to be outdoor frequent human use areas. The multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA  $L_{eq}$ . Outdoor frequent human use areas associated with retail uses were evaluated under Activity Category E, which has an exterior NAC of 72 dBA  $L_{eq}$ . Retail uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.

### 2.13.2.2 Existing Noise Level Measurements

The existing noise environment in the study area is described below based on short- and long-term noise monitoring that was conducted at representative receptor locations.

#### ***Short-Term Monitoring***

The primary source of noise in the study area is the traffic on SR-91, I-605, Alondra Boulevard, Studebaker Road, Pioneer Boulevard, Norwalk Boulevard, Bloomfield Avenue, and Artesia Boulevard. Short-term (10-minute) noise measurements were conducted to document existing noise levels at 61 representative receptor locations in the study area. Short-term noise level measurements were conducted using Larson

Davis Models 831, 824, 820 Type 1 sound level meters and a Larson Davis Model 720 Type 2 sound level meter. Table 2.13.2 contains the results of the short-term noise level measurements and a description of the noise-monitoring locations. These short-term (ST) noise measurements were used to calibrate the noise model and to predict the noise levels at all 362 modeled receptors in the study area. The short-term monitoring locations are shown on Figure 2.13-2.

### **Long-Term Monitoring**

Long-term (LT) traffic noise level measurements were conducted to document the peak traffic noise hour. Long-term ambient noise monitoring was conducted using two dosimeters at six representative locations in the study area. The following is a summary of those measurements:

- The long-term noise level measurement at LT-1 was performed at 16311 Monica Circle from 9:00 a.m. on Tuesday, June 27, 2017 to 9:00 a.m. on Wednesday, June 28, 2017. Traffic noise peaks at 66 dBA  $L_{eq}$  during the 5:00 a.m., 6:00 a.m., 7:00 a.m., 8:00 a.m., 6:00 p.m., 7:00 p.m., and 8:00 p.m. hours at LT-1.
- The long-term noise level measurement at LT-2 was performed at 16923 Eric Avenue from 10:00 a.m. on Tuesday, June 27, 2017 to 10:00 a.m. on Wednesday, June 28, 2017. Traffic noise peaks at 66 dBA  $L_{eq}$  during the 6:00 a.m. and 7:00 a.m. hours at LT-2.
- The long-term noise level measurement at LT-3 was performed at 11622 169th Street from 9:00 a.m. on Wednesday, June 28, 2017 to 9:00 a.m. on Thursday, June 29, 2017. Traffic noise peaks at 68 dBA  $L_{eq}$  during the 5:00 a.m. hour at LT-3.
- The long-term noise level measurement at LT-4 was performed at 12023 Palm Street from 9:00 a.m. on Wednesday, June 28, 2017 to 9:00 a.m. on Thursday, June 29, 2017. Traffic noise peaks at 64 dBA  $L_{eq}$  during the 5:00 a.m. and 6:00 a.m. hours at LT-4.
- The long-term noise level measurement at LT-5 was performed at 12331 Palm Street from 9:00 a.m. on Thursday, June 29, 2017 to 9:00 a.m. on Friday, June 30, 2017. Traffic noise peaks at 63 dBA  $L_{eq}$  during the 5:00 a.m., 6:00 a.m., and 7:00 a.m. hours at LT-5.
- The long-term noise level measurement at LT-6 was performed at 17201 Michaels Avenue from 10:00 a.m. on Thursday, June 29, 2017 to 10:00 a.m. on Friday, June 30, 2017. Traffic noise peaks at 62 dBA  $L_{eq}$  during the 5:00 a.m., 6:00 a.m., and 7:00 p.m. hours at LT-6.

**Table 2.13.2 Short-Term Ambient Noise Monitoring Results**

| Monitor No. | Date      | Start Time | Duration   | dBA L <sub>eq</sub> | Location Description  | Land Use          | Noise Sources   |
|-------------|-----------|------------|------------|---------------------|---|-------------------|---|
| ST-1        | 6/27/2017 | 9:28 AM    | 10 minutes | 64.7                | 10808 Alondra Boulevard. In front of the Frantone's Pizza, near an outdoor patio area.              | Restaurant/Retail | Traffic on I-605, off- and on-ramps, and parking lot  |
| ST-2        | 6/27/2017 | 9:28 AM    | 10 minutes | 74.6                | 10802 College Place. West side of the hospital, northeast of dumpster.                              | Hospital          | Traffic on I-605  |
| ST-3        | 6/27/2017 | 10:30 AM   | 10 minutes | 64.1                | 16311 Monica Circle. In the backyard.   | Residential       | Traffic on I-605  |
| ST-4        | 6/27/2017 | 10:30 AM   | 10 minutes | 59.8                | 10814 Petula Place. In the backyard.  | Residential       | Traffic on I-605  |
| ST-5        | 6/27/2017 | 11:07 AM   | 10 minutes | 56.4                | Directly next to 16643 Estella Avenue, in line with the backyard.                                   | Residential       | Traffic on I-605  |
| ST-6        | 6/27/2017 | 11:07 AM   | 10 minutes | 63.4                | 16733 Studebaker Road. In Reservoir Hill Park, at the top of the hill.                              | Park              | Traffic on I-605 and SR-91  |
| ST-7        | 6/27/2017 | 9:28 AM    | 10 minutes | 71.4                | 10710 Alondra Boulevard. Northwest corner of the Shell gas station.                                 | Gas Station       | Traffic on Piuma Avenue, Alondra Boulevard, and I-605   |
| ST-8        | 6/27/2017 | 9:28 AM    | 10 minutes | 73.3                | 16121 Piuma Avenue. In the parking lot.   | Park              | Traffic on I-605 and Piuma Avenue   |
| ST-9        | 6/27/2017 | 10:30 AM   | 10 minutes | 76.1                | 16449 Piuma Avenue. Northeast corner of The City of Cerritos Iron-Wood Nine Golf Course.            | Golf Course       | Traffic on I-605 and occasional traffic on Piuma Avenue   |
| ST-10       | 6/27/2017 | 10:30 AM   | 10 minutes | 71.7                | 16599 Piuma Avenue. In the parking lot. Receptor placed equidistant between the facility and I-605. | Golf Course       | Traffic on I-605  |
| ST-11       | 6/27/2017 | 12:53 PM   | 10 minutes | 61.5                | 16825 Leeward Avenue. Next to the backyard.   | Residential       | Traffic on SR-91 and SR-91/I-605 connector  |
| ST-12       | 6/27/2017 | 12:53 PM   | 10 minutes | 63.8                | 16835 Outrigger Circle. In the front yard.  | Residential       | Traffic on SR-91 and SR-91/I-605 connector and occasional traffic on Windjammer Road and Outrigger Circle |
| ST-13       | 6/27/2017 | 1:44 PM    | 10 minutes | 64.4                | 16923 Eric Avenue. In the backyard.   | Residential       | Traffic on SR-91  |
| ST-14       | 6/27/2017 | 1:44 PM    | 10 minutes | 59.9                | 11238 Lucas Street. In the backyard.  | Residential       | Traffic on SR-91  |
| ST-15       | 6/27/2017 | 1:44 PM    | 10 minutes | 65.1                | 11221 Beach Street. On the driveway.  | Residential       | Traffic on SR-91  |
| ST-16       | 6/27/2017 | 2:35 PM    | 10 minutes | 60.1                | 16826 Sunny Ridge Court. In the backyard.   | Residential       | Traffic on SR-91  |
| ST-17       | 8/3/2017  | 9:46 AM    | 10 minutes | 68.3                | 11111 Artesia Boulevard. Adjacent to the football field of Gahr High School.                        | Playground        | Traffic on SR-91, I-605 and Studebaker Road   |

**Table 2.13.2 Short-Term Ambient Noise Monitoring Results**

| Monitor No. | Date      | Start Time | Duration   | dBA L <sub>eq</sub> | Location Description  | Land Use         | Noise Sources                                |
|-------------|-----------|------------|------------|---------------------|---|------------------|--|
| ST-18       | 6/27/2017 | 1:44 PM    | 10 minutes | 55.9                | 11111 Artesia Boulevard. In the second baseball field from the west at Gahr High School.        | Playground       | Traffic on SR-91                             |
| ST-19       | 6/27/2017 | 2:35 PM    | 10 minutes | 55.5                | 11111 Artesia Boulevard. Northeast corner of Gahr High School.                                  | School           | Traffic on SR-91                             |
| ST-20       | 6/27/2017 | 2:35 PM    | 10 minutes | 61.4                | 11307 Palm Street. In the backyard.   | Residential      | Traffic on SR-91                             |
| ST-21       | 6/28/2017 | 9:16 AM    | 10 minutes | 74.2                | 11441 Beach Street. In front of the building.   | Retail           | Traffic on SR-91                             |
| ST-22       | 6/28/2017 | 9:16 AM    | 10 minutes | 64.6                | Next to the Hyde Park Court park.   | Park             | Traffic on SR-91                             |
| ST-23       | 6/28/2017 | 9:54 AM    | 10 minutes | 61.5                | 11523 Hyde Park Court. In front of the residence.   | Residential      | Traffic on SR-91                             |
| ST-24       | 6/28/2017 | 9:54 AM    | 10 minutes | 54.4                | Walkway between 11510 and 11508 Belvedere Court. At south side of the two residences.           | Residential      | Traffic on SR-91                             |
| ST-25       | 8/3/2017  | 9:46 AM    | 10 minutes | 65.3                | 11554 169 <sup>th</sup> Street. In the backyard.  | Residential      | Traffic on SR-91                             |
| ST-26       | 6/28/2017 | 10:27 AM   | 10 minutes | 63.3                | 11644 169 <sup>th</sup> Street. In the backyard.  | Residential      | Traffic on SR-91                             |
| ST-27       | 6/28/2017 | 10:27 AM   | 10 minutes | 67.0                | 16905 Pioneer Boulevard. Artesia Inn and Suites. Southeast of the pool.                         | Hotel            | Traffic on SR-91                             |
| ST-28       | 6/28/2017 | 11:04 AM   | 10 minutes | 59.1                | 16707 Pioneer Boulevard. In the parking lot of El Pollo Loco.                                   | Restaurant       | Traffic on Pioneer Boulevard and parking lot |
| ST-29       | 6/28/2017 | 9:16 AM    | 10 minutes | 65.5                | 11431 Jenkins Street. In the backyard.  | Residential      | Traffic on SR-91                             |
| ST-30       | 6/28/2017 | 9:16 AM    | 10 minutes | 58.8                | Between 17102 and 17106 Gard Avenue. Outside of backyard gate of 17102 Gard Avenue.             | Residential      | Traffic on SR-91                             |
| ST-31       | 8/3/2017  | 9:47 AM    | 10 minutes | 71.0                | 17027 Roseton Avenue. In front of the building, in the cul-de-sac of Roseton Avenue.            | Offices          | Traffic on SR-91                             |
| ST-32       | 6/28/2017 | 10:27 AM   | 10 minutes | 69.2                | Between 17004 and 17105 Alburdis Avenue. Outside of the property gate of 17105 Alburdis Avenue. | Light Industrial | Traffic on SR-91                             |
| ST-33       | 6/28/2017 | 11:05 AM   | 10 minutes | 53.4                | 16646 Pioneer Boulevard. In the backyard.   | Residential      | Traffic on Pioneer Boulevard and SR-91       |
| ST-34       | 8/3/2017  | 10:49 AM   | 10 minutes | 62.9                | 11814 168 <sup>th</sup> Street. In the vacant land, in line with residential backyards.         | Vacant Land      | Traffic on SR-91 and Pioneer Boulevard       |
| ST-35       | 6/28/2017 | 11:05 AM   | 10 minutes | 54.7                | 11832 168 <sup>th</sup> Street. In the backyard.  | Residential      | Traffic on SR-91                             |
| ST-36       | 6/28/2017 | 9:54 AM    | 10 minutes | 60.3                | 11864 169 <sup>th</sup> street. In the backyard.  | Residential      | Traffic on SR-91                             |



**Table 2.13.2 Short-Term Ambient Noise Monitoring Results**

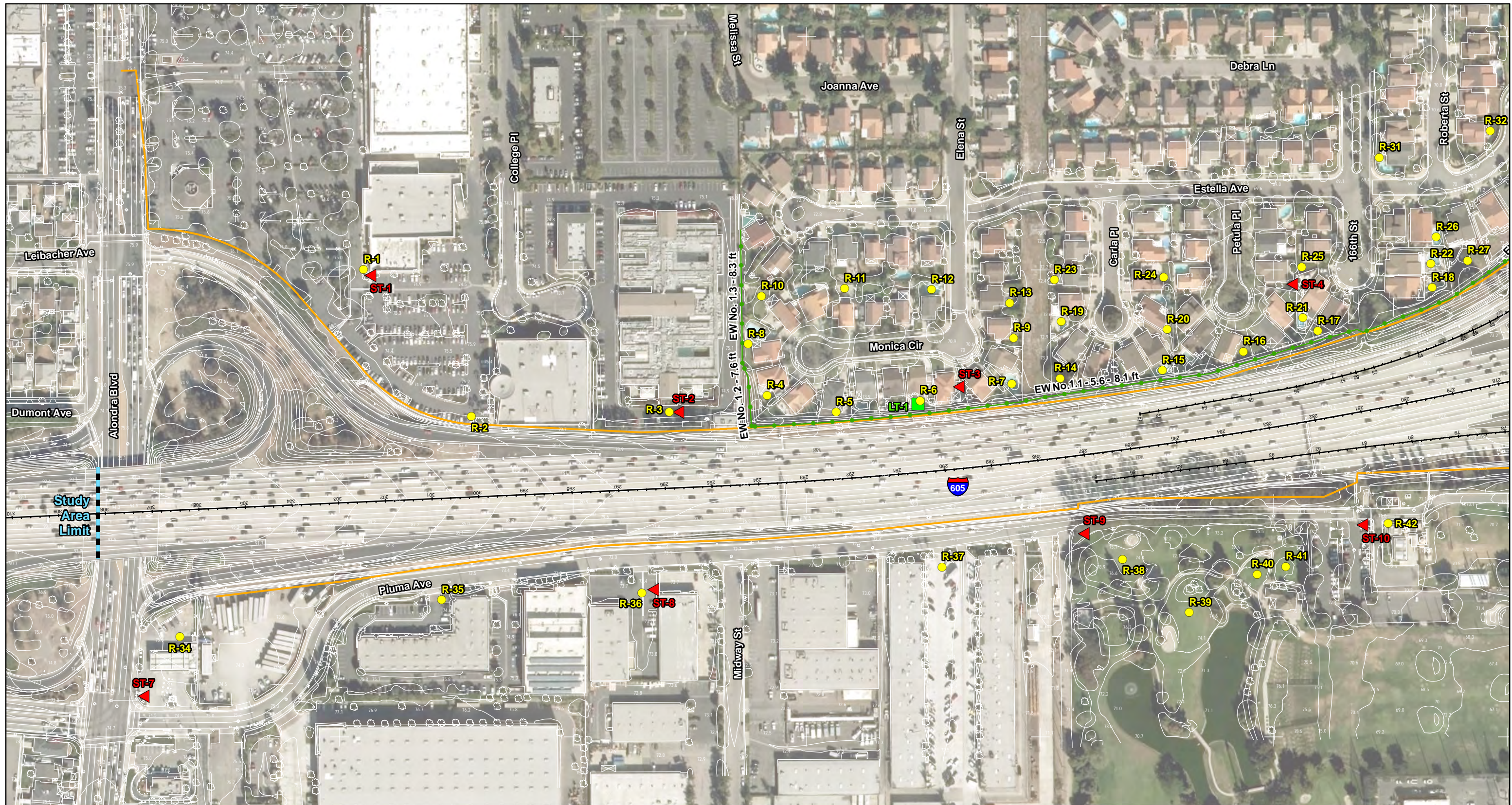
| Monitor No. | Date      | Start Time | Duration   | dBA L <sub>eq</sub> | Location Description  | Land Use    | Noise Sources   |
|-------------|-----------|------------|------------|---------------------|---|-------------|---|
| ST-37       | 6/28/2017 | 1:45 PM    | 10 minutes | 63.5                | In the park. Directly south of the backyard of 11936 169 <sup>th</sup> Street.                              | Park        | Traffic on SR-91  |
| ST-38       | 6/28/2017 | 1:45 PM    | 10 minutes | 58.4                | 11951 170 <sup>th</sup> Street. In the backyard.  | Residential | Traffic on SR-91  |
| ST-39       | 6/28/2017 | 1:45 PM    | 10 minutes | 59.6                | Directly south of the backyard of 12021 170 <sup>th</sup> Street. In the parking lot.                       | Residential | Traffic on SR-91  |
| ST-40       | 6/28/2017 | 2:26 PM    | 10 minutes | 61.8                | In the parking lot of 16741 Parkside Avenue. Next to the backyard of 12058 169 <sup>th</sup> Street.        | Residential | Traffic on SR-91  |
| ST-41       | 6/29/2017 | 9:15 AM    | 10 minutes | 70.6                | 16821 Norwalk Boulevard. Southeast corner of the Shell gas station.   | Gas Station | Traffic on Norwalk Avenue, SR-91, and the westbound SR-91 off-ramp      |
| ST-42       | 8/3/2017  | 10:50 AM   | 10 minutes | 67.7                | 17100 Pioneer Boulevard. Next to the Angeles Institute building.  | School      | Traffic on SR-91 and the eastbound SR-91 on-ramp from Pioneer Boulevard |
| ST-43       | 6/28/2017 | 12:49 PM   | 10 minutes | 62.3                | 11939 Aclare Street. Juarez Academy of Engineering and Technology. At the northwest corner of the building. | School      | Traffic on SR-91  |
| ST-44       | 8/3/2017  | 10:49 AM   | 10 minutes | 66.3                | 12029 Palm Street. In the backyard.   | Residential | Traffic on SR-91  |
| ST-45       | 6/28/2017 | 2:26 PM    | 10 minutes | 57.5                | 17203 Ibex Avenue. On the driveway.   | Residential | Traffic on SR-91  |
| ST-46       | 6/29/2017 | 9:15 AM    | 10 minutes | 65.8                | Next to the SR-91 eastbound off-ramp to Norwalk Boulevard. North of the residence at 17200 Monaco Drive.    | Residential | Traffic on SR-91, the eastbound SR-91 on-ramp, and Norwalk Boulevard    |
| ST-47       | 6/29/2017 | 9:54 AM    | 10 minutes | 63.3                | 12222 Cuesta Drive. ABC Adult School. Near room "N" at the southeast corner of the property.                | School      | Traffic on SR-91  |
| ST-48       | 6/29/2017 | 10:36 AM   | 10 minutes | 62.3                | 12418 Rancho Vista Drive. In the alley behind the residences.   | Residential | Traffic on SR-91  |
| ST-49       | 6/29/2017 | 10:36 AM   | 10 minutes | 61.4                | Between the balconies of 12456 and 12454 Ranch Vista Drive.   | Residential | Traffic on SR-91  |
| ST-50       | 6/29/2017 | 11:11 AM   | 10 minutes | 57.3                | 16948 Sierra Vista Drive. In the alley behind the residences and in line with the upstairs patio.           | Residential | Traffic on SR-91  |
| ST-51       | 8/3/2017  | 11:40 AM   | 10 minutes | 58.9                | 16938 Sierra Vista Way. Behind the buildings at a similar distance from the roadway as the balconies.       | Residential | Traffic on SR-91 and the westbound SR-91 on-ramp from Bloomfield Avenue |

**Table 2.13.2 Short-Term Ambient Noise Monitoring Results**

| Monitor No. | Date      | Start Time | Duration   | dBA L <sub>eq</sub> | Location Description   | Land Use    | Noise Sources   |
|-------------|-----------|------------|------------|---------------------|--|-------------|---|
| ST-52       | 6/29/2017 | 9:54 AM    | 10 minutes | 65.6                | Between 17100 and 17150 Norwalk Boulevard. In the parking lot.   | Offices     | Traffic on SR-91  |
| ST-53       | 6/29/2017 | 9:54 AM    | 10 minutes | 63.8                | 12305 Palm Street. In the backyard.  | Residential | Traffic on SR-91  |
| ST-54       | 6/29/2017 | 10:36 AM   | 10 minutes | 64.2                | 12361 Palm Street. In the backyard.  | Residential | Traffic on SR-91  |
| ST-55       | 6/29/2017 | 10:36 AM   | 10 minutes | 64.5                | 12477 Autumn Breeze Street. In the backyard.   | Residential | Traffic on SR-91  |
| ST-56       | 8/3/2017  | 11:40 AM   | 10 minutes | 55.6                | 12533 Springsnow Circle. In the backyard.  | Residential | Traffic on SR-91 and the eastbound SR-91 off-ramp to Bloomfield Avenue  |
| ST-57       | 6/29/2017 | 11:48 AM   | 10 minutes | 58.9                | 17113 Michaels Avenue. In the backyard.  | Residential | Traffic on SR-91  |
| ST-58       | 6/29/2017 | 11:48 AM   | 10 minutes | 57.4                | 17227 Michaels Avenue. Outside wooden backyard gate.   | Residential | Traffic on SR-91  |
| ST-59       | 6/29/2017 | 11:48 AM   | 10 minutes | 54.7                | 17343 De Groot Place. Next to the backyard.  | Residential | Traffic on SR-91 and the westbound SR-91 on-ramp from Artesia Boulevard |
| ST-60       | 6/29/2017 | 1:24 PM    | 10 minutes | 75.6                | 12611 Artesia Boulevard. Aria Apartment Homes, in line with the north facade of the second building from the west. | Residential | Traffic on SR-91  |
| ST-61       | 6/29/2017 | 1:24 PM    | 10 minutes | 71.0                | At the northwest corner of 12741 Towne Center Drive. In the parking lot of Cerritos Towne Center.                  | Retail      | Traffic on SR-91 and the parking lot                                    |

Source: *Noise Study Report* (2018).  
 dBA = A-weighted decibels  
 I-605 = Interstate 605  
 L<sub>eq</sub> = equivalent continuous sound level  
 SR-91 = State Route 91





**LEGEND**

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- ▲ Short-Term Interior Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall



**FIGURE 2.13-2**  
Sheet 1 of 6

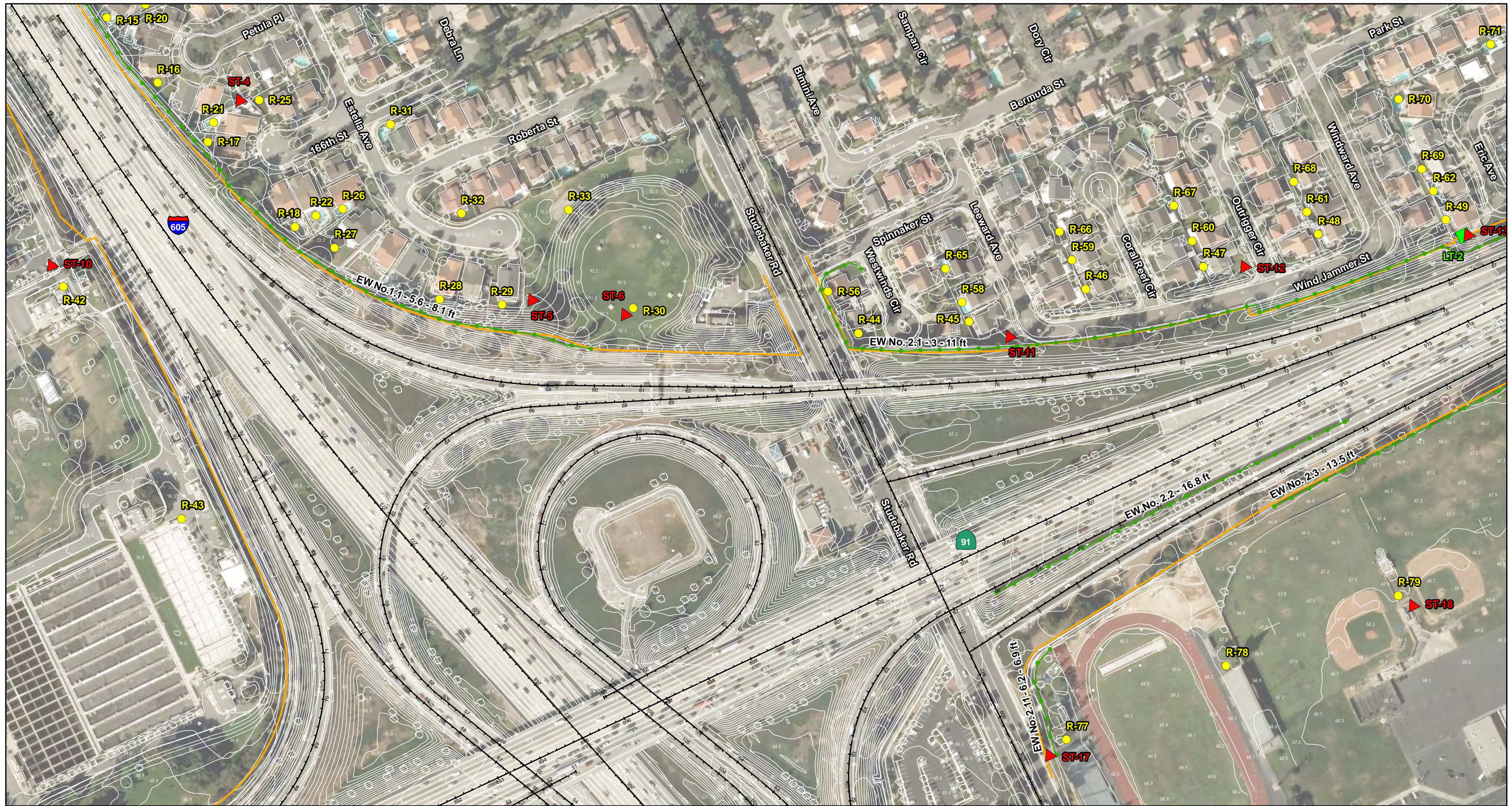
*Westbound SR-91 Improvement Project*  
**Monitoring and Modeled Receptor Locations**

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



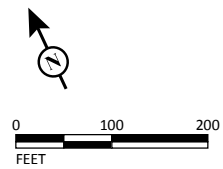
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**LEGEND**

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- ▲ Short-Term Interior Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall



**FIGURE 2.13-2**  
Sheet 2 of 6

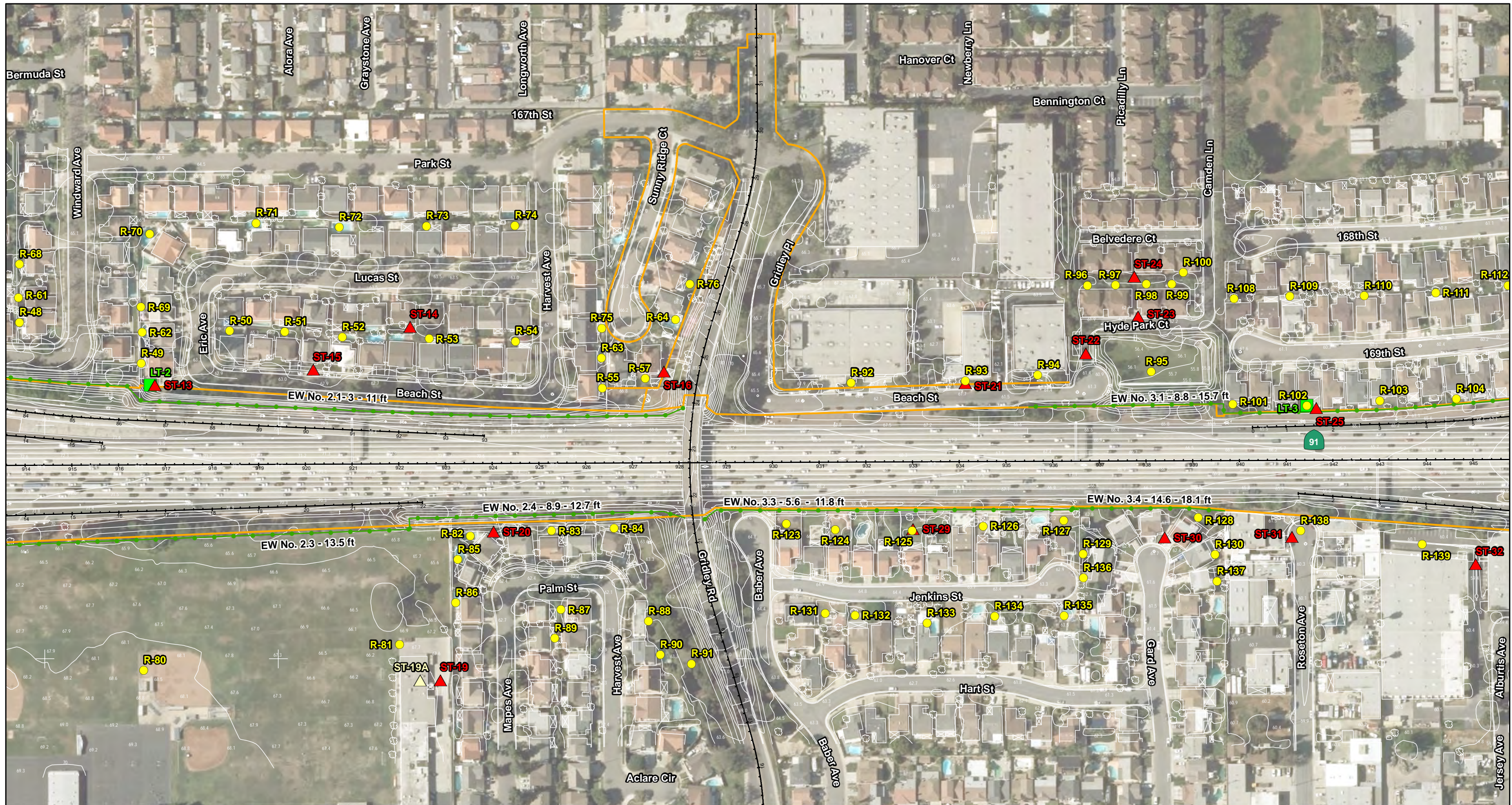
*Westbound SR-91 Improvement Project*  
**Monitoring and Modeled Receptor Locations**

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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**LEGEND**

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall
- ▲ Short-Term Interior Monitoring Locations

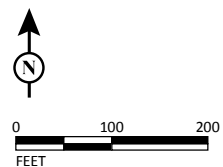


FIGURE 2.13-2  
Sheet 3 of 6

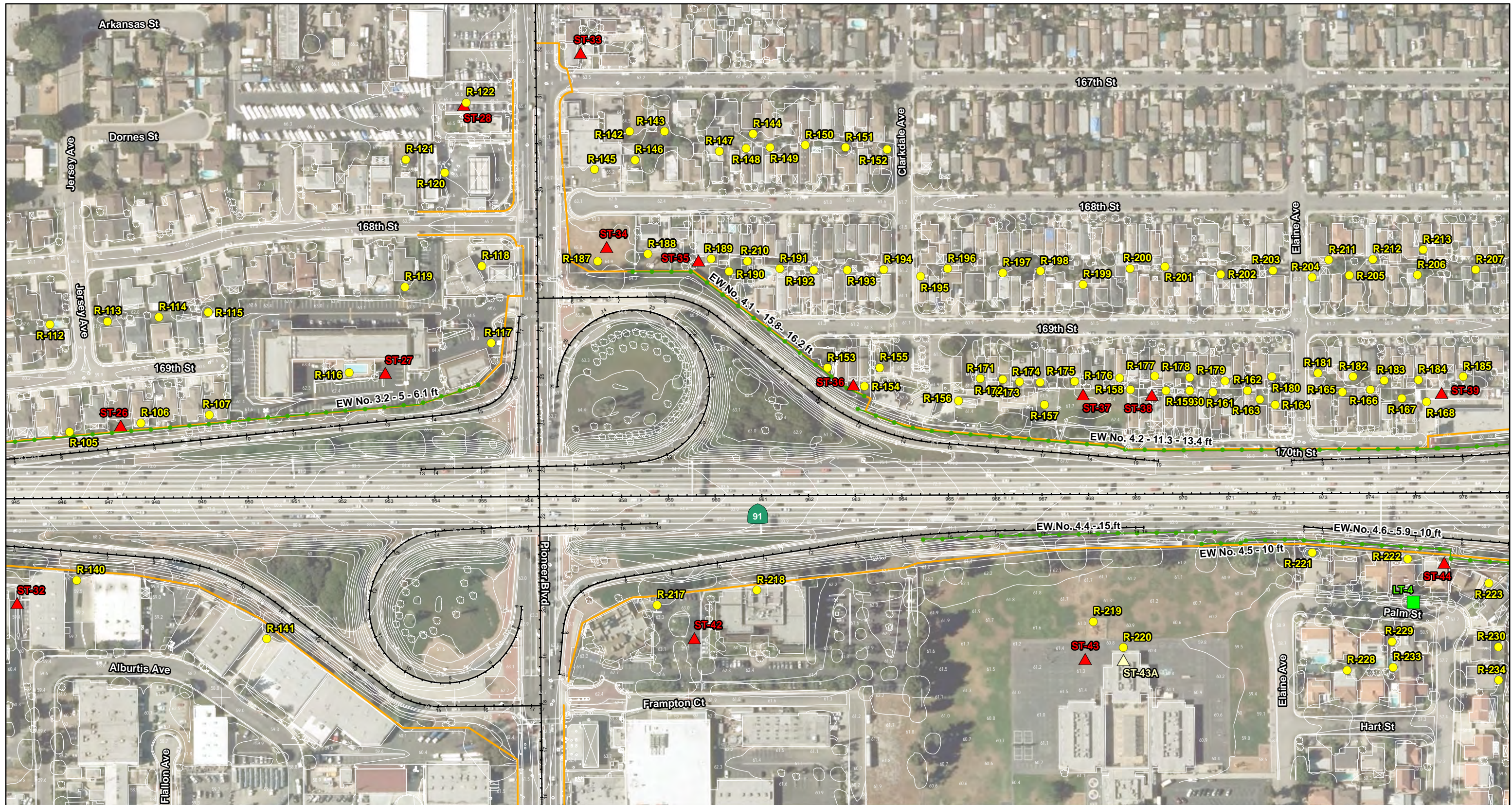
*Westbound SR-91 Improvement Project*  
**Monitoring and Modeled Receptor Locations**

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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**LEGEND**

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- ▲ Short-Term Interior Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall

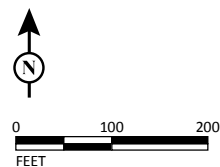


FIGURE 2.13-2  
Sheet 4 of 6

*Westbound SR-91 Improvement Project*  
**Monitoring and Modeled Receptor Locations**

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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LEGEND

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- ▲ Short-Term Interior Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall



0 100 200  
FEET

SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

I:\RBF1601\GIS\MXD\Noise\NoiseMonitoring.mxd (7/11/2018)



FIGURE 2.13-2  
Sheet 5 of 6

Westbound SR-91 Improvement Project  
Monitoring and Modeled Receptor Locations

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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LEGEND

- Long-Term Monitoring Locations
- ▲ Short-Term Monitoring Locations
- Modeled Receptors
- Existing Right-of-Way
- Existing Wall

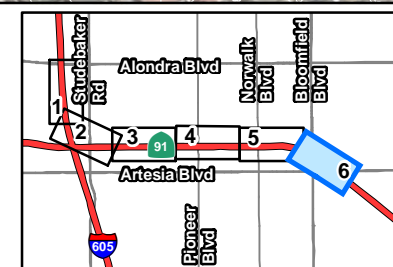
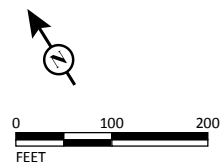


FIGURE 2.13-2  
Sheet 6 of 6

Westbound SR-91 Improvement Project  
Monitoring and Modeled Receptor Locations

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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### **2.13.2.3 Existing Noise Levels**

Traffic volume counts and vehicle speeds measured during the ambient noise monitoring were coded into Traffic Noise Model (TNM) 2.5 with existing roadway conditions to calibrate the modeling result. The results of the existing traffic noise modeling are shown in Table 2.13.6 in Section 2.13.3.2, Permanent Impacts. Currently, of the 362 modeled receptor locations, 33 receptors would approach or exceed the NAC. Figure 2.13-2 shows the locations of the modeled receptors.

### **2.13.3 Environmental Consequences**

The proposed project is considered a Type 1 project because it would use federal aid to add a mixed-flow lane and auxiliary lanes in the westbound direction of the existing SR-91. A noise analysis is required for all Type 1 projects. Therefore, noise impacts of the Build Alternative and design options are analyzed below.

#### **2.13.3.1 Temporary Impacts**

##### ***Build Alternative (includes Design Options)***

###### ***Construction Noise***

Two types of short-term noise impacts would occur during project construction. The first type would be from construction crew commutes and the transport of construction equipment and materials to the project site and would incrementally raise noise levels on the access roads leading to the site. The pieces of heavy equipment for grading and construction activities would be moved on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the project vicinity. A high single-event noise exposure potential at a maximum level of 75 dBA maximum instantaneous noise level ( $L_{max}$ ) from trucks passing at 50 ft from the noise receptor would exist. However, the projected construction traffic would be minimal when compared to existing traffic volumes on SR-91 and other affected streets, and its associated long-term noise level change would not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would have no effect on ambient noise levels.

The second type of short-term noise impact is related to noise generated during roadway construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and the noise levels in the study area as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2.13.3 lists typical construction

**Table 2.13.3 Typical Construction Equipment Noise Levels**

| Type of Equipment  | Actual Maximum Sound Levels at 50 ft (dBA) |
|--------------------|--|
| Backhoe            | 78   |
| Crane              | 81   |
| Dozer              | 82   |
| Drill Rig Truck    | 79   |
| Dump Truck         | 76   |
| Excavator          | 81   |
| Flat Bed Truck     | 74   |
| Front End Loader   | 79   |
| Generator          | 81   |
| Impact Pile Driver | 101  |
| Jackhammer         | 89   |
| Pickup Truck       | 75   |
| Pneumatic Tools    | 85   |
| Pumps              | 81   |
| Roller             | 80   |
| Scraper            | 84   |

Source: Federal Highway Administration. *Roadway Construction Noise Model* (2006).

dBA = A-weighted decibels

ft = foot/feet

equipment noise levels ( $L_{max}$ ) recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor.

With the exception of the impact pile driver and jackhammer, typical noise levels at 50 ft from an active construction area range up to 86 dBA  $L_{max}$  during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery (e.g., backfillers, bulldozers, and front loaders). Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

The construction of the proposed project is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated to be between 75 and 84 dBA  $L_{max}$  at a distance of 50 ft from the active construction area for the grading phase. As seen in Table 2.13.3, the maximum noise level generated by each scraper is assumed to be approximately 84 dBA  $L_{max}$  at 50 ft from the scraper in operation. Each bulldozer would generate approximately 82 dBA  $L_{max}$  at 50 ft. The maximum noise level generated by water trucks and pickup trucks is approximately 75

dBa  $L_{max}$  at 50 ft from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 86 dBA  $L_{max}$  (at a distance of 50 ft from an active construction area).

In addition to standard construction equipment, the proposed project may require the use of pile drivers. As shown in Table 2.13.3, pile driving generates noise levels of approximately 101 dBA  $L_{max}$  at 50 ft.

The closest sensitive receptors are within 50 ft of project construction areas and would be approximately 180 ft from pile driving activities. Sensitive receptor locations may be subject to short-term noise higher than 92 dBA  $L_{max}$  generated by construction activities along the project alignment. Project Feature N-1 requires compliance with Caltrans Standard Specifications Section 14-8.02 (2015) and would minimize construction noise impacts on sensitive land uses adjacent to the project site. The noise level from the contractor's operations between the hours of 9:00 p.m. and 6:00 a.m. shall not exceed 86 dBA  $L_{max}$  at a distance of 50 ft and contractors will not operate an internal combustion engine on the job site without the appropriate manufacturer-recommended muffler.

- PF-N-1** The control of noise from construction activities shall conform to the California Department of Transportation (Caltrans) Standard Specifications, Section 14-8.02, Noise Control. The nighttime noise level from the contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBA  $L_{eq}(h)$  (1-hour A-weighted equivalent continuous sound level) at a distance of 50 feet. In addition, the contractor shall equip all internal combustion engines with a manufacturer-recommended muffler and shall not operate any internal combustion engine on the job site without the appropriate muffler.
- PF-N-2** During all project site excavation and grading, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- PF-N-3** The construction contractor shall locate construction staging areas away from off-site sensitive uses during the later phases of project development.

**PF-N-4** The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site whenever feasible.

### *Construction Vibration*

Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that would result in damage to nearby structures. However, old and fragile structures would require special consideration to avoid damage. The two types of short-term vibration impacts that would occur during project construction are evaluated below.

Short-term vibration impacts would be from construction equipment associated with the construction. The proposed project would require the use of loaded trucks, bulldozers, and pile driving. Based on the Federal Transit Administration *Transit Noise and Vibration Assessment* (2006), a loaded truck, a large bulldozer, and pile driving would generate a vibration level of 0.076 peak particle velocity (PPV) (inches per second [in/sec]) (86 vibration velocity decibels [VdB]), 0.089 PPV (in/sec) (87 VdB), and 0.644 PPV (in/sec) (104 VdB) when measured at 25 ft. The closest residential structure is located approximately 50 ft from the construction boundary and 180 ft from pile driving. The closest residential structure would be exposed to a vibration level of up to 0.033 PPV (in/sec) (78 VdB). As shown in Table 2.13.4, a vibration level of 87 VdB at the closest residence would result in community annoyance. However, Table 2.13.5 shows that this vibration level would not damage residential structures or other structures associated with residential land uses within the project area because these structures are constructed with non-engineered timber and the vibration damage threshold of 0.2 PPV (in/sec) (94 VdB) would not be exceeded.

### **No Build Alternative**

The No Build Alternative would not result in the construction of improvements within the study area and, therefore, would not result in temporary noise or vibration effects.

**Table 2.13.4 Groundborne Vibration Impact General Assessment**

| Land Use Category  | Groundborne Vibration Impact Levels<br>(VdB re 1 µin/sec) |                                |                                |
|--|---|--------------------------------|--------------------------------|
|  | Frequent Events <sup>1</sup>                              | Occasional Events <sup>2</sup> | Infrequent Events <sup>3</sup> |
| Category 1: Buildings where vibration would interfere with interior operations | 65 VdB  | 65 VdB                         | 65 VdB                         |
| Category 2: Residences and buildings where people normally sleep               | 72 VdB  | 75 VdB                         | 80 VdB                         |
| Category 3: Institutional land uses with primarily daytime use                 | 75 VdB  | 78 VdB                         | 83 VdB                         |

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2006).

<sup>1</sup> Frequent Events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.

<sup>2</sup> Occasional Events are defined as between 30 and 70 vibration events of the same kind per day. This category includes most commuter rail branch lines.

<sup>3</sup> Infrequent Events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

µin/sec = microinches per second

FTA = Federal Transit Administration

VdB = vibration velocity decibels

**Table 2.13.5 Construction Vibration Damage Criteria**

| Building Category                                   | PPV (in/sec) | Approximately L <sub>v</sub> |
|---|--------------|------------------------------|
| Reinforced concrete, steel, or timber (no plaster)  | 0.5          | 102                          |
| Engineered concrete and masonry (no plaster)        | 0.3          | 98                           |
| Non-engineered timber and masonry buildings         | 0.2          | 94                           |
| Buildings extremely susceptible to vibration damage | 0.12         | 90                           |

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2006).

FTA = Federal Transit Administration

in/sec = inches per second

L<sub>v</sub> = root-mean-square (RMS) velocity in decibels (VdB) re 1 microinch per second

PPV = peak particle velocity

### 2.13.3.2 Permanent Impacts

Potential long-term noise impacts associated with project operations are solely from traffic noise. Traffic noise was evaluated for the worst-case traffic condition. Using coordinates obtained from topographic maps, a total of 362 receptor locations associated with existing single- and multifamily residences, schools, a hospital, a day-care facility, a community center, parks, sports areas, a golf course, recreational areas, a hotel, restaurants, vacant land, retail, office, utility, commercial, and light industrial uses were evaluated in the noise model.

#### ***Build Alternative (Includes Design Options)***

Future traffic noise levels for all 362 receptor locations were determined with existing walls using the worst-case traffic operations (prior to speed degradation) or the future (2044) peak-

hour traffic volumes obtained from the *Traffic Operations Analysis Report* (2018), whichever was lower. Table 2.13.6 along with Tables 2.13.7 and 2.13.8 show the traffic noise level results for the existing (2017), Future No Build, and Future Build (Build Alternative) conditions. Table 2.13.9 along with Tables 2.13.10 and 2.13.11 show the traffic noise level results for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width). Tables 2.13.12 through 2.13.15 show the traffic noise level results for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing), the Build Alternative with Design Option 2 (Pioneer Boulevard L-9), the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment), and the Build Alternative with Design Option 4 (Diamond Ramps), respectively.

The modeled future noise levels with the project were compared to the modeled existing noise levels (after calibration) from TNM 2.5 to determine whether a substantial noise increase would occur. The modeled future noise levels were also compared to the NACs under Activity Categories B, C, D, and E to determine whether a traffic noise impact would occur.

Traffic noise impacts occur when either of the following takes place: (1) if the traffic noise level at a sensitive receptor location is predicted to “approach or exceed” the NAC (i.e., be within 1 dBA or higher) or (2) if the predicted traffic noise level is 12 dBA or more over its corresponding modeled existing noise level at the sensitive receptor locations analyzed. When traffic noise impacts occur, noise abatement measures must be considered. Of the 362 modeled receptors, 56 receptors under the Build Alternative would approach or exceed the NAC. No additional impacts would occur under the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing), Design Option 2 (Pioneer Boulevard L-9), or Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). The Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) would have 10 fewer impacted receptors compared to the Build Alternative (Receptors R-107, R-177 through R-183, R-248, and R-249). The Build Alternative with Design Option 4 (Diamond Ramps) would have two fewer impacted receptors compared to the Build Alternative (Receptors R-248 and R-249). No receptor would experience a substantial noise increase of 12 dBA or more over its corresponding existing noise levels under any scenario.







Table 2.13.6 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use         | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |                          |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|------------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|--------------------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                   |                  |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type <sup>4</sup> | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                   |                  |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |                          | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                   |                  |                         |   |   |                                   |  |  |                         |                          | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-103        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 3                       | 67  | 67  | 68                                | 1  | 1                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 68  | 0                   | 0    | 66  | 2                   | 0    |     |
| R-104        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 3                       | 65  | 65  | 67                                | 2  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 65  | 2                   | 0    |     |
| R-105        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 3                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 63  | 1                   | 0    |     |
| R-106        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 3                       | 63  | 63  | 65                                | 2  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 1                   | 0    | 63  | 2                   | 0    |     |
| R-107        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 64  | 64  | 66                                | 2  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 1                   | 0    | 64  | 2                   | 0    |     |
| R-108        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 1                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    |     |
| R-109        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 0                   | 0    | 61  | 1                   | 0    |     |
| R-110        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-111        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62  | 1                   | 0    |     |
| R-112        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 1                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 63  | 0                   | 0    |     |
| R-113        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    |     |
| R-114        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 2                       | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-115        | EW No. 3.1                     | NB No. 3.1        | 169th Street      | Residential      | 1                       | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-116        | EW No. 3.1                     |                   | Pioneer Boulevard | Hotel            | 1                       | 64  | 65  | 65                                | 0  | 1                                      | E(72)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-117        |                                |                   | Pioneer Boulevard | Restaurant       | 0                       | 67  | 67  | 67                                | 0  | 0                                      | E <sup>b</sup>          | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-118        |                                |                   | Pioneer Boulevard | Gas Station      | 0                       | 65  | 65  | 0                                 | --                                       | --                                     | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-119        | EW No. 3.1                     |                   | 168th Street      | Residential      | 1                       | 56  | 57  | 57                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-120        |                                |                   | Pioneer Boulevard | Gas Station      | 0                       | 62  | 62  | 63                                | 1  | 1                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-121        |                                |                   | 168th Street      | Residential      | 1                       | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-122        |                                |                   | Pioneer Boulevard | Light Industrial | 0                       | 59  | 59  | 59                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-123        | EW No. 3.3                     | NB No. 3.2        | Jenkins Street    | Residential      | 2                       | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E                      | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   |
| R-124        | EW No. 3.3                     | NB No. 3.2        | Jenkins Street    | Residential      | 2                       | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E                      | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   |
| R-125        | EW No. 3.3                     | NB No. 3.2        | Jenkins Street    | Residential      | 3                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --                       | 65  | 0    | 0   | 64                  | 1    | 0   | 64                  | 1    | 0   | 63                  | 2    | 0   | 62                  | 3    | 0   | 62                  | 3    | 0   |
| R-126        | EW No. 3.3                     | NB No. 3.2        | Jenkins Street    | Residential      | 3                       | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E                      | 67  | 0    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 63                  | 4    | 0   | 62                  | 5    | 3   |
| R-127        | EW No. 3.3                     | NB No. 3.2        | Jenkins Street    | Residential      | 3                       | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E                      | 67  | 0    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 62                  | 5    | 3   |
| R-128        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue       | Residential      | 2                       | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E                      | 64  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   |
| R-129        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue       | Residential      | 1                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --                       | 64  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2    | 0   | 62                  | 2    | 0   |
| R-130        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue       | Residential      | 1                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --                       | 64  | 1    | 0   | 64                  | 1    | 0   | 63                  | 2    | 0   | 63                  | 2    | 0   | 63                  | 2    | 0   | 63                  | 2    | 0   |
| R-131        | EW No. 3.3                     | NB No. 3.2        | Baber Avenue      | Residential      | 1                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --                       | 60  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   |
| R-132        | EW No. 3.3                     | NB No. 3.2        | Hart Street       | Residential      | 2                       | 59  | 60  | 59                                | -1                                       | 0                                      | B(67)                   | --                       | 60  | -1   | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   |
| R-133        | EW No. 3.3                     | NB No. 3.2        | Hart Street       | Residential      | 3                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --                       | 61  | 0    | 0   | 60                  | 1    | 0   | 59                  | 2    | 0   | 59                  | 2    | 0   | 59                  | 2    | 0   | 58                  | 3    | 0   |
| R-134        | EW No. 3.3                     | NB No. 3.2        | Hart Street       | Residential      | 2                       | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --                       | 59  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 59                  | 0    | 0   | 58                  | 1    | 0   |
| R-135        | EW No. 3.3                     | NB No. 3.2        | Hart Street       | Residential      | 2                       | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --                       | 61  | 1    | 0   | 60                  | 2    | 0   | 60                  | 2    | 0   | 59                  | 3    | 0   | 59                  | 3    | 0   | 59                  | 3    | 0   |
| R-136        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue       | Residential      | 1                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --                       | 63  | 0    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   | 61                  | 2    | 0   |
| R-137        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue       | Residential      | 1                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --                       | 61  | 0    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   |
| R-138        |                                |                   | Roseton Avenue    | Office           | 0                       | 73  | 74  | 73                                | -1                                       | 0                                      | E <sup>b</sup>          | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-139        |                                |                   | Jersey Avenue     | Light Industrial | 0                       | 73  | 74  | 74                                | 0  | 1                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-140        |                                |                   | Alburtis Avenue   | Light Industrial | 0                       | 71  | 71  | 71                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-141        |                                |                   | Alburtis Avenue   | Office           | 0                       | 65  | 66  | 66                                | 0  | 1                                      | E <sup>b</sup>          | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-142        | EW No. 4.1                     |                   | 167th Street      | Vacant Land      | 0                       | 56  | 57  | 57                                | 0  | 1                                      | G                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-143        | EW No. 4.1                     |                   | 167th Street      | Residential      | 3                       | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-144        | EW No. 4.1                     |                   | 167th Street      | Residential      | 2                       | 56  | 57  | 57                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-145        | EW No. 4.1                     |                   | Pioneer Boulevard | Light Industrial | 0                       | 61  | 61  | 61                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-146        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-147        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-148        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-149        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-150        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-151        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-152        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | 57  | 0    | 0   | 57                  | 0    | 0   | 57                  | 0    | 0   | 57                  | 0    | 0   | 57                  | 0    | 0   | 57                  | 0    | 0   |
| R-153        | EW No. 4.1                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --                       | 60  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   |

Table 2.13.6 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location     | Land Use         | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |                          |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|--------------|------------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|--------------------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |              |                  |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type <sup>4</sup> | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |              |                  |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |                          | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |              |                  |                         |   |   |                                   |  |  |                         |                          | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-154        | EW No. 4.1                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 61  | 62  | 63                                | 1  | 2                                      | B(67)                   | --                       | 62  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   |
| R-155        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Playground       | 1                       | 65  | 65  | 66                                | 1  | 1                                      | C(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | 65                  | 1    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0   |
| R-156        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Community Center | 1                       | 66 / 46 <sup>g</sup>                          | 67 / 47 <sup>g</sup>                                    | 68 / 48 <sup>g</sup>              | 1  | 2                                      | D(52)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 2                   | 0    | 66  | 2                   | 0    | 66  | 2                   | 0    |     |
| R-157        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Playground       | 1                       | 64  | 65  | 65                                | 0  | 1                                      | C(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 0                   | 0    | 65  | 0                   | 0    | 65  | 0                   | 0    |     |
| R-158        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 65  | 65  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-159        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 60  | 60  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-160        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 59  | 59  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-161        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 58  | 58  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-162        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 62  | 63  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-163        | EW No. 4.2*                    |                   | 170th Street | Residential      | 1                       | 62  | 62  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-164        | EW No. 4.2*                    |                   | 170th Street | Residential      | 1                       | 63  | 64  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-165        | EW No. 4.2*                    |                   | 170th Street | Residential      | 1                       | 64  | 65  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-166        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 64  | 65  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-167        | EW No. 4.2*                    |                   | 170th Street | Residential      | 2                       | 64  | 64  | 0                                 | --                                       | --                                     | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-168        | EW No. 4.2*                    |                   | 170th Street | Light Industrial | 0                       | 61  | 61  | 0                                 | --                                       | --                                     | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-169        | EW No. 4.3                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 61  | 62  | 63                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 63  | 0                   | 0    | 63  | 0                   | 0    |     |
| R-170        | EW No. 4.3                     | NB No. 4.1        | 169th Street | Residential      | 1                       | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62  | 0                   | 0    | 62  | 0                   | 0    |     |
| R-171        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    | 63  | 1                   | 0    |     |
| R-172        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 1                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 64  | 0                   | 0    | 64  | 0                   | 0    |     |
| R-173        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Day Care Center  | 1                       | 63 / 43 <sup>g</sup>                          | 64 / 44 <sup>g</sup>                                    | 64 / 44 <sup>g</sup>              | 0  | 1                                      | D(52)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 64  | 0                   | 0    | 64  | 0                   | 0    |     |
| R-174        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 64  | 0                   | 0    | 64  | 0                   | 0    |     |
| R-175        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 64  | 0                   | 0    | 64  | 0                   | 0    |     |
| R-176        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 0                   | 0    | 64  | 0                   | 0    |     |
| R-177        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 63  | 63  | 67                                | 4  | 4                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-178        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 62  | 63  | 67                                | 4  | 5                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-179        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 63  | 63  | 67                                | 4  | 4                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-180        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 64  | 64  | 67                                | 3  | 3                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-181        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 64  | 65  | 67                                | 2  | 3                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-182        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 64  | 65  | 67                                | 2  | 3                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 67  | 0                   | 0    | 67  | 0                   | 0    |     |
| R-183        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 65  | 65  | 67                                | 2  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 67  | 0                   | 0    | 67  | 0                   | 0    |     |
| R-184        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 61  | 61  | 64                                | 3  | 3                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    |     |
| R-185        | EW No. 4.3*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 60  | 60  | 64                                | 4  | 4                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    | 63  | 1                   | 0    |     |
| R-186        | EW No. 4.3*                    |                   | 169th Street | Residential      | 3                       | 60  | 60  | 64                                | 4  | 4                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-187        |                                |                   | 168th Street | Vacant Land      | 0                       | 65  | 65  | 67                                | 2  | 2                                      | G                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-188        | EW No. 4.1                     |                   | 168th Street | Residential      | 2                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-189        | EW No. 4.1                     |                   | 168th Street | Residential      | 3                       | 55  | 56  | 56                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-190        | EW No. 4.1                     |                   | 169th Street | Residential      | 1                       | 55  | 56  | 57                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-191        | EW No. 4.1                     |                   | 169th Street | Residential      | 2                       | 56  | 57  | 58                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-192        | EW No. 4.1                     | NB No. 4.1        | 169th Street | Residential      | 3                       | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --                       | 58  | 0    | 0   | 58                  | 0    | 0   | 58                  | 0    | 0   | 58                  | 0    | 0   | 58                  | 0    | 0   | 58                  | 0    | 0   |
| R-193        | EW No. 4.1                     | NB No. 4.1        | 169th Street | Residential      | 3                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --                       | 59  | 0    | 0   | 58                  | 1    | 0   | 58                  | 1    | 0   | 58                  | 1    | 0   | 58                  | 1    | 0   | 58                  | 1    | 0   |
| R-194        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 57  | 2                   | 0    | 57  | 2                   | 0    | 57  | 2                   | 0    |     |
| R-195        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 1                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-196        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 2                       | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 60  | 2                   | 0    | 60  | 2                   | 0    | 60  | 2                   | 0    |     |
| R-197        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 3                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 60  | 1                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-198        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential      | 3                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 59  | 2                   | 0    | 59  | 2                   | 0    | 59  | 2                   | 0    |     |
| R-199        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 58  | 2                   | 0    | 58  | 2                   | 0    | 58  | 2                   | 0    |     |
| R-200        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-201        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-202        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 3                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-203        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-204        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential      | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |

Table 2.13.6 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location           | Land Use           | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |                          |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|--------------------|--------------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|--------------------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                    |                    |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type <sup>4</sup> | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                    |                    |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |                          | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                    |                    |                        |   |   |                                   |  |  |                         |                          | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-205        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-206        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-207        | EW No. 4.3*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | 60                  | 1    | 0   | 60                  | 1    | 0   |                     |      |     |
| R-208        | EW No. 4.3                     | NB No. 4.1        | 169th Street       | Residential        | 3                      | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | 61                  | 0    | 0   | 61                  | 0    | 0   |                     |      |     |
| R-209        | EW No. 4.3                     |                   | 169th Street       | Residential        | 2                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-210        | EW No. 4.1                     | NB No. 4.1        | 168th Street       | Residential        | 2                      | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 57  | 0                   | 0    | 57  | 0                   | 0    |     |
| R-211        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 2                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-212        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 3                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    |     |
| R-213        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 3                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 0   | 0                   | 0    | 0   | 0                   | 0    |     |
| R-214        | EW No. 4.3                     |                   | Park Street        | Light Industrial   | 0                      | 66  | 66  | 66                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-215        |                                |                   | Norwalk Boulevard  | Gas Station        | 0                      | 69  | 69  | 69                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-216        |                                |                   | Norwalk Boulevard  | Light Industrial   | 0                      | 63  | 63  | 63                                | 0  | 0                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-217        |                                |                   | Pioneer Boulevard  | Restaurant         | 0                      | 71  | 71  | 71                                | 0  | 0                                      | E <sup>3</sup>          | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-218        |                                |                   | Pioneer Boulevard  | Office/Classroom   | 0                      | 70 / 45 <sup>3</sup>                          | 71 / 46 <sup>3</sup>                                    | 71 / 46 <sup>3</sup>              | 0  | 1                                      | E/D(52) <sup>6</sup>    | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-219        | EW No. 4.1                     |                   | Aclare Street      | School Playground  | 1                      | 63  | 63  | 63                                | 0  | 0                                      | C(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-220        | EW No. 4.1                     |                   | Aclare Street      | School Classroom   | 1                      | 62 / 47 <sup>8</sup>                          | 62 / 47 <sup>8</sup>                                    | 62 / 47 <sup>8</sup>              | 0  | 0                                      | D(52)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-221        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 2                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-222        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 3                      | 66  | 67  | 67                                | 0  | 1                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 65  | 2                   | 0    | 65  | 2                   | 0    |     |
| R-223        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 2                      | 69  | 69  | 69                                | 0  | 0                                      | B(67)                   | A/E                      | 69  | 0    | 0   | 68                  | 1    | 0   | 67                  | 2    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 65                  | 4    | 0   |
| R-224        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 3                      | 69  | 69  | 69                                | 0  | 0                                      | B(67)                   | A/E                      | 69  | 0    | 0   | 68                  | 1    | 0   | 67                  | 2    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 64                  | 5    | 3   |
| R-225        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 1                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E                      | 67  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 63                  | 4    | 0   |
| R-226        | EW No. 4.6                     | NB No. 4.2        | Ibex Ave           | Residential        | 1                      | 61  | 62  | 62                                | 0  | 1                                      | B(67)                   | --                       | 62  | 0    | 0   | 61                  | 1    | 0   | 60                  | 2    | 0   | 59                  | 3    | 0   | 58                  | 4    | 0   | 58                  | 4    | 0   |
| R-227        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-228        | EW No. 4.6                     | NB No. 4.2        | Hart Street        | Residential        | 2                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-229        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 1                      | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 2                   | 0    | 63  | 3                   | 0    | 63  | 3                   | 0    |     |
| R-230        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 2                      | 68  | 68  | 68                                | 0  | 0                                      | B(67)                   | A/E                      | 68  | 0    | 0   | 67                  | 1    | 0   | 66                  | 2    | 0   | 64                  | 4    | 0   | 64                  | 4    | 0   | 63                  | 5    | 2   |
| R-231        | EW No. 4.6                     | NB No. 4.2        | Ibex Ave           | Residential        | 1                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --                       | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   | 60                  | 3    | 0   | 59                  | 4    | 0   | 59                  | 4    | 0   |
| R-232        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-233        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 3                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-234        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 2                      | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E                      | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   |
| R-235        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --                       | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   | 60                  | 3    | 0   | 60                  | 3    | 0   | 59                  | 4    | 0   |
| R-236        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-237        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-238        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 55  | 56  | 56                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-239        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 1                      | 54  | 54  | 55                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-240        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 55  | 55  | 55                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-241        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 1                      | 55  | 55  | 55                                | 0  | 0                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-242        |                                | NB No. 5.1        | Cuesta Drive       | School Playground  | 1                      | 67  | 67  | 67                                | 0  | 0                                      | C(67)                   | A/E                      | 64  | 3    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 63                  | 4    | 0   | 62                  | 5    | 1   | 61                  | 6    | 1   |
| R-243        | EW No. 5.1                     | NB No. 5.1        | Cuesta Drive       | School Classroom   | 1                      | 62 / 42 <sup>9</sup>                          | 62 / 42 <sup>9</sup>                                    | 63 / 43 <sup>9</sup>              | 1  | 1                                      | D(52)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    |     |
| R-244        | EW No. 5.1                     | NB No. 5.1        | Cuesta Drive       | School Classroom   | 1                      | 64 / 37 <sup>8</sup>                          | 64 / 37 <sup>8</sup>                                    | 65 / 38 <sup>8</sup>              | 1  | 1                                      | D(52)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 0                   | 0    |     |
| R-245        | EW No. 5.2*                    | NB No. 5.2        | Cuesta Drive       | School Sports Area | 1                      | 63  | 63  | 65                                | 2  | 2                                      | C(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    |     |
| R-246        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 2                   | 0    | 63  | 3                   | 0    | 61  | 5                   | 1    |     |
| R-247        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 65  | 66  | 67                                | 1  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 3                   | 0    | 63  | 4                   | 0    | 62  | 5                   | 1    |     |
| R-248        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 64  | 64  | 66                                | 2  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 3                   | 0    | 62  | 4                   | 0    | 60  | 6                   | 1    |     |
| R-249        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 64  | 64  | 66                                | 2  | 2                                      | B(67)                   | A/E                      | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 3                   | 0    | 62  | 4                   | 0    | 60  | 6                   | 1    |     |
| R-250        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    | 61  | 4                   | 0    | 61  | 4                   | 0    |     |
| R-251        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    | 61  | 4                   | 0    | 60  | 5                   | 1    |     |
| R-252        | EW No. 5.2                     | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-253        | EW No. 5.2                     | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    | 62  | 1                   | 0    | 61  | 2                   | 0    |     |
| R-254        | EW No. 5.2                     | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 1                   | 0    | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-255        | EW No. 5.2                     | NB No. 5.2        | Sierra Vista Way   | Residential        | 1                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62  | 1                   | 0    | 62  | 1                   | 0    |     |





**Table 2.13.6 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location           | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |                          |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|--------------------|-------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|--------------------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                    |             |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type <sup>4</sup> | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                    |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |                          | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                    |             |                         |   |   |                                   |  |  |                         |                          | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-358        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 49  | 49  | 49                                | 0  | 0                                      | B(67)                   | --                       | 49  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   |
| R-359        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 51  | 51  | 51                                | 0  | 0                                      | B(67)                   | --                       | 51  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   |
| R-360        |                                |                   | Towne Center Drive | Retail      | 0                       | 68  | 69  | 69                                | 0  | 1                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-361        |                                |                   | Towne Center Drive | Retail      | 0                       | 71  | 72  | 72                                | 0  | 1                                      | F                       | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-362        |                                |                   | Towne Center Drive | Retail      | 1                       | 60  | 61  | 61                                | 0  | 1                                      | E(72)                   | --                       | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |

Source: Compiled by LSA Associates, Inc. (2018).

- <sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.
- <sup>2</sup> A dash (–) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.
- <sup>3</sup> The exterior-to-interior noise level reduction was assumed to be 25 dBA lower because the building type is light frame with storm windows or masonry with single glazed windows.
- <sup>4</sup> Shaded cells indicate the approximate existing wall heights.
- <sup>5</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.
- <sup>6</sup> Activity Categories without outdoor frequent human use areas were not evaluated against the Noise Abatement Criteria (NAC).
- <sup>7</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).
- <sup>8</sup> The exterior-to-interior noise level reduction was based on simultaneous exterior and interior measurements.
- <sup>9</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.
- <sup>10</sup> No noise barriers were evaluated at this location because Table B-11 shows that this receptor approaches or exceeds the NAC due to traffic on Bloomfield Avenue and not from traffic on SR-91.

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors



Table 2.13.7 Predicted Future Noise Level and Alternate Noise Barrier Analysis for the Build Alternative

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use    | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |        |                     |         |     |                     |      |         |                     |                |     |                     |      |     |    |    |    |
|--------------|--------------------------------|-------------------|-------------------|-------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|--------|---------------------|---------|-----|---------------------|------|---------|---------------------|----------------|-----|---------------------|------|-----|----|----|----|
|              |                                |                   |                   |             |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |        |                     |         |     |                     |      |         |                     |                |     |                     |      |     |    |    |    |
|              |                                |                   |                   |             |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      | 8 feet |                     | 10 feet |     | 12 feet             |      | 14 feet |                     | 16 feet        |     |                     |      |     |    |    |    |
|              |                                |                   |                   |             |                        |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR    | L <sub>eq</sub> (h) | I.L.    | NBR | L <sub>eq</sub> (h) | I.L. | NBR     | L <sub>eq</sub> (h) | I.L.           | NBR | L <sub>eq</sub> (h) | I.L. | NBR |    |    |    |
| R-44         | EW No. 2.1                     | NB No. 2.2        | Westwinds Circle  | Residential | 1                      | 64  | 65  | 66 <sup>2</sup>                   | 1  | 2                                      | B(67)                   | A/E         | 65  | 1    | 0      | 65                  | 1       | 0   | 65                  | 1    | 0       | 65                  | 1              | 0   | 65                  | 1    | 0   | 65 | 1  | 0  |
| R-45         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 63  | 2    | 0      | 62                  | 3       | 0   | 61                  | 4    | 0       | 60                  | 5 <sup>3</sup> | 2   | 60                  | 5    | 2   | 60 | 5  | 2  |
| R-46         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 62  | 62  | 64                                | 2  | 2                                      | B(67)                   | --          | 63  | 1    | 0      | 62                  | 2       | 0   | 61                  | 3    | 0       | 60                  | 4              | 0   | 59                  | 5    | 2   | 59 | 5  | 2  |
| R-47         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E         | 66  | 0    | 0      | 66                  | 0       | 0   | 65                  | 1    | 0       | 64                  | 2              | 0   | 63                  | 3    | 0   | 63 | 3  | 0  |
| R-48         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 64  | 0    | 0      | 64                  | 0       | 0   | 64                  | 0    | 0       | 64                  | 0              | 0   | 62                  | 2    | 0   | 62 | 2  | 0  |
| R-49         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 1                      | 64  | 65  | 65                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 65  | 0                   | 0    | 64      | 1                   | 0              | 63  | 2                   | 0    | 63  | 2  | 0  |    |
| R-50         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 62  | 0                   | 0    | 62      | 0                   | 0              | 61  | 1                   | 0    | 61  | 1  | 0  |    |
| R-51         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 62  | 0                   | 0    | 62      | 0                   | 0              | 62  | 0                   | 0    | 62  | 0  | 0  |    |
| R-52         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 62  | 0                   | 0    | 62      | 0                   | 0              | 62  | 0                   | 0    | 62  | 0  | 0  |    |
| R-53         | EW No. 2.1*                    |                   | Beach Street      | Residential | 6                      | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-54         | EW No. 2.1*                    |                   | Beach Street      | Residential | 2                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-55         | EW No. 2.1*                    |                   | Harvest Avenue    | Residential | 1                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-56         | EW No. 2.1                     | NB No. 2.2        | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 63  | 1    | 0      | 63                  | 1       | 0   | 63                  | 1    | 0       | 63                  | 1              | 0   | 63                  | 1    | 0   | 63 | 1  | 0  |
| R-57         | EW No. 2.1*                    |                   | Sunny Ridge Court | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-58         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 62  | 3    | 0      | 62                  | 3       | 0   | 60                  | 5    | 1       | 60                  | 5              | 1   | 60                  | 5    | 1   | 59 | 6  | 1  |
| R-59         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 62  | 2    | 0      | 61                  | 3       | 0   | 60                  | 4    | 0       | 59                  | 5              | 2   | 58                  | 6    | 2   | 58 | 6  | 2  |
| R-60         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E         | 65  | 1    | 0      | 65                  | 1       | 0   | 64                  | 2    | 0       | 63                  | 3              | 0   | 62                  | 4    | 0   | 62 | 4  | 0  |
| R-61         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 64  | 0    | 0      | 64                  | 0       | 0   | 63                  | 1    | 0       | 63                  | 1              | 0   | 62                  | 2    | 0   | 62 | 2  | 0  |
| R-62         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 64  | 0                   | 0    | 63      | 1                   | 0              | 62  | 2                   | 0    | 62  | 2  | 0  |    |
| R-63         | EW No. 2.1*                    |                   | Harvest Avenue    | Residential | 1                      | 59  | 60  | 60                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-64         | EW No. 2.1*                    |                   | Sunny Ridge Court | Residential | 1                      | 58  | 59  | 58                                | -1                                       | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | --      | --                  | --             | --  | --                  | --   | --  | -- | -- | -- |
| R-65         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 62  | 2    | 0      | 61                  | 3       | 0   | 61                  | 3    | 0       | 60                  | 4              | 0   | 60                  | 4    | 0   | 60 | 4  | 0  |
| R-66         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 61  | 2    | 0      | 60                  | 3       | 0   | 60                  | 3    | 0       | 58                  | 5              | 2   | 58                  | 5    | 2   | 57 | 6  | 2  |
| R-67         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | 64  | 2    | 0      | 63                  | 3       | 0   | 63                  | 3    | 0       | 62                  | 4              | 0   | 61                  | 5    | 2   | 61 | 5  | 2  |
| R-68         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 63  | 1    | 0      | 63                  | 1       | 0   | 62                  | 2    | 0       | 62                  | 2              | 0   | 61                  | 3    | 0   | 61 | 3  | 0  |
| R-69         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 63  | 0                   | 0    | 62      | 1                   | 0              | 62  | 1                   | 0    | 62  | 1  | 0  |    |
| R-70         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 60  | 1                   | 0    | 60      | 1                   | 0              | 59  | 2                   | 0    | 59  | 2  | 0  |    |
| R-71         | EW No. 2.1*                    | NB No. 2.2        | Lucas Street      | Residential | 3                      | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 57  | 0                   | 0    | 57      | 0                   | 0              | 56  | 1                   | 0    | 56  | 1  | 0  |    |
| R-72         | EW No. 2.1*                    | NB No. 2.2        | Lucas Street      | Residential | 3                      | 56  | 57  | 57                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | 57  | 0                   | 0    | 57      | 0                   | 0              | 56  | 1                   | 0    | 56  | 1  | 0  |    |
| R-101        | EW No. 3.1*                    | NB No. 3.3        | 169th Street      | Residential | 2                      | 67  | 67  | 68                                | 1  | 1                                      | B(67)                   | A/E         | --  | --   | --     | --                  | --      | --  | --                  | --   | 68      | 0                   | 0              | 66  | 2                   | 0    | 66  | 2  | 0  |    |
| R-102        | EW No. 3.1*                    | NB No. 3.3        | 169th Street      | Residential | 3                      | 66  | 67  | 68                                | 1  | 2                                      | B(67)                   | A/E         | --  | --   | --     | --                  | --      | --  | --                  | --   | 68      | 0                   | 0              | 67  | 1                   | 0    | 66  | 2  | 0  |    |
| R-103        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 67  | 67  | 68                                | 1  | 1                                      | B(67)                   | A/E         | 68  | 0    | 0      | 68                  | 0       | 0   | 68                  | 0    | 0       | 67                  | 1              | 0   | 66                  | 2    | 0   | 66 | 2  | 0  |
| R-104        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 65  | 65  | 67                                | 2  | 2                                      | B(67)                   | A/E         | 67  | 0    | 0      | 66                  | 1       | 0   | 65                  | 2    | 0       | 63                  | 4              | 0   | 61                  | 6    | 3   | 61 | 6  | 3  |
| R-105        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 63  | 1    | 0      | 62                  | 2       | 0   | 61                  | 3    | 0       | 59                  | 5              | 3   | 58                  | 6    | 3   | 58 | 6  | 3  |
| R-106        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 63  | 63  | 65                                | 2  | 2                                      | B(67)                   | --          | 62  | 3    | 0      | 61                  | 4       | 0   | 60                  | 5    | 3       | 59                  | 6              | 3   | 59                  | 6    | 3   | 58 | 7  | 3  |
| R-107        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 64  | 64  | 66                                | 2  | 2                                      | B(67)                   | A/E         | 64  | 2    | 0      | 63                  | 3       | 0   | 62                  | 4    | 0       | 62                  | 4              | 0   | 62                  | 4    | 0   | 62 | 4  | 0  |
| R-108        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 1                      | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | 60      | 1                   | 0              | 60  | 1                   | 0    | 60  | 1  | 0  |    |
| R-109        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --     | --                  | --      | --  | --                  | --   | 61      | 1                   | 0              | 61  | 1                   | 0    | 61  | 1  | 0  |    |
| R-110        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | 63  | 0    | 0      | 62                  | 1       | 0   | 62                  | 1    | 0       | 61                  | 2              | 0   | 61                  | 2    | 0   | 61 | 2  | 0  |
| R-111        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 63  | 0    | 0      | 63                  | 0       | 0   | 62                  | 1    | 0       | 61                  | 2              | 0   | 61                  | 2    | 0   | 61 | 2  | 0  |
| R-112        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | 63  | 0    | 0      | 63                  | 0       | 0   | 62                  | 1    | 0       | 61                  | 2              | 0   | 61                  | 2    | 0   | 60 | 3  | 0  |
| R-113        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | 64  | 1    | 0      | 64                  | 1       | 0   | 63                  | 2    | 0       | 62                  | 3              | 0   | 62                  | 3    | 0   | 62 | 3  | 0  |
| R-114        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | 62  | 1    | 0      | 62                  | 1       | 0   | 62                  | 1    | 0       | 61                  | 2              | 0   | 61                  | 2    | 0   | 61 | 2  | 0  |
| R-115        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 1                      | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --          | 61  | 1    | 0      | 61                  | 1       | 0   | 60                  | 2    | 0       | 59                  | 3              | 0   | 59                  | 3    | 0   | 59 | 3  | 0  |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>3</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

<sup>4</sup> Shaded cells indicate the approximate existing wall heights.

<sup>5</sup> A dash (-) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

A/E = Approach or Exceed      dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels      NAC = Noise Abatement Criteria  
dBA = A-weighted decibels      IL = Insertion Loss      NBR = Number of Benefited Receptors

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Table 2.13.8 Predicted Future Noise Level and Reduced Noise Barrier Analysis for the Build Alternative

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use    | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |                 |     |                     |      |     |                     |      |     |                     |      |     |                     |                      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|-------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|-----------------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|----------------------|-----|---------------------|------|-----|
|              |                                |                   |                   |             |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |                 |     |                     |      |     |                     |      |     |                     |      |     |                     |                      |     |                     |      |     |
|              |                                |                   |                   |             |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |                 |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |                      |     | 16 feet             |      |     |
|              |                                |                   |                   |             |                        |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L.            | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L.                 | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-44         | EW No. 2.1                     | NB No. 2.1a       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66<sup>2</sup></b>             | 1  | 2                                      | B(67)                   | A/E         | <u>63</u>   | -- <sup>3</sup> | --  | --                  | --   | --  | 63                  | 3    | 0   | 62                  | 4    | 0   | 60                  | <u>6<sup>4</sup></u> | 1   | 59                  | 7    | 1   |
| R-45         | EW No. 2.1                     | NB No. 2.1a       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 64                  | 1    | 0   | 62                  | 3    | 0   | 61                  | 4                    | 0   | 60                  | 5    | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.1a       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 64                                | 2  | 2                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 62                  | 2    | 0   |
| R-47         | EW No. 2.1                     | NB No. 2.1a       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                   | A/E         | --  | --              | --  | --                  | --   | --  | --                  | --   | --  | 65                  | 1    | 0   | 65                  | 1                    | 0   | 65                  | 1    | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.1a       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | --                  | --   | --  | 64                  | 0    | 0   | 64                  | 0                    | 0   | 64                  | 0    | 0   |
| R-56         | EW No. 2.1                     | NB No. 2.1a       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 1    | 0   | 62                  | 2    | 0   | 61                  | 3                    | 0   | 61                  | 3    | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 64                  | 1    | 0   | 63                  | 2    | 0   | 61                  | 4                    | 0   | 60                  | 5    | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 62                  | 2    | 0   |
| R-60         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                   | A/E         | --  | --              | --  | --                  | --   | --  | --                  | --   | --  | <b>66</b>           | 0    | 0   | 65                  | 1                    | 0   | 64                  | 2    | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 61                  | 3    | 0   |
| R-65         | EW No. 2.1                     | NB No. 2.1a       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 61                  | 3    | 0   |
| R-66         | EW No. 2.1                     | NB No. 2.1a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 63                  | 0    | 0   | 61                  | 2    | 0   | 61                  | 2                    | 0   | 61                  | 2    | 0   |
| R-67         | EW No. 2.1                     | NB No. 2.1a       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                   | A/E         | --  | --              | --  | --                  | --   | --  | --                  | --   | --  | <b>66</b>           | 0    | 0   | 65                  | 1                    | 0   | 63                  | 3    | 0   |
| R-68         | EW No. 2.1                     | NB No. 2.1a       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | --  | --              | --  | --                  | --   | --  | 64                  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1                    | 0   | 63                  | 1    | 0   |
| R-44         | EW No. 2.1                     | NB No. 2.2a       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66</b>                         | 1  | 2                                      | B(67)                   | A/E         | 65  | 1               | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 64                  | 2                    | 0   | 63                  | 3    | 0   |
| R-45         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 63  | 2               | 0   | 63                  | 2    | 0   | 61                  | 4    | 0   | 60                  | 5    | 2   | 60                  | 5                    | 2   | 59                  | 6    | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 64                                | 2  | 2                                      | B(67)                   | --          | 63  | 1               | 0   | 62                  | 2    | 0   | 61                  | 3    | 0   | 60                  | 4    | 0   | 60                  | 4                    | 0   | 59                  | 5    | 2   |
| R-47         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                   | A/E         | <b>66</b>   | 0               | 0   | <b>66</b>           | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2                    | 0   | 63                  | 3    | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 64  | 0               | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0                    | 0   | 64                  | 0    | 0   |
| R-56         | EW No. 2.1                     | NB No. 2.2a       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 63  | 1               | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 62                  | 2    | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 62  | 3               | 0   | 62                  | 3    | 0   | 60                  | 5    | 1   | 60                  | 5    | 1   | 60                  | 5                    | 1   | 59                  | 6    | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 62  | 2               | 0   | 61                  | 3    | 0   | 61                  | 3    | 0   | 59                  | 5    | 2   | 58                  | 6                    | 2   | 58                  | 6    | 2   |
| R-60         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                   | A/E         | 65  | 1               | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4                    | 0   | 62                  | 4    | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 64  | 0               | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1                    | 0   | 63                  | 1    | 0   |
| R-65         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 62  | 2               | 0   | 61                  | 3    | 0   | 61                  | 3    | 0   | 60                  | 4    | 0   | 60                  | 4                    | 0   | 59                  | 5    | 2   |
| R-66         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 61  | 2               | 0   | 60                  | 3    | 0   | 60                  | 3    | 0   | 58                  | 5    | 2   | 58                  | 5                    | 2   | 57                  | 6    | 2   |
| R-67         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                   | A/E         | 64  | 2               | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   | 61                  | 5                    | 2   | 61                  | 5    | 2   |
| R-68         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 63  | 1               | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 62                  | 2    | 0   |
| R-44         | EW No. 2.1                     | NB No. 2.2b       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66</b>                         | 1  | 2                                      | B(67)                   | A/E         | 64  | 2               | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   | 62                  | 4                    | 0   | 62                  | 4    | 0   |
| R-45         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 63  | 2               | 0   | 62                  | 3    | 0   | 60                  | 5    | 2   | 60                  | 5    | 2   | 59                  | 6                    | 2   | 59                  | 6    | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 64                                | 2  | 2                                      | B(67)                   | --          | 63  | 1               | 0   | 62                  | 2    | 0   | 61                  | 3    | 0   | 60                  | 4    | 0   | 59                  | 5                    | 2   | 59                  | 5    | 2   |
| R-47         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                   | A/E         | <b>66</b>   | 0               | 0   | <b>66</b>           | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2                    | 0   | 63                  | 3    | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 64  | 0               | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0                    | 0   | 64                  | 0    | 0   |
| R-56         | EW No. 2.1                     | NB No. 2.2b       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 62  | 2               | 0   | 61                  | 3    | 0   | 61                  | 3    | 0   | 61                  | 3    | 0   | 60                  | 4                    | 0   | 60                  | 4    | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | 62  | 3               | 0   | 62                  | 3    | 0   | 60                  | 5    | 1   | 59                  | 6    | 1   | 59                  | 6                    | 1   | 58                  | 7    | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | 62  | 2               | 0   | 61                  | 3    | 0   | 60                  | 4    | 0   | 59                  | 5    | 2   | 58                  | 6                    | 2   | 58                  | 6    | 2   |
| R-60         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                   | A/E         | 65  | 1               | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4                    | 0   | 62                  | 4    | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 64  | 0               | 0   | 64                  | 0    | 0   | 64                  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1                    | 0   | 63                  | 1    | 0   |
| R-65         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | 61  | 3               | 0   | 61                  | 3    | 0   | 60                  | 4    | 0   | 59                  | 5    | 2   | 59                  | 5                    | 2   | 59                  | 5    | 2   |
| R-66         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 61  | 2               | 0   | 60                  | 3    | 0   | 60                  | 3    | 0   | 58                  | 5    | 2   | 58                  | 5                    | 2   | 57                  | 6    | 2   |
| R-67         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                   | A/E         | 64  | 2               | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   | 61                  | 5                    | 2   | 61                  | 5    | 2   |
| R-68         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | 63  | 1               | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2                    | 0   | 62                  | 2    | 0   |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>3</sup> Shaded cells indicate the approximate existing wall heights.

<sup>4</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors

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Table 2.13.9 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)

| Receptor No. | Existing Wall No. 1 | Noise Barrier No. | Location             | Land Use           | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|---------------------|-------------------|----------------------|--------------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                     |                   |                      |                    |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                     |                   |                      |                    |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                     |                   |                      |                    |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-242        |                     | NB No. 5.1        | Cuesta Drive         | School Playground  | 1                       | 67  | 67  | 67                                | 0  | 0                                      | C(67)                   | A/E         | 64  | 3    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 63                  | 4    | 0   | 62                  | 5    | 1   | 61                  | 6    | 1   |
| R-243        | EW No. 5.1          | NB No. 5.1        | Cuesta Drive         | School Classroom   | 1                       | 62 / 42 <sup>b</sup>                          | 62 / 42 <sup>b</sup>                                    | 63 / 43 <sup>b</sup>              | 1  | 1                                      | D(52)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 62                  | 1    | 0   |
| R-244        | EW No. 5.1          | NB No. 5.1        | Cuesta Drive         | School Classroom   | 1                       | 64 / 37 <sup>f</sup>                          | 64 / 37 <sup>f</sup>                                    | 65 / 38 <sup>f</sup>              | 1  | 1                                      | D(52)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 65                  | 0    | 0   |
| R-245        | EW No. 5.2          | NB No. 5.2        | Cuesta Drive         | School Sports Area | 1                       | 63  | 63  | 64                                | 1  | 1                                      | C(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 64                  | 0    | 0   |
| R-246        | EW No. 5.2          | NB No. 5.2        | Rancho Vista Drive   | Residential        | 1                       | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 2                   | 0    | 63  | 3                   | 0    | 62  | 4                   | 0    |     |
| R-247        | EW No. 5.2          | NB No. 5.2        | Rancho Vista Drive   | Residential        | 1                       | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 1                   | 0    | 63  | 3                   | 0    | 62  | 4                   | 0    |     |
| R-248        | EW No. 5.2          | NB No. 5.2        | Rancho Vista Drive   | Residential        | 1                       | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 63   | 2   | 0                   | 63   | 2   | 0                   |      |     |
| R-249        | EW No. 5.2          | NB No. 5.2        | Rancho Vista Drive   | Residential        | 1                       | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 63   | 2   | 0                   | 62   | 3   | 0                   |      |     |
| R-250        | EW No. 5.2          |                   | Rancho Vista Drive   | Residential        | 1                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-251        | EW No. 5.2          |                   | Rancho Vista Drive   | Residential        | 1                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-252        | EW No. 5.2          |                   | Rancho Vista Drive   | Residential        | 1                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-253        | EW No. 5.2          |                   | Rancho Vista Drive   | Residential        | 1                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-254        | EW No. 5.2          |                   | Rancho Vista Drive   | Residential        | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-255        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-256        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-257        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 59  | 60  | 60                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-258        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 0                       | 54  | 54  | 55                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-259        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-260        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-261        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-262        | EW No. 5.2          | NB No. 5.2        | Judy Way             | Residential        | 1                       | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | 65   | 1   | 0                   | 65   | 1   | 0                   | 65   | 1   | 0                   |      |     |
| R-263        | EW No. 5.2          | NB No. 5.2        | Cedarwood Court      | Residential        | 1                       | 61  | 62  | 62                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | 62   | 0   | 0                   | 62   | 0   | 0                   | 62   | 0   | 0                   |      |     |
| R-264        | EW No. 5.2          |                   | Cedarwood Court      | Residential        | 1                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-265        | EW No. 5.2          |                   | Chapparal Ave        | Residential        | 1                       | 58  | 58  | 58                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-266        | EW No. 5.2          |                   | Chapparal Ave        | Residential        | 1                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-267        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 58  | 59  | 59                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-268        | EW No. 5.2          | NB No. 5.2        | Judy Way             | Residential        | 1                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | 65   | 0   | 0                   | 65   | 0   | 0                   | 65   | 0   | 0                   |      |     |
| R-269        | EW No. 5.2          | NB No. 5.2        | Judy Way             | Residential        | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | 62   | 0   | 0                   | 62   | 0   | 0                   | 62   | 0   | 0                   |      |     |
| R-270        | EW No. 5.2          |                   | Chapparal Ave        | Residential        | 1                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-271        | EW No. 5.2          |                   | Chapparal Ave        | Residential        | 1                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-272        | EW No. 5.2          |                   | Sierra Vista Way     | Residential        | 1                       | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-273        | EW No. 5.13         |                   | Norwalk Boulevard    | Office/Classroom   | 0                       | 66 / 41 <sup>g</sup>                          | 66 / 41 <sup>g</sup>                                    | 66 / 41 <sup>g</sup>              | 0  | 0                                      | E/D(52) <sup>s</sup>    | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-274        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 1                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    |     |
| R-275        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 2                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-276        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 3                       | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 66                  | 0    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   |
| R-277        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 3                       | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 67                  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   |
| R-278        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 3                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 64  | 0                   | 0    | 63  | 1                   | 0    | 62  | 2                   | 0    | 62  | 2                   | 0    | 61  | 3                   | 0    |     |
| R-279        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 2                       | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E         | --  | --   | --  | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   |
| R-280        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 2                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    | 62  | 3                   | 0    |     |
| R-281        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential        | 2                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    | 62  | 3                   | 0    | 62  | 3                   | 0    |     |
| R-282        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential        | 3                       | 68  | 69  | 69                                | 0  | 1                                      | B(67)                   | A/E         | 68  | 1    | 0   | 67                  | 2    | 0   | 67                  | 2    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 65                  | 4    | 0   |
| R-283        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential        | 3                       | 67  | 67  | 68                                | 1  | 1                                      | B(67)                   | A/E         | 67  | 1    | 0   | 66                  | 2    | 0   | 66                  | 2    | 0   | 65                  | 3    | 0   | 65                  | 3    | 0   | 64                  | 4    | 0   |
| R-284        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential        | 3                       | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   |
| R-285        | EW No. 5.5          | NB No. 5.3        | Evening Star Avenue  | Residential        | 2                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | 60  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 58                  | 2    | 0   | 58                  | 2    | 0   | 58                  | 2    | 0   |
| R-286        | EW No. 5.5          | NB No. 5.3        | Springsnow Circle    | Residential        | 2                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | 58  | 0    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   |
| R-287        | EW No. 5.5          |                   | Springsnow Circle    | Residential        | 1                       | 56  | 56  | 56                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-288        | EW No. 5.5          |                   | Summerwind Street    | Residential        | 2                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-289        | EW No. 5.5          | NB No. 5.3        | Palm Street          | Residential        | 1                       | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 67                  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   |
| R-290        | EW No. 5.5          | NB No. 5.3        | Ely Avenue           | Residential        | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    | 63  | 1                   | 0    | 62  | 2                   | 0    | 61  | 3                   | 0    |     |
| R-291        | EW No. 5.5          | NB No. 5.3        | Ely Avenue           | Residential        | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 62  | 0                   | 0    | 62  | 0                   | 0    | 62  | 0                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-292        | EW No. 5.5          | NB No. 5.3        | Janell Avenue        | Residential        | 2                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 60  | 0                   | 0    | 60  | 0                   | 0    | 59  | 1                   | 0    | 59  | 1                   | 0    | 58  | 2                   | 0    |     |
| R-293        | EW No. 5.5          | NB No. 5.3        | Morningrain Avenue   | Residential        | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 62  | 0                   | 0    | 61  | 1                   | 0    | 60  | 2                   | 0    | 60  | 2                   | 0    | 59  | 3                   | 0    |     |

**Table 2.13.9 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)**

| Receptor No. | Existing Wall No. 1 | Noise Barrier No. | Location             | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|---------------------|-------------------|----------------------|-------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                     |                   |                      |             |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                     |                   |                      |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                     |                   |                      |             |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-294        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential | 2                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | 60  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 59                  | 2    | 0   | 59                  | 2    | 0   |
| R-295        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential | 3                       | 59  | 60  | 60                                | 0  | 1                                      | B(67)                   | --          | 60  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   |
| R-296        | EW No. 5.5          | NB No. 5.3        | Autumn Breeze Street | Residential | 1                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | 60  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 59                  | 1    | 0   |
| R-297        | EW No. 5.5          | NB No. 5.3        | Springsnow Circle    | Residential | 1                       | 54  | 54  | 54                                | 0  | 0                                      | B(67)                   | --          | 54  | 0    | 0   | 54                  | 0    | 0   | 54                  | 0    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   |
| R-298        | EW No. 5.5          | NB No. 5.3        | Cortner Avenue       | Residential | 1                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | 65                  | 0    | 0   | 65                  | 0    | 0   | 64                  | 1    | 0   | 63                  | 2    | 0   | 63                  | 2    | 0   |
| R-299        | EW No. 5.5          | NB No. 5.3        | Ely Avenue           | Residential | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | 62                  | 0    | 0   | 62                  | 0    | 0   | 61                  | 1    | 0   | 60                  | 2    | 0   | 60                  | 2    | 0   |
| R-300        | EW No. 5.5          | NB No. 5.3        | Ely Avenue           | Residential | 2                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | 61                  | 0    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 59                  | 2    | 0   | 59                  | 2    | 0   |
| R-301        | EW No. 5.5          | NB No. 5.3        | Janell Avenue        | Residential | 2                       | 58  | 58  | 58                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | 58                  | 0    | 0   | 58                  | 0    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 56                  | 2    | 0   |
| R-302        | EW No. 5.5          | NB No. 5.3        | Stark Avenue         | Residential | 1                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | 60                  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 58                  | 2    | 0   | 58                  | 2    | 0   |
| R-303        | EW No. 5.5          | NB No. 5.3        | Springsnow Circle    | Residential | 1                       | 53  | 54  | 54                                | 0  | 1                                      | B(67)                   | --          | 54  | 0    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   |
| R-304        |                     |                   | Beach Street         | Residential | 2                       | 58  | 58  | 58                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-305        |                     |                   | Beach Street         | Residential | 2                       | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-306        |                     |                   | Palm Street          | Residential | 2                       | 56  | 56  | 56                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-307        |                     |                   | Palm Street          | Residential | 2                       | 55  | 56  | 56                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-308        | EW No. 6.2          |                   | Palm Street          | Residential | 1                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-309        | EW No. 6.2          |                   | Palm Street          | Residential | 3                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-310        | EW No. 6.2          |                   | Michael Avenue       | Residential | 1                       | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-311        | EW No. 6.2          |                   | Michael Avenue       | Residential | 3                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-312        | EW No. 6.2          |                   | Michael Avenue       | Residential | 3                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-313        | EW No. 6.2          |                   | Michael Avenue       | Residential | 3                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-314        | EW No. 6.2          |                   | Michael Avenue       | Residential | 2                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-315        | EW No. 6.2          |                   | Maria Avenue         | Residential | 1                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-316        | EW No. 6.2          |                   | Alfred Avenue        | Residential | 2                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-317        | EW No. 6.2          |                   | De Groot Place       | Residential | 2                       | 59  | 60  | 60                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-318        | EW No. 6.2          |                   | De Groot Place       | Residential | 1                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-319        | EW No. 6.2          |                   | Yvette Avenue        | Residential | 1                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-320        | EW No. 6.2          |                   | Palm Street          | Residential | 1                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-321        | EW No. 6.2          |                   | Michaels Avenue      | Residential | 1                       | 55  | 56  | 56                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-322        | EW No. 6.2          |                   | Brian Court          | Residential | 1                       | 54  | 54  | 55                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-323        | EW No. 6.2          |                   | Michael Avenue       | Residential | 2                       | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-324        | EW No. 6.2          |                   | Michael Avenue       | Residential | 3                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-325        | EW No. 6.2          |                   | Maria Avenue         | Residential | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-326        | EW No. 6.2          |                   | Alfred Avenue        | Residential | 2                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-327        | EW No. 6.2          |                   | De Groot Place       | Residential | 2                       | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-328        | EW No. 6.2          |                   | De Groot Place       | Residential | 2                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-329        | EW No. 6.2          |                   | Palm Street          | Residential | 1                       | 58  | 58  | 58                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-330        | EW No. 6.2          |                   | Palm Street          | Residential | 2                       | 56  | 56  | 56                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-331        | EW No. 6.2          |                   | Brian Court          | Residential | 2                       | 55  | 55  | 55                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-332        | EW No. 6.2          |                   | Brian Court          | Residential | 1                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-333        | EW No. 6.2          |                   | Maria Avenue         | Residential | 1                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-334        | EW No. 6.2          |                   | Maria Avenue         | Residential | 1                       | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-335        | EW No. 6.2          |                   | Alfred Avenue        | Residential | 2                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-336        | EW No. 6.2          |                   | De Groot Place       | Residential | 2                       | 58  | 59  | 59                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-337        | EW No. 6.2          |                   | De Groot Place       | Residential | 1                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-338        | EW No. 6.2          |                   | Yvette Avenue        | Residential | 1                       | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-339        | EW No. 6.5          |                   | Glenda Street        | Residential | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-340        | EW No. 6.5          |                   | Glenda Street        | Residential | 1                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-341        | EW No. 6.5          |                   | Glenda Street        | Residential | 1                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-342        |                     |                   | Artesia Boulevard    | Residential | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-343        |                     |                   | Artesia Boulevard    | Residential | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-344        |                     | NB No. 6.1        | Artesia Boulevard    | Residential | 1                       | 74  | 74  | 74                                | 0  | 0                                      | B(67)                   | A/E         | 69  | 5    | 1   | 67                  | 7    | 1   | 64                  | 10   | 1   | 63                  | 11   | 1   | 61                  | 13   | 1   | 60                  | 14   | 1   |
| R-345        |                     | NB No. 6.1        | Artesia Boulevard    | Residential | 2                       | 75  | 75  | 75                                | 0  | 0                                      | B(67)                   | A/E         | 75  | 0    | 0   | 75                  | 0    | 0   | 74                  | 1    | 0   | 72                  | 3    | 0   | 69                  | 6    | 2   | 64                  | 11   | 2   |

Table 2.13.9 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location           | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |    |    |
|--------------|--------------------------------|-------------------|--------------------|-------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|----|----|
|              |                                |                   |                    |             |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |    |    |
|              |                                |                   |                    |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |    |    |
|              |                                |                   |                    |             |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |    |    |
| R-346        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | 63  | 3    | 0   | 61                  | 5    | 2   | 59                  | 7    | 2   | 57                  | 9    | 2   | 56                  | 10   | 2   | 55                  | 11   | 2   |    |    |
| R-347        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 69  | 69  | 70                                | 1  | 1                                      | B(67)                   | A/E         | 70  | 0    | 0   | 70                  | 0    | 0   | 67                  | 3    | 0   | 66                  | 4    | 0   | 63                  | 7    | 2   | 60                  | 10   | 2   |    |    |
| R-348        |                                |                   | Artesia Boulevard  | Residential | 4                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |    |    |
| R-349        |                                |                   | Artesia Boulevard  | Residential | 4                       | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- |    |
| R-350        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 61  | 2    | 0   | 60                  | 3    | 0   | 58                  | 5    | 2   | 56                  | 7    | 2   | 54                  | 9    | 2   | 53                  | 10   | 2   |    |    |
| R-351        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 68  | 69  | 69                                | 0  | 1                                      | B(67)                   | A/E         | 68  | 1    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 63                  | 6    | 2   | 61                  | 8    | 2   | 58                  | 11   | 2   |    |    |
| R-352        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | 60  | 2    | 0   | 59                  | 3    | 0   | 57                  | 5    | 2   | 55                  | 7    | 2   | 54                  | 8    | 2   | 53                  | 9    | 2   |    |    |
| R-353        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 3                       | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | 58  | 0    | 0   | 55                  | 3    | 0   | 54                  | 4    | 0   | 53                  | 5    | 3   | 52                  | 6    | 3   | 50                  | 8    | 3   |    |    |
| R-354        |                                |                   | Artesia Boulevard  | Residential | 1                       | 67  | 67  | 68                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- |    |
| R-355        |                                |                   | Artesia Boulevard  | Residential | 1                       | 68  | 68  | 68                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- |    |
| R-356        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | 57  | 2    | 0   | 56                  | 3    | 0   | 56                  | 3    | 0   | 53                  | 6    | 2   | 52                  | 7    | 2   | 52                  | 7    | 2   |    |    |
| R-357        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | 64  | 1    | 0   | 62                  | 3    | 0   | 60                  | 5    | 2   | 59                  | 6    | 2   | 58                  | 7    | 2   | 55                  | 10   | 2   |    |    |
| R-358        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 49  | 49  | 49                                | 0  | 0                                      | B(67)                   | --          | 49  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 49                  | 0    | 0   | 0  | 0  |
| R-359        |                                | NB No. 6.1        | Artesia Boulevard  | Residential | 2                       | 51  | 51  | 51                                | 0  | 0                                      | B(67)                   | --          | 51  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 51                  | 0    | 0   | 0  | 0  |
| R-360        |                                |                   | Towne Center Drive | Retail      | 0                       | 68  | 69  | 69                                | 0  | 1                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- |    |
| R-361        |                                |                   | Towne Center Drive | Retail      | 0                       | 71  | 72  | 72                                | 0  | 1                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- | -- |
| R-362        |                                |                   | Towne Center Drive | Retail      | 1                       | 60  | 61  | 61                                | 0  | 1                                      | E(72)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | -- | -- |

Source: Compiled by LSA Associates, Inc. (2018).

- <sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.
- <sup>2</sup> A dash (-) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.
- <sup>3</sup> Activity Categories without outdoor frequent human use areas were not evaluated against the Noise Abatement Criteria (NAC).
- <sup>4</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.
- <sup>5</sup> Shaded cells indicate the approximate existing wall heights.
- <sup>6</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).
- <sup>7</sup> The exterior-to-interior noise level reduction was based on simultaneous exterior and interior measurements.
- <sup>8</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.
- <sup>9</sup> The exterior-to-interior noise level reduction was assumed to be 25 dBA lower because the building type is light frame with storm windows or masonry with single glazed windows.

A/E = Approach or Exceed  
dBA = A-weighted decibels  
dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels  
IL = Insertion Loss  
NAC = Noise Abatement Criteria  
NBR = Number of Benefited Receptors

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Table 2.13.10 Predicted Future Noise Level and Alternate Noise Barrier Analysis for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use    | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                                      |             |   |      |     |                     |      |     |                     |      |           |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|-------------|------------------------|---|---|-----------------------------------|--|--|--------------------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----------|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                   |             |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) <sup>3</sup> | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |           |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                   |             |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                                      |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |           | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                   |             |                        |   |   |                                   |  |  |                                      |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR       | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-44         | EW No. 2.1                     | NB No. 2.2        | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66</b> <sup>2</sup>            | 1  | 2                                      | B(67)                                | A/E         | 65  | 1    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0         | 65                  | 1    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0   |
| R-45         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 63  | 2    | 0   | 63                  | 2    | 0   | 61                  | 4    | 0         | 60                  | 5    | 2   | 60                  | 5    | 2   | 60                  | 5    | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                                | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0         | 60                  | 3    | 0   | 59                  | 4    | 0   | 59                  | 4    | 0   |
| R-47         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                                | A/E         | <b>66</b>   | 0    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0         | 64                  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 64  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0    | 0         | 63                  | 1    | 0   | 62                  | 2    | 0   | 62                  | 2    | 0   |
| R-49         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 1                      | 64  | 65  | 65                                | 0  | 1                                      | B(67)                                | --          | <b>64</b>   | 1    | 0   | 64                  | 1    | 0   | 64                  | 1    | 0         | 64                  | 1    | 0   | 63                  | 2    | 0   | 62                  | 3    | 0   |
| R-50         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62        | 0                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-51         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62        | 0                   | 0    | 62  | 0                   | 0    | 61  | 1                   | 0    |     |
| R-52         | EW No. 2.1*                    | NB No. 2.2        | Beach Street      | Residential | 4                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62        | 0                   | 0    | 62  | 0                   | 0    | 61  | 1                   | 0    |     |
| R-56         | EW No. 2.1                     | NB No. 2.2        | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 63  | 1    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0         | 63                  | 1    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 62  | 3    | 0   | 62                  | 3    | 0   | 60                  | 5    | 1         | 60                  | 5    | 1   | 60                  | 5    | 1   | 59                  | 6    | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 60                  | 4    | 0         | 59                  | 5    | 2   | 58                  | 6    | 2   | 58                  | 6    | 2   |
| R-60         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | 65  | 66  | <b>66</b>                         | 0  | 1                                      | B(67)                                | A/E         | 65  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0         | 63                  | 3    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 64  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0         | 63                  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0   |
| R-62         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63        | 1                   | 0    | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-65         | EW No. 2.1                     | NB No. 2.2        | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 61                  | 3    | 0         | 60                  | 4    | 0   | 60                  | 4    | 0   | 60                  | 4    | 0   |
| R-66         | EW No. 2.1                     | NB No. 2.2        | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | 61  | 2    | 0   | 60                  | 3    | 0   | 60                  | 3    | 0         | 58                  | 5    | 2   | 58                  | 5    | 2   | 57                  | 6    | 2   |
| R-67         | EW No. 2.1                     | NB No. 2.2        | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                                | A/E         | 64  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0         | 62                  | 4    | 0   | 61                  | 5    | 2   | 61                  | 5    | 2   |
| R-68         | EW No. 2.1                     | NB No. 2.2        | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 63  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2    | 0         | 62                  | 2    | 0   | 61                  | 3    | 0   | 61                  | 3    | 0   |
| R-69         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62        | 1                   | 0    | 61  | 2                   | 0    | 61  | 2                   | 0    |     |
| R-70         | EW No. 2.1*                    | NB No. 2.2        | Eric Avenue       | Residential | 2                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 60  | 1                   | 0    | 60        | 1                   | 0    | 59  | 2                   | 0    | 59  | 2                   | 0    |     |
| R-71         | EW No. 2.1*                    | NB No. 2.2        | Lucas Street      | Residential | 3                      | 57  | 57  | 57                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 57  | 0                   | 0    | 57        | 0                   | 0    | 56  | 1                   | 0    | 56  | 1                   | 0    |     |
| R-72         | EW No. 2.1*                    | NB No. 2.2        | Lucas Street      | Residential | 3                      | 56  | 57  | 57                                | 0  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | 57  | 0                   | 0    | 57        | 0                   | 0    | 56  | 1                   | 0    | 56  | 1                   | 0    |     |
| R-101        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | <b>67</b>                                     | <b>67</b>   | <b>67</b>                         | 0  | 0                                      | B(67)                                | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | <b>66</b> | 1                   | 0    | 62  | 5                   | 2    | 62  | 5                   | 2    |     |
| R-102        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | <b>66</b>                                     | <b>67</b>   | <b>67</b>                         | 0  | 1                                      | B(67)                                | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | --        | 65                  | 2    | 0   | 62                  | 5    | 3   | 61                  | 6    | 3   |
| R-103        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | <b>67</b>                                     | <b>67</b>   | <b>68</b>                         | 1  | 1                                      | B(67)                                | A/E         | <b>68</b>   | 0    | 0   | <b>68</b>           | 0    | 0   | <b>67</b>           | 1    | 0         | 65                  | 3    | 0   | 62                  | 6    | 3   | 62                  | 6    | 3   |
| R-104        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                                | A/E         | <b>66</b>   | 0    | 0   | <b>66</b>           | 0    | 0   | 65                  | 1    | 0         | 63                  | 3    | 0   | 61                  | 5    | 3   | 61                  | 5    | 3   |
| R-105        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 3                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 64  | 0    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0         | 63                  | 1    | 0   | 63                  | 1    | 0   | 63                  | 1    | 0   |
| R-108        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 1                      | 60  | 61  | 61                                | 0  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --        | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   |
| R-109        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --        | 61                  | 1    | 0   | 61                  | 1    | 0   | 61                  | 1    | 0   |
| R-110        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                                | --          | 62  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0         | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   |
| R-111        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | 63  | 0    | 0   | 63                  | 0    | 0   | 63                  | 0    | 0         | 63                  | 0    | 0   | 63                  | 0    | 0   | 63                  | 0    | 0   |
| R-112        | EW No. 3.1                     | NB No. 3.3        | 169th Street      | Residential | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                                | --          | 63  | 0    | 0   | 63                  | 0    | 0   | 63                  | 0    | 0         | 63                  | 0    | 0   | 63                  | 0    | 0   | 63                  | 0    | 0   |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>3</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

<sup>4</sup> Shaded cells indicate the approximate existing wall heights.

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors



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Table 2.13.11 Predicted Future Noise Level and Reduced Noise Barrier Analysis for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use    | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                                      |             |   |      |     |                     |      |     |                     |           |     |                     |          |     |                      |          |          |                     |          |     |
|--------------|--------------------------------|-------------------|-------------------|-------------|------------------------|---|---|-----------------------------------|--|--|--------------------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|-----------|-----|---------------------|----------|-----|----------------------|----------|----------|---------------------|----------|-----|
|              |                                |                   |                   |             |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) <sup>3</sup> | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |           |     |                     |          |     |                      |          |          |                     |          |     |
|              |                                |                   |                   |             |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                                      |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |           |     | 12 feet             |          |     | 14 feet              |          |          | 16 feet             |          |     |
|              |                                |                   |                   |             |                        |   |   |                                   |  |  |                                      |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L.      | NBR | L <sub>eq</sub> (h) | I.L.     | NBR | L <sub>eq</sub> (h)  | I.L.     | NBR      | L <sub>eq</sub> (h) | I.L.     | NBR |
| R-44         | EW No. 2.1                     | NB No. 2.1a       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66<sup>2</sup></b>             | 1  | 2                                      | B(67)                                | A/E         | <u>63</u>   | --   | --  | --                  | --   | 63  | 3                   | 0         | 62  | 4                   | 0        | 60  | <u>6<sup>4</sup></u> | 1        | 59       | <u>7</u>            | 1        |     |
| R-45         | EW No. 2.1                     | NB No. 2.1a       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | --  | --   | --  | --                  | 64   | 1   | 0                   | 62        | 3   | 0                   | 61       | 4   | 0                    | 60       | <u>5</u> | 2                   |          |     |
| R-46         | EW No. 2.1                     | NB No. 2.1a       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | --        | 63  | 0                   | 0        | 62  | 1                    | 0        | 62       | 1                   | 0        |     |
| R-47         | EW No. 2.1                     | NB No. 2.1a       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                                | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --        | 65  | 1                   | 0        | 65  | 1                    | 0        | 65       | 1                   | 0        |     |
| R-48         | EW No. 2.1                     | NB No. 2.1a       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | --        | 64  | 0                   | 0        | 64  | 0                    | 0        | 64       | 0                   | 0        |     |
| R-56         | EW No. 2.1                     | NB No. 2.1a       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | 63   | 1   | 0                   | 62        | 2   | 0                   | 61       | 3   | 0                    | 61       | 3        | 0                   |          |     |
| R-58         | EW No. 2.1                     | NB No. 2.1a       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | --  | --   | --  | --                  | 63   | 2   | 0                   | 63        | 2   | 0                   | 61       | 4   | 0                    | 60       | <u>5</u> | 1                   |          |     |
| R-59         | EW No. 2.1                     | NB No. 2.1a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | 63        | 1   | 0                   | 62       | 2   | 0                    | 62       | 2        | 0                   |          |     |
| R-60         | EW No. 2.1                     | NB No. 2.1a       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                                | A/E         | --  | --   | --  | --                  | --   | --  | --                  | <b>66</b> | 0   | 0                   | 65       | 1   | 0                    | 64       | 2        | 0                   |          |     |
| R-61         | EW No. 2.1                     | NB No. 2.1a       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | 64        | 0   | 0                   | 64       | 0   | 0                    | 63       | 1        | 0                   |          |     |
| R-65         | EW No. 2.1                     | NB No. 2.1a       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | 63   | 1   | 0                   | 62        | 2   | 0                   | 62       | 2   | 0                    | 61       | 3        | 0                   |          |     |
| R-66         | EW No. 2.1                     | NB No. 2.1a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | 63        | 0   | 0                   | 61       | 2   | 0                    | 61       | 2        | 0                   |          |     |
| R-67         | EW No. 2.1                     | NB No. 2.1a       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                                | A/E         | --  | --   | --  | --                  | --   | --  | --                  | <b>66</b> | 0   | 0                   | 65       | 1   | 0                    | 63       | 3        | 0                   |          |     |
| R-68         | EW No. 2.1                     | NB No. 2.1a       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | --  | --   | --  | --                  | --   | --  | --                  | 64        | 0   | 0                   | 63       | 1   | 0                    | 63       | 1        | 0                   |          |     |
| R-44         | EW No. 2.1                     | NB No. 2.2a       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66</b>                         | 1  | 2                                      | B(67)                                | A/E         | 65  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2         | 0   | 64                  | 2        | 0   | 64                   | 2        | 0        | 63                  | 3        | 0   |
| R-45         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 63  | 2    | 0   | 63                  | 2    | 0   | 61                  | 4         | 0   | 60                  | 5        | 2   | 60                   | 5        | 2        | 59                  | <u>6</u> | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                                | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2         | 0   | 60                  | 3        | 0   | 59                   | 4        | 0        | 59                  | 4        | 0   |
| R-47         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                                | A/E         | <b>66</b>   | 0    | 0   | <b>66</b>           | 0    | 0   | 65                  | 1         | 0   | 64                  | 2        | 0   | 64                   | 2        | 0        | 63                  | 3        | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 64  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0         | 0   | 64                  | 0        | 0   | 64                   | 0        | 0        | 64                  | 0        | 0   |
| R-56         | EW No. 2.1                     | NB No. 2.2a       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 63  | 1    | 0   | 63                  | 1    | 0   | 63                  | 1         | 0   | 62                  | 2        | 0   | 62                   | 2        | 0        | 62                  | 2        | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 62  | 3    | 0   | 62                  | 3    | 0   | 60                  | <u>5</u>  | 1   | 60                  | <u>5</u> | 1   | 60                   | <u>5</u> | 1        | 59                  | <u>6</u> | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 61                  | 3         | 0   | 59                  | <u>5</u> | 2   | 58                   | <u>6</u> | 2        | 58                  | <u>6</u> | 2   |
| R-60         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                                | A/E         | 65  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2         | 0   | 63                  | 3        | 0   | 62                   | 4        | 0        | 62                  | 4        | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 64  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0         | 0   | 63                  | 1        | 0   | 63                   | 1        | 0        | 63                  | 1        | 0   |
| R-65         | EW No. 2.1                     | NB No. 2.2a       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 61                  | 3         | 0   | 60                  | 4        | 0   | 60                   | 4        | 0        | 59                  | <u>5</u> | 2   |
| R-66         | EW No. 2.1                     | NB No. 2.2a       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | 61  | 2    | 0   | 60                  | 3    | 0   | 60                  | 3         | 0   | 58                  | 5        | 2   | 58                   | 5        | 2        | 57                  | <u>6</u> | 2   |
| R-67         | EW No. 2.1                     | NB No. 2.2a       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                                | A/E         | 64  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3         | 0   | 62                  | 4        | 0   | 61                   | <u>5</u> | 2        | 61                  | <u>5</u> | 2   |
| R-68         | EW No. 2.1                     | NB No. 2.2a       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 63  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2         | 0   | 62                  | 2        | 0   | 62                   | 2        | 0        | 62                  | 2        | 0   |
| R-44         | EW No. 2.1                     | NB No. 2.2b       | Westwinds Circle  | Residential | 1                      | 64  | 65  | <b>66</b>                         | 1  | 2                                      | B(67)                                | A/E         | 64  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4         | 0   | 62                  | 4        | 0   | 62                   | 4        | 0        | 62                  | 4        | 0   |
| R-45         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 2                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 63  | 2    | 0   | 62                  | 3    | 0   | 60                  | <u>5</u>  | 2   | 60                  | <u>5</u> | 2   | 59                   | <u>6</u> | 2        | 59                  | <u>6</u> | 2   |
| R-46         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                                | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2         | 0   | 60                  | 3        | 0   | 59                   | 4        | 0        | 59                  | 4        | 0   |
| R-47         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | 65  | 65  | <b>66</b>                         | 1  | 1                                      | B(67)                                | A/E         | <b>66</b>   | 0    | 0   | <b>66</b>           | 0    | 0   | 65                  | 1         | 0   | 64                  | 2        | 0   | 64                   | 2        | 0        | 63                  | 3        | 0   |
| R-48         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 64  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0         | 0   | 64                  | 0        | 0   | 64                   | 0        | 0        | 64                  | 0        | 0   |
| R-56         | EW No. 2.1                     | NB No. 2.2b       | Westwinds Circle  | Residential | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 61                  | 3         | 0   | 61                  | 3        | 0   | 60                   | 4        | 0        | 60                  | 4        | 0   |
| R-58         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 1                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                                | --          | 62  | 3    | 0   | 61                  | 4    | 0   | 60                  | 5         | 1   | 59                  | 6        | 1   | 59                   | 6        | 1        | 58                  | 7        | 1   |
| R-59         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                                | --          | 62  | 2    | 0   | 61                  | 3    | 0   | 60                  | 4         | 0   | 59                  | <u>5</u> | 2   | 58                   | <u>6</u> | 2        | 58                  | <u>6</u> | 2   |
| R-60         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | 65  | <b>66</b>   | <b>66</b>                         | 0  | 1                                      | B(67)                                | A/E         | 65  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2         | 0   | 63                  | 3        | 0   | 62                   | 4        | 0        | 62                  | 4        | 0   |
| R-61         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 1                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 64  | 0    | 0   | 64                  | 0    | 0   | 64                  | 0         | 0   | 63                  | 1        | 0   | 63                   | 1        | 0        | 63                  | 1        | 0   |
| R-65         | EW No. 2.1                     | NB No. 2.2b       | Leeward Avenue    | Residential | 2                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                                | --          | 61  | 3    | 0   | 61                  | 3    | 0   | 60                  | 4         | 0   | 59                  | <u>5</u> | 2   | 59                   | 5        | 2        | 59                  | 5        | 2   |
| R-66         | EW No. 2.1                     | NB No. 2.2b       | Coral Reef Circle | Residential | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                                | --          | 61  | 2    | 0   | 60                  | 3    | 0   | 60                  | 3         | 0   | 58                  | <u>5</u> | 2   | 58                   | <u>5</u> | 2        | 57                  | <u>6</u> | 2   |
| R-67         | EW No. 2.1                     | NB No. 2.2b       | Outrigger Circle  | Residential | 2                      | <b>66</b>                                     | <b>66</b>   | <b>66</b>                         | 0  | 0                                      | B(67)                                | A/E         | 64  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3         | 0   | 62                  | 4        | 0   | 61                   | <u>5</u> | 2        | 61                  | <u>5</u> | 2   |
| R-68         | EW No. 2.1                     | NB No. 2.2b       | Windward Avenue   | Residential | 2                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                                | --          | 63  | 1    | 0   | 63                  | 1    | 0   | 62                  | 2         | 0   | 62                  | 2        | 0   | 62                   | 2        | 0        | 62                  | 2        | 0   |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>3</sup> Shaded cells indicate the approximate existing wall heights.

<sup>4</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors

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**Table 2.13.12 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location    | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------|-------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |             |             |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |             |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |             |             |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-135        | EW No. 3.3                     | NB No. 3.2        | Hart Street | Residential | 2                       | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --          | 61  | 1    | 0   | 60                  | 2    | 0   | 60                  | 2    | 0   | 59                  | 3    | 0   | 59                  | 3    | 0   | 59                  | 3    | 0   |
| R-136        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue | Residential | 1                       | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   |
| R-137        | EW No. 3.4                     | NB No. 3.2        | Gard Avenue | Residential | 1                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | 60  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> A dash (–) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

<sup>3</sup> The exterior-to-interior noise level reduction was based on simultaneous exterior and interior measurements.

<sup>4</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>5</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors







Table 2.13.13 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 2 (Pioneer Boulevard L-9)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use         | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|------------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                   |                  |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                   |                  |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                   |                  |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-198        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Residential      | 3                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 60  | 1                   | 0    | 60  | 1                   | 0    | 59  | 2                   | 0    |     |
| R-199        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 59  | 0                   | 0    | 58  | 1                   | 0    | 58  | 1                   | 0    |     |
| R-200        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-201        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 62   | 2   | 0                   | 62   | 2   | 0                   |      |     |
| R-202        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 0   | 0                   | 62   | 1   | 0                   |      |     |
| R-203        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 2                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-204        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 2                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-205        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-206        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 63   | 2   | 0                   |      |     |
| R-207        | EW No. 4.3*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-208        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 3                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-209        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-210        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-211        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 2                       | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-212        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                       | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 63   | 1   | 0                   |      |     |
| R-213        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                       | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 64   | 1   | 0                   |      |     |
| R-214        | EW No. 4.3                     |                   | Park Street       | Light Industrial | 0                       | 66  | 66  | 66                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-215        |                                |                   | Norwalk Boulevard | Gas Station      | 0                       | 69  | 69  | 69                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |
| R-216        |                                |                   | Norwalk Boulevard | Light Industrial | 0                       | 63  | 63  | 63                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  |      |     |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> A dash (–) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

<sup>3</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>4</sup> Shaded cells indicate the approximate existing wall heights.

<sup>5</sup> Activity Categories without outdoor frequent human use areas were not evaluated against the Noise Abatement Criteria (NAC).

<sup>6</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

<sup>7</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors

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Table 2.13.14 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use         | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|------------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                   |                  |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                   |                  |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                   |                  |                        |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-198        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Residential      | 3                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-199        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 59  | 1                   | 0    | 59  | 1                   | 0    | 58  | 2                   | 0    |     |
| R-200        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    |     |
| R-201        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-202        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62  | 1                   | 0    |     |
| R-203        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 2                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    |     |
| R-204        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    |     |
| R-205        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    |     |
| R-206        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 1                   | 0    | 63  | 2                   | 0    |     |
| R-207        | EW No. 4.3*                    | NB No. 4.1        | 169th Street      | Residential      | 3                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-208        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 3                      | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-209        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 2                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-210        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                      | 56  | 56  | 61                                | 5  | 5                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-211        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 2                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    |     |
| R-212        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 63  | 1                   | 0    |     |
| R-213        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 1                   | 0    | 64  | 1                   | 0    |     |
| R-214        | EW No. 4.3                     |                   | Park Street       | Light Industrial | 0                      | 66  | 66  | 66                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-215        |                                |                   | Norwalk Boulevard | Gas Station      | 0                      | 69  | 69  | 69                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-216        |                                |                   | Norwalk Boulevard | Light Industrial | 0                      | 63  | 63  | 63                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> A dash (-) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

<sup>3</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>4</sup> Shaded cells indicate the approximate existing wall heights.

<sup>5</sup> Activity Categories without outdoor frequent human use areas were not evaluated against the Noise Abatement Criteria (NAC).

<sup>6</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

<sup>7</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.

A/E = Approach or Exceed

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

IL = Insertion Loss

NAC = Noise Abatement Criteria

NBR = Number of Benefited Receptors



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Table 2.13.15 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 4 (Diamond Ramps)

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location           | Land Use           | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|--------------------|--------------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                    |                    |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                    |                    |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                    |                    |                        |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-195        | EW No. 4.2                     | NB No. 4.1        | 169th Street       | Residential        | 2                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 0                   | 0    | 62  | 1                   | 0    | 62  | 1                   | 0    |     |
| R-196        | EW No. 4.2                     | NB No. 4.1        | 169th Street       | Residential        | 2                      | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 1                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-197        | EW No. 4.2                     | NB No. 4.1        | 169th Street       | Residential        | 3                      | 61  | 61  | 62                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 1                   | 0    | 61  | 1                   | 0    | 60  | 2                   | 0    |     |
| R-198        | EW No. 4.2                     | NB No. 4.1        | 169th Street       | Residential        | 3                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-199        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 59  | 1                   | 0    | 59  | 1                   | 0    | 59  | 1                   | 0    |     |
| R-200        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-201        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-202        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 0   | 0                   | 62   | 1   | 0                   |      |     |
| R-203        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 2                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-204        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 2                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 63   | 1   | 0                   |      |     |
| R-205        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 63   | 1   | 0                   |      |     |
| R-206        | EW No. 4.2*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 63  | 64  | 65                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 64   | 1   | 0                   |      |     |
| R-207        | EW No. 4.3*                    | NB No. 4.1        | 169th Street       | Residential        | 3                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 60  | 1                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    |     |
| R-208        | EW No. 4.3                     | NB No. 4.1        | 169th Street       | Residential        | 3                      | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-209        | EW No. 4.3                     | NB No. 4.1        | 169th Street       | Residential        | 2                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 61  | 0                   | 0    | 61  | 0                   | 0    | 61  | 0                   | 0    |     |
| R-210        | EW No. 4.1                     |                   | 168th Street       | Residential        | 2                      | 56  | 56  | 57                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-211        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 2                      | 62  | 63  | 64                                | 1  | 2                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 62   | 2   | 0                   |      |     |
| R-212        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 3                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 63   | 1   | 0                   | 63   | 1   | 0                   |      |     |
| R-213        | EW No. 4.2*                    | NB No. 4.1        | 168th Street       | Residential        | 3                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | 64   | 1   | 0                   | 64   | 1   | 0                   |      |     |
| R-214        | EW No. 4.3                     |                   | Park Street        | Light Industrial   | 0                      | 66  | 66  | 67                                | 1  | 1                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-215        |                                |                   | Norwalk Boulevard  | Gas Station        | 0                      | 69  | 69  | 69                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-216        |                                |                   | Norwalk Boulevard  | Light Industrial   | 0                      | 63  | 63  | 63                                | 0  | 0                                      | F                       | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-217        |                                |                   | Pioneer Boulevard  | Restaurant         | 0                      | 71  | 71  | 71                                | 0  | 0                                      | E <sup>5</sup>          | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-218        |                                |                   | Pioneer Boulevard  | Office/Classroom   | 0                      | 70 / 45 <sup>b</sup>                          | 71 / 46 <sup>b</sup>                                    | 71 / 46 <sup>b</sup>              | 0  | 1                                      | E/D(52)                 | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-219        | EW No. 4.1                     |                   | Aclare Street      | School Playground  | 1                      | 63  | 63  | 63                                | 0  | 0                                      | C(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-220        | EW No. 4.1                     |                   | Aclare Street      | School Classroom   | 1                      | 62 / 47 <sup>b</sup>                          | 62 / 47 <sup>b</sup>                                    | 62 / 47 <sup>b</sup>              | 0  | 0                                      | D(52)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-221        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 2                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 67  | 0                   | 0    | 66  | 1                   | 0    | 66  | 1                   | 0    |     |
| R-222        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 3                      | 66  | 67  | 67                                | 0  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 66  | 1                   | 0    | 65  | 2                   | 0    | 65  | 2                   | 0    |     |
| R-223        | EW No. 4.6                     | NB No. 4.2        | Palm Street        | Residential        | 2                      | 69  | 69  | 69                                | 0  | 0                                      | B(67)                   | A/E         | 69  | 0    | 0   | 68                  | 1    | 0   | 67                  | 2    | 0   | 66                  | 3    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   |
| R-224        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 3                      | 69  | 69  | 69                                | 0  | 0                                      | B(67)                   | A/E         | 69  | 0    | 0   | 68                  | 1    | 0   | 66                  | 3    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 64                  | 5    | 3   |
| R-225        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 1                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | 67  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 63                  | 4    | 0   |
| R-226        | EW No. 4.6                     | NB No. 4.2        | Ibex Ave           | Residential        | 1                      | 61  | 62  | 62                                | 0  | 1                                      | B(67)                   | --          | 62  | 0    | 0   | 61                  | 1    | 0   | 60                  | 2    | 0   | 59                  | 3    | 0   | 58                  | 4    | 0   | 58                  | 4    | 0   |
| R-227        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-228        | EW No. 4.6                     | NB No. 4.2        | Hart Street        | Residential        | 2                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 2                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-229        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 1                      | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 2                   | 0    | 64  | 2                   | 0    | 63  | 3                   | 0    |     |
| R-230        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 2                      | 68  | 68  | 68                                | 0  | 0                                      | B(67)                   | A/E         | 68  | 0    | 0   | 67                  | 1    | 0   | 66                  | 2    | 0   | 64                  | 4    | 0   | 64                  | 4    | 0   | 63                  | 5    | 2   |
| R-231        | EW No. 4.6                     | NB No. 4.2        | Ibex Ave           | Residential        | 1                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   | 60                  | 3    | 0   | 59                  | 4    | 0   | 59                  | 4    | 0   |
| R-232        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 59  | 59  | 59                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-233        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 3                      | 63  | 64  | 64                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 63  | 1                   | 0    | 62  | 2                   | 0    | 62  | 2                   | 0    |     |
| R-234        | EW No. 4.6                     | NB No. 4.2        | Grayland Avenue    | Residential        | 2                      | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   | 62                  | 4    | 0   |
| R-235        | EW No. 4.6                     | NB No. 4.2        | Horst Avenue       | Residential        | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | 63  | 0    | 0   | 62                  | 1    | 0   | 61                  | 2    | 0   | 60                  | 3    | 0   | 60                  | 3    | 0   | 59                  | 4    | 0   |
| R-236        | EW No. 4.6                     |                   | Ibex Ave           | Residential        | 1                      | 57  | 57  | 57                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-237        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-238        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 55  | 56  | 56                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-239        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 1                      | 54  | 54  | 55                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-240        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 2                      | 55  | 55  | 55                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-241        | EW No. 4.7                     |                   | Napoli Drive       | Residential        | 1                      | 55  | 55  | 55                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  |
| R-242        |                                | NB No. 5.1        | Cuesta Drive       | School Playground  | 1                      | 67  | 67  | 67                                | 0  | 0                                      | C(67)                   | A/E         | 65  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   | 63                  | 4    | 0   | 62                  | 5    | 1   | 61                  | 6    | 1   |
| R-243        | EW No. 5.1                     | NB No. 5.1        | Cuesta Drive       | School Classroom   | 1                      | 62 / 42 <sup>f</sup>                          | 62 / 42 <sup>f</sup>                                    | 63 / 43 <sup>f</sup>              | 1  | 1                                      | D(52)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 62                  | 1    | 0   |
| R-244        | EW No. 5.1                     | NB No. 5.1        | Cuesta Drive       | School Classroom   | 1                      | 64 / 37 <sup>g</sup>                          | 64 / 37 <sup>g</sup>                                    | 65 / 38 <sup>g</sup>              | 1  | 1                                      | D(52)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 65                  | 0    | 0   |
| R-245        | EW No. 5.2*                    | NB No. 5.2        | Cuesta Drive       | School Sports Area | 1                      | 63  | 63  | 65                                | 2  | 2                                      | C(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | 64                  | 1    | 0   |
| R-246        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive | Residential        | 1                      | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 2                   | 0    | 63  | 3                   | 0    | 62  | 4                   | 0    |     |

**Table 2.13.15 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 4 (Diamond Ramps)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location             | Land Use         | No. of Receptors/Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|----------------------|------------------|------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                      |                  |                        |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                      |                  |                        |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                      |                  |                        |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-247        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive   | Residential      | 1                      | 65  | 66  | 67                                | 1  | 2                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 2                   | 0    | 64  | 3                   | 0    | 63  | 4                   | 0    |     |
| R-248        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive   | Residential      | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 1                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    |     |
| R-249        | EW No. 5.2*                    | NB No. 5.2        | Rancho Vista Drive   | Residential      | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 64  | 1                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    |     |
| R-250        | EW No. 5.2*                    |                   | Rancho Vista Drive   | Residential      | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-251        | EW No. 5.2*                    |                   | Rancho Vista Drive   | Residential      | 1                      | 64  | 64  | 65                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-252        | EW No. 5.2                     |                   | Rancho Vista Drive   | Residential      | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-253        | EW No. 5.2                     |                   | Rancho Vista Drive   | Residential      | 1                      | 62  | 63  | 63                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-254        | EW No. 5.2                     |                   | Rancho Vista Drive   | Residential      | 1                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-255        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 62  | 62  | 63                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-256        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 59  | 59  | 62                                | 3  | 3                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-257        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 59  | 60  | 62                                | 2  | 3                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-258        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 0                      | 54  | 54  | 55                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-259        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 61  | 61  | 61                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-260        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 63  | 63  | 64                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-261        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-262        | EW No. 5.2*                    | NB No. 5.2        | Judy Way             | Residential      | 1                      | 65  | 65  | 66                                | 1  | 1                                      | B(67)                   | A/E         | --  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 1                   | 0    | 65  | 1                   | 0    | 65  | 1                   | 0    |     |
| R-263        | EW No. 5.2*                    | NB No. 5.2        | Cedarwood Court      | Residential      | 1                      | 61  | 62  | 62                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62  | 0                   | 0    | 62  | 0                   | 0    |     |
| R-264        | EW No. 5.2                     |                   | Cedarwood Court      | Residential      | 1                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-265        | EW No. 5.2                     |                   | Chapparal Ave        | Residential      | 1                      | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-266        | EW No. 5.2                     |                   | Chapparal Ave        | Residential      | 1                      | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-267        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 58  | 59  | 59                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-268        | EW No. 5.2*                    | NB No. 5.2        | Judy Way             | Residential      | 1                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 65  | 0                   | 0    | 65  | 0                   | 0    | 65  | 0                   | 0    |     |
| R-269        | EW No. 5.2*                    | NB No. 5.2        | Judy Way             | Residential      | 1                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | 62  | 0                   | 0    | 62  | 0                   | 0    | 62  | 0                   | 0    |     |
| R-270        | EW No. 5.2                     |                   | Chapparal Ave        | Residential      | 1                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-271        | EW No. 5.2                     |                   | Chapparal Ave        | Residential      | 1                      | 58  | 58  | 59                                | 1  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-272        | EW No. 5.2                     |                   | Sierra Vista Way     | Residential      | 1                      | 57  | 58  | 58                                | 0  | 1                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-273        | EW No. 5.13                    |                   | Norwalk Boulevard    | Office/Classroom | 0                      | 66 / 41 <sup>b</sup>                          | 66 / 41 <sup>b</sup>                                    | 66 / 41 <sup>b</sup>              | 0  | 0                                      | E/D(52) <sup>b</sup>    | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-274        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 1                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-275        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 2                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |
| R-276        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 3                      | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 66                  | 0    | 0   | 65                  | 1    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   |
| R-277        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 3                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 67                  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   |
| R-278        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 3                      | 64  | 64  | 64                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 64  | 0                   | 0    | 63  | 1                   | 0    | 62  | 2                   | 0    | 62  | 2                   | 0    | 61  | 3                   | 0    |     |
| R-279        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 2                      | 65  | 66  | 66                                | 0  | 1                                      | B(67)                   | A/E         | --  | --   | --  | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 62                  | 4    | 0   |
| R-280        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 2                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 62  | 3                   | 0    | 62  | 3                   | 0    |     |
| R-281        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 2                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    | 62  | 3                   | 0    | 61  | 4                   | 0    |     |
| R-282        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 3                      | 68  | 69  | 69                                | 0  | 1                                      | B(67)                   | A/E         | 68  | 1    | 0   | 67                  | 2    | 0   | 67                  | 2    | 0   | 66                  | 3    | 0   | 65                  | 4    | 0   | 65                  | 4    | 0   |
| R-283        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 3                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | 67  | 0    | 0   | 66                  | 1    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   |
| R-284        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 3                      | 66  | 66  | 66                                | 0  | 0                                      | B(67)                   | A/E         | 66  | 0    | 0   | 65                  | 1    | 0   | 64                  | 2    | 0   | 64                  | 2    | 0   | 63                  | 3    | 0   | 63                  | 3    | 0   |
| R-285        | EW No. 5.5                     | NB No. 5.3        | Evening Star Avenue  | Residential      | 2                      | 59  | 59  | 60                                | 1  | 1                                      | B(67)                   | --          | 60  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 58                  | 2    | 0   | 58                  | 2    | 0   | 58                  | 2    | 0   |
| R-286        | EW No. 5.5                     | NB No. 5.3        | Springsnow Circle    | Residential      | 2                      | 57  | 57  | 58                                | 1  | 1                                      | B(67)                   | --          | 58  | 0    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   | 57                  | 1    | 0   |
| R-287        | EW No. 5.5                     |                   | Springsnow Circle    | Residential      | 1                      | 56  | 56  | 56                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-288        | EW No. 5.5                     |                   | Summerwind Street    | Residential      | 2                      | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   | --  | --                  | --   |     |
| R-289        | EW No. 5.5                     | NB No. 5.3        | Palm Street          | Residential      | 1                      | 67  | 67  | 67                                | 0  | 0                                      | B(67)                   | A/E         | --  | --   | --  | 67                  | 0    | 0   | 66                  | 1    | 0   | 65                  | 2    | 0   | 65                  | 2    | 0   | 64                  | 3    | 0   |
| R-290        | EW No. 5.5                     | NB No. 5.3        | Ely Avenue           | Residential      | 2                      | 63  | 63  | 63                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 63  | 0                   | 0    | 63  | 0                   | 0    | 63  | 0                   | 0    | 62  | 1                   | 0    | 61  | 2                   | 0    |     |
| R-291        | EW No. 5.5                     | NB No. 5.3        | Ely Avenue           | Residential      | 2                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 62  | 0                   | 0    | 62  | 0                   | 0    | 62  | 0                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    |     |
| R-292        | EW No. 5.5                     | NB No. 5.3        | Janell Avenue        | Residential      | 2                      | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 60  | 0                   | 0    | 60  | 0                   | 0    | 59  | 1                   | 0    | 59  | 1                   | 0    | 58  | 2                   | 0    |     |
| R-293        | EW No. 5.5                     | NB No. 5.3        | Morningrain Avenue   | Residential      | 1                      | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 62  | 0                   | 0    | 61  | 1                   | 0    | 60  | 2                   | 0    | 60  | 2                   | 0    | 59  | 3                   | 0    |     |
| R-294        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 2                      | 60  | 60  | 61                                | 1  | 1                                      | B(67)                   | --          | 60  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 60                  | 1    | 0   | 59                  | 2    | 0   | 59                  | 2    | 0   |
| R-295        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 3                      | 59  | 60  | 60                                | 0  | 1                                      | B(67)                   | --          | 60  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   | 59                  | 1    | 0   |
| R-296        | EW No. 5.5                     | NB No. 5.3        | Autumn Breeze Street | Residential      | 1                      | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | 60  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 60                  | 0    | 0   | 59                  | 1    | 0   |
| R-297        | EW No. 5.5                     | NB No. 5.3        | Springsnow Circle    | Residential      | 1                      | 54  | 54  | 54                                | 0  | 0                                      | B(67)                   | --          | 54  | 0    | 0   | 54                  | 0    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   | 53                  | 1    | 0   |
| R-298        | EW No. 5.5                     | NB No. 5.3        | Cortner Avenue       | Residential      | 1                      | 65  | 65  | 65                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 65  | 0                   | 0    | 64  | 1                   | 0    | 64  | 1                   | 0    | 63  | 2                   | 0    | 63  | 2                   | 0    |     |

**Table 2.13.15 Predicted Future Noise Level and Noise Barrier Analysis for the Build Alternative with Design Option 4 (Diamond Ramps)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |                         |             |   |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|--------------|--------------------------------|-------------------|-------------------|-------------|-------------------------|---|---|-----------------------------------|--|--|-------------------------|-------------|---|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|---------------------|------|-----|
|              |                                |                   |                   |             |                         |   | 2044 Noise Level  |                                   |  |  | Activity Category (NAC) | Impact Type | Noise Prediction With Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR) |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |                     |      |     |
|              |                                |                   |                   |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |                         |             | 6 feet  |      |     | 8 feet              |      |     | 10 feet             |      |     | 12 feet             |      |     | 14 feet             |      |     | 16 feet             |      |     |
|              |                                |                   |                   |             |                         |   |   |                                   |  |  |                         |             | L <sub>eq</sub> (h)   | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR | L <sub>eq</sub> (h) | I.L. | NBR |
| R-299        | EW No. 5.5                     | NB No. 5.3        | Ely Avenue        | Residential | 2                       | 62  | 62  | 62                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 62  | 0                   | 0    | 61  | 1                   | 0    | 61  | 1                   | 0    | 60  | 2                   | 0    | 60  | 2                   | 0    |     |
| R-300        | EW No. 5.5                     | NB No. 5.3        | Ely Avenue        | Residential | 2                       | 60  | 61  | 61                                | 0  | 1                                      | B(67)                   | --          | --  | --   | 61  | 0                   | 0    | 60  | 1                   | 0    | 60  | 1                   | 0    | 59  | 2                   | 0    | 59  | 2                   | 0    |     |
| R-301        | EW No. 5.5                     | NB No. 5.3        | Janell Avenue     | Residential | 2                       | 58  | 58  | 58                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 58  | 0                   | 0    | 58  | 0                   | 0    | 57  | 1                   | 0    | 57  | 1                   | 0    | 56  | 2                   | 0    |     |
| R-302        | EW No. 5.5                     | NB No. 5.3        | Stark Avenue      | Residential | 1                       | 60  | 60  | 60                                | 0  | 0                                      | B(67)                   | --          | --  | --   | 60  | 0                   | 0    | 59  | 1                   | 0    | 59  | 1                   | 0    | 58  | 2                   | 0    | 58  | 2                   | 0    |     |
| R-303        | EW No. 5.5                     | NB No. 5.3        | Springsnow Circle | Residential | 1                       | 53  | 54  | 53                                | -1                                       | 0                                      | B(67)                   | --          | 53  | 0    | 0   | 53                  | 0    | 0   | 53                  | 0    | 0   | 53                  | 0    | 0   | 53                  | 0    | 0   | 53                  | 0    | 0   |

Source: Compiled by LSA Associates, Inc. (2018).

- <sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.
- <sup>2</sup> A dash (–) indicates that no barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.
- <sup>3</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.
- <sup>4</sup> Shaded cells indicate the approximate existing wall heights.
- <sup>5</sup> Activity Categories without outdoor frequent human use areas were not evaluated against the Noise Abatement Criteria (NAC).
- <sup>6</sup> Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).
- <sup>7</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.
- <sup>8</sup> The exterior-to-interior noise level reduction was assumed to be 25 dBA lower because the building type is light frame with storm windows or masonry with single glazed windows.
- <sup>9</sup> The exterior-to-interior noise level reduction was based on simultaneous exterior and interior measurements.

A/E = Approach or Exceed  
 dBA = A-weighted decibels  
 dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels  
 IL = Insertion Loss  
 NAC = Noise Abatement Criteria  
 NBR = Number of Benefited Receptors



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### **Build Alternative**

The following receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC under the Build Alternative.

- **Receptors R-5 through R-7, R-15, and R-16:** These receptor locations represent existing single-family residences located along Monica Circle, Carla Plaza, and Petula Place on the northbound side of I-605, between Alondra Boulevard and SR-91. Currently, an existing 8.1 ft high private property wall shields these residences. One noise barrier (Noise Barrier [NB] No. 1.1) was modeled along the property line to shield these residences.
- **Receptors R-44, R-47, R-60, and R-67:** These receptor locations represent existing single-family residences located along Westwinds Circle and Coral Reef Circle on the westbound side of SR-91, near the SR-91 westbound connector to I-605. Currently, an existing 6 to 11 ft high State ROW wall shields the residences. Five noise barrier locations were evaluated separately for their ability to shield these receptors and to compare their effectiveness. NB No. 2.1 was modeled along the State ROW on the westbound side of SR-91 to shield these residences. NB No. 2.2 was modeled at an alternate location along the edge of the shoulder on the westbound side of SR-91 to shield these residences. NB No. 2.1a was modeled as a reduced version of NB No. 2.1 along the State ROW. NB No. 2.2a was modeled as a reduced version of NB No. 2.2 along the edge of the shoulder and private property line on the westbound side of SR-91 to shield these residences. NB No. 2.2b was modeled as an alternate version of NB No. 2.2a along the edge of shoulder.
- **Receptor R-77:** This receptor location represents an active sport area of a school located along Studebaker Road on the eastbound side of SR-91, near the SR-91 eastbound on-ramp from Studebaker Road. Currently, an existing 6.2 to 6.9 ft high private property wall shields the playground. One noise barrier (NB No. 2.3) was modeled along the private property line to shield the active sports area.
- **Receptors R-101 through R-104 and R-107:** These receptor locations represent existing single-family residences along 169th Street on the westbound side of SR-91, near the SR-91 westbound on-ramp from Pioneer Boulevard. Currently, an existing 12.4 to 13.1 ft high private property wall shields these residences. Two noise barrier locations were evaluated separately to shield these receptors and to compare the effectiveness of the two barriers. NB No. 3.1 was modeled along the private property line to shield these residences. NB No. 3.3 was

modeled at an alternate location along the edge of the shoulder on the westbound side of SR-91 to shield these residences.

- **Receptors R-123, R-124, and R-126 through R-128:** These receptor locations represent existing single-family residences located along Jenkins Street and Gard Avenue on the eastbound side of SR-91, between Gridley Road and Pioneer Boulevard. Currently, a combination of an existing 5.6 to 11.8 ft high private property wall and an existing 14.6 to 18.1 ft high private property wall shields these residences. One noise barrier (NB No. 3.2) was modeled along the private property line to shield these residences.
- **Receptors R-155 and R-177 through R-183:** These receptor locations represent existing single-family residences along 169th Street on the westbound side of SR-91, near the SR-91 westbound off-ramp to Pioneer Boulevard. Currently, a combination of an existing 15.8 to 16.2 ft high private property wall and an existing 11.3 to 13.4 ft high edge-of-shoulder wall shield these residences. Two noise barrier locations were evaluated separately to shield these receptors and to compare the effectiveness of the two barriers. NB No. 4.1 was modeled along the State ROW on the westbound side of SR-91 to shield these residences.
- **Receptors R-221 through R-225, R-229, R-230, and R-234:** These receptor locations represent existing single-family residences located along Palm Street, Grayland Avenue, and Horst Avenue on the eastbound side of SR-91, near the SR-91 eastbound off-ramp to Norwalk Boulevard. Currently, an existing 5.9 to 10 ft high private property wall shields these residences. One noise barrier (NB No. 4.2) was modeled along the private property line to shield these residences.
- **Receptor R-242:** This receptor location represents the playground of a school located along Norwalk Boulevard and Cuesta Drive on the westbound side of SR-91, near the SR-91 westbound off-ramp to Norwalk Boulevard. Currently, an existing 10.8 to 14.7 ft high private property wall shields the playground. One noise barrier (NB No. 5.1) was modeled along the private property line to shield the playground.
- **Receptors R-246 through R-249 and R-262:** These receptor locations represent existing multifamily residences along Rancho Vista Drive and Judy Way on the westbound side of SR-91, between Norwalk Boulevard and Bloomfield Avenue. Currently, an existing 9.6 to 12.4 ft high State ROW wall shields these residences. One noise barrier (NB No. 5.2) was modeled along the State ROW on the westbound side of SR-91 to shield these residences.
- **Receptors R-276, R-277, R-279, R-282 through R-284, and R-389:** These receptor locations represent existing single-family residences located along Palm

Street and Autumn Breeze Street on the eastbound side of SR-91, between Norwalk Boulevard and Bloomfield Avenue. Currently, an existing 5.4 to 7.3 ft high State ROW wall shields these residences. One noise barrier (NB No. 5.3) was modeled along the State ROW on the eastbound side of SR-91 to shield the residences.

- **Receptors R-344 through R-347, R-351, R-354, and R-355:** These receptor locations represent existing multifamily residences located along Bloomfield Avenue and Artesia Boulevard on the eastbound side of SR-91. Currently, no existing walls shield these residences. One noise barrier (NB No. 6.1) was modeled along the edge of the shoulder on the eastbound side of SR-91 to shield Receptors R-344 through R-347 and R-351. Noise barriers were not modeled for R-354 and R-355 because these receptors approach or exceed the NAC due to traffic on Bloomfield Avenue and not from traffic on SR-91, as shown in Table 2.13.16.

### **Noise Abatement Consideration**

Noise abatement measures such as noise barriers were considered in order to shield receptors within the study area that would become or would continue to be exposed to traffic noise levels approaching or exceeding the NAC. All properties requiring abatement consideration are within Activity Categories B, C, D, and E (67, 67, 52, and 72 dBA  $L_{eq}$  NAC, respectively). Noise barriers were analyzed for each of these receptor locations. Depending on the location of the potential barrier and existing barrier height, noise barrier heights from 6 to 16 ft were analyzed at 2 ft increments.

### **Build Alternative**

The Build Alternative proposes standard lane and shoulder widths and a 2 ft wide HOV lane buffer, and includes a Type L-7 westbound ramp configuration at Pioneer Boulevard. Within the project limits, westbound SR-91 would have five 12 ft wide mixed-flow lanes, a 10 ft wide left median shoulder, one 12 ft wide HOV lane with a 2 ft wide HOV buffer between the HOV and mixed-flow lanes, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps. The locations of the modeled noise barriers for the Build Alternative are shown on Figure 2.13-3. The locations of the alternate noise barriers (NB Nos. 2.2 and 3.3) for the Build Alternative are shown on Figure 2.13-4. The locations of the reduced noise barriers (NB Nos. 2.1a and 2.2a) for the Build Alternative are shown on Figure 2.13-5. The location of NB No. 2.2b is shown on Figure 2.13-6. The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels

approaching or exceeding the NAC for the Build Alternative and are summarized in  
Tables 2.13.6 through 2.13.8.

**Table 2.13.16 Bloomfield Avenue Noise Level Analysis**

| Receptor No. | Location          | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |                                   |  |  |   |   |                         |
|--------------|-------------------|-------------|-------------------------|---|---|-----------------------------------|--|--|---|---|-------------------------|
|              |                   |             |                         |   | 2044 Noise Level  |                                   |  |  | SR-91 Without Bloomfield Avenue, dBA L <sub>eq</sub> <sup>1</sup> | Bloomfield Avenue Without SR-91, dBA L <sub>eq</sub> <sup>2</sup> | Activity Category (NAC) |
|              |                   |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project, dBA L <sub>eq</sub> | With Project Minus No Project Conditions | With Project Minus Existing Conditions |   |   |                         |
| R-342        | Artesia Boulevard | Residential | 2                       | 63  | 63  | 64                                | 1  | 1                                      | 62  | 58  | B(67)                   |
| R-343        | Artesia Boulevard | Residential | 2                       | 62  | 62  | 62                                | 0  | 0                                      | 56  | 61  | B(67)                   |
| R-348        | Artesia Boulevard | Residential | 4                       | 63  | 63  | 63                                | 0  | 0                                      | 51  | 63  | B(67)                   |
| R-349        | Artesia Boulevard | Residential | 4                       | 67  | 64  | 64                                | 0  | 0                                      | 53  | 64  | B(67)                   |
| R-354        | Artesia Boulevard | Residential | 1                       | <b>67<sup>3</sup></b>                         | <b>67</b>   | <b>68</b>                         | 1  | 1                                      | 58  | <b>67</b>   | B(67)                   |
| R-355        | Artesia Boulevard | Residential | 1                       | <b>68</b>                                     | <b>68</b>   | <b>68</b>                         | 0  | 0                                      | 61  | <b>67</b>   | B(67)                   |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> Noise levels modeled with no traffic volumes on Bloomfield Avenue.

<sup>2</sup> Noise levels modeled with no traffic volumes on SR-91.

<sup>3</sup> Numbers in bold represent noise levels that approach or exceed the NAC.

dBA = A-weighted decibels

dBA L<sub>eq</sub>(h) = equivalent continuous sound level measured per hour in A-weighted decibels

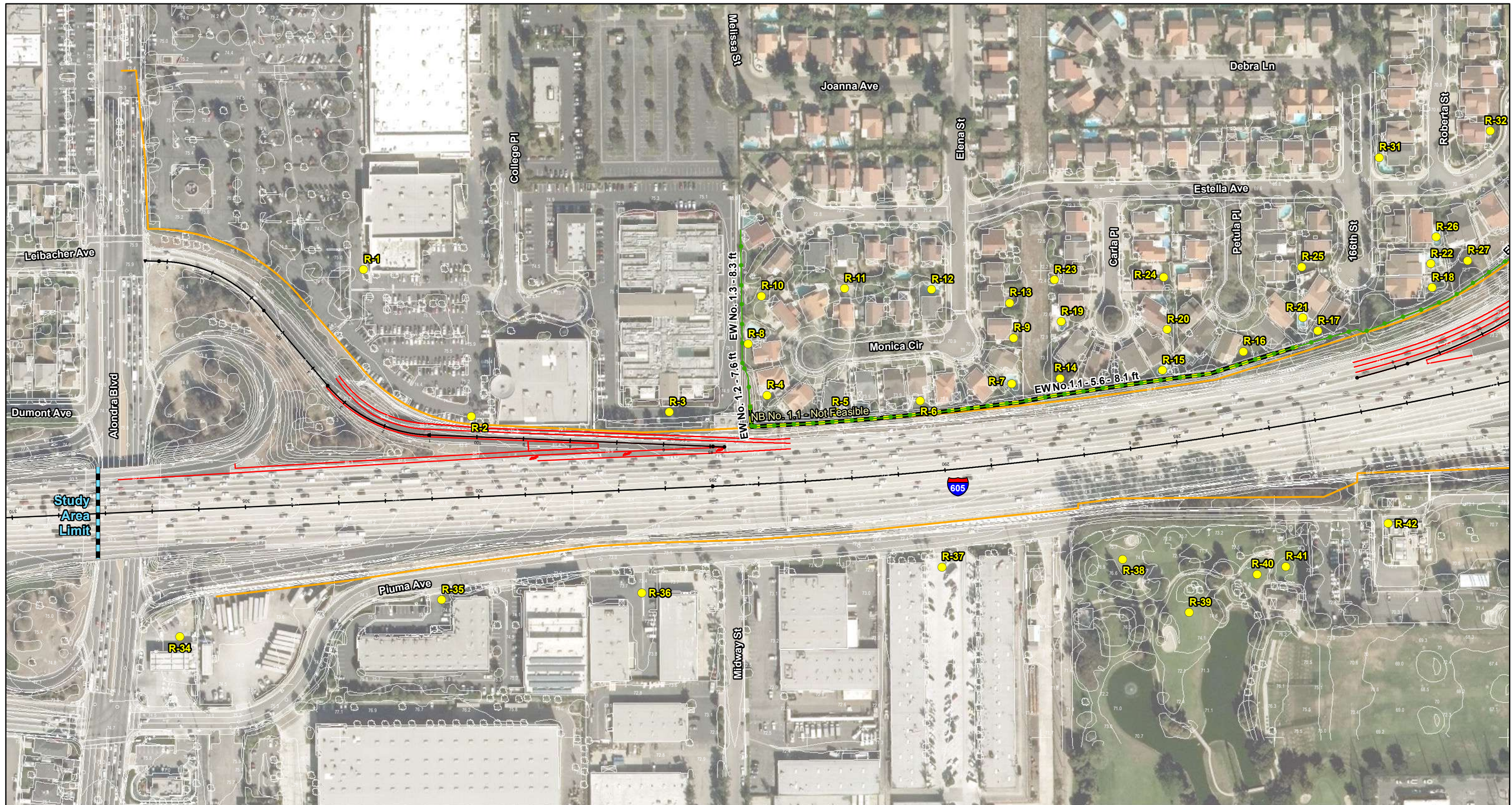
NAC = Noise Abatement Criteria

SR-91 = State Route 91



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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.

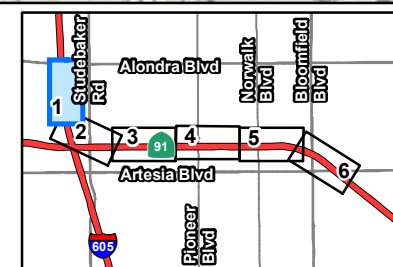
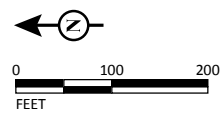


FIGURE 2.13-3  
 Sheet 1 of 6

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



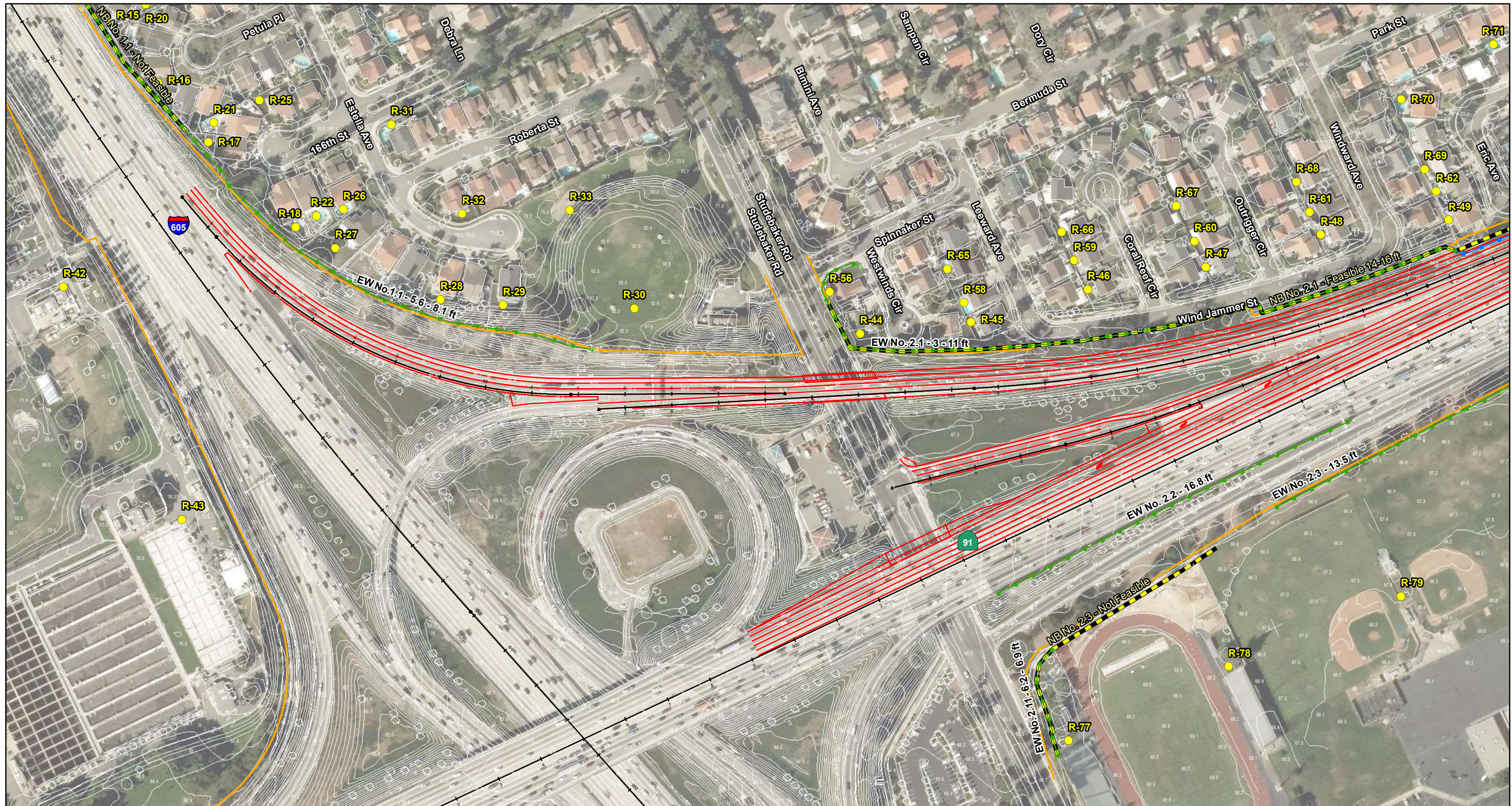
SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.

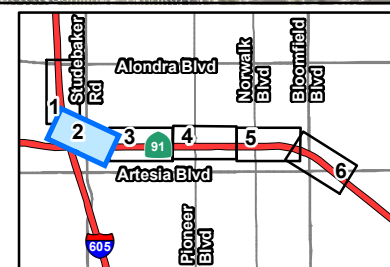
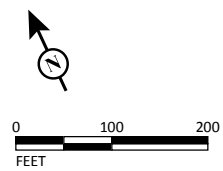


FIGURE 2.13-3  
 Sheet 2 of 6

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



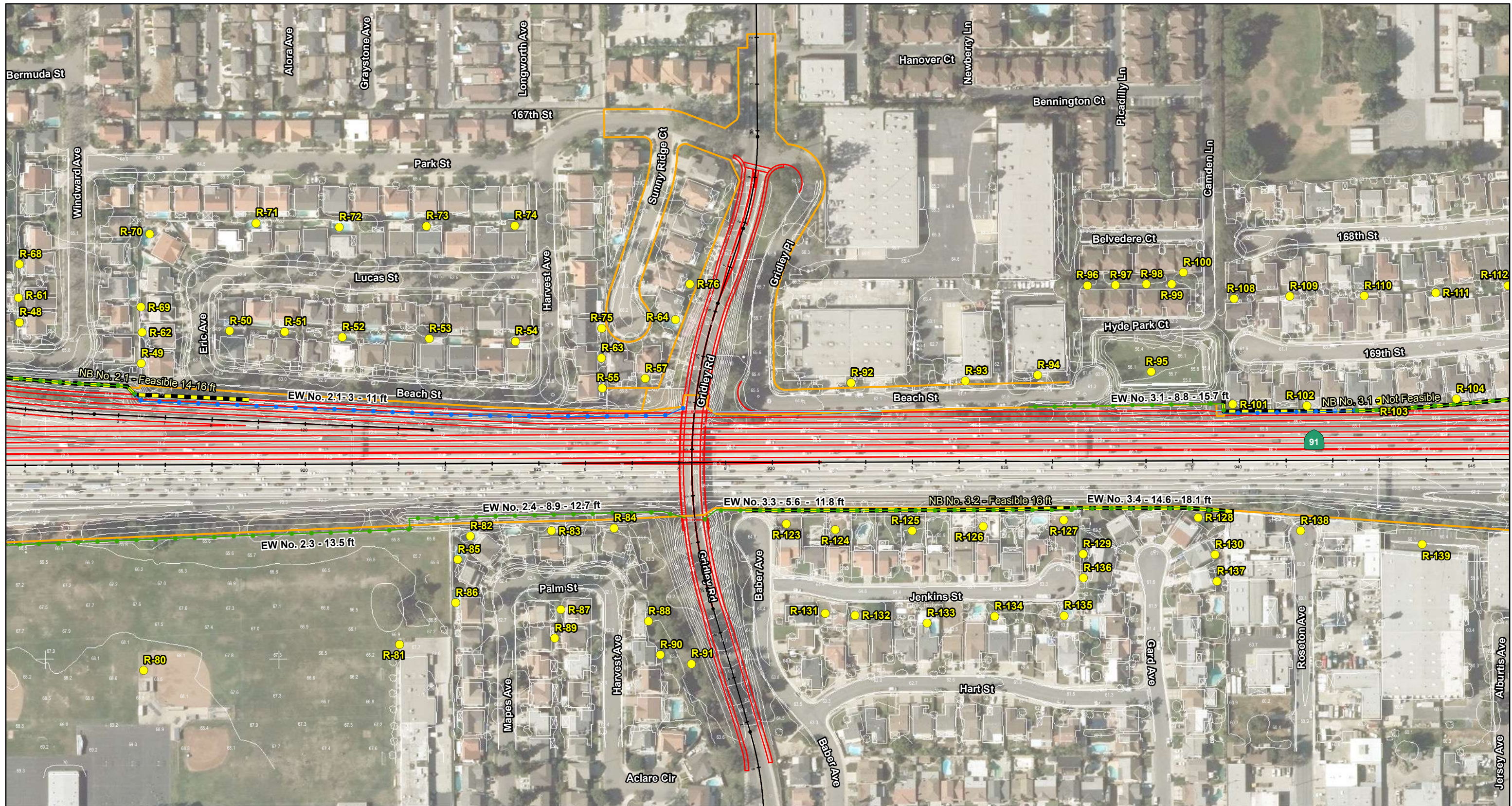
SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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**LEGEND**

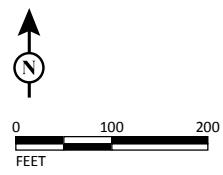
- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-3  
 Sheet 3 of 6

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



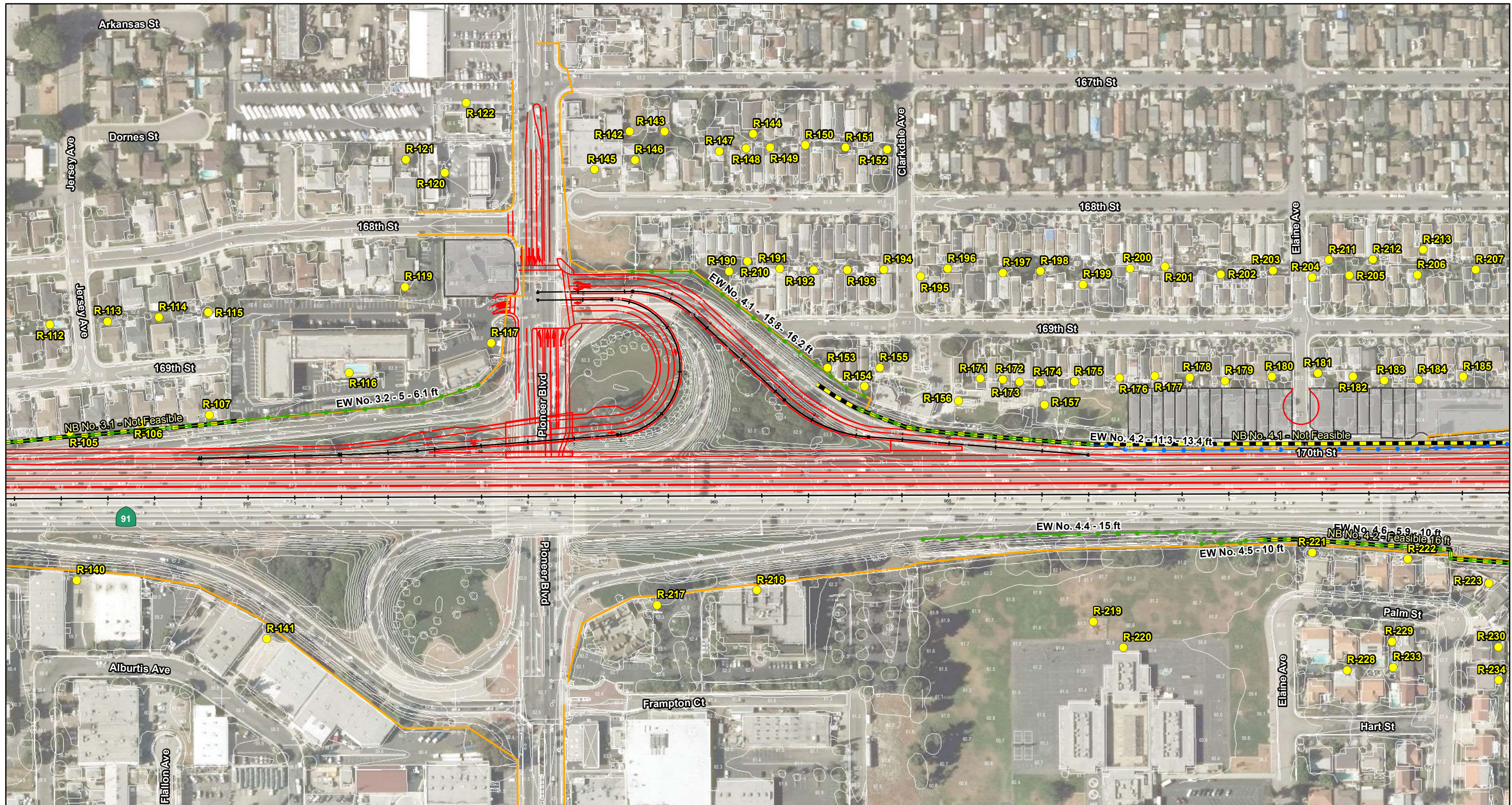
SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



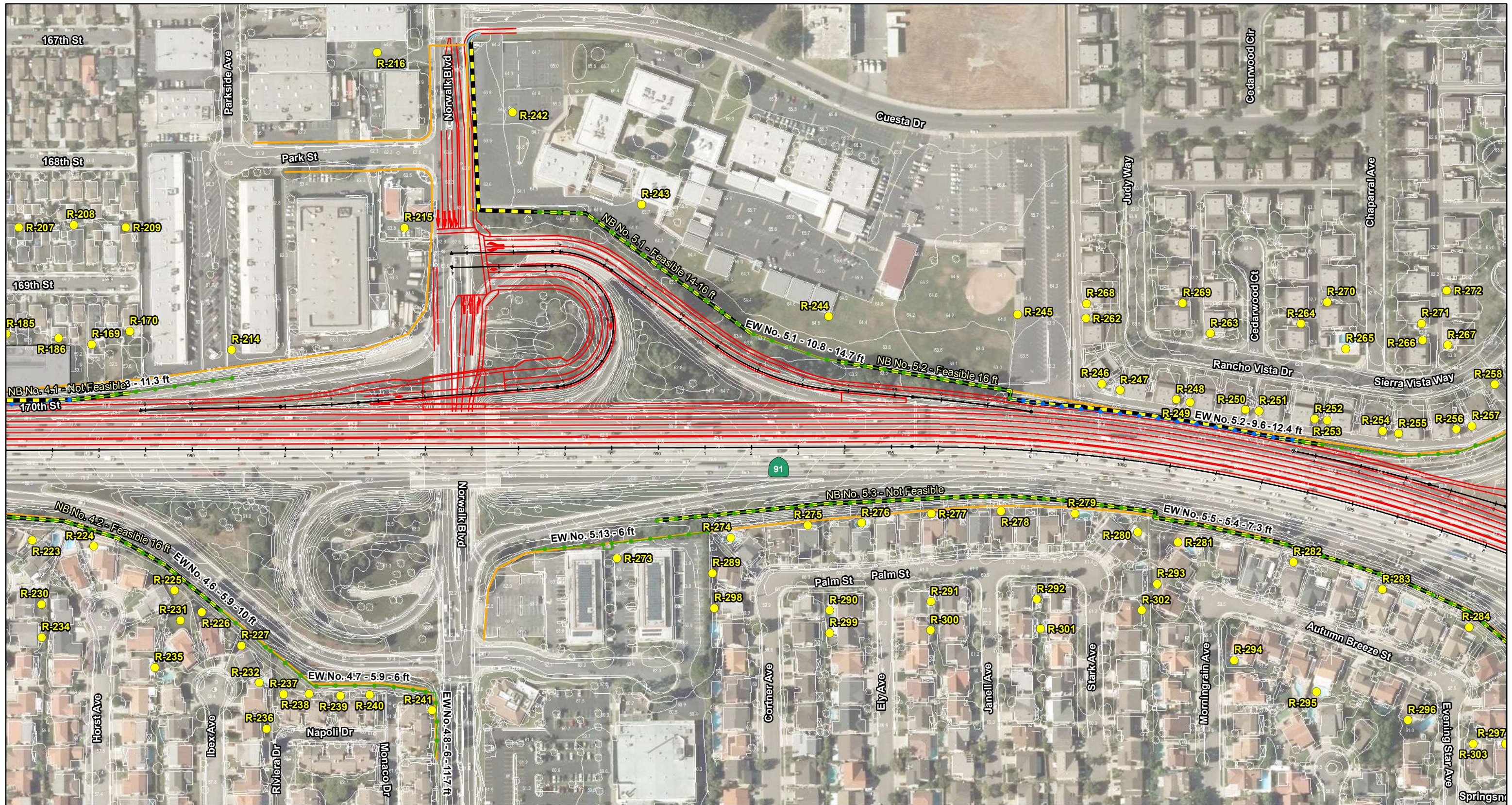
FIGURE 2.13-3  
 Sheet 4 of 6

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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LEGEND

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-3  
 Sheet 5 of 6

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-118 and R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.

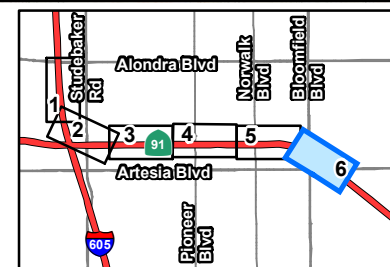
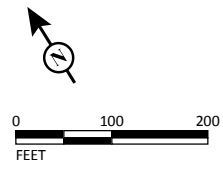


FIGURE 2.13-3  
 Sheet 6 of 6

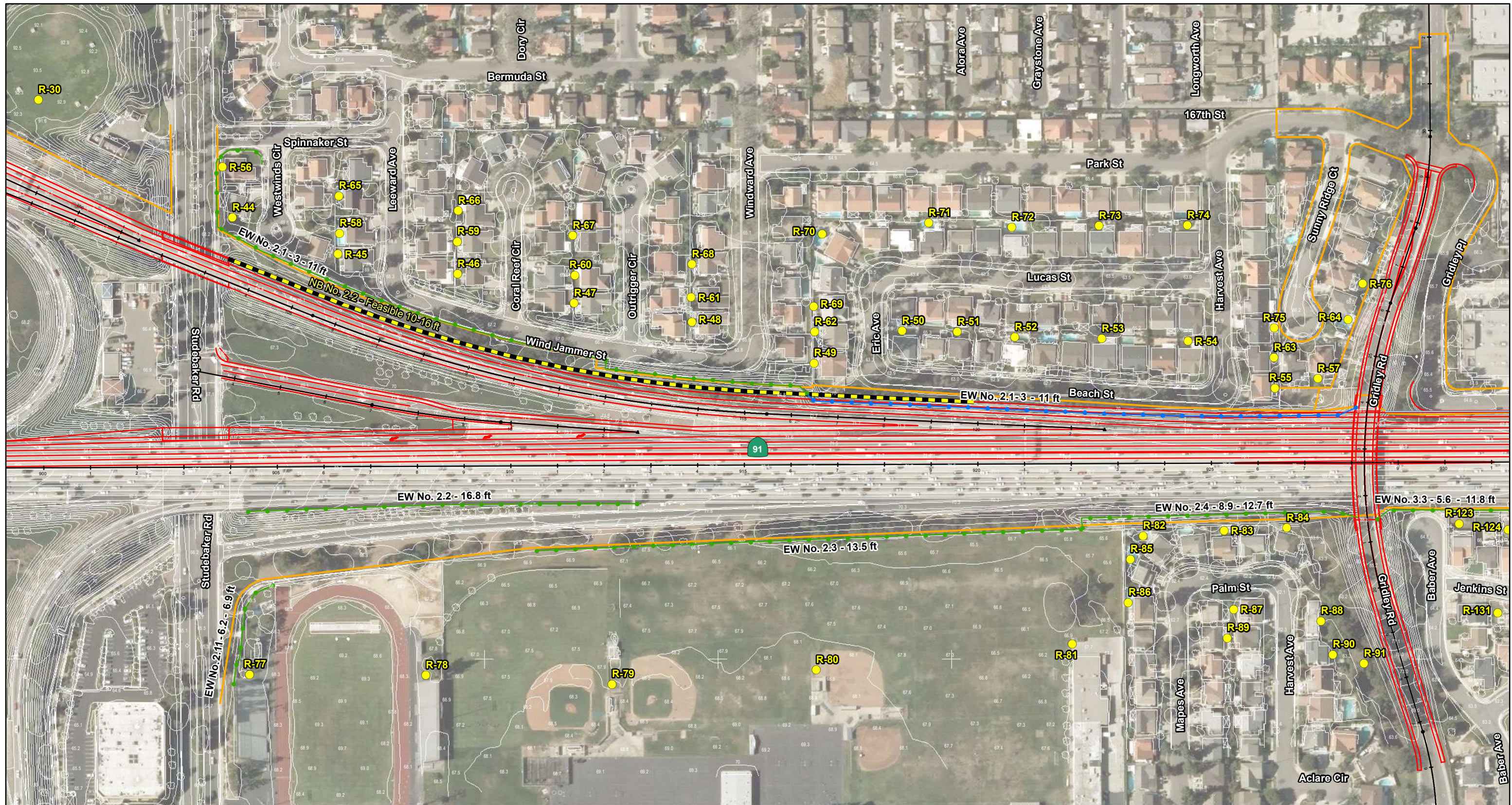
Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811





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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

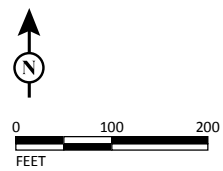
\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-4  
 Sheet 1 of 2

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative - Alternate Barriers

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



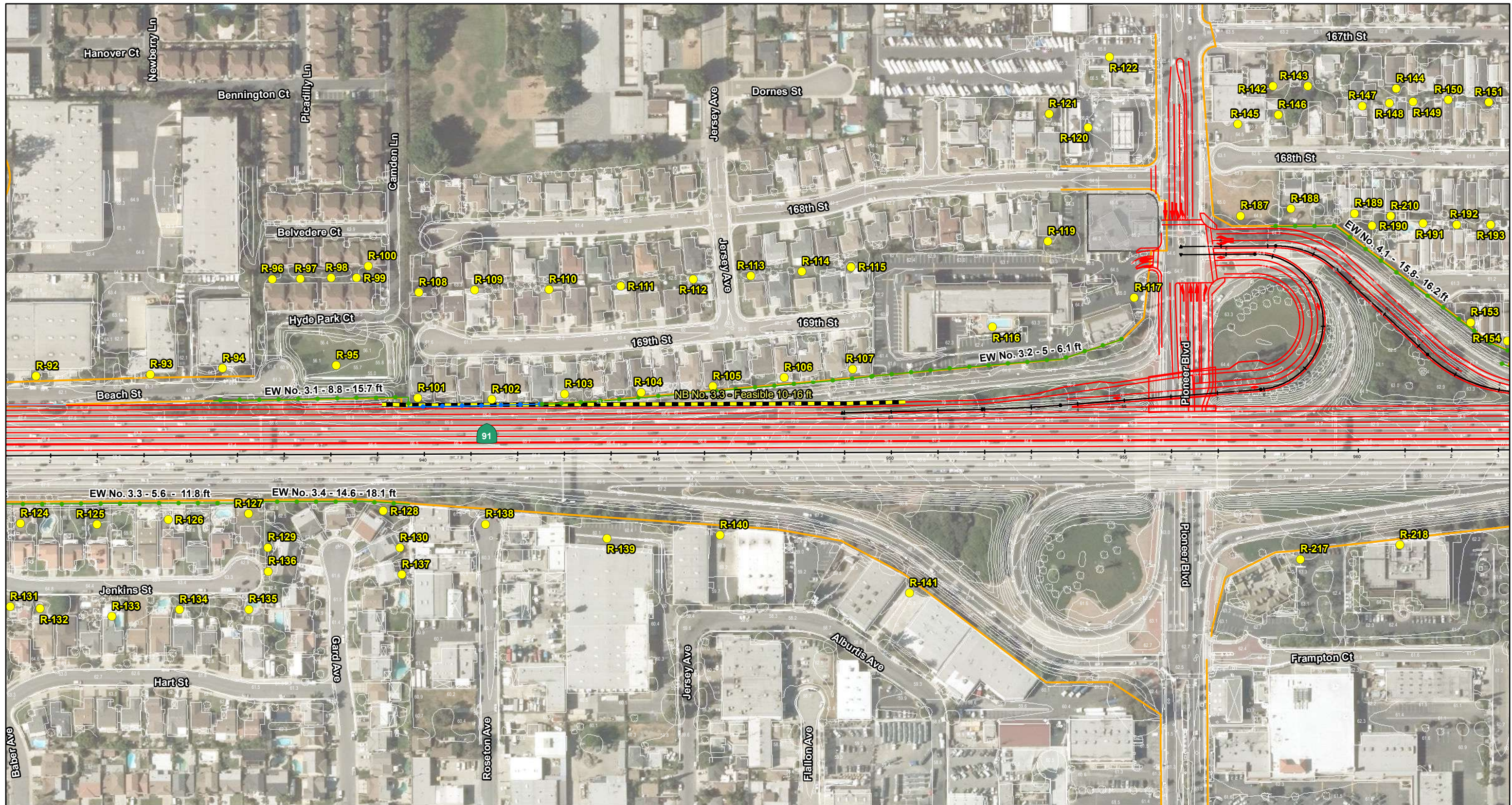
SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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**LEGEND**

- Modeled Receptors\*
- Build Alternative
- Existing Right-of-Way
- Proposed Right-of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-4  
 Sheet 2 of 2

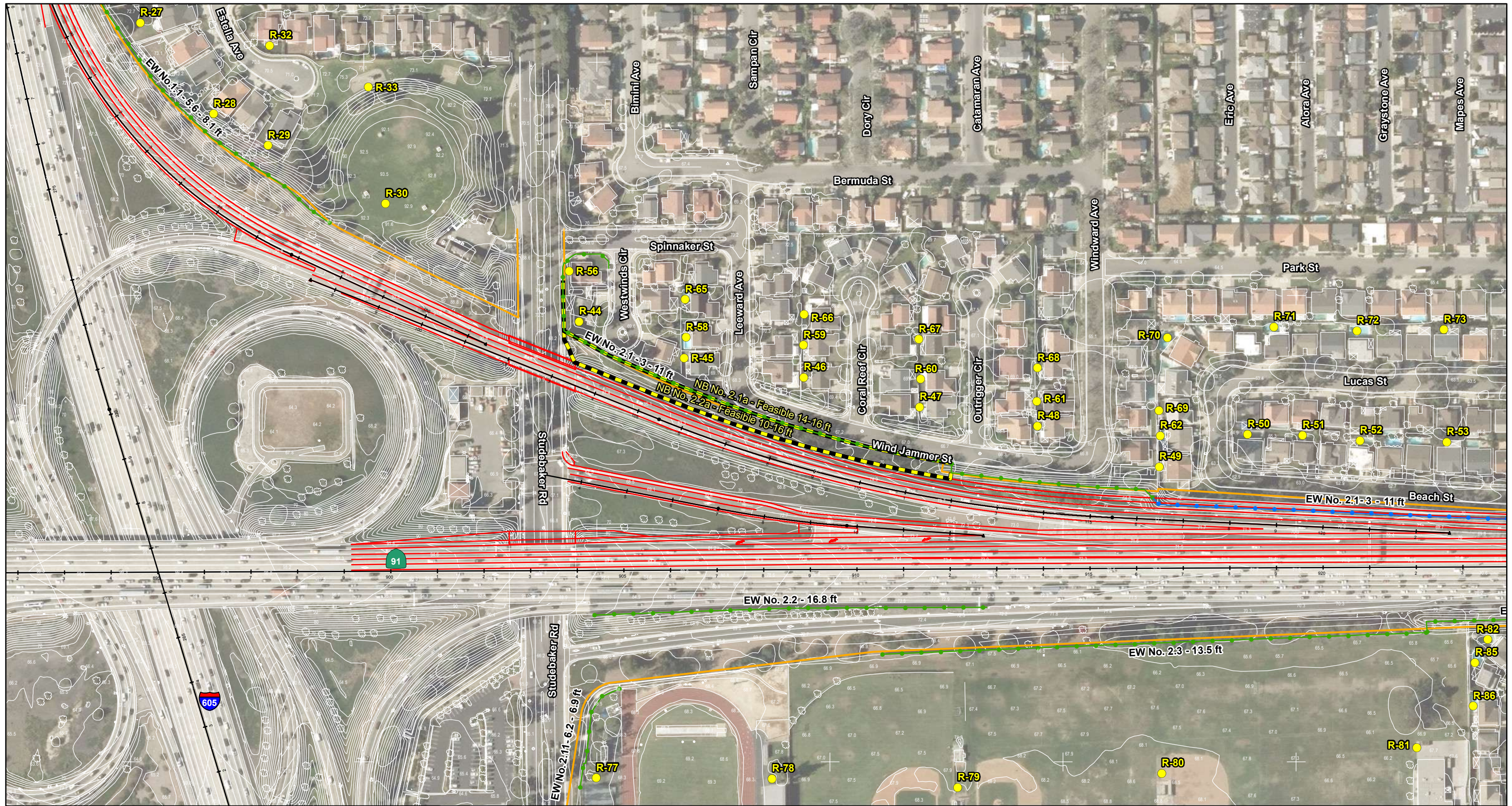
*Westbound SR-91 Improvement Project*  
**Modeled Noise Barriers and Receptor Locations**  
 Build Alternative - Alternate Barriers

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



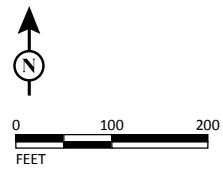
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**LEGEND**

- Modeled Receptors
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*
- Modeled Noise Barriers



SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.

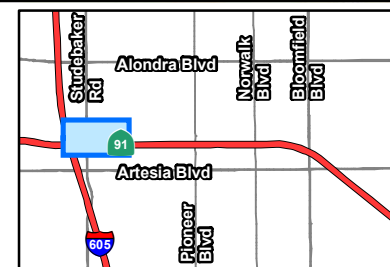


FIGURE 2.13-5

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 Build Alternative - Reduced Barriers

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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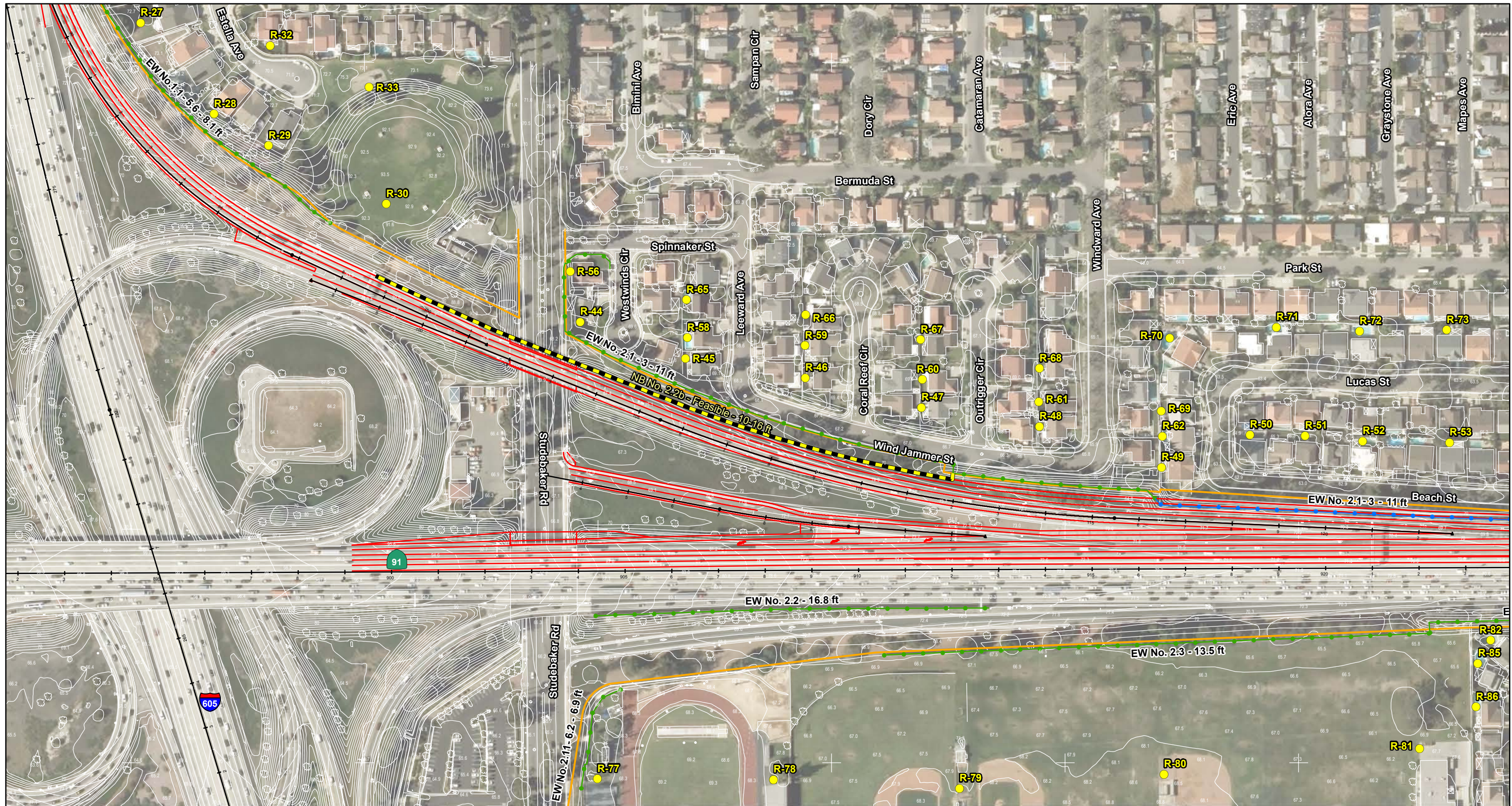
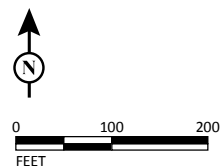


FIGURE 2.13-6

LEGEND

- Modeled Receptors
- Build Alternative
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*
- Modeled Noise Barrier



SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations  
 for the Build Alternative - Noise Barrier No. 2.2b

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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- **NB No. 1.1:** A 1,234 ft long barrier along the private property line on the northbound side of I-605 was analyzed to shield Receptors R-5 through R-7, R-15 and R-16.
- **NB No. 2.1:** A 1,697 ft long barrier along the private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2:** A 1,639 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.1a:** A 991 ft long barrier along the private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2a:** A 932 ft long barrier along the edge of the shoulder and private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2b:** A 1,330 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.3:** A 664 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptor R-77.
- **NB No. 3.1:** A 1,051 ft long barrier along the private property line and State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104 and R-107.
- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123 through R-128.
- **NB No. 3.3:** A 1,122 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104 and R-107.
- **NB No. 4.1:** A 1,671 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-155 and R-177 through R-183.
- **NB No. 4.2:** A 971 ft long barrier along the private property line and State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-221 through R-225, R-229, R-230, and R-234.
- **NB No. 5.1:** A 1,028 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptor R-242.
- **NB No. 5.2:** A 1,078 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-246 through R-249 and R-262.



- **NB No. 5.3:** A 2,008 ft long barrier along the State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-276, R-277, R-279, R-282 through R-284, and R-289.
- **NB No. 6.1:** A 355 ft long barrier along the edge of the shoulder on the eastbound side of SR-91 was analyzed to shield Receptors R-344 through R-347 and R-351.

#### *Design Option 1: Reduced Lane/Shoulder Width*

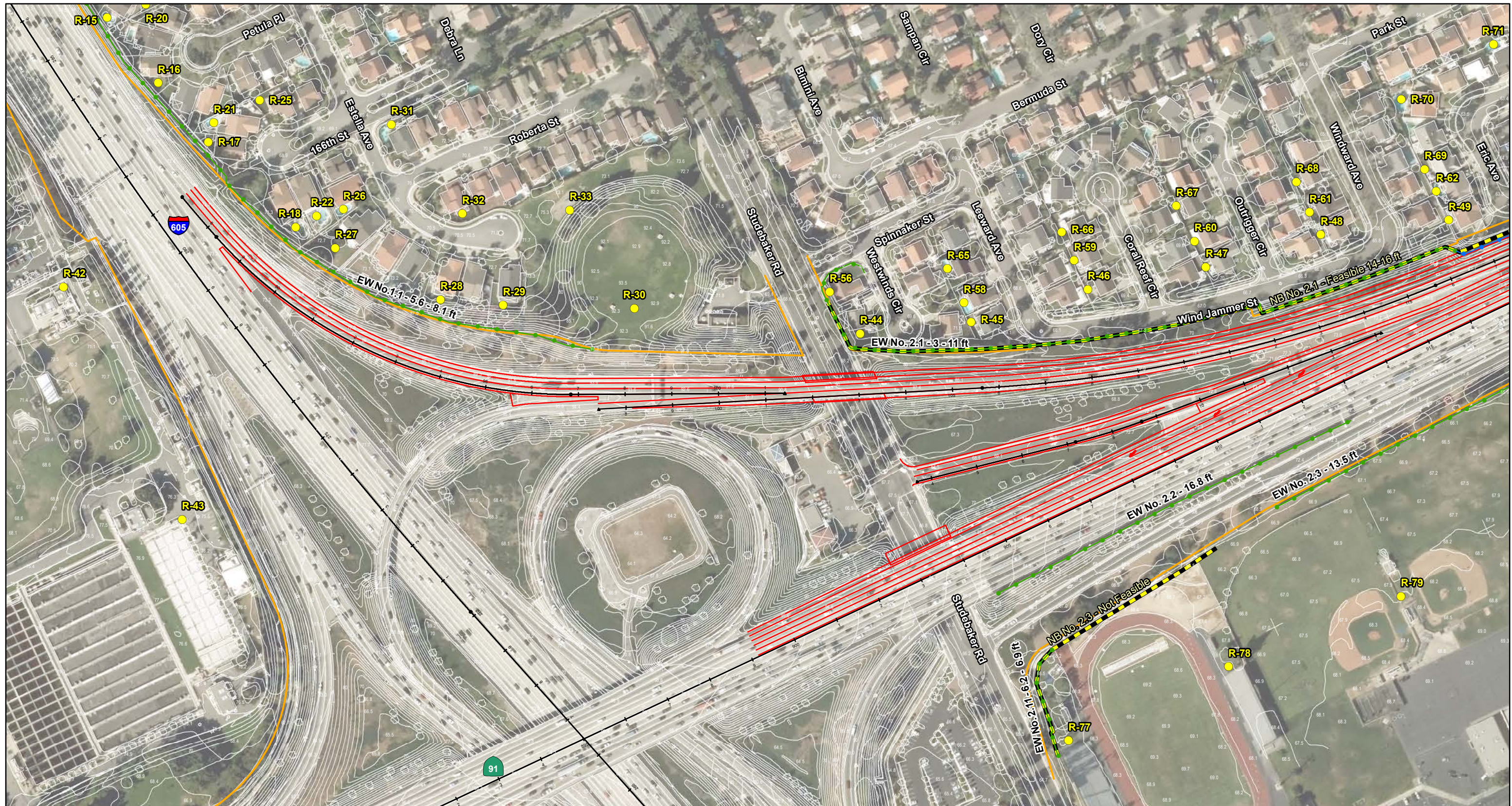
Design Option 1 (Reduced Lane/Shoulder Width) of the Build Alternative proposes non-standard lane and shoulder widths and no HOV lane buffer. Within the project limits, westbound SR-91 would have three 11 ft wide and two 12 ft wide mixed-flow lanes, a 2 ft wide left median shoulder, one 12 ft wide HOV lane with no HOV buffer in between the HOV and mixed-flow lanes, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps. The locations of the modeled noise barriers for Design Option 1 (Reduced Lane/Shoulder Width) are shown on Figure 2.13-7. The locations of the alternate noise barriers (NB Nos. 2.2 and 3.3) for Design Option 1 (Reduced Lane/Shoulder Width) are shown on Figure 2.13-8. The locations of the reduced noise barriers (NB Nos. 2.1a and 2.2a) for Design Option 1 (Reduced Lane/Shoulder Width) are shown on Figure 2.13-9. The location of NB No. 2.2b is shown on Figure 2.13-10. The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC for Design Option 1 (Reduced Lane/Shoulder Width) and are summarized in Tables 2.13.9 through 2.13.11:

- **NB No. 2.1:** A 1,700 ft long barrier along the private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2:** A 1,639 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.1a:** A 991 ft long barrier along the private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2a:** A 936 ft long barrier along the edge of the shoulder and private property line on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.
- **NB No. 2.2b:** A 1,330 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-44, R-47, R-60, and R-67.

- **NB No. 2.3:** A 664 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptor R-77.
- **NB No. 3.1:** A 581 ft long barrier along the private property line and State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104.

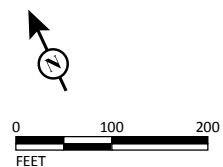
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**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition



SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

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\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



**FIGURE 2.13-7**  
 Sheet 1 of 5

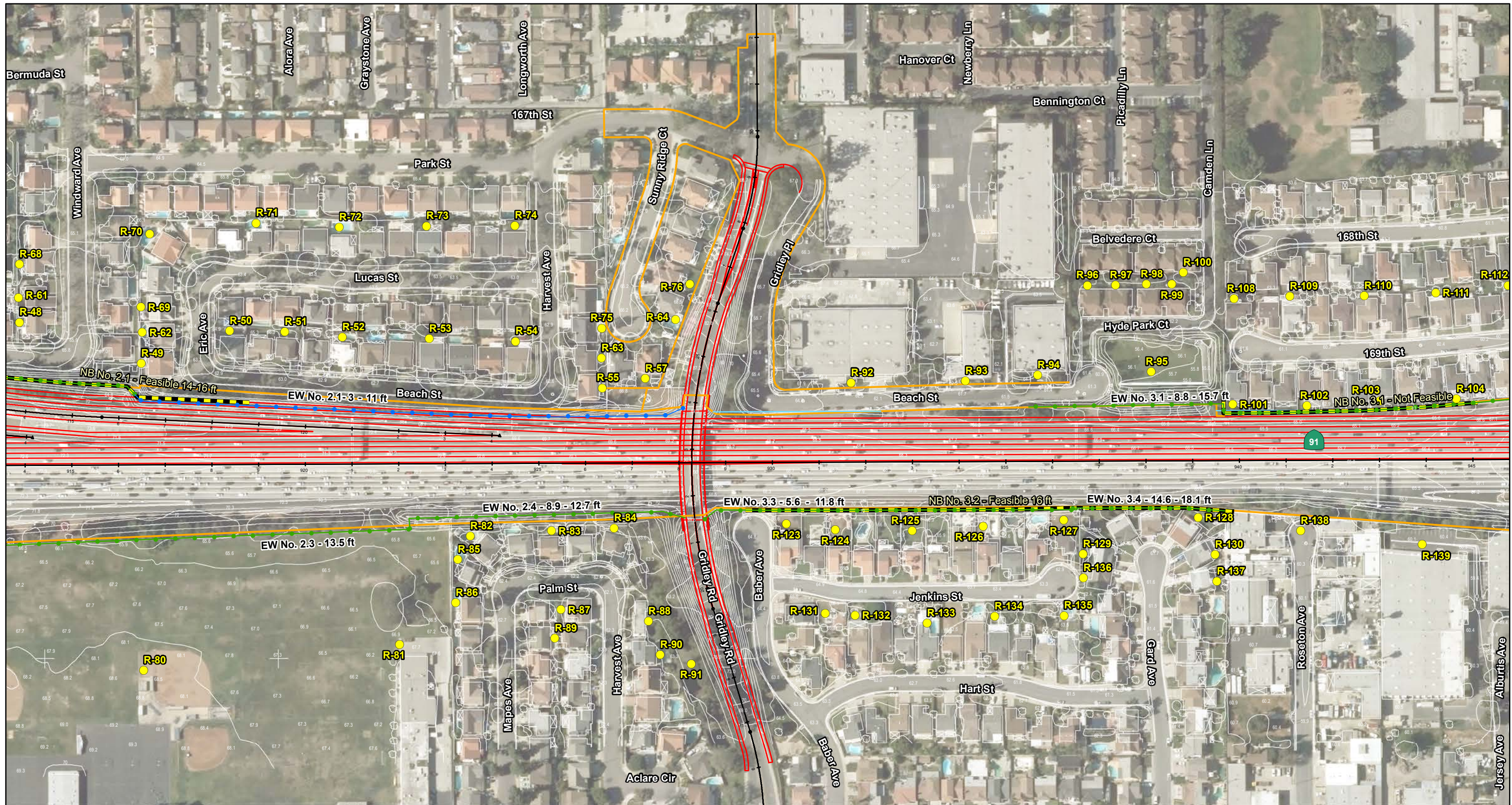
*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Non-Standard Lane and Shoulder Widths Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

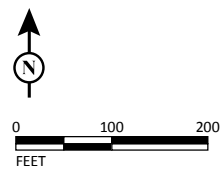
\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-7  
Sheet 2 of 5

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Non-Standard Lane and Shoulder Widths Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



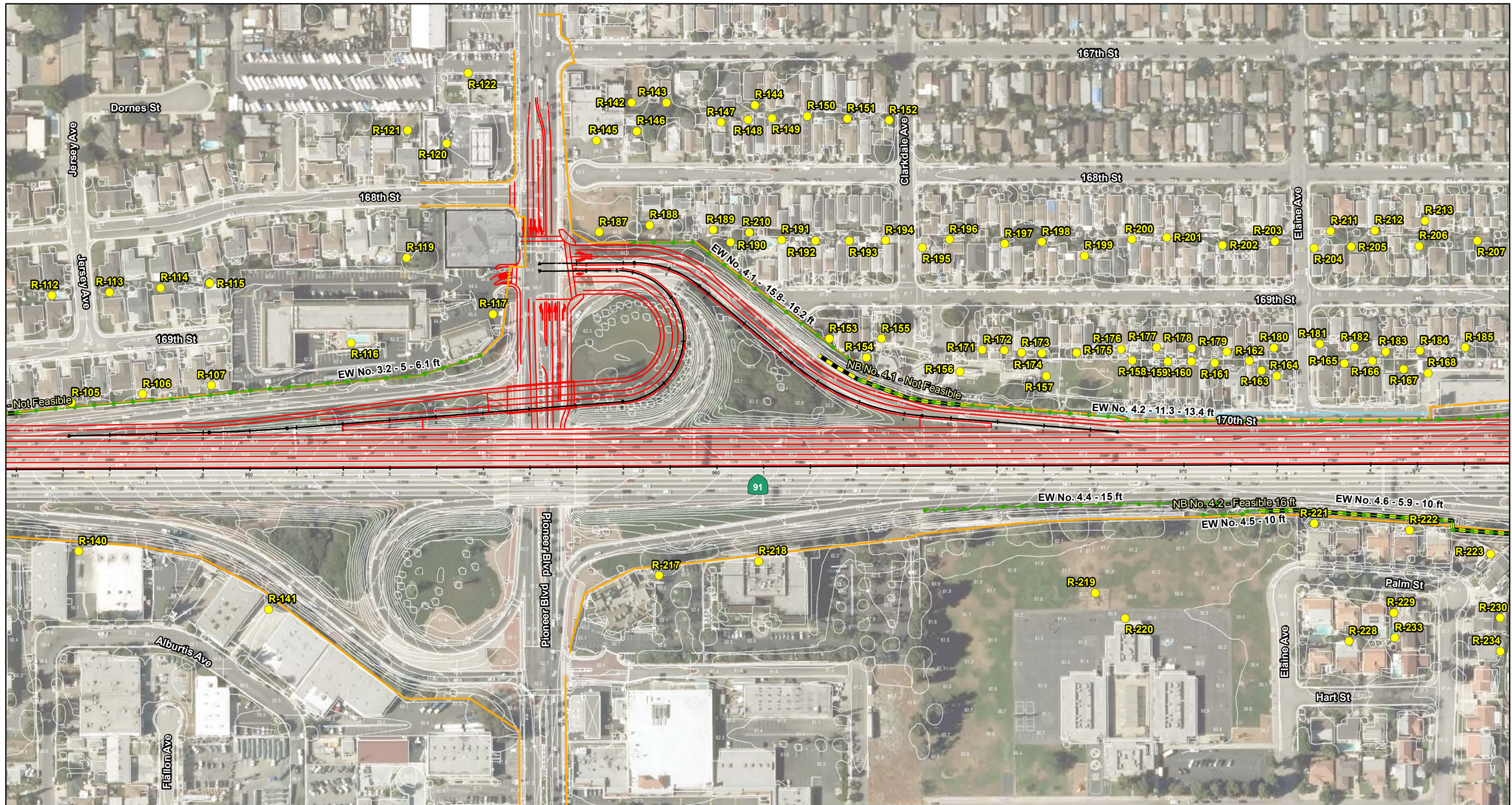
SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

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**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



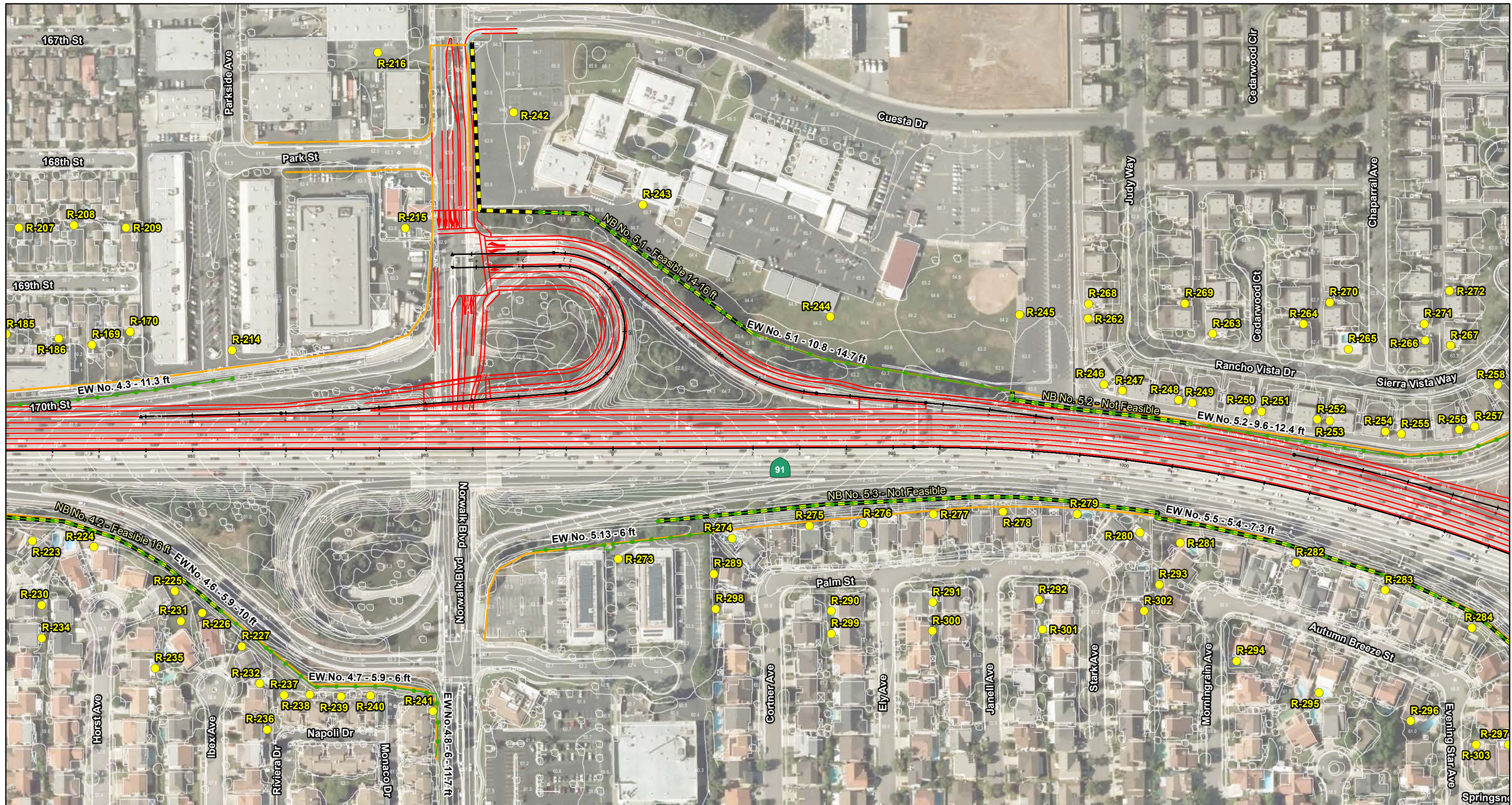
FIGURE 2.13-7  
 Sheet 3 of 5

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Non-Standard Lane and Shoulder Widths Design Option



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**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-7  
Sheet 4 of 5

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Non-Standard Lane and Shoulder Widths Design Option



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**LEGEND**

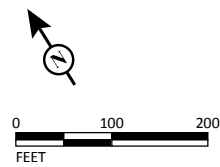
- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-7  
 Sheet 5 of 5

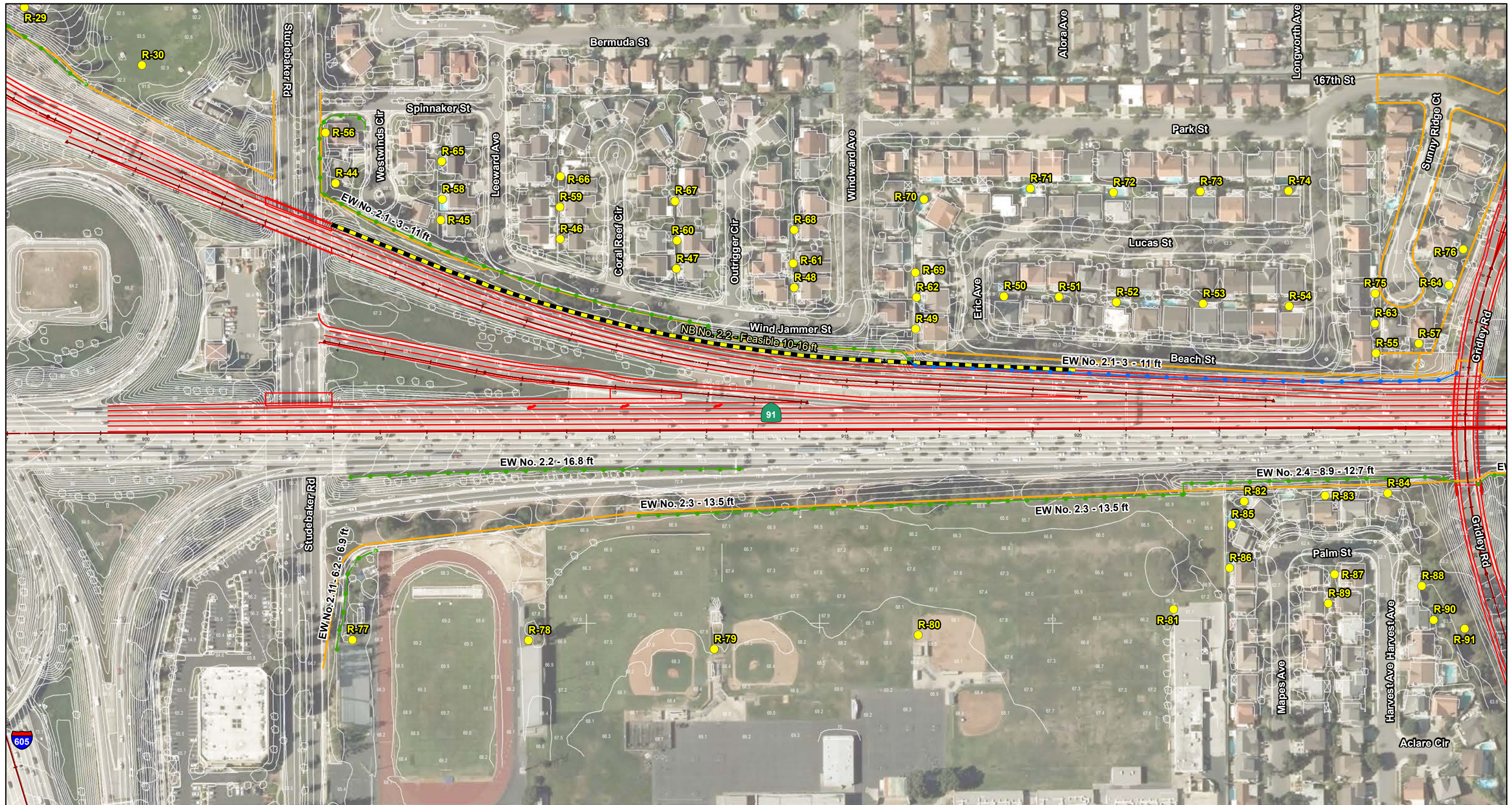
*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Non-Standard Lane and Shoulder Widths Design Option





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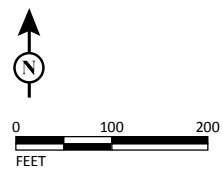
**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-8  
 Sheet 1 of 2  
 Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative with the Non-Standard Land and Shoulder Widths Design Option – Alternate Barriers



SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

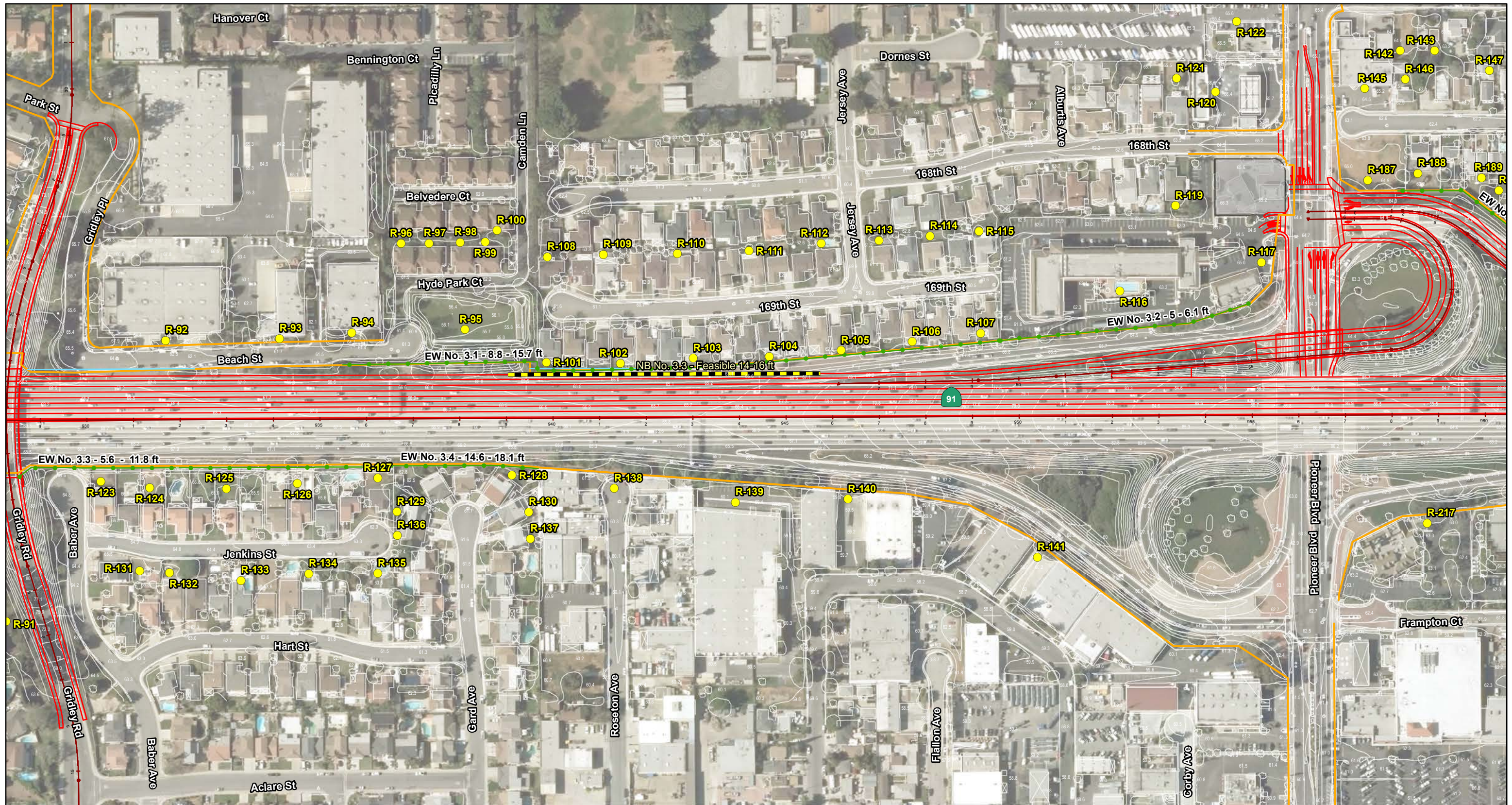
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07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



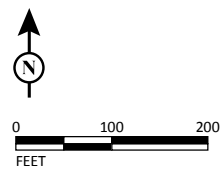
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**LEGEND**

- Modeled Receptors\*
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition



SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

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\*Receptor R-118 is not shown because the property would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.

Modeled Noise Barriers and Receptor Locations for the Build Alternative with the Non-Standard Land and Shoulder Widths Design Option – Alternate Barriers

FIGURE 2.13-8  
 Sheet 2 of 2

Westbound SR-91 Improvement Project

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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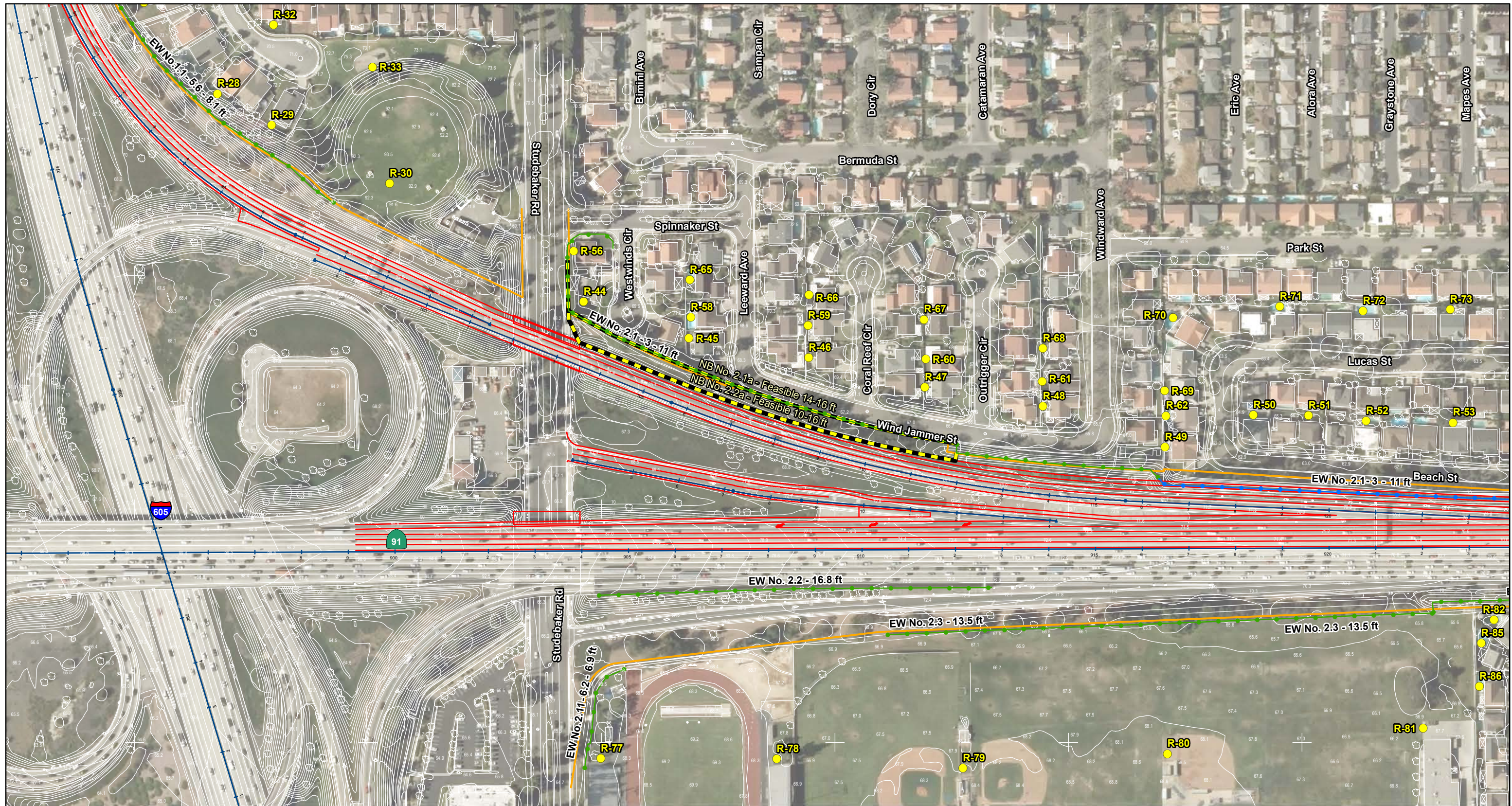


FIGURE 2.13-9

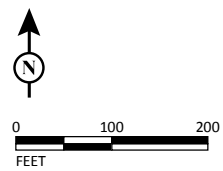
LEGEND

- Modeled Receptors
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*
- Modeled Noise Barriers

\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



Westbound SR-91 Improvement Project  
Modeled Noise Barriers and Receptor Locations for the Build Alternative with the Non-Standard Lane and Shoulder Widths Design Option – Reduced Barriers



SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

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07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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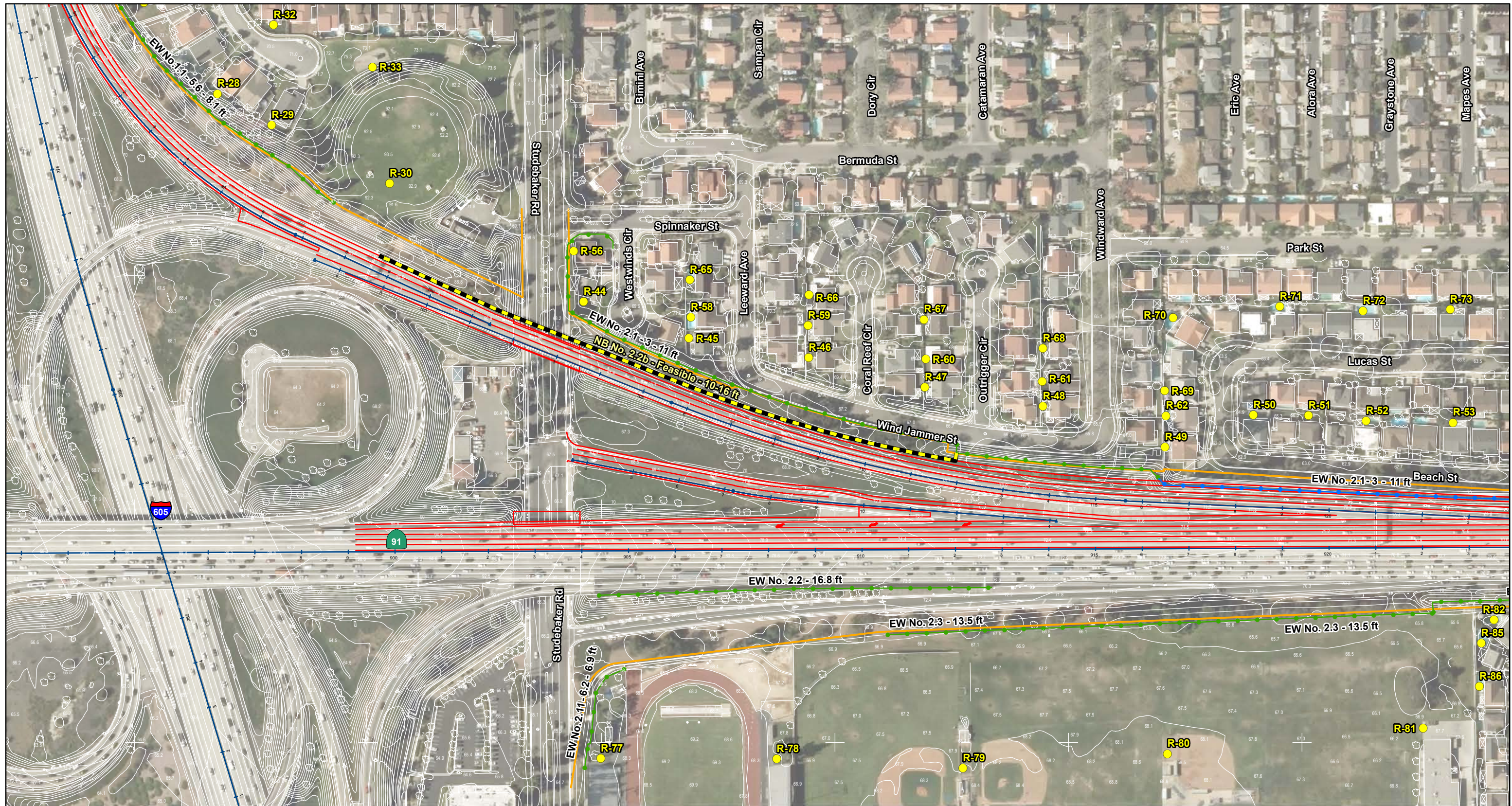


FIGURE 2.13-10

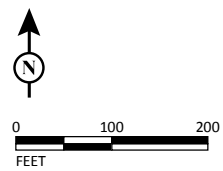
LEGEND

- Modeled Receptors
- Non-Standard Lane and Shoulder Widths Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*
- Modeled Noise Barrier

\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



Westbound SR-91 Improvement Project  
Modeled Noise Barriers and Receptor Location for  
Design Option 1: Reduced Lane/Shoulder Width – Noise Barrier No. 2.2b



SOURCE: Eagle Aerial (4/2014); Michael Baker (12/2017)

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07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0716000284; EA 29811



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- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123 through R-128.
- **NB No. 3.3:** A 670 ft long barrier along the edge of the shoulder on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104.
- **NB No. 4.1:** A 340 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptor R-155.
- **NB No. 4.2:** A 971 ft long barrier along the private property line and the State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-221 through R-225, R-229, R-230, and R-234.
- **NB No. 5.1:** A 1,028 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptor R-242.
- **NB No. 5.2:** A 408 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-246, R-247, and R-262.
- **NB No. 5.3:** A 2,008 ft long barrier along the State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-276, R-277, R-279, R-282 through R-284, and R-289.
- **NB No. 6.1:** A 355 ft long barrier along the edge of the shoulder on the eastbound side of SR-91 was analyzed to shield Receptors R-344 through R-347 and R-351.

#### *Design Option 5: Four-Lane Gridley Road Overcrossing*

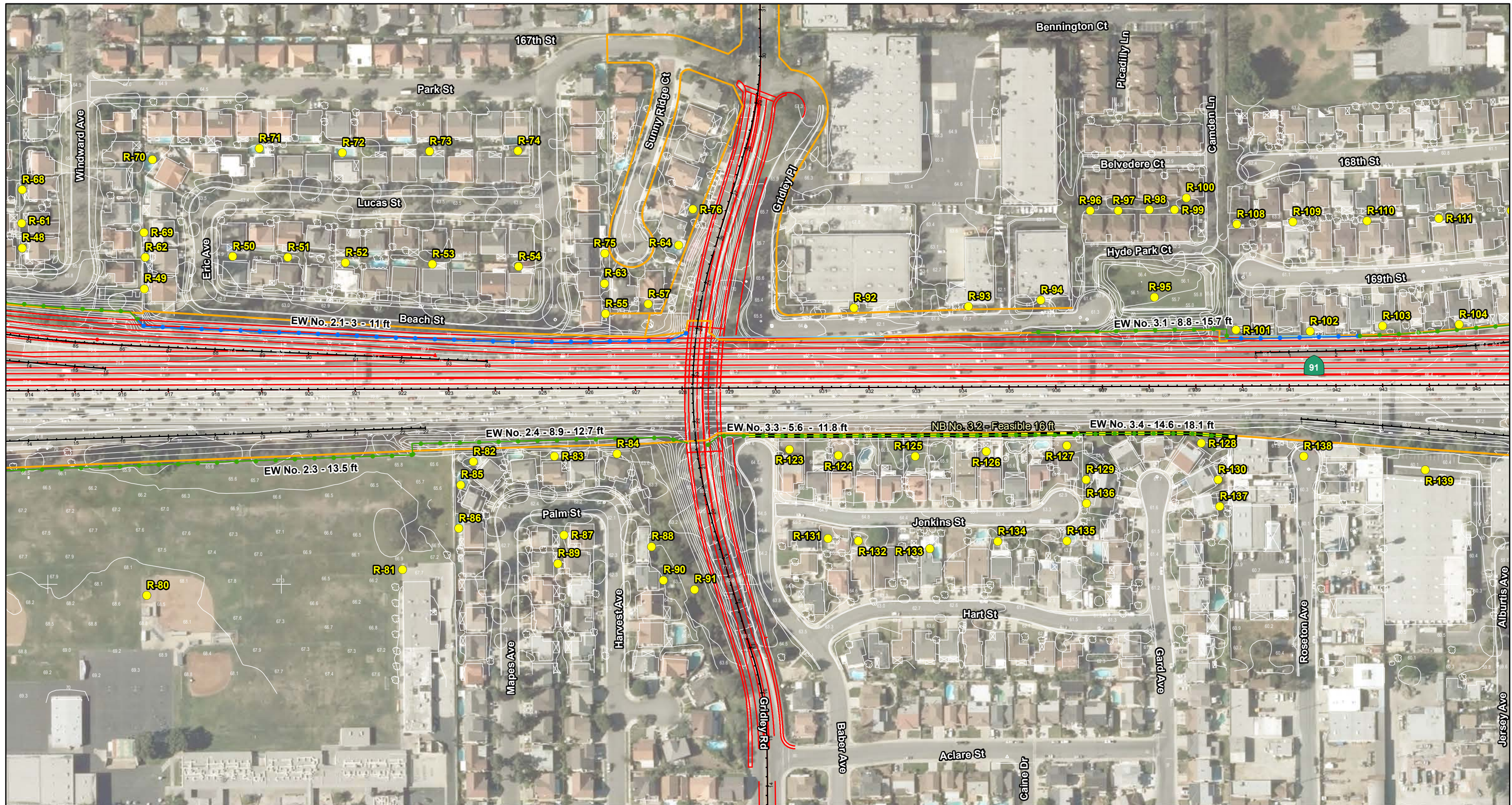
The four-lane Gridley Road Overcrossing structure is a design option request by the City of Cerritos. No additional ROW acquisition would result. The location of the modeled noise barrier for Design Option 5 (Four-Lane Gridley Road Overcrossing) is shown on Figure 2.13-9. The following noise barrier was analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC for Design Option 5 (Four-Lane Gridley Road Overcrossing) and is summarized in Table 2.13.12:

- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123, R-124, and R-126 through R-128.



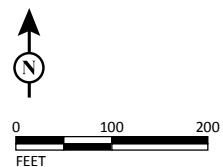
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**LEGEND**

- Modeled Receptors
- Four-Lane Gridley Road Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*
- Modeled Noise Barriers



SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-11

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build Alternative  
 with the Four-Lane Gridley Road Overcrossing Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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### *Design Option 2: Pioneer Boulevard L-9*

Design Option 2 (Pioneer Boulevard L-9) of the Build Alternative proposes a Type L-9 westbound ramp configuration at the Pioneer Boulevard interchange, which is the same configuration as the existing condition. However, the two westbound on-ramps would be squared up in relation to Pioneer Boulevard. The locations of the modeled noise barriers for Design Option 2 (Pioneer Boulevard L-9) is shown on Figure 2.13-12. The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC for Design Option 2 (Pioneer Boulevard L-9) and are summarized in Table 2.13.13.

- **NB No. 3.1:** A 1,051 ft long barrier along the private property line and State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104 and R-107.
- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123, R-124, and R-126 through R-128.
- **NB No. 4.1:** A 1,671 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-155 and R-177 through R-183.

### *Design Option 3: Pioneer Boulevard Westbound Ramps/168th Alignment*

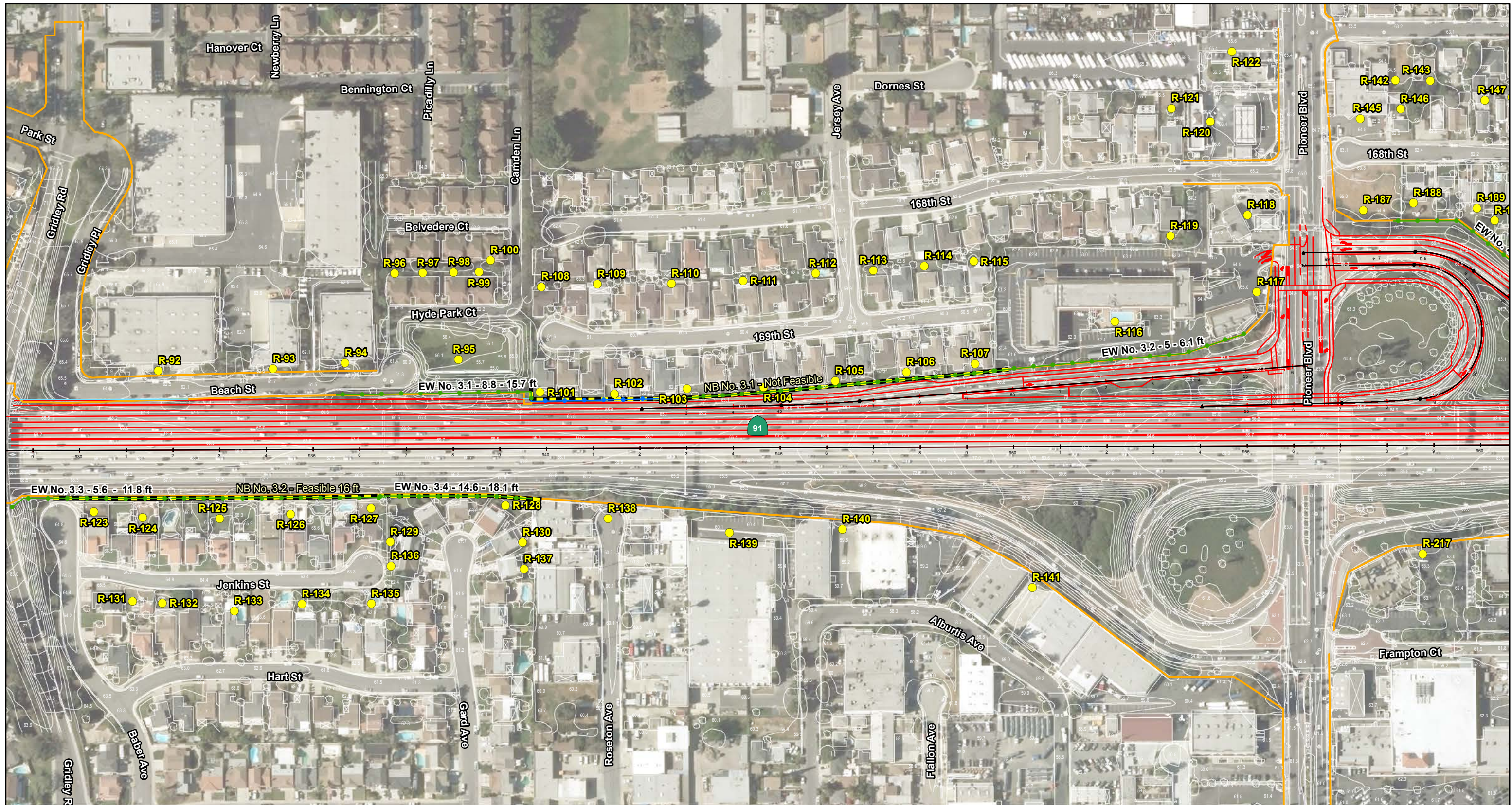
Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) of the Build Alternative proposes to align the SR-91 westbound ramps with 168th Street in Artesia, creating a four-legged intersection with Pioneer Boulevard as the north-south legs, the westbound ramps being the east leg, and 168th Street being the west leg. This option requires additional ROW acquisition of six properties within Artesia and demolition and replacement of the western portion of EW No. 4.1, which is shown on Figure 2.13-13. The noise level reduction provided by the replacement of EW No. 4.1 is shown in Table 2.13.17. The locations of the modeled noise barriers for Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) are shown on Figure 2.13-13. The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC for Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment) and are summarized in Table 2.13.14:

- **NB No. 3.1:** A 1,051 ft long barrier along the private property line and State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104 and R-107.



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**LEGEND**

- Modeled Receptors\*
- Pioneer Boulevard L-9 Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-12  
 Sheet 1 of 2

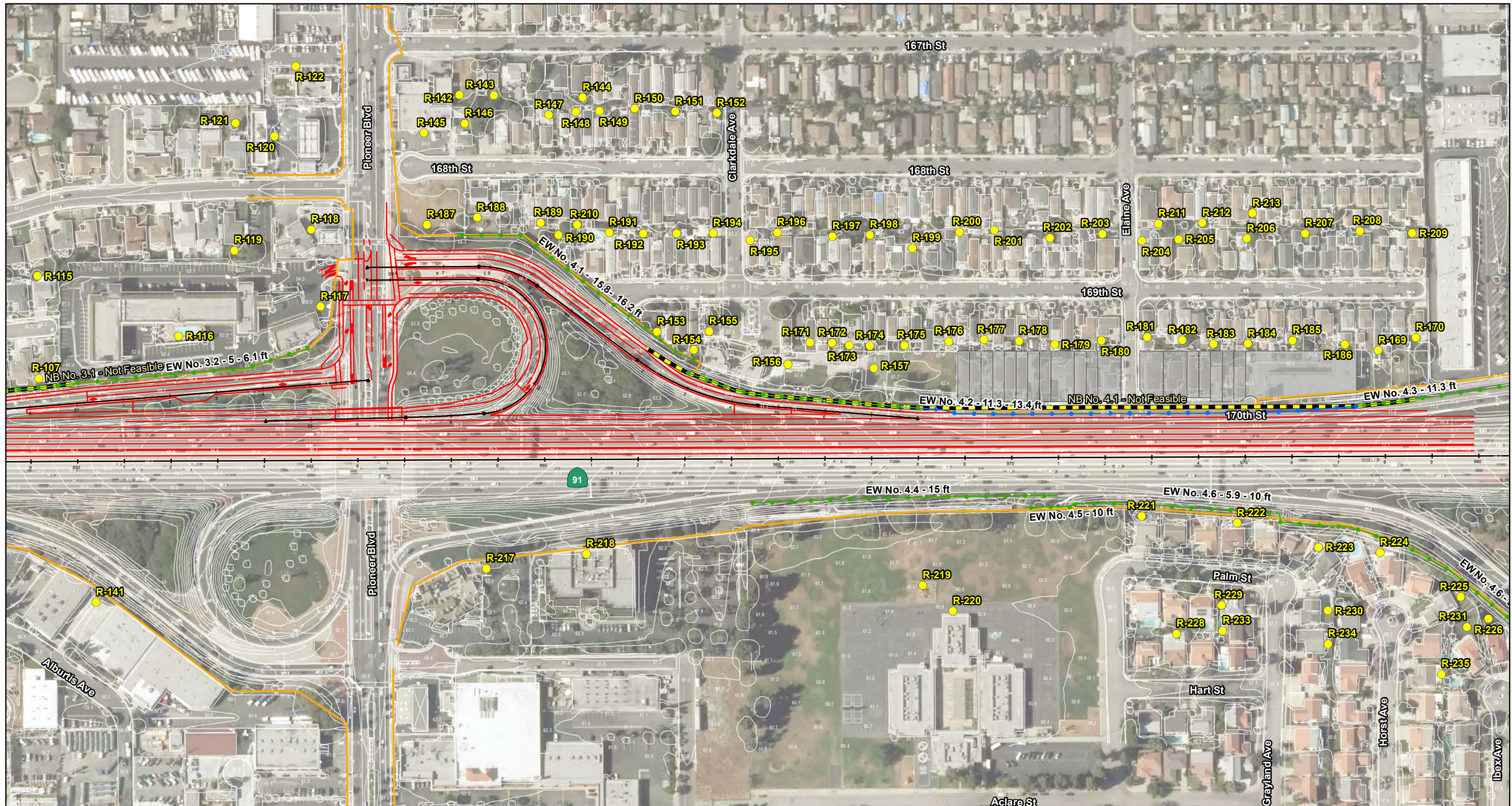
*Westbound SR-91 Improvement Project*  
**Modeled Noise Barriers and Receptor Locations for the Build Alternative with the Pioneer Boulevard L-9 Design Option**

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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**LEGEND**

- Modeled Receptors\*
- Pioneer Boulevard L-9 Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-12  
 Sheet 2 of 2

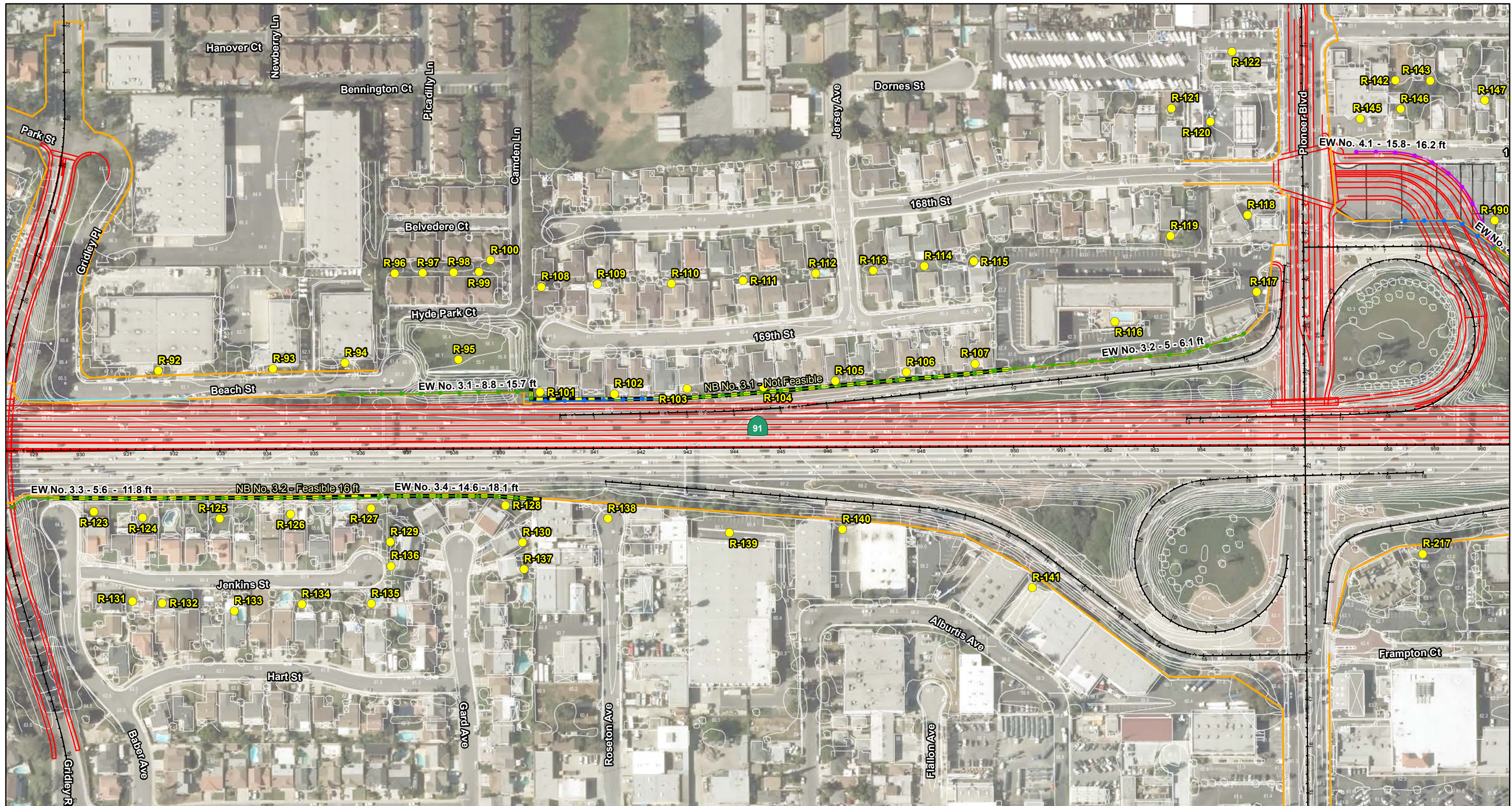
*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the Build  
 Alternative with the Pioneer Boulevard L-9 Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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LEGEND

- Modeled Receptors\*
- Pioneer Boulevard Westbound Ramps/168th Alignment Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Existing Wall (Replace)\*\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-158 through R-168 and R-187 through R-189 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.  
 \*\*\*Replacement location for EW No. 4.1.

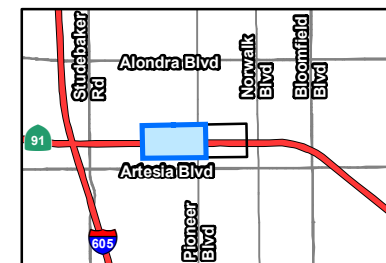


FIGURE 2.13-13

Sheet 1 of 2

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations for  
 the Build Alternative with the Pioneer Boulevard  
 Westbound Ramps/168th Alignment Design Option

07-LA-91

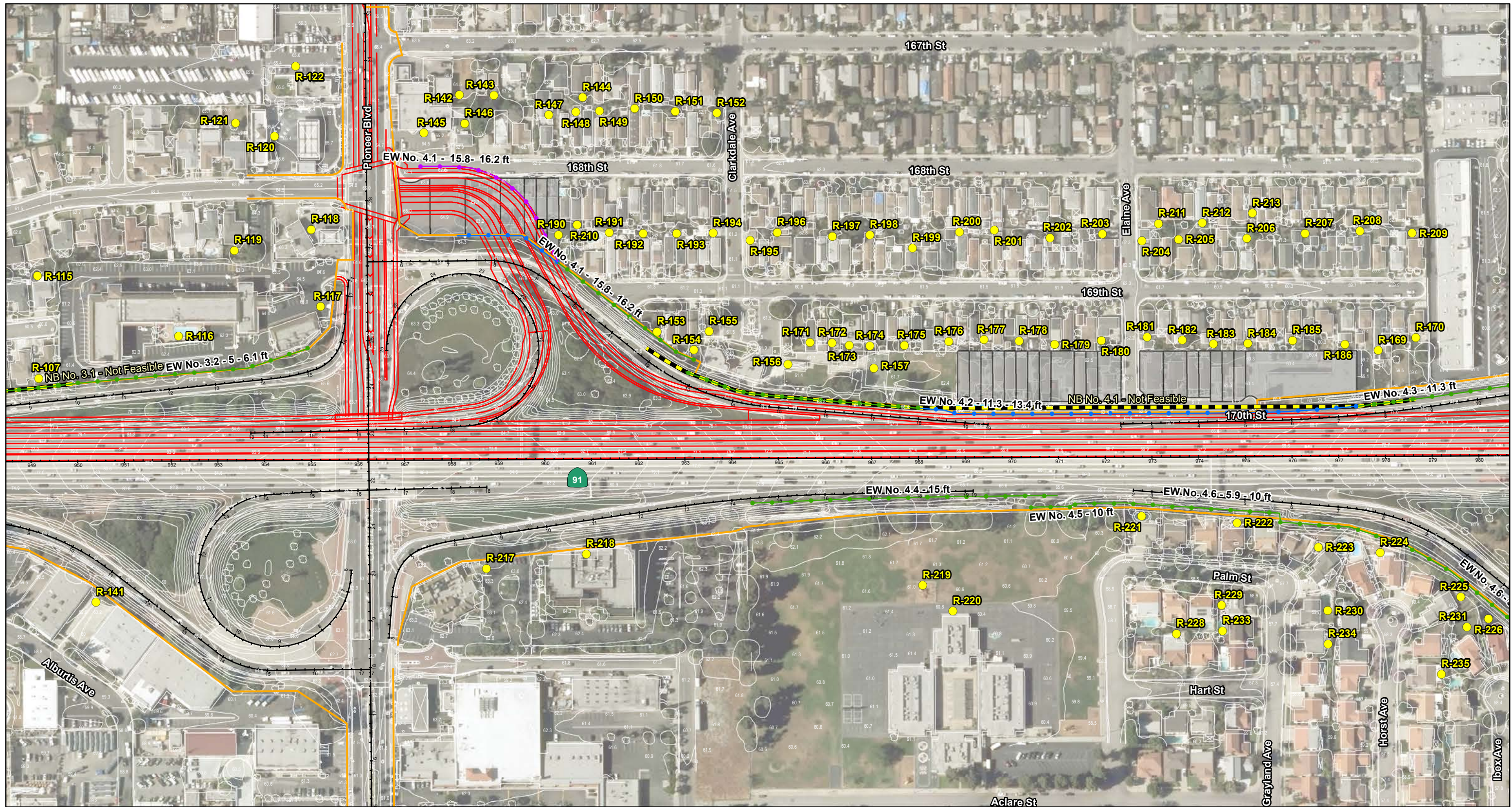
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0716000284; EA 29811



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**LEGEND**

- Modeled Receptors\*
- Pioneer Boulevard Westbound Ramps/168th Alignment Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Existing Wall (Replace)\*\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-158 through R-168 and R-187 through R-189 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.  
 \*\*\*Replacement location for EW No. 4.1.

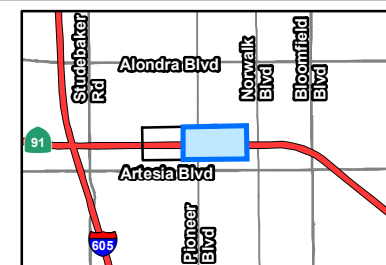


FIGURE 2.13-13  
 Sheet 2 of 2

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for  
 the Build Alternative with the Pioneer Boulevard  
 Westbound Ramps/168th Alignment Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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**Table 2.13.17 Change in Noise Level from the Replacement of EW No. 4.1 for Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use         | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |   |  |                       |
|--------------|--------------------------------|-------------------|-------------------|------------------|-------------------------|---|---|---|--|-----------------------|
|              |                                |                   |                   |                  |                         |   | 2044 Noise Level  |   |  |                       |
|              |                                |                   |                   |                  |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project without Replacement of EW No. 4.1, dBA L <sub>eq</sub> | With Project with Replacement of EW No. 4.1, dBA L <sub>eq</sub> | Change in Noise Level |
| R-142        | EW No. 4.1                     |                   | 167th Street      | Vacant Land      | 0                       | 56  | 57  | 58  | 57   | 1                     |
| R-143        | EW No. 4.1                     |                   | 167th Street      | Residential      | 3                       | 57  | 57 <sup>2</sup>   | 59  | 56   | 3                     |
| R-144        | EW No. 4.1                     |                   | 167th Street      | Residential      | 2                       | 56  | 57  | 59  | 57   | 2                     |
| R-145        | EW No. 4.1                     |                   | Pioneer Boulevard | Light Industrial | 0                       | 61  | 61  | 63  | 63   | 0                     |
| R-146        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 59  | 58   | 1                     |
| R-147        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 59  | 58   | 1                     |
| R-148        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 59  | 56   | 3                     |
| R-149        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 58  | 56   | 2                     |
| R-150        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 58  | 56   | 2                     |
| R-151        | EW No. 4.1                     |                   | 168th Street      | Residential      | 3                       | 56  | 56  | 57  | 56   | 1                     |
| R-152        | EW No. 4.1                     |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 57  | 57   | 0                     |
| R-153        | EW No. 4.1                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 60  | 61  | 62  | 62   | 0                     |
| R-154        | EW No. 4.1                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 61  | 62  | 63  | 63   | 0                     |
| R-155        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Playground       | 1                       | 65  | 65  | 66  | 66   | 0                     |
| R-156        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Community Center | 1                       | 66 / 46 <sup>3</sup>                          | 67 / 47 <sup>3</sup>                                    | 68 / 48 <sup>3</sup>  | 68 / 48 <sup>3</sup>   | 0                     |
| R-157        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Playground       | 1                       | 64  | 65  | 65  | 65   | 0                     |
| R-158        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 65  | 65  | NA  | NA   | NA                    |
| R-159        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 60  | 60  | NA  | NA   | NA                    |
| R-160        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 59  | 59  | NA  | NA   | NA                    |
| R-161        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 58  | 58  | NA  | NA   | NA                    |
| R-162        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 62  | 63  | NA  | NA   | NA                    |
| R-163        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 1                       | 62  | 62  | NA  | NA   | NA                    |
| R-164        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 1                       | 63  | 64  | NA  | NA   | NA                    |
| R-165        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 1                       | 64  | 65  | NA  | NA   | NA                    |
| R-166        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 64  | 65  | NA  | NA   | NA                    |
| R-167        | EW No. 4.2*                    |                   | 170th Street      | Residential      | 2                       | 64  | 64  | NA  | NA   | NA                    |
| R-168        | EW No. 4.2*                    |                   | 170th Street      | Light Industrial | 0                       | 61  | 61  | NA  | NA   | NA                    |
| R-169        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 61  | 62  | 63  | 63   | 0                     |
| R-170        | EW No. 4.3                     | NB No. 4.1        | 169th Street      | Residential      | 1                       | 61  | 61  | 62  | 62   | 0                     |
| R-171        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 63  | 63  | 64  | 64   | 0                     |
| R-172        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Residential      | 1                       | 63  | 63  | 64  | 64   | 0                     |
| R-173        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Day Care Center  | 1                       | 63 / 43 <sup>3</sup>                          | 64 / 44 <sup>3</sup>                                    | 64 / 44 <sup>3</sup>  | 64 / 44 <sup>3</sup>   | 0                     |
| R-174        | EW No. 4.2                     | NB No. 4.1        | 169th Street      | Residential      | 2                       | 63  | 63  | 64  | 64   | 0                     |
| R-175        | EW No. 4.2*                    | NB No. 4.1        | 169th Street      | Residential      | 3                       | 63  | 63  | 64  | 64   | 0                     |

**Table 2.13.17 Change in Noise Level from the Replacement of EW No. 4.1 for Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location     | Land Use    | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |   |  |                       |
|--------------|--------------------------------|-------------------|--------------|-------------|-------------------------|---|---|---|--|-----------------------|
|              |                                |                   |              |             |                         |   | 2044 Noise Level  |   |  |                       |
|              |                                |                   |              |             |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project without Replacement of EW No. 4.1, dBA L <sub>eq</sub> | With Project with Replacement of EW No. 4.1, dBA L <sub>eq</sub> | Change in Noise Level |
| R-176        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 64  | 64   | 0                     |
| R-177        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 63  | 63  | 67  | 67   | 0                     |
| R-178        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 67  | 67   | 0                     |
| R-179        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 63  | 63  | 67  | 67   | 0                     |
| R-180        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 64  | 64  | 67  | 67   | 0                     |
| R-181        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 64  | 65  | 67  | 67   | 0                     |
| R-182        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 64  | 65  | 67  | 67   | 0                     |
| R-183        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 65  | 65  | 67  | 67   | 0                     |
| R-184        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 61  | 61  | 64  | 64   | 0                     |
| R-185        | EW No. 4.3*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 60  | 60  | 64  | 64   | 0                     |
| R-186        | EW No. 4.3*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 60  | 60  | 64  | 64   | 0                     |
| R-187        |                                |                   | 168th Street | Vacant Land | 0                       | 65  | 65  | NA  | NA   | NA                    |
| R-188        | EW No. 4.1                     |                   | 168th Street | Residential | 2                       | 59  | 59  | NA  | NA   | NA                    |
| R-189        | EW No. 4.1                     |                   | 168th Street | Residential | 3                       | 55  | 56  | NA  | NA   | NA                    |
| R-190        | EW No. 4.1                     |                   | 169th Street | Residential | 1                       | 55  | 56  | 63  | 56   | 7                     |
| R-191        | EW No. 4.1                     |                   | 169th Street | Residential | 2                       | 56  | 57  | 59  | 58   | 1                     |
| R-192        | EW No. 4.1                     | NB No. 4.1        | 169th Street | Residential | 3                       | 57  | 58  | 59  | 58   | 1                     |
| R-193        | EW No. 4.1                     | NB No. 4.1        | 169th Street | Residential | 3                       | 58  | 58  | 59  | 59   | 0                     |
| R-194        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential | 2                       | 58  | 58  | 59  | 59   | 0                     |
| R-195        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential | 2                       | 62  | 62  | 63  | 62   | 1                     |
| R-196        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential | 2                       | 61  | 61  | 62  | 62   | 0                     |
| R-197        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential | 3                       | 61  | 61  | 62  | 61   | 1                     |
| R-198        | EW No. 4.2                     | NB No. 4.1        | 169th Street | Residential | 3                       | 60  | 60  | 61  | 61   | 0                     |
| R-199        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 59  | 59  | 60  | 59   | 1                     |
| R-200        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 64  | 64   | 0                     |
| R-201        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 64  | 64   | 0                     |
| R-202        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 63  | 63   | 0                     |
| R-203        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 62  | 63  | 64  | 64   | 0                     |
| R-204        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 2                       | 63  | 63  | 64  | 64   | 0                     |
| R-205        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 62  | 63  | 64  | 64   | 0                     |
| R-206        | EW No. 4.2*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 63  | 64  | 65  | 65   | 0                     |
| R-207        | EW No. 4.3*                    | NB No. 4.1        | 169th Street | Residential | 3                       | 60  | 60  | 61  | 61   | 0                     |
| R-208        | EW No. 4.3                     | NB No. 4.1        | 169th Street | Residential | 3                       | 60  | 61  | 61  | 61   | 0                     |
| R-209        | EW No. 4.3                     | NB No. 4.1        | 169th Street | Residential | 2                       | 61  | 61  | 61  | 61   | 0                     |

**Table 2.13.17 Change in Noise Level from the Replacement of EW No. 4.1 for Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)**

| Receptor No. | Existing Wall No. <sup>1</sup> | Noise Barrier No. | Location          | Land Use         | No. of Receptors/ Units | Existing Noise Level, dBA L <sub>eq</sub> (h) | Future Worst-Hour Noise Levels, dBA L <sub>eq</sub> (h) |   |  |                       |
|--------------|--------------------------------|-------------------|-------------------|------------------|-------------------------|---|---|---|--|-----------------------|
|              |                                |                   |                   |                  |                         |   | 2044 Noise Level  |   |  |                       |
|              |                                |                   |                   |                  |                         |   | Without Project, dBA L <sub>eq</sub>                    | With Project without Replacement of EW No. 4.1, dBA L <sub>eq</sub> | With Project with Replacement of EW No. 4.1, dBA L <sub>eq</sub> | Change in Noise Level |
| R-210        | EW No.4.1                      |                   | 168th Street      | Residential      | 2                       | 56  | 56  | 61  | 57   | 4                     |
| R-211        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 2                       | 62  | 63  | 64  | 64   | 0                     |
| R-212        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                       | 63  | 63  | 64  | 64   | 0                     |
| R-213        | EW No. 4.2*                    | NB No. 4.1        | 168th Street      | Residential      | 3                       | 64  | 64  | 65  | 65   | 0                     |
| R-214        | EW No. 4.3                     |                   | Park Street       | Light Industrial | 0                       | 66  | 66  | 66  | 66   | 0                     |
| R-215        |                                |                   | Norwalk Boulevard | Gas Station      | 0                       | 69  | 69  | 69  | 69   | 0                     |
| R-216        |                                |                   | Norwalk Boulevard | Light Industrial | 0                       | 63  | 63  | 63  | 63   | 0                     |

Source: Compiled by LSA Associates, Inc. (2018).

<sup>1</sup> An \* represents an existing wall that would be demolished as part of the project. The existing wall would be reconstructed to match the existing height at a minimum.

<sup>2</sup> Numbers in **bold** represent noise levels that approach or exceed the NAC.

<sup>3</sup> The exterior-to-interior noise level reduction was assumed to be 20 dBA lower because the building type is light frame with ordinary windows.

dBA = A-weighted decibels

NAC = Noise Abatement Criteria



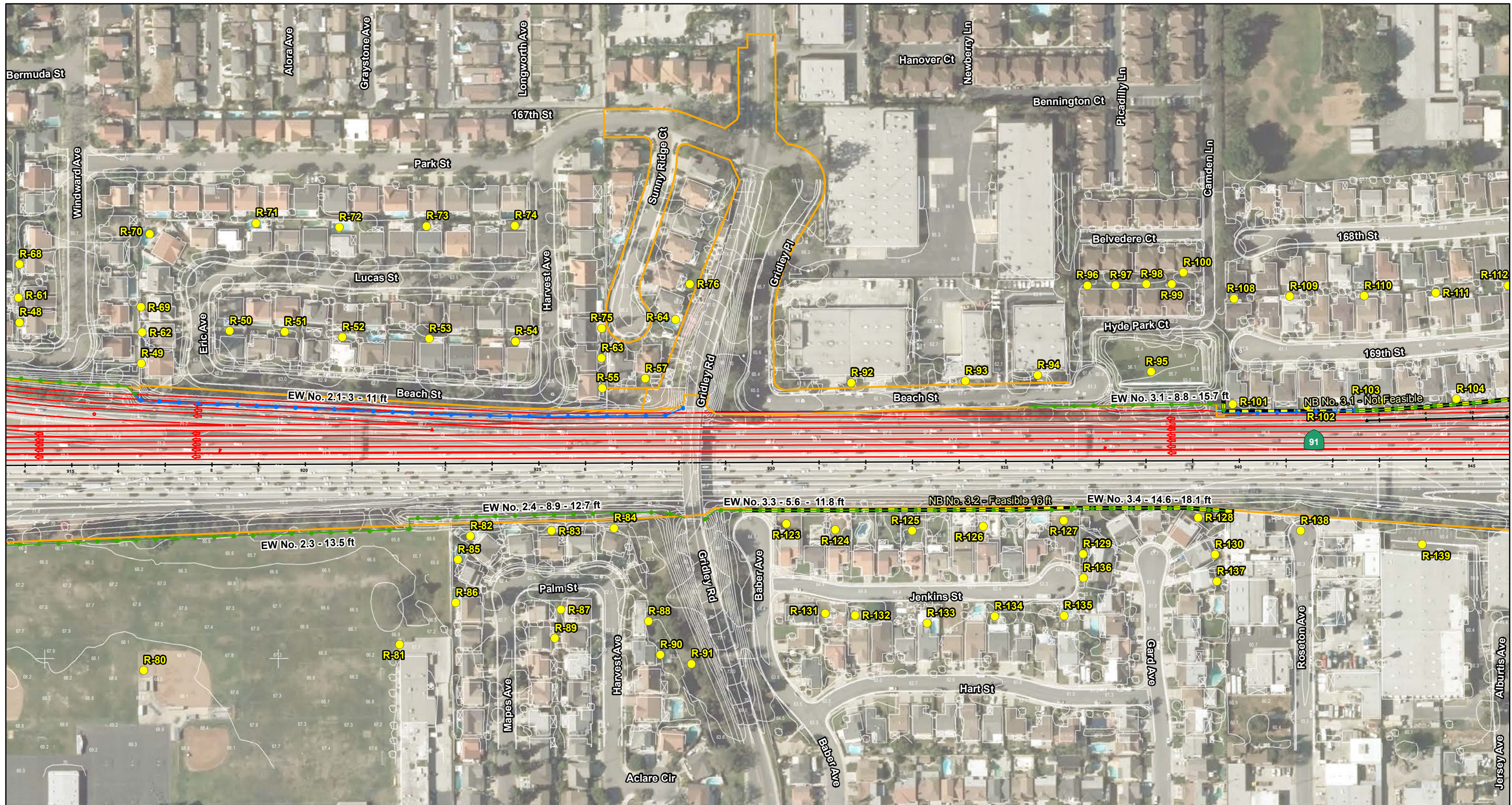
- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123, R-124, and R-126 through R-128.
- **NB No. 4.1:** A 1,671 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-155 and R-177 through R-183.

#### *Design Option 4: Diamond Ramps*

Design Option 4 (Diamond Ramps) of the Build Alternative proposes diamond configuration ramps at westbound Pioneer Boulevard and Norwalk Boulevard interchanges. The locations of the modeled noise barriers for Design Option 4 (Diamond Ramps) are shown on Figure 2.13-14. The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the NAC for Design Option 4 (Diamond Ramps) and are summarized in Table 2.13.15:

- **NB No. 3.1:** A 1,051 ft long barrier along the private property line and State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-101 through R-104 and R-107.
- **NB No. 3.2:** A 1,047 ft long barrier along the private property line on the eastbound side of SR-91 was analyzed to shield Receptors R-123, R-124, and R-126 through R-128.
- **NB No. 4.1:** A 1,667 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-155 and R-177 through R-183.
- **NB No. 4.2:** A 971 ft long barrier along the private property line and State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-221 through R-225, R-229, R-230, and R-234.
- **NB No. 5.1:** A 1,028 ft long barrier along the State ROW on the eastbound side of SR-91 was analyzed to shield Receptor R-234.
- **NB No. 5.2:** A 359 ft long barrier along the State ROW on the westbound side of SR-91 was analyzed to shield Receptors R-246, R-247, and R-262.
- **NB No. 5.3:** A 2,008 ft long barrier along the State ROW on the eastbound side of SR-91 was analyzed to shield Receptors R-276, R-277, R-279, R-282 through R-284, and R-289.





**LEGEND**

- Modeled Receptors\*
- Diamond Ramps Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-14  
 Sheet 1 of 4

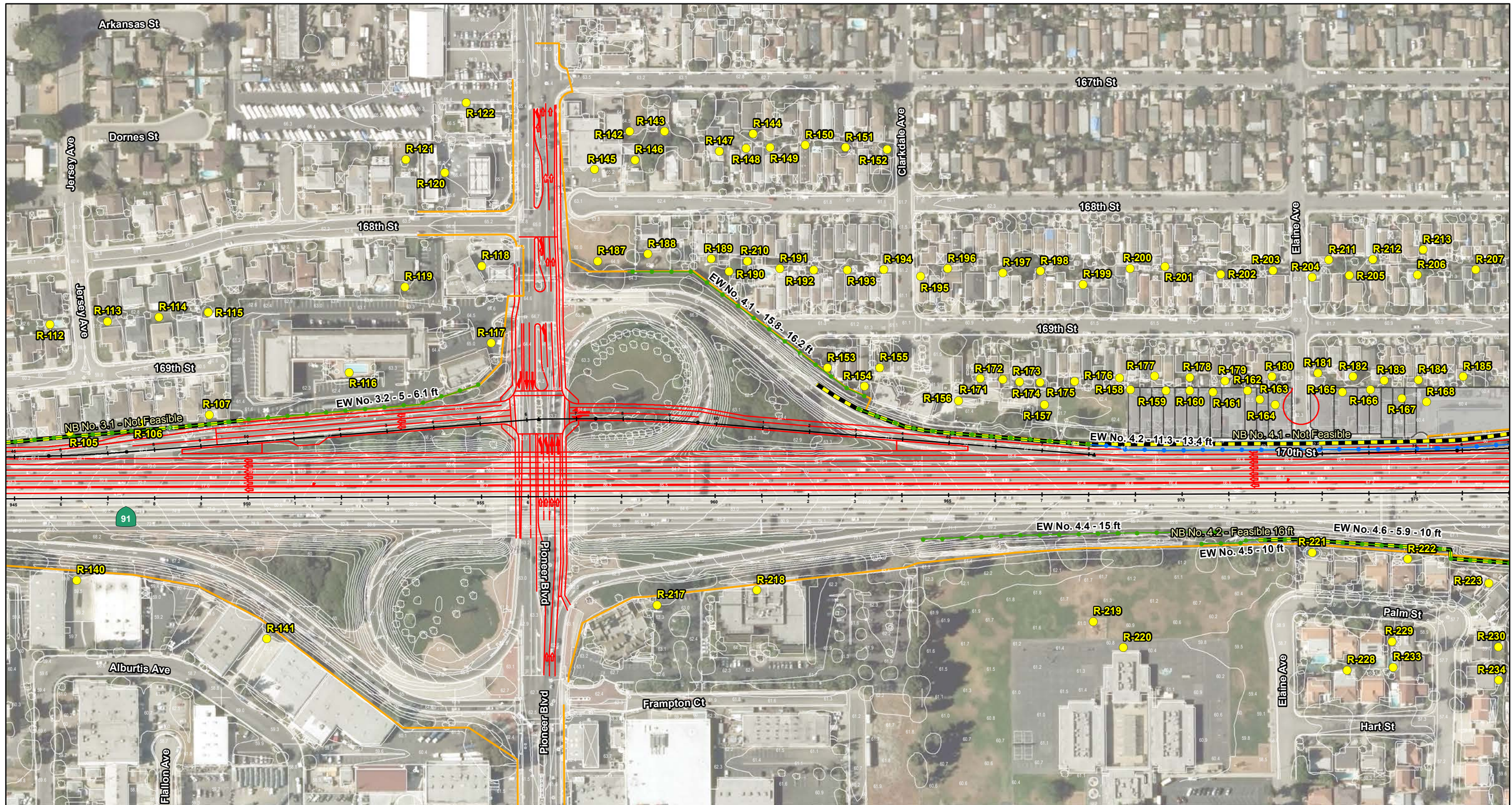
Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations for the  
 Build Alternative with the Diamond Ramps Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



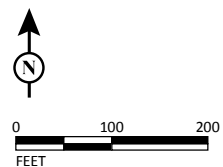
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**LEGEND**

- Modeled Receptors\*
- Diamond Ramps Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition



\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-14  
 Sheet 2 of 4

*Westbound SR-91 Improvement Project*  
 Modeled Noise Barriers and Receptor Locations for the  
 Build Alternative with the Diamond Ramps Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



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LEGEND

- Modeled Receptors\*
- Diamond Ramps Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

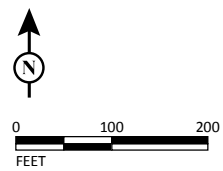
\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-14  
 Sheet 3 of 4

Westbound SR-91 Improvement Project  
 Modeled Noise Barriers and Receptor Locations for the  
 Build Alternative with the Diamond Ramps Design Option

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811



SOURCE: Eagle Aerial (4/2014); Michael Baker (9/2017)

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**LEGEND**

- Modeled Receptors\*
- Diamond Ramps Design Option
- Existing Right-of-Way
- Proposed Right-Of-Way
- Existing Wall
- Existing Wall (Demolish)\*\*
- Modeled Noise Barriers
- Acquisition

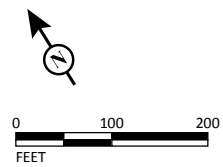
\*Receptors R-158 through R-168 are not shown because the properties would be acquired.  
 \*\*The existing wall would be demolished as part of the project and replaced at the new location at a minimum.



FIGURE 2.13-14  
 Sheet 4 of 4

*Westbound SR-91 Improvement Project*  
**Modeled Noise Barriers and Receptor Locations for the Build Alternative with the Diamond Ramps Design Option**

07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
 EFIS 0716000284; EA 29811





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### **Feasibility and Reasonable Allowance**

Section 3 of the Noise Protocol states that a minimum noise reduction of 5 dBA must be achieved at the impacted receptors in order for the proposed noise abatement measure to be considered feasible. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may also be restricted by the following factors: (1) topography, (2) access requirements for driveways, (3) the presence of local cross-streets, (4) underground utilities, (5) other noise sources in the area, and (6) safety considerations.

Tables 2.13.18 through 2.13.23 summarize the feasibility of the modeled noise barriers and list the noise barrier heights, the approximate lengths, the noise attenuation range, the number of benefited units/receptors, and the total reasonable allowance. Table 2.13.18 summarizes those factors under the Build Alternative. Table 2.13.19 summarizes those factors under the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width). Table 2.13.20 summarizes those factors under the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing). Table 2.13.21 summarizes those factors under the Build Alternative with Design Option 2 (Pioneer Boulevard L-9). Table 2.13.22 summarizes those factors under the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). Table 2.13.23 summarizes those factors under the Build Alternative with Design Option 4 (Diamond Ramps). Tables 2.13.9 and 2.13.22 summarize those factors for the Preferred Alternative, which includes Design Option 1 and Design Option 3.

Of the 16 modeled noise barriers evaluated for the Build Alternative, 11 noise barriers were determined to be feasible. The remaining 5 noise barriers (NB Nos. 1.1, 2.3, 3.1, 4.1, and 5.3) were determined to be not feasible because the barriers were not capable of reducing noise levels by 5 dBA or more. Of the 15 modeled noise barriers evaluated for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width), 10 noise barriers were determined to be feasible. The remaining 5 noise barriers (NB Nos. 2.3, 3.1, 4.1, 5.2, and 5.3) were determined to be not feasible because the barriers were not capable of reducing noise levels by 5 dBA or more. One modeled noise barrier was evaluated for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing) and was determined to be feasible. Of the 3 modeled noise barriers evaluated for the Build Alternative with Design Option 2 (Pioneer Boulevard L-9), 1 noise barrier was determined to be feasible. The remaining 2 noise barriers (NB Nos. 3.1 and 4.1) were determined to be not feasible because the barriers were not capable of reducing noise levels by 5 dBA or more.

**Table 2.13.18 Summary of Feasible Noise Barriers for the Build Alternative**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |         | Top of Wall Elevation |       |
|-------------------|-----------------|-------------------------|-------------------------|---|---|------------------------|------------------------------|---------|-----------------------|-------|
|                   |                 |                         |                         |   |   |                        | Begin                        | End     | Begin                 | End   |
| 2.1               | 14              | 1,697                   | 6                       | 1   | \$95,000                                | PL                     | 903+75                       | 918+80  | 98                    | 88.65 |
|                   | 16 <sup>3</sup> | 1,697                   | 7                       | 4   | \$380,000                               |                        | 903+75                       | 918+80  | 100                   | 90.65 |
| 2.2               | 10 <sup>4</sup> | 1,639                   | 5                       | 1   | \$95,000                                | EOS                    | 903+95                       | 918+90  | 98                    | 84.25 |
|                   | 12              | 1,639                   | 5                       | 7   | \$665,000                               |                        | 903+95                       | 918+90  | 100                   | 86.25 |
|                   | 14              | 1,639                   | 6                       | 11  | \$1,045,000                             |                        | 903+95                       | 918+90  | 102                   | 88.25 |
|                   | 16              | 1,639                   | 6                       | 11  | \$1,045,000                             |                        | 903+95                       | 918+90  | 104                   | 90.25 |
| 2.1a              | 14              | 991                     | 6                       | 1   | \$95,000                                | PL                     | 903+75                       | 912+00  | 84                    | 82.6  |
|                   | 16 <sup>3</sup> | 991                     | 7                       | 4   | \$380,000                               |                        | 903+75                       | 912+00  | 86                    | 84.6  |
| 2.2a              | 14 <sup>5</sup> | 932                     | 6                       | 9   | \$855,000                               | EOS/PL                 | 903+75                       | 912+05  | 82.94                 | 90    |
|                   | 16              | 932                     | 6                       | 13  | \$1,235,000                             |                        | 903+75                       | 912+05  | 84.94                 | 92    |
| 2.2b              | 16 <sup>4</sup> | 1,330                   | 7                       | 13  | \$1,235,000                             | EOS                    | 898+75                       | 912+05  | 108.23                | 92    |
| 3.2               | 16 <sup>4</sup> | 1,047                   | 5                       | 6   | \$570,000                               | PL                     | 929+45                       | 939+90  | 82.2                  | 82    |
| 3.3               | 14 <sup>4</sup> | 1,122                   | 6                       | 9   | \$855,000                               | EOS                    | 939+10                       | 950+30  | 80.2                  | 80    |
|                   | 16              | 1,122                   | 7                       | 9   | \$855,000                               |                        | 939+10                       | 950+30  | 82.2                  | 82    |
| 4.2               | 16 <sup>4</sup> | 971                     | 5                       | 5   | \$475,000                               | ROW/PL                 | 971+65                       | 980+60  | 86                    | 82    |
| 5.1               | 14 <sup>4</sup> | 1,028                   | 5                       | 1   | \$95,000                                | ROW                    | 986+15                       | 992+00  | 78                    | 78    |
|                   | 16              | 1,028                   | 6                       | 1   | \$95,000                                |                        | 986+15                       | 992+00  | 80                    | 80    |
| 5.2               | 16 <sup>3</sup> | 1,078                   | 6                       | 5   | \$475,000                               | ROW                    | 993+85                       | 1004+10 | 80                    | 87.39 |
| 6.1               | 6               | 355                     | 5                       | 1   | \$95,000                                | ROW                    | 1015+85                      | 1019+50 | 68                    | 68    |
|                   | 8               | 355                     | 7                       | 3   | \$285,000                               |                        | 1015+85                      | 1019+50 | 70                    | 70    |
|                   | 10              | 355                     | 10                      | 5   | \$475,000                               |                        | 1015+85                      | 1019+50 | 72                    | 72    |
|                   | 12              | 355                     | 12                      | 16  | \$1,520,000                             |                        | 1015+85                      | 1019+50 | 74                    | 74    |
|                   | 14              | 355                     | 13                      | 20  | \$1,900,000                             |                        | 1015+85                      | 1019+50 | 76                    | 76    |
|                   | 16 <sup>5</sup> | 355                     | 14                      | 20  | \$1,900,000                             |                        | 1015+85                      | 1019+50 | 78                    | 78    |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes that the maximum feasible barrier height modeled would not break the line-of-sight between the receptor and a truck exhaust stack.

<sup>4</sup> Denotes that the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack is lower than the minimum feasible barrier height.

<sup>5</sup> Denotes the minimum barrier height required to break the line-of-sight between the receptor and a truck exhaust stack.

dBA = A-weighted decibels

EOS = edge of shoulder

ft = foot/feet

PL = property line

ROW = right-of-way

**Table 2.13.19 Summary of Feasible Noise Barriers for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |         | Top of Wall Elevation |       |
|-------------------|-----------------|-------------------------|-------------------------|---|---|------------------------|------------------------------|---------|-----------------------|-------|
|                   |                 |                         |                         |   |   |                        | Begin                        | End     | Begin                 | End   |
| 2.1               | 14              | 1,700                   | 6                       | 1   | \$95,000                                | PL                     | 903+75                       | 918+75  | 98                    | 88.65 |
|                   | 16 <sup>3</sup> | 1,700                   | 7                       | 4   | \$380,000                               |                        | 903+75                       | 918+75  | 100                   | 90.65 |
| 2.2               | 14 <sup>4</sup> | 1,639                   | 6                       | 9   | \$855,000                               | EOS                    | 903+95                       | 918+90  | 102                   | 88.25 |
|                   | 16              | 1,639                   | 6                       | 9   | \$855,000                               |                        | 903+95                       | 918+90  | 104                   | 90.25 |
| 2.1a              | 14              | 991                     | 6                       | 1   | \$95,000                                | PL                     | 903+75                       | 912+00  | 84                    | 82.6  |
|                   | 16 <sup>3</sup> | 991                     | 7                       | 4   | \$380,000                               |                        | 903+75                       | 912+00  | 86                    | 84.6  |
| 2.2a              | 14              | 936                     | 6                       | 9   | \$855,000                               | EOS/PL                 | 903+75                       | 912+05  | 82.94                 | 90    |
|                   | 16 <sup>3</sup> | 936                     | 6                       | 11  | \$1,045,000                             |                        | 903+75                       | 912+05  | 84.94                 | 92    |
| 2.2b              | 16 <sup>4</sup> | 1,330                   | 7                       | 11  | \$1,045,000                             | EOS                    | 898+75                       | 912+05  | 108.23                | 92    |
| 3.2               | 16 <sup>4</sup> | 1,047                   | 5                       | 3   | \$285,000                               | PL                     | 929+45                       | 939+90  | 82.2                  | 82    |
| 3.3               | 14 <sup>5</sup> | 670                     | 6                       | 11  | \$1,045,000                             | EOS                    | 939+10                       | 945+75  | 78                    | 80.67 |
|                   | 16              | 670                     | 6                       | 11  | \$1,045,000                             |                        | 939+10                       | 945+75  | 80                    | 82.67 |
| 4.2               | 16 <sup>4</sup> | 971                     | 5                       | 5   | \$475,000                               | ROW/PL                 | 971+65                       | 980+60  | 86                    | 82    |
| 5.1               | 14              | 1,028                   | 5                       | 1   | \$95,000                                | ROW                    | 986+15                       | 992+00  | 78                    | 78    |
|                   | 16 <sup>5</sup> | 1,028                   | 6                       | 1   | \$95,000                                |                        | 986+15                       | 992+00  | 80                    | 80    |
| 6.1               | 6               | 355                     | 5                       | 1   | \$95,000                                | ROW                    | 1015+85                      | 1019+50 | 68                    | 68    |
|                   | 8               | 355                     | 7                       | 3   | \$285,000                               |                        | 1015+85                      | 1019+50 | 70                    | 70    |
|                   | 10              | 355                     | 10                      | 9   | \$855,000                               |                        | 1015+85                      | 1019+50 | 72                    | 72    |
|                   | 12              | 355                     | 11                      | 16  | \$1,520,000                             |                        | 1015+85                      | 1019+50 | 74                    | 74    |
|                   | 14              | 355                     | 13                      | 20  | \$1,900,000                             |                        | 1015+85                      | 1019+50 | 76                    | 76    |
|                   | 16 <sup>5</sup> | 355                     | 14                      | 20  | \$1,900,000                             |                        | 1015+85                      | 1019+50 | 78                    | 78    |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes that the maximum feasible barrier height modeled would not break the line-of-sight between the receptor and a truck exhaust stack.

<sup>4</sup> Denotes that the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack is lower than the minimum feasible barrier height.

<sup>5</sup> Denotes the minimum barrier height required to break the line-of-sight between the receptor and a truck exhaust stack.

dBA = A-weighted decibels

EOS = edge of shoulder

ft = foot/feet

PL = property line

ROW = right-of-way



**Table 2.13.20 Summary of Feasible Noise Barriers for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing)**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |        | Top of Wall Elevation |     |
|-------------------|-----------------|-------------------------|-------------------------|--|---|------------------------|------------------------------|--------|-----------------------|-----|
|                   |                 |                         |                         |  |   |                        | Begin                        | End    | Begin                 | End |
| 3.2               | 16 <sup>3</sup> | 1,047                   | 5                       | 6  | \$570,000                               | PL                     | 929+45                       | 939+90 | 82.2                  | 82  |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes that the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack is lower than the minimum feasible barrier height.

dBA = A-weighted decibels

EOS = edge of shoulder

ft = foot/feet

PL = property line

ROW = right-of-way

**Table 2.13.21 Summary of Feasible Noise Barriers for the Build Alternative with Design Option 2 (Pioneer Boulevard L-9)**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |        | Top of Wall Elevation |     |
|-------------------|-----------------|-------------------------|-------------------------|--|---|------------------------|------------------------------|--------|-----------------------|-----|
|                   |                 |                         |                         |  |   |                        | Begin                        | End    | Begin                 | End |
| 3.2               | 16 <sup>3</sup> | 1,047                   | 5                       | 6  | \$570,000                               | PL                     | 929+45                       | 939+90 | 82.2                  | 82  |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes that the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack is lower than the minimum feasible barrier height.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

**Table 2.13.22 Summary of Feasible Noise Barriers for the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment)**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |        | Top of Wall Elevation |     |
|-------------------|-----------------|-------------------------|-------------------------|--|---|------------------------|------------------------------|--------|-----------------------|-----|
|                   |                 |                         |                         |  |   |                        | Begin                        | End    | Begin                 | End |
| 3.2               | 16 <sup>3</sup> | 1,047                   | 5                       | 6  | \$570,000                               | PL                     | 929+45                       | 939+90 | 82.2                  | 82  |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

**Table 2.13.23 Summary of Feasible Noise Barriers for the Build Alternative with Design Option 4 (Diamond Ramps)**

| Noise Barrier No. | Height (ft)     | Approximate Length (ft) | Noise Attenuation (dBA) | Number of Benefited Receptors/Units <sup>1</sup> | Total Reasonable Allowance <sup>2</sup> | Noise Barrier Location | Noise Barrier Station Number |        | Top of Wall Elevation |     |
|-------------------|-----------------|-------------------------|-------------------------|--|---|------------------------|------------------------------|--------|-----------------------|-----|
|                   |                 |                         |                         |  |   |                        | Begin                        | End    | Begin                 | End |
| 3.2               | 16 <sup>3</sup> | 1,047                   | 5                       | 6  | \$570,000                               | PL                     | 929+45                       | 939+90 | 82.2                  | 82  |
| 4.2               | 16 <sup>4</sup> | 971                     | 5                       | 5  | \$475,000                               | ROW/PL                 | 971+65                       | 980+60 | 86                    | 82  |
| 5.1               | 14 <sup>4</sup> | 1,028                   | 5                       | 1  | \$95,000                                | ROW                    | 986+15                       | 992+00 | 78                    | 78  |
|                   | 16              | 1,028                   | 6                       | 1  | \$95,000                                |                        | 986+15                       | 992+00 | 80                    | 80  |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

<sup>2</sup> Calculated by multiplying the number of benefited receptors by \$95,000 (the dollar amount per benefited receptor/unit).

<sup>3</sup> Denotes that the maximum feasible barrier height modeled would not break the line-of-sight between the receptor and a truck exhaust stack.

<sup>4</sup> Denotes that the minimum wall height required to break the line-of-sight between the receptor and a truck exhaust stack is lower than the minimum feasible barrier height.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

ROW = right-of-way

Of the 3 modeled noise barriers evaluated for the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment), 1 noise barrier was determined to be feasible. The remaining 2 noise barriers (NB Nos. 3.1 and 4.1) were determined to be not feasible because the barriers were not capable of reducing noise levels by 5 dBA or more. Of the 7 modeled noise barriers evaluated for the Build Alternative with Design Option 4 (Diamond Ramps), 3 noise barriers were determined to be feasible. The remaining 4 noise barriers (NB Nos. 3.1, 4.1, 5.2, and 5.3) were determined to be not feasible because the barriers were not capable of reducing noise levels by 5 dBA or more.

### *Noise Barrier Reasonableness*

The reasonableness of a noise barrier is determined by comparing the estimated cost of constructing the noise barrier against the total reasonable allowance. The total reasonable allowance is determined based on the number of benefited residences/receptors multiplied by the reasonable allowance per residence/receptor. Additionally, in accordance with the Caltrans Noise Protocol, each noise barrier must provide at least 7 dBA of noise reduction at one or more benefited residences/receptors to be considered reasonable. Therefore, if the estimated noise barrier construction cost exceeds the total reasonable allowance or was not predicted to provide at least 7 dBA of noise reduction at one or more benefited residences/receptors, the noise barrier is determined to be not reasonable. However, if the estimated noise barrier construction cost is less than the total reasonable allowance and is predicted to provide at least 7 dBA of noise reduction at one or more benefited residences/receptors, the noise barrier is determined to be reasonable.

The estimated noise barrier construction cost for each barrier under the Build Alternative and the Build Alternative with design options was developed by the project engineer. Tables 2.13.24 through 2.13.29 summarize the abatement information and list all the feasible noise barriers, along with their heights, approximate lengths, highest noise attenuation, number of benefited units/receptors, total reasonable allowance per barrier, and whether the noise barrier is reasonable. Table 2.13.24 summarizes those factors under the Build Alternative. Table 2.13.25 summarizes those factors under the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width). Table 2.13.26 summarizes those factors under the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing). Table 2.13.27 summarizes those factors under the Build Alternative with Design Option 2 (Pioneer Boulevard L-9). Table 2.13.28 summarizes those factors under the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment). Table 2.13.29 summarizes those factors under the Build Alternative with Design Option 4 (Diamond Ramps).

**Table 2.13.24 Summary of Abatement Key Information for the Build Alternative**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable? |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|-------------|
| 2.1               | PL                     | 14          | 1,697                   | 6                             | 1   | \$95,000                   | -- <sup>2</sup>             | No          |
|                   |                        | 16          | 1,697                   | 7                             | 4   | \$380,000                  | \$1,206,865                 | No          |
| 2.2               | EOS                    | 10          | 1,639                   | 5                             | 1   | \$95,000                   | --                          | No          |
|                   |                        | 12          | 1,639                   | 5                             | 7   | \$665,000                  | --                          | No          |
|                   |                        | 14          | 1,639                   | 6                             | 11  | \$1,045,000                | --                          | No          |
|                   |                        | 16          | 1,639                   | 6                             | 11  | \$1,045,000                | --                          | No          |
| 2.1a              | PL                     | 14          | 991                     | 6                             | 1   | \$95,000                   | --                          | No          |
|                   |                        | 16          | 991                     | 7                             | 4   | \$380,000                  | \$692,385                   | No          |
| 2.2a              | EOS/PL                 | 14          | 932                     | 6                             | 9   | \$855,000                  | --                          | No          |
|                   |                        | 16          | 932                     | 6                             | 13  | \$1,235,000                | --                          | No          |
| 2.2b              | EOS                    | 16          | 1,330                   | 7                             | 13  | \$1,235,000                | \$1,073,820                 | Yes         |
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 6   | \$570,000                  | --                          | No          |
| 3.3               | EOS                    | 14          | 1,122                   | 6                             | 9   | \$855,000                  | --                          | No          |
|                   |                        | 16          | 1,122                   | 7                             | 9   | \$855,000                  | \$1,244,266                 | No          |
| 4.2               | ROW/PL                 | 16          | 971                     | 5                             | 5   | \$475,000                  | --                          | No          |
| 5.1               | ROW                    | 14          | 1,028                   | 5                             | 1   | \$95,000                   | --                          | No          |
|                   |                        | 16          | 1,028                   | 6                             | 1   | \$95,000                   | --                          | No          |
| 5.2               | ROW                    | 16          | 1,078                   | 6                             | 5   | \$475,000                  | --                          | No          |
| 6.1               | ROW                    | 6           | 355                     | 5                             | 1   | \$95,000                   | --                          | No          |
|                   |                        | 8           | 355                     | 7                             | 3   | \$285,000                  | \$227,332                   | Yes         |
|                   |                        | 10          | 355                     | 10                            | 5   | \$475,000                  | \$242,952                   | Yes         |
|                   |                        | 12          | 355                     | 12                            | 16  | \$1,520,000                | \$261,421                   | Yes         |
|                   |                        | 14          | 355                     | 13                            | 20  | \$1,900,000                | \$282,739                   | Yes         |
|                   |                        | 16          | 355                     | 14                            | 20  | \$1,900,000                | \$304,057                   | Yes         |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

EOS = Edge of Shoulder

ft = foot/feet

PL = property line

ROW = right-of-way



**Table 2.13.25 Summary of Abatement Key Information for the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width)**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable?      |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|------------------|
| 2.1               | PL                     | 14          | 1,700                   | 6                             | 1   | \$95,000                   | -- <sup>2</sup>             | No               |
|                   |                        | 16          | 1,700                   | 7                             | 4   | \$380,000                  | \$1,208,286                 | No               |
| 2.2               | EOS                    | 14          | 1,639                   | 6                             | 9   | \$855,000                  | --                          | No               |
|                   |                        | 16          | 1,639                   | 6                             | 9   | \$855,000                  | --                          | No               |
| 2.1a              | PL                     | 14          | 991                     | 6                             | 1   | \$95,000                   | --                          | No               |
|                   |                        | 16          | 991                     | 7                             | 4   | \$380,000                  | \$692,385                   | No               |
| 2.2a              | EOS/PL                 | 14          | 936                     | 6                             | 9   | \$855,000                  | --                          | No               |
|                   |                        | 16          | 936                     | 6                             | 11  | \$1,045,000                | --                          | No               |
| 2.2b              | EOS                    | 16          | 1,330                   | 7                             | 11  | \$1,045,000                | \$1,073,820                 | Yes <sup>3</sup> |
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 3   | \$285,000                  | --                          | No               |
| 3.3               | EOS                    | 14          | 670                     | 6                             | 11  | \$1,045,000                | --                          | No               |
|                   |                        | 16          | 670                     | 6                             | 11  | \$1,045,000                | --                          | No               |
| 4.2               | ROW/PL                 | 16          | 971                     | 5                             | 5   | \$475,000                  | --                          | No               |
| 5.1               | ROW                    | 14          | 1,028                   | 5                             | 1   | \$95,000                   | --                          | No               |
|                   |                        | 16          | 1,028                   | 6                             | 1   | \$95,000                   | --                          | No               |
| 6.1               | ROW                    | 6           | 355                     | 5                             | 1   | \$95,000                   | --                          | No               |
|                   |                        | 8           | 355                     | 7                             | 3   | \$285,000                  | \$227,332                   | Yes              |
|                   |                        | 10          | 355                     | 10                            | 9   | \$855,000                  | \$242,952                   | Yes              |
|                   |                        | 12          | 355                     | 11                            | 16  | \$1,520,000                | \$261,421                   | Yes              |
|                   |                        | 14          | 355                     | 13                            | 20  | \$1,900,000                | \$282,739                   | Yes              |
|                   |                        | 16          | 355                     | 14                            | 20  | \$1,900,000                | \$304,057                   | Yes              |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

<sup>3</sup> NB No. 2.2b is considered reasonable because the estimated construction cost is within 10 percent of the total reasonable allowance.

dBA = A-weighted decibels

EOS = Edge of Shoulder

ft = foot/feet

PL = property line

ROW = right-of-way

**Table 2.13.26 Summary of Abatement Key Information for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing)**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable? |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|-------------|
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 6   | \$570,000                  | -- <sup>2</sup>             | No          |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

**Table 2.13.27 Summary of Abatement Key Information for the Build Alternative with Design Option 2 (Pioneer Boulevard L-9)**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable? |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|-------------|
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 6   | \$570,000                  | -- <sup>2</sup>             | No          |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

**Table 2.13.28 Summary of Abatement Key Information for the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound/168th Alignment)**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable? |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|-------------|
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 6   | \$570,000                  | -- <sup>2</sup>             | No          |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

**Table 2.13.29 Summary of Abatement Key Information for the Build Alternative with Design Option 4 (Diamond Ramps)**

| Noise Barrier No. | Noise Barrier Location | Height (ft) | Approximate Length (ft) | Noise Attenuation Range (dBA) | Number of Benefited Receptors/ Units <sup>1</sup> | Total Reasonable Allowance | Estimated Construction Cost | Reasonable? |
|-------------------|------------------------|-------------|-------------------------|-------------------------------|---|----------------------------|-----------------------------|-------------|
| 3.2               | PL                     | 16          | 1,047                   | 5                             | 6   | \$570,000                  | -- <sup>2</sup>             | No          |
| 4.2               | ROW/PL                 | 16          | 971                     | 5                             | 5   | \$475,000                  | --                          | No          |
| 5.1               | ROW                    | 14          | 1,028                   | 5                             | 1   | \$95,000                   | --                          | No          |
|                   |                        | 16          | 1,028                   | 6                             | 1   | \$95,000                   | --                          | No          |

Source: *Noise Abatement Decision Report* (2018).

<sup>1</sup> Number of receptors/units that are attenuated 5 dBA or more by the modeled barrier.

<sup>2</sup> Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

dBA = A-weighted decibels

ft = foot/feet

PL = property line

ROW = right-of-way

As shown in Tables 2.13.24 and 2.13.25, calculations based on preliminary design data indicate that NB Nos. 2.2b and 6.1 under the Build Alternative and the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width), respectively, are the only noise barriers determined to be reasonable. All other feasible noise barriers were determined to be not reasonable for the Build Alternative with Design Option 5 (Four-Lane Gridley Road Overcrossing), the Build Alternative with Design Option 2 (Pioneer Boulevard L-9), the Build Alternative with Design Option 3 (Pioneer Boulevard Westbound Ramps/168th Alignment), and the Build Alternative with Design Option 4 (Diamond Ramps).

The height of 14 ft for NB No. 6.1 is the recommended height because the construction cost is lower than the 16 ft high barrier and provides the maximum number of benefited receptors/units.

As part of the public review period for the project, the property owners and non-owner occupants of the benefited receptors for NB No. 6.1 were sent a noise barrier survey letter to obtain their opinion on whether or not they are in favor of NB No. 6.1 at a height of 14 ft. The noise barrier survey letters were dated September 24, 2018 and the survey ended October 12, 2018. One response was received from a non-owner occupant and they were in favor of the 14 ft high noise barrier. A follow-up survey will be conducted during the final design phase.

In addition, under the Build Alternative, the construction of NB No. 2.2b with a height of 16 ft is recommended because the barrier is both feasible and reasonable. Under the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width), the construction of NB No. 2.2b with a height of 16 ft is recommended because the barrier is considered reasonable (estimated construction cost is within 10 percent of the total reasonable allowance).

#### *Nonacoustical Factors Relating to Feasibility*

Nonacoustical factors relating to feasibility were considered for the reasonable noise barriers. These factors include: geometric standards, safety, maintenance, security, drainage, geotechnical considerations, and utility relocations. The nonacoustical factors relating to feasibility are addressed below for the feasible and reasonable noise barriers.



### *Build Alternative*

The nonacoustical factors relating to feasibility of NB Nos. 2.2b and 6.1 under the Build Alternative and the Build Alternative with Design Option 1 (Reduced Lane/Shoulder Width) are addressed below.

- **Geometric Standards:** NB Nos. 2.2b and 6.1 would not affect the geometric standards of adjacent roadways.
- **Safety:** NB Nos. 2.2b and 6.1 would not affect sight distance for vehicular or pedestrian traffic.
- **Maintenance:** NB No. 2.2b would be placed on the edge of shoulder and would be maintained by Caltrans. NB No. 6.1 would be placed on the edge of State ROW and maintenance of the private side of the noise barrier would be the responsibility of the private property owner because it would not be accessible to Caltrans.
- **Security:** NB No. 2.2b would create an empty space between it at the edge of shoulder and the existing R/W property line wall of the residences east of Studebaker. Access control such as constructing a masonry block wall to block off visibility will be addressed during final design. NB No. 6.1 would not change the security conditions of the site and therefore would not create potential security risks by providing cover for people or articles trying to remain out of sight.
- **Drainage:** NB Nos. 2.2b and 6.1 would not affect the existing and proposed drainage system.
- **Geotechnical Considerations:** NB Nos. 2.2b and 6.1 would be constructed at a similar grade to the existing condition in native soil.
- **Utility Relocations:** No utility impacts are anticipated as a result of NB Nos. 2.2b and 6.1.

### *No Build Alternative*

Potential long-term noise effects under the No Build Alternative would be solely from traffic noise. Future No Build noise levels are shown in Table 2.13.6. Of the 362 modeled receptor locations, 40 receptors would continue to approach or exceed the NAC under the future No Build condition.

#### **2.13.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the project will incorporate the project features and noise abatement described above in Sections 2.13.3.1 and 2.13.3.2, no adverse impacts related to noise would occur. Therefore, no avoidance, minimization, and/or mitigation measures are required.

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## **BIOLOGICAL ENVIRONMENT**

### **2.14 Wetlands and Other Waters**

#### **2.14.1 Regulatory Setting**

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and



whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a “least environmentally damaging practicable alternative” (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCBs) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required

in tandem with a Section 404 permit request. Please see Section 2.8 Water Quality and Storm Water Runoff, for additional details.

### **2.14.2 Affected Environment**

The information in this section is based on the *Natural Environment Study (Minimal Impacts)* (NES[MI]) (2017 and 2018 errata) and the *Jurisdictional Delineation* (2017 and 2018 errata) for the proposed project. The *Jurisdictional Delineation*, which was conducted in accordance with current USACE and CDFW criteria, is provided in Appendix C of the *Natural Environment Study (Minimal Impacts)*.

The drainage features within the biological study area (BSA) consist of unnamed storm water runoff and concrete flood control channels, which drain urban runoff from upland areas, generally run parallel to State Route 91 (SR-91), Interstate 605 (I-605), and the on-/off-ramps, and are presumed to drain into the San Gabriel River. The San Gabriel River connects directly to the Pacific Ocean (a traditional navigable water [TNW] of the United States), thereby establishing a nexus to navigable waters as defined by USACE guidance.

Fourteen drainage features identified within the BSA are designated as Drainage Features A through N and are shown on Figure 2.14-1, included at the end of the section. Drainage Features C, D, G, M, and N are concrete lined or dominated by upland vegetation, lack riparian habitat, and either have limited weedy vegetation growth or vegetation growth in less than 6 inches of accumulated sediment on concrete. The USACE is not expected to assert jurisdiction over Drainage Features C, D, G, M, or N because the USACE typically does not assert jurisdiction over nontidal drainage and irrigation ditches that are excavated on dry land, that drain adjacent upland areas, and that do not convey relatively permanent water (RPW).

Drainage Features E, I, J, K, and L as well as portions of Drainage Features A, B, F, and H are human altered and surrounded by urban habitat but appear to contain RPW and function like streams with a nexus to a TNW. The USACE is expected to assert jurisdiction over Drainage Features E, I, J, K, and L as well as portions of Drainage Features A, B, F, and H.

The *Jurisdictional Delineation* indicated there are a total of 0.88 acre (ac) of nonwetland waters that are potentially subject to USACE jurisdiction. There are no areas in the BSA satisfying the USACE wetland criteria.

Since Drainage Features E, I, J, K, and L and portions of Drainage Features A, B, F, and H satisfy the USACE jurisdictional criteria for waters of the United States (waters of the U.S.), as described above, they are also subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Streambed banks and riparian habitat extending beyond the limits of USACE jurisdiction are considered to be subject to CDFW jurisdiction. However, there were no areas within the BSA where riparian habitat exists in association with the drainage features. As such, CDFW jurisdiction corresponds with the upper limits of the jurisdictional drainage channels (or portions of channels that contain RPW), as the sides of the man-made drainages serve as artificial banks.

The *Jurisdictional Delineation* indicated there are a total of 1.17 ac of potential CDFW jurisdiction within the BSA.

Because there is no current public guidance on determining RWQCB jurisdictional areas, potential jurisdiction was determined based on the federal definition of wetlands and other waters of the U.S. as recommended by the *Workplan: Filling the Gaps in Wetland Protection* (SWRCB 2004). RWQCB potential jurisdiction would be considered coincident with USACE potential jurisdiction for the purposes of Section 401 certification. If CWA jurisdiction is determined to be absent, these features may be regulated by the RWQCB pursuant to the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The total area of potential RWQCB jurisdiction is the same as the USACE jurisdiction (i.e., 0.88 ac).

Table 2.14.1 provides the area in acres of each of the fourteen potentially jurisdictional and nonjurisdictional drainage features, respectively, in the BSA.

### **2.14.3 Environmental Consequences**

The discussions regarding the potential temporary and permanent project impacts on jurisdictional waters and nonjurisdictional drainage features in the following sections should be considered preliminary until verified by the USACE, CDFW, and RWQCB.

Based on the preliminary project design, it is anticipated that some of the flood control channels within the BSA, particularly on the westbound side of SR-91, may be impacted by the project (Figure 2.14-2, included at the end of the section). Therefore, the project is expected to have impacts to the jurisdictional waters that are located within the BSA, and permits (i.e., USACE Section 404 Nationwide Permit authorization, CDFW Section 1602 Streambed Alteration Agreement, and RWQCB Section 401 Water Quality Certification) are expected to be necessary.

**Table 2.14.1 Potentially Jurisdictional and Nonjurisdictional Drainage Feature Area Measurements**

| Drainage Features | Potential Jurisdictional USACE Area (acres) | Potential Jurisdictional CDFW Area (acres) | Potential Nonjurisdictional Drainage Area (acres) |
|-------------------|---|--|---|
| A                 | 0.29  | 0.38                                       | 0.42  |
| B                 | 0.02  | 0.03                                       | 0.34  |
| C                 | 0   | 0  | 0.009   |
| D                 | 0   | 0  | 0.006   |
| E                 | 0.08  | 0.11                                       | 0   |
| F                 | 0.010                                       | 0.006                                      | 0.11  |
| G                 | 0   | 0  | 0.22  |
| H                 | 0.013                                       | 0.018                                      | 0.14  |
| I                 | 0.05  | 0.07                                       | 0   |
| J                 | 0.37  | 0.44                                       | 0   |
| K                 | 0.008                                       | 0.008                                      | 0   |
| L                 | 0.05  | 0.09                                       | 0   |
| M                 | 0   | 0  | 0.012   |
| N                 | 0   | 0  | 0.08  |
| <b>TOTAL</b>      | <b>0.88</b>                                 | <b>1.17</b>                                | <b>1.33</b>                                       |

Source: *Natural Environment Study (Minimal Impacts)* (2017 and 2018 Errata).  
 Note: Totals may not appear to sum correctly due to rounding.  
 CDFW = California Department of Fish and Wildlife  
 USACE = United States Army Corps of Engineers

**2.14.3.1 Temporary Impacts**

***Build Alternative (includes Design Options)***

*United States Army Corps of Engineers Jurisdictional Areas and Nonjurisdictional Drainage Areas*

Table 2.14.2 shows the temporary and permanent impacts to USACE jurisdictional areas, as well as on drainage areas anticipated to be deemed nonjurisdictional, in the BSA as a result of construction and operation of the Build Alternative.

The Build Alternative is expected to result in 0.01 ac of temporary impacts to nonwetland waters subject to USACE jurisdiction due to construction. The potential impact area is within Drainage Feature J.

Construction of the Build Alternative would potentially result in 0.002 ac of temporary impacts to nonjurisdictional drainage areas. The potential impact areas are within Drainage Features C and D.



**Table 2.14.2 Temporary and Permanent Project Impacts to USACE Jurisdictional Areas and Nonjurisdictional Drainage Areas**

| Potential Jurisdictional Areas |                           | Potential Nonjurisdictional Areas |                           |
|--------------------------------|---------------------------|-----------------------------------|---------------------------|
| Temporary Impacts (acres)      | Permanent Impacts (acres) | Temporary Impacts (acres)         | Permanent Impacts (acres) |
| 0.01                           | 0.43                      | 0.002                             | 0.461                     |

Source: *Natural Environment Study (Minimal Impacts)* (2017 and 2018 Errata).  
 USACE = United States Army Corps of Engineers

*California Department of Fish and Wildlife Jurisdictional Areas and Nonjurisdictional Drainage Areas*

Table 2.14.3 shows the amount of temporary and permanent impacts to CDFW jurisdictional areas, as well as on drainage areas anticipated to be deemed nonjurisdictional, in the BSA as a result of construction and operation of the Build Alternative.

**Table 2.14.3 Temporary and Permanent Project Impacts to CDFW Jurisdictional Areas and Nonjurisdictional Drainage Areas**

| Potential Jurisdictional Areas |                           | Potential Nonjurisdictional Areas |                           |
|--------------------------------|---------------------------|-----------------------------------|---------------------------|
| Temporary Impacts (acres)      | Permanent Impacts (acres) | Temporary Impacts (acres)         | Permanent Impacts (acres) |
| 0.02                           | 0.52                      | 0.002                             | 0.461                     |

Source: *Natural Environment Study (Minimal Impacts)* (2017 and 2018 Errata).  
 CDFW = California Department of Fish and Wildlife

The Build Alternative will result in temporary impacts to 0.02 ac of nonwetland area subject to CDFW jurisdiction as a result of construction. The potential temporary impacts would occur within Drainage Feature J.

Construction of the Build Alternative would potentially result in 0.002 ac of temporary impacts to nonjurisdictional drainage areas. The potential impact areas are within Drainage Features C and D.

*Regional Water Quality Control Board Jurisdictional Areas and Nonjurisdictional Drainage Areas*

As noted earlier, Table 2.14.2 shows the temporary impacts to USACE jurisdictional areas. The temporary impacts to RWQCB areas would be the same as shown in Table 2.14.2 for the USACE areas, 0.01 ac.

### **No Build Alternative**

None of the proposed project improvements would be constructed under the No Build Alternative. Therefore, the No Build Alternative would not result in temporary impacts to USACE, CDFW, or RWQCB areas in the BSA.

#### **2.14.3.2 Permanent Impacts**

##### ***Build Alternative (includes Design Options)***

##### ***United States Army Corps of Engineers Jurisdictional Areas and Nonjurisdictional Drainage Areas***

As shown in Table 2.14.2, the Build Alternative will result in permanent impacts to 0.43 ac of nonwetland waters potentially subject to USACE jurisdiction (i.e., Drainage Features B, H, I, and J).

The Build Alternative will result in 0.461 ac of permanent impacts to nonjurisdictional drainage areas. The potential nonjurisdictional impact areas are within portions of Drainage Features B, C, D, G, and H.

##### ***California Department of Fish and Wildlife Jurisdictional Areas and Nonjurisdictional Drainage Areas***

As shown in Table 2.14.3, the Build Alternative will result in permanent impacts to 0.52 ac of nonwetland areas subject to CDFW jurisdiction. The permanent impacts would occur within Drainage Features B, H, I, and J.

The Build Alternative would result in permanent impacts to 0.461 ac of nonjurisdictional drainage areas. The impact areas are within Drainage Features B, C, D, G, and H.

##### ***Regional Water Quality Control Board Jurisdictional Areas and Nonjurisdictional Drainage Areas***

The permanent impacts on RWQCB areas under the Build Alternative would be the same as shown in Table 2.14.2 for the USACE areas, 0.43 ac.

The following project features outline the permits that will be obtained prior to initiation of construction:

- PF-WET-1** Prior to initiation of construction, a permit will be obtained through the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. As part of coordination with the USACE, a Letter of Permission (LOP) will be pursued, if appropriate.

- PF-WET-2** Prior to initiation of construction, either a Watershed Streambed Alteration Agreement (WSAA; in combination with an LOP) or a Streambed Alteration Agreement (SAA; in combination with an Individual Permit) with the California Department of Fish and Wildlife (CDFW) will be obtained and any specifications in the WSAA or SAA will be implemented.
- PF-WET-3** Prior to initiation of construction, a Section 401 Water Quality Certification (Certification) from the Los Angeles Regional Water Quality Control Board (RWQCB) will be obtained and any specifications in the Certification will be implemented.
- PF-WET-4** In order to avoid impacts to adjacent jurisdictional drainage features, best management practices (BMPs) to prevent loose soil or pollutants associated with the project from inadvertently entering the drainage features located within and adjacent to the BSA will be implemented. Example BMPs include silt fencing and straw wattle placed in such a manner so as to catch or filter sediment and other construction-related debris to prevent them from eroding into the nearby drainage channels.

### ***No Build Alternative***

None of the proposed project improvements would be constructed or operated under the No Build Alternative. Therefore, the No Build Alternative would not result in adverse permanent impacts to USACE, CDFW, or RWQCB areas in the BSA.

### **2.14.4 Avoidance, Minimization, and/or Mitigation Measures**

Although jurisdictional areas are likely to be affected by the project, compensatory mitigation is not expected to be required for impacts to waters that are subject to USACE, CDFW, and RWQCB regulatory authority permitting requirements because the drainage features proposed to be impacted consist of concrete-lined ditches that are excavated on dry land and did not replace previously existing natural drainages.

If compensatory mitigation is ultimately required by the resource agencies for the project impacts on waters, that mitigation will be determined in coordination with the regulatory agencies based on the quality and quantity of jurisdictional resources affected by the project.

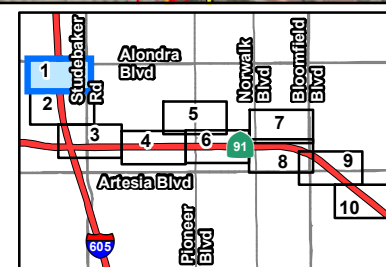




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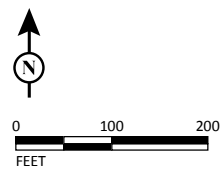
- Biological Study Area Limits
- Drainage Features (A-N)**
- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)

- Permanent Impact
- Temporary Impact
- Temporary Construction Easement



**FIGURE 2.14-1**  
Sheet 1 of 10

*Westbound SR-91 Improvement Project*  
**Drainage Features**  
07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811





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**LEGEND**

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



FIGURE 2.14-1  
Sheet 2 of 10

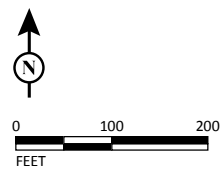
Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



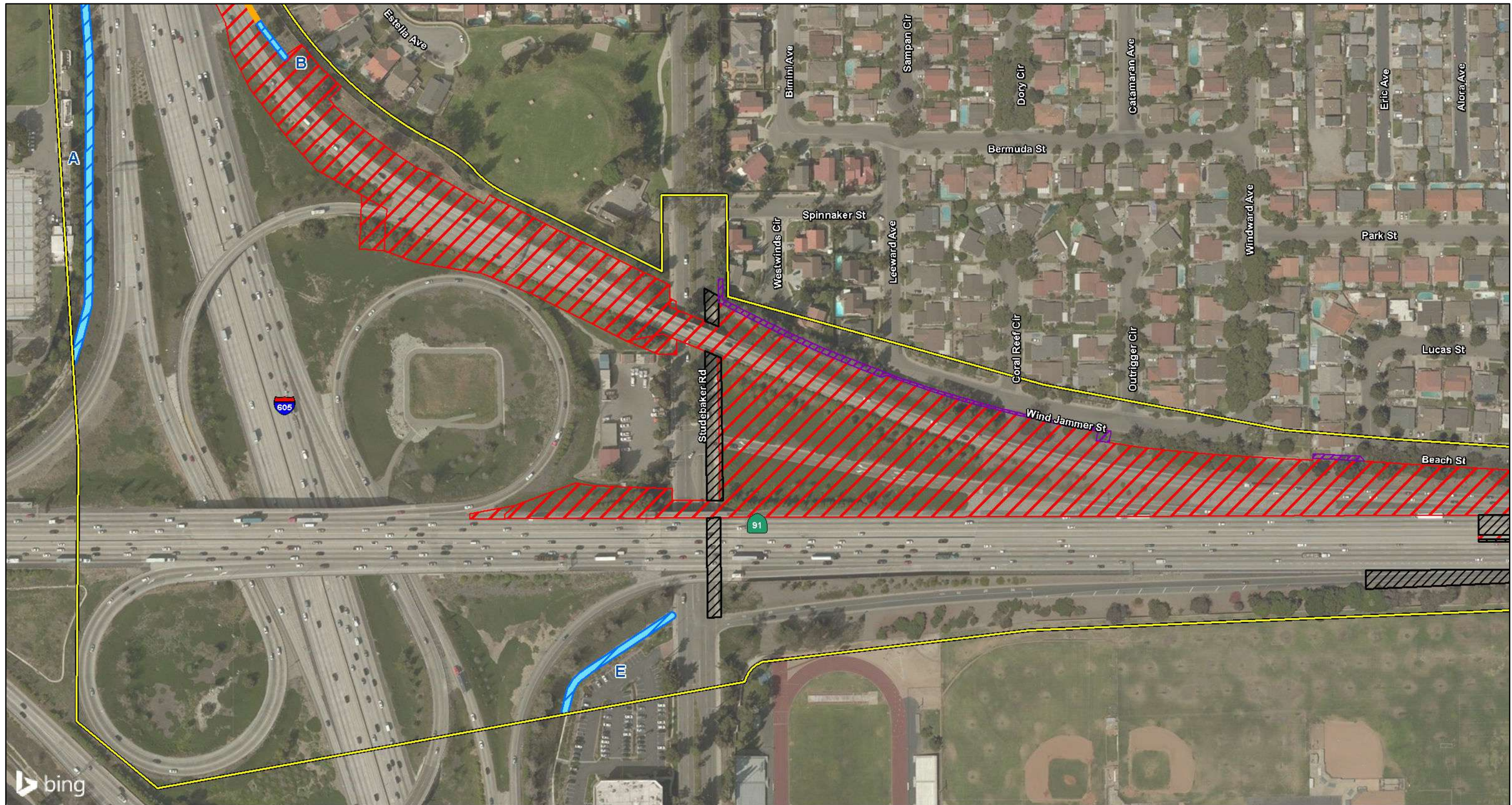
SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

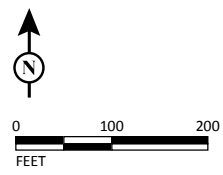
Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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FIGURE 2.14-1

Sheet 3 of 10

Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

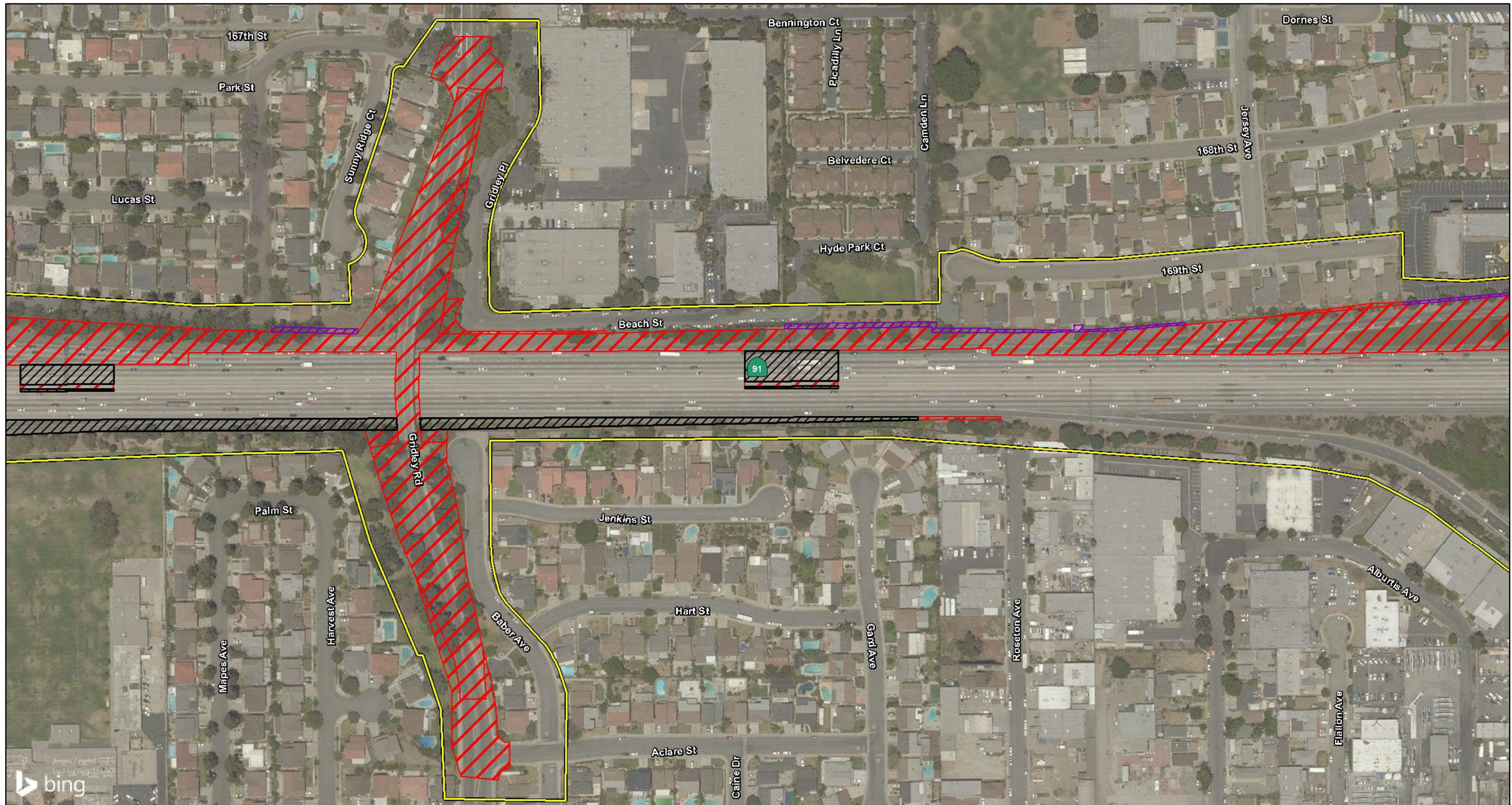
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



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LEGEND

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

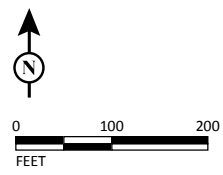
Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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FIGURE 2.14-1

Sheet 4 of 10

Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

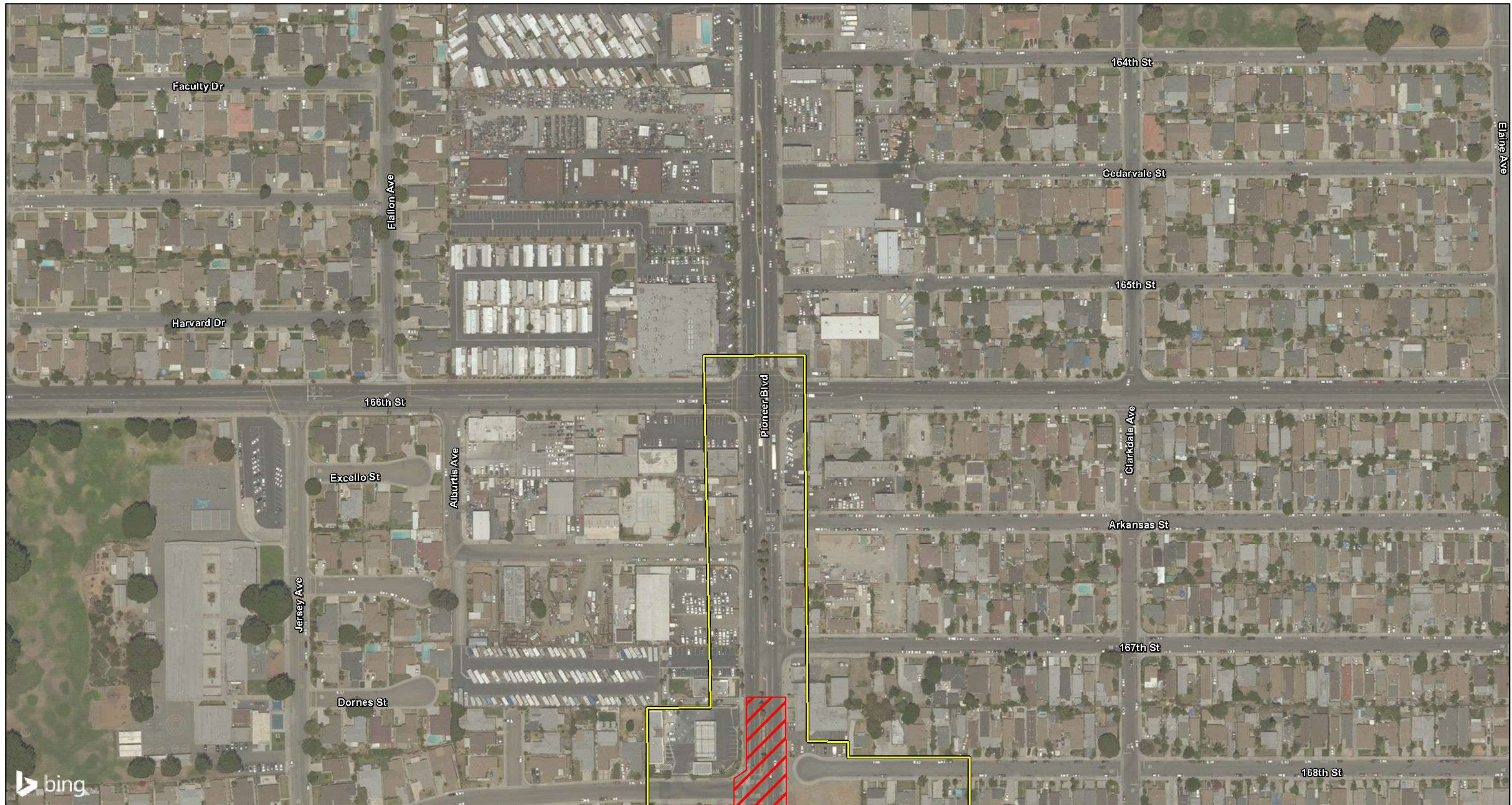
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



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LEGEND

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



FIGURE 2.14-1

Sheet 5 of 10

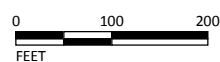
Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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**LEGEND**

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



FIGURE 2.14-1

Sheet 6 of 10

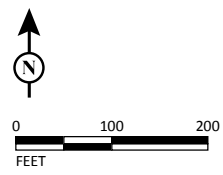
Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



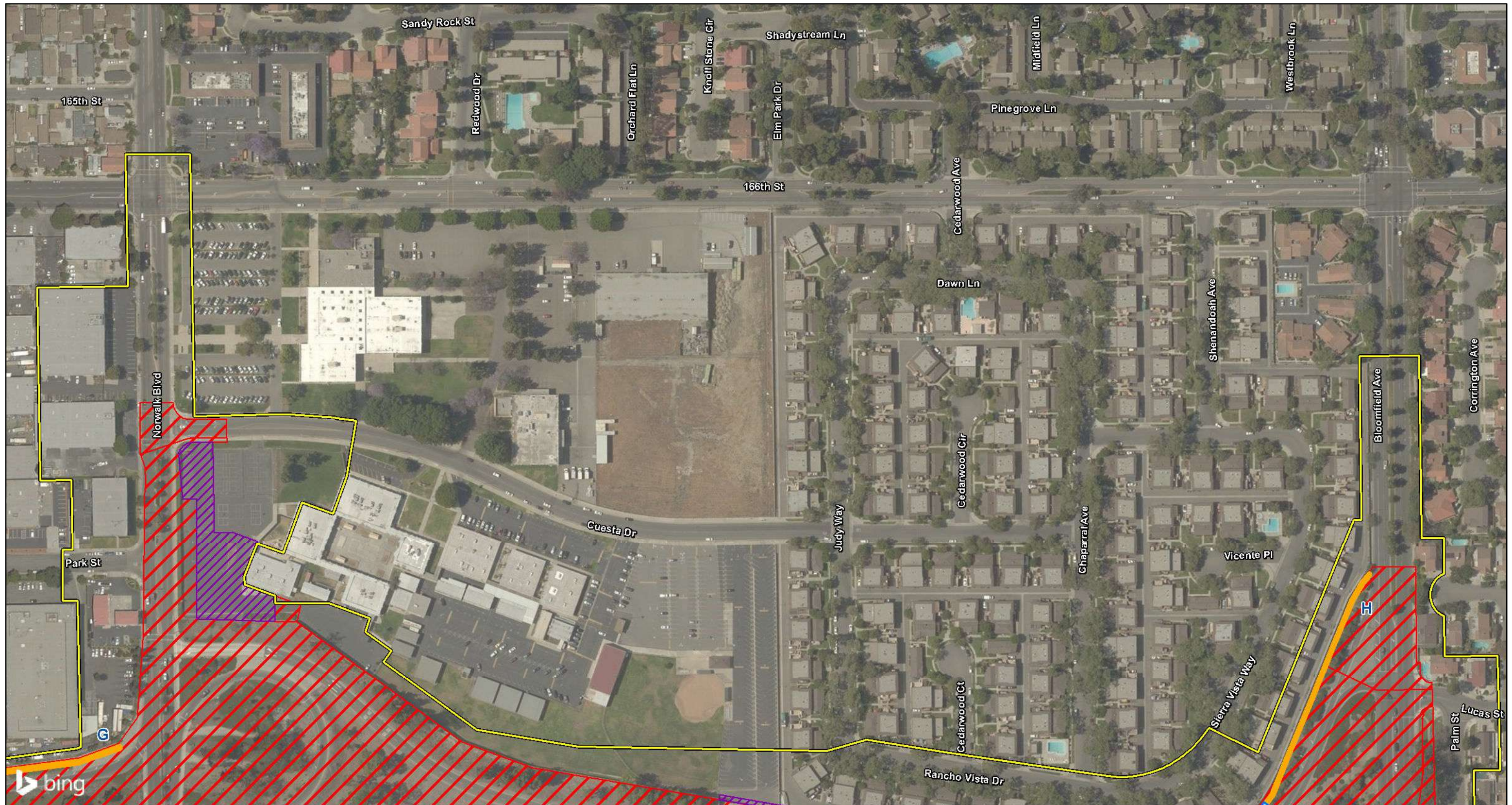
SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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LEGEND

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement

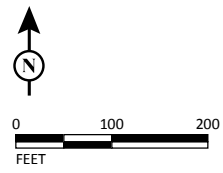


FIGURE 2.14-1  
Sheet 7 of 10

Westbound SR-91 Improvement Project  
Drainage Features  
07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811



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**LEGEND**

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



FIGURE 2.14-1  
Sheet 8 of 10

Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



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**LEGEND**

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

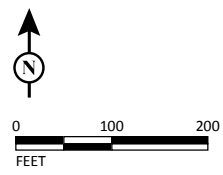
Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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FIGURE 2.14-1  
Sheet 9 of 10

Westbound SR-91 Improvement Project

Drainage Features

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0700000191; EA 07-29811



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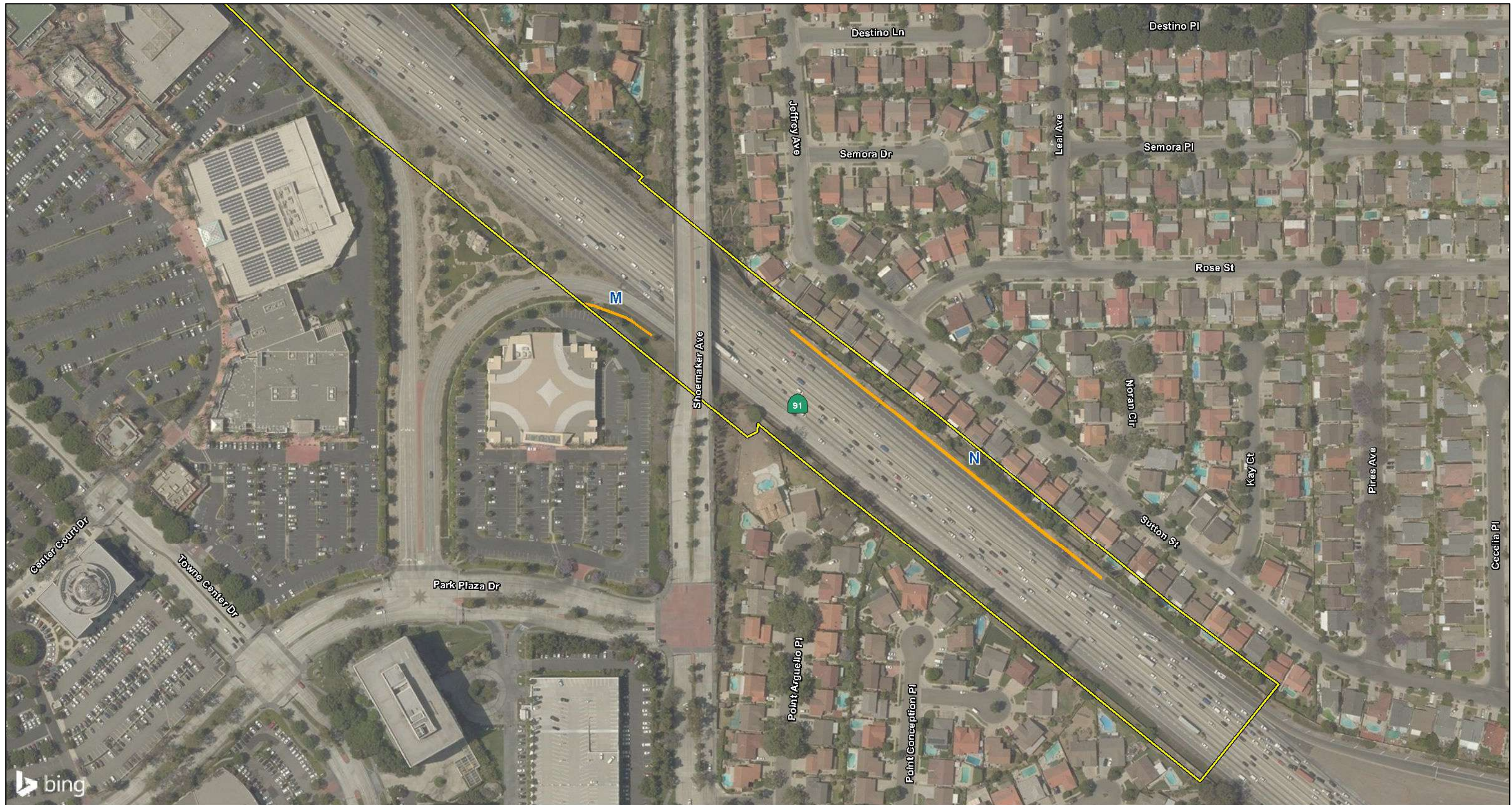


FIGURE 2.14-1  
Sheet 10 of 10

LEGEND

Biological Study Area Limits

Drainage Features (A-N)

Potential USACE Jurisdiction (0.88 acres)

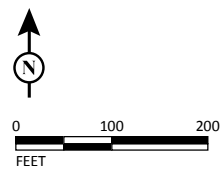
Potential CDFW Jurisdiction (1.17 acres)

Likely Non-Jurisdictional Drainage Features (1.33 acres)

Permanent Impact

Temporary Impact

Temporary Construction Easement



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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Westbound SR-91 Improvement Project  
Drainage Features  
07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811



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FIGURE 2.14-2  
Sheet 1 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

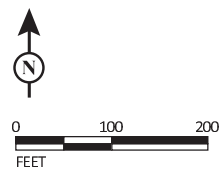
- # Structure Number with ID<sup>1</sup>
- ✱ Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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Westbound SR-91 Improvement Project  
Project Impacts to Biological Resources

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811



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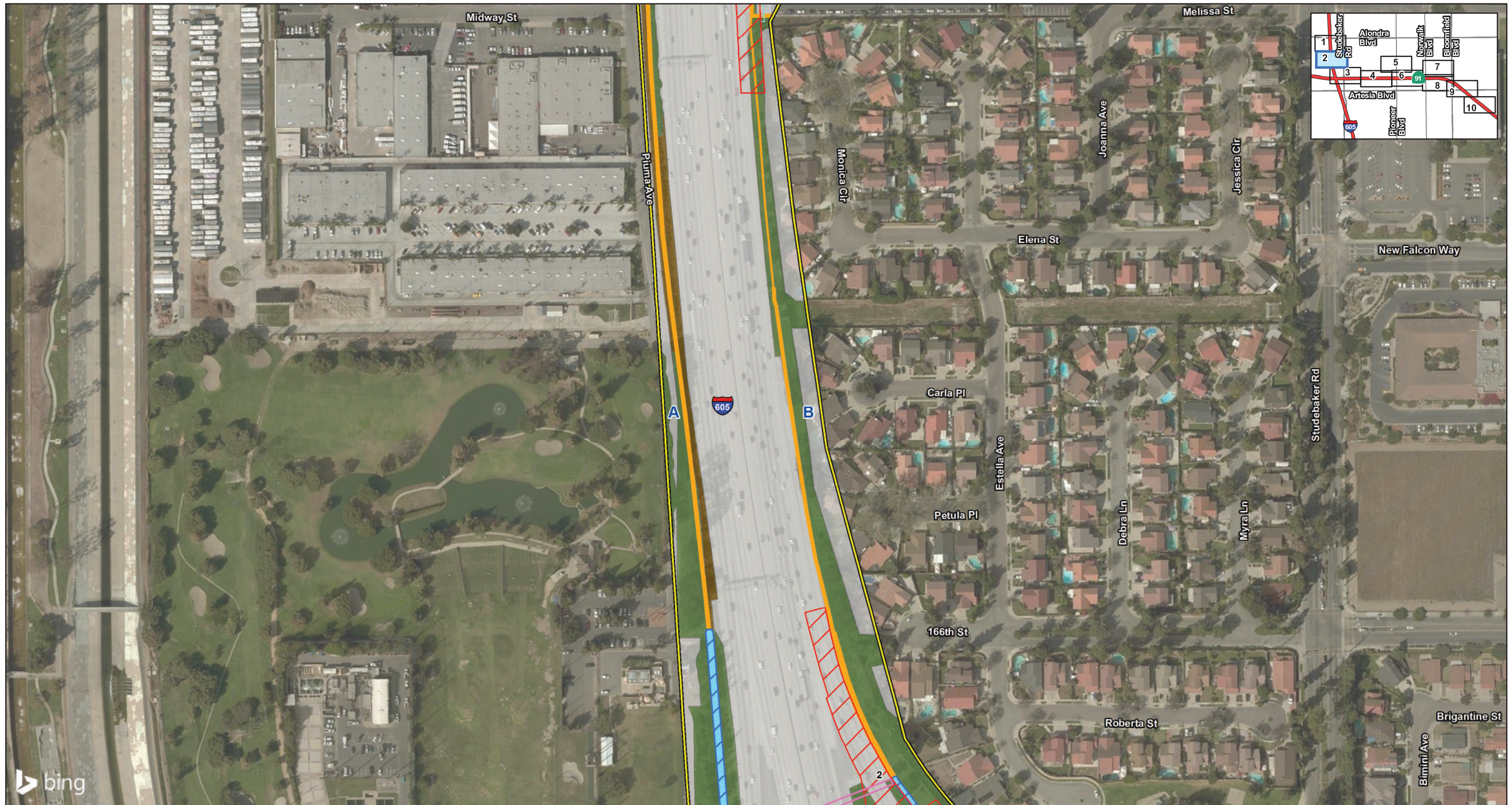


FIGURE 2.14-2  
Sheet 2 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

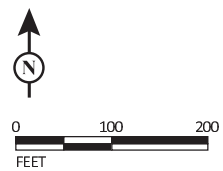
- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)





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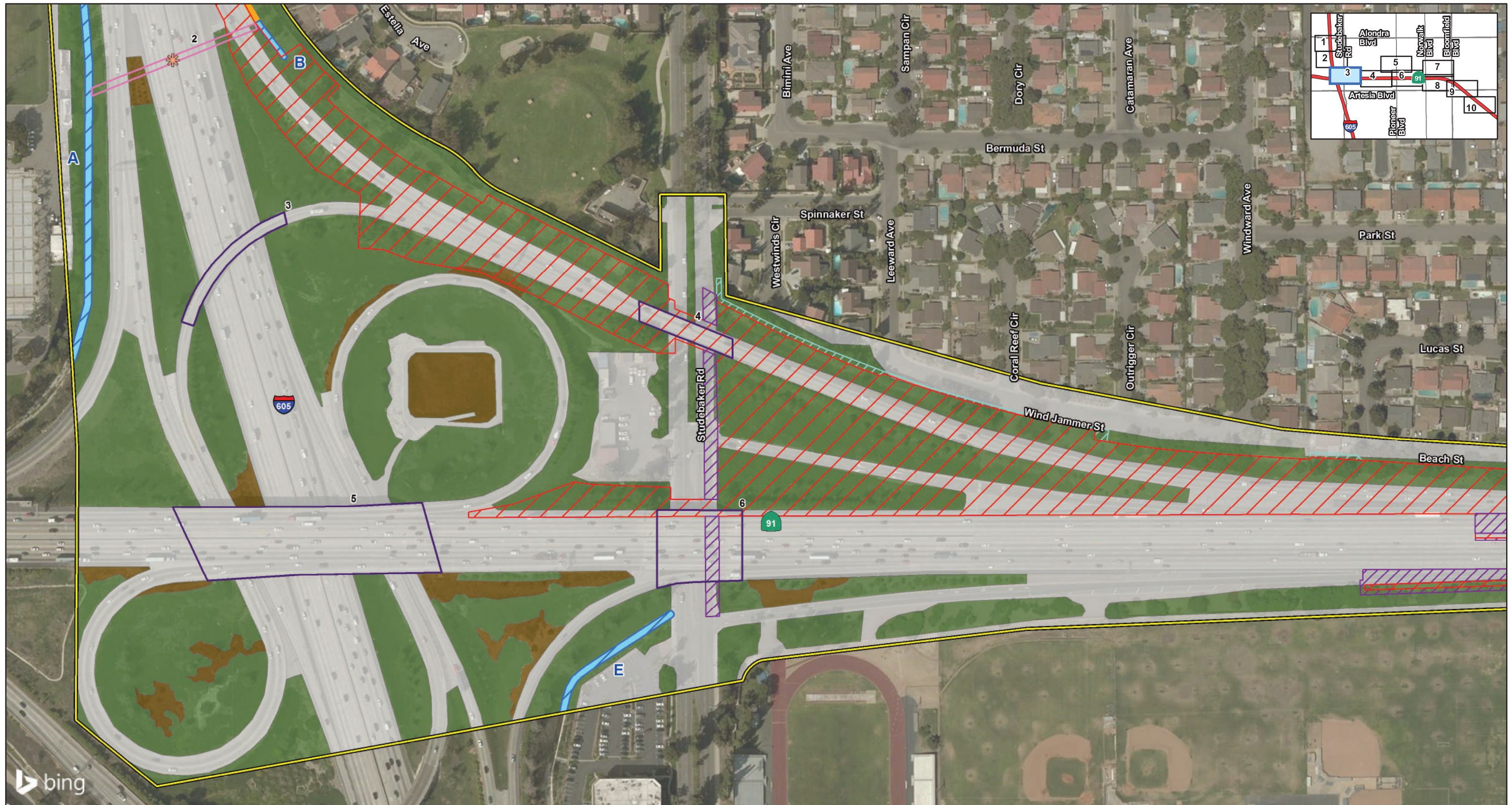


FIGURE 2.14-2  
Sheet 3 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

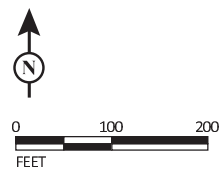
- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

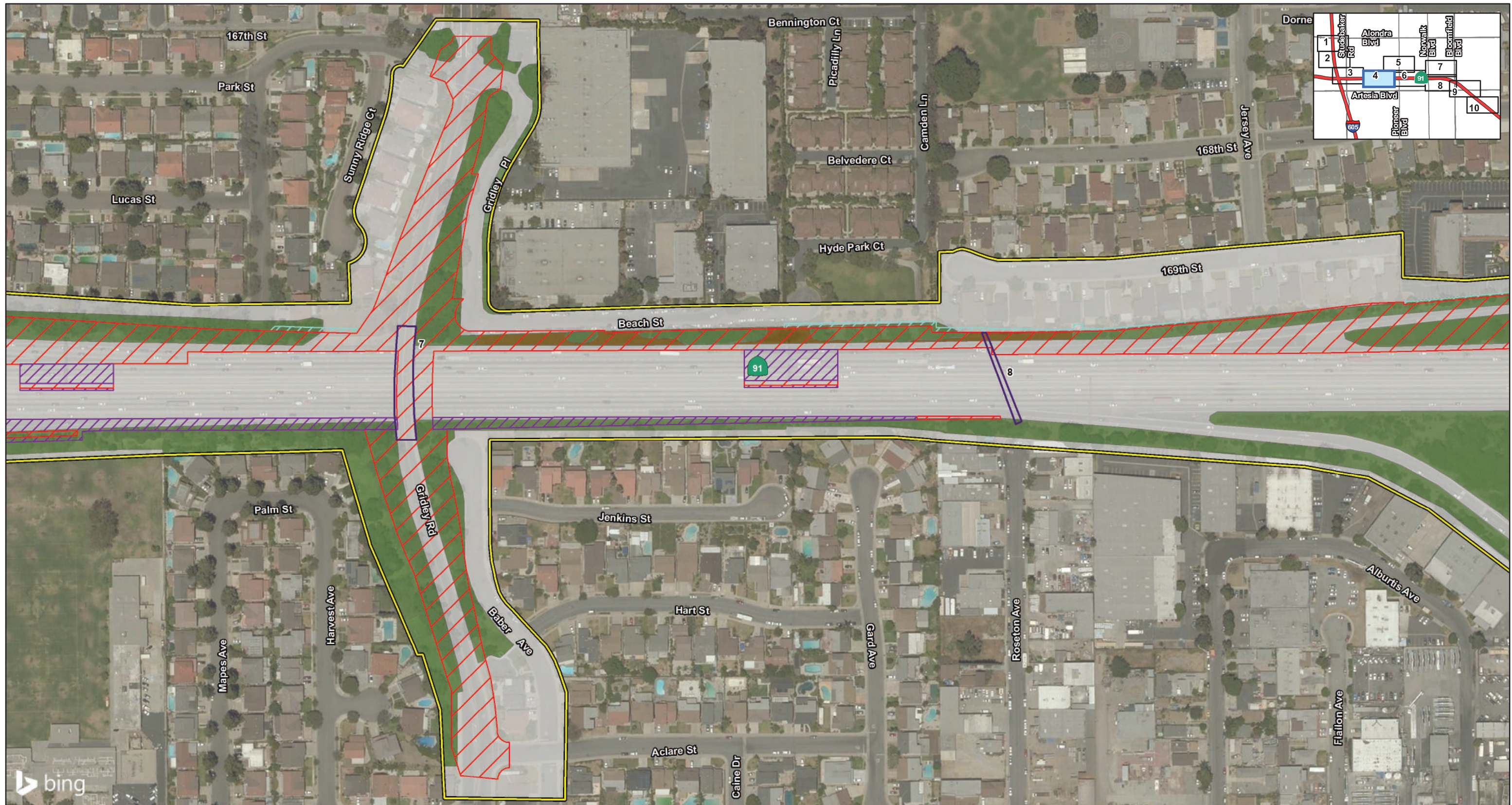
- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)





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LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

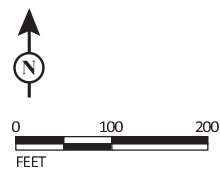
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Land Cover Types

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- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
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SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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FIGURE 2.14-2  
Sheet 4 of 10

Westbound SR-91 Improvement Project  
Project Impacts to Biological Resources  
07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811



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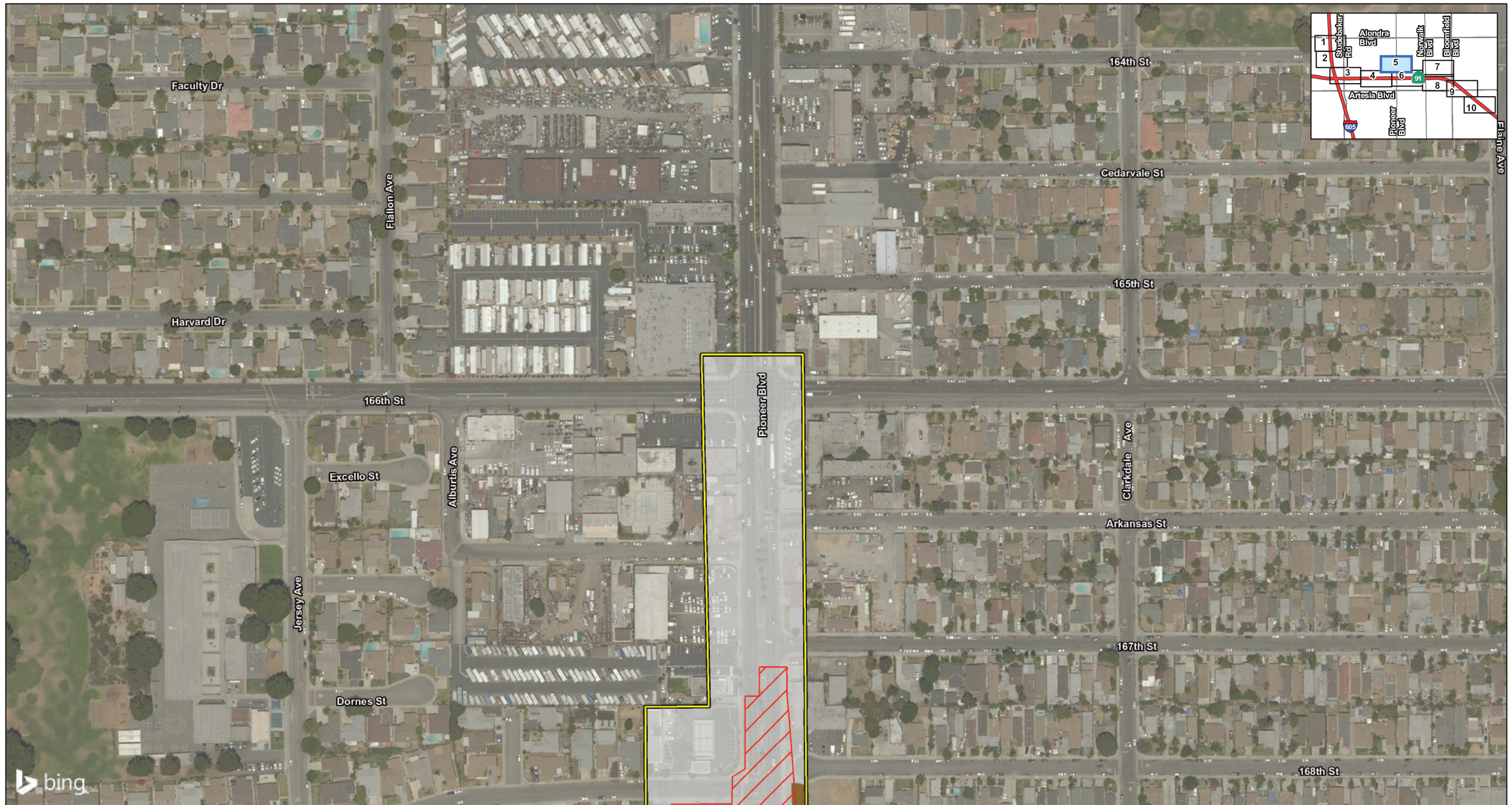


FIGURE 2.14-2  
Sheet 5 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

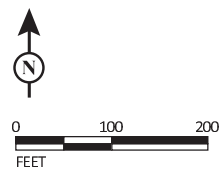
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(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



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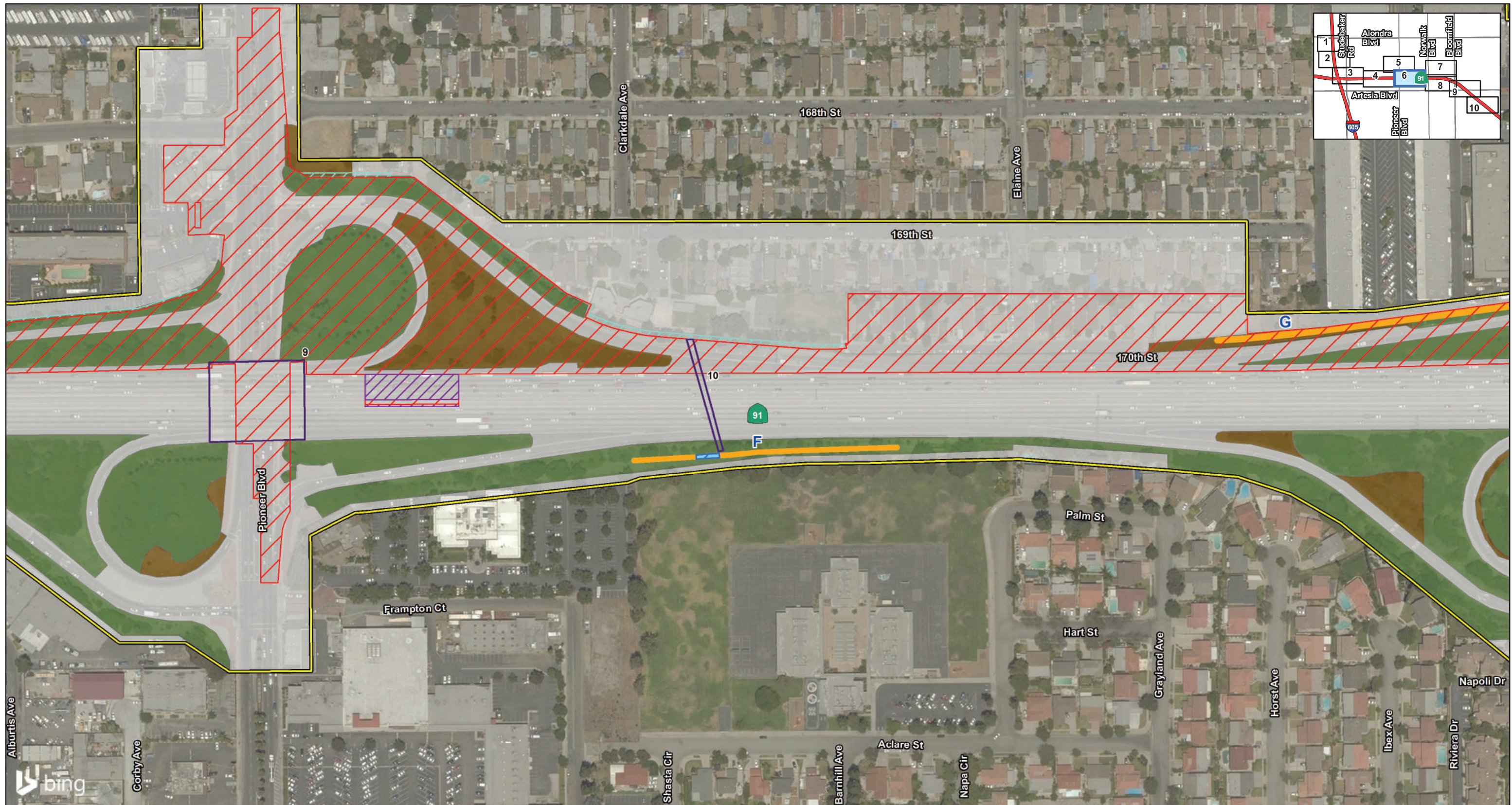
Westbound SR-91 Improvement Project  
Project Impacts to Biological Resources

07-LA-91  
SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
EFIS 0700000191; EA 07-29811



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LEGEND

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Bat Habitat

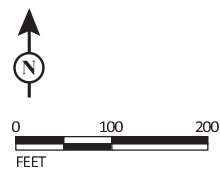
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Land Cover Types

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Flood Control Channels Drainage Features (A-N)

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FIGURE 2.14-2  
 Sheet 6 of 10

Westbound SR-91 Improvement Project  
 Project Impacts to Biological Resources  
 07-LA-91  
 SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
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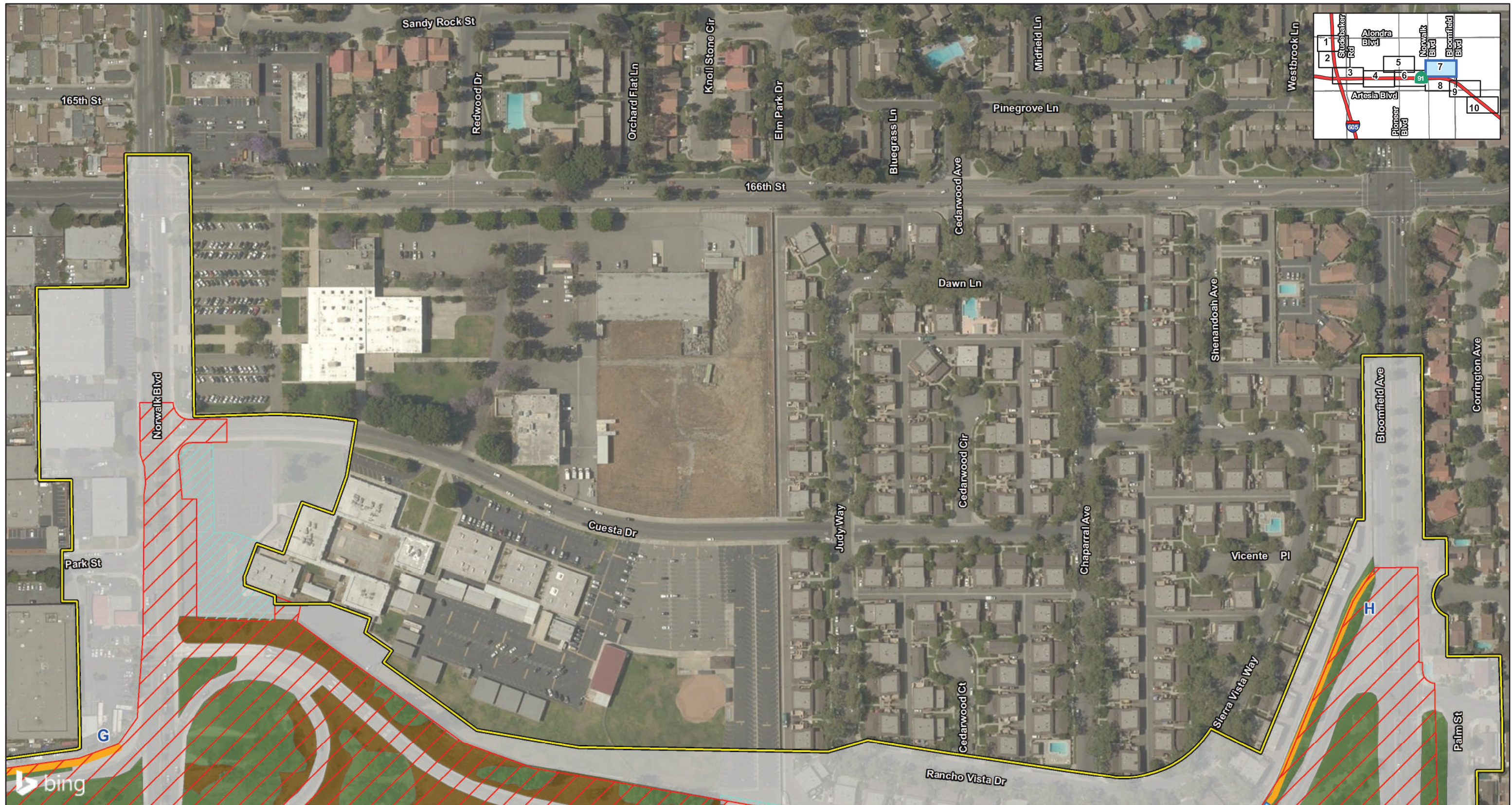


FIGURE 2.14-2  
Sheet 7 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

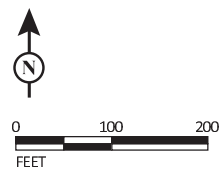
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Land Cover Types

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- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
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Westbound SR-91 Improvement Project  
Project Impacts to Biological Resources  
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SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8  
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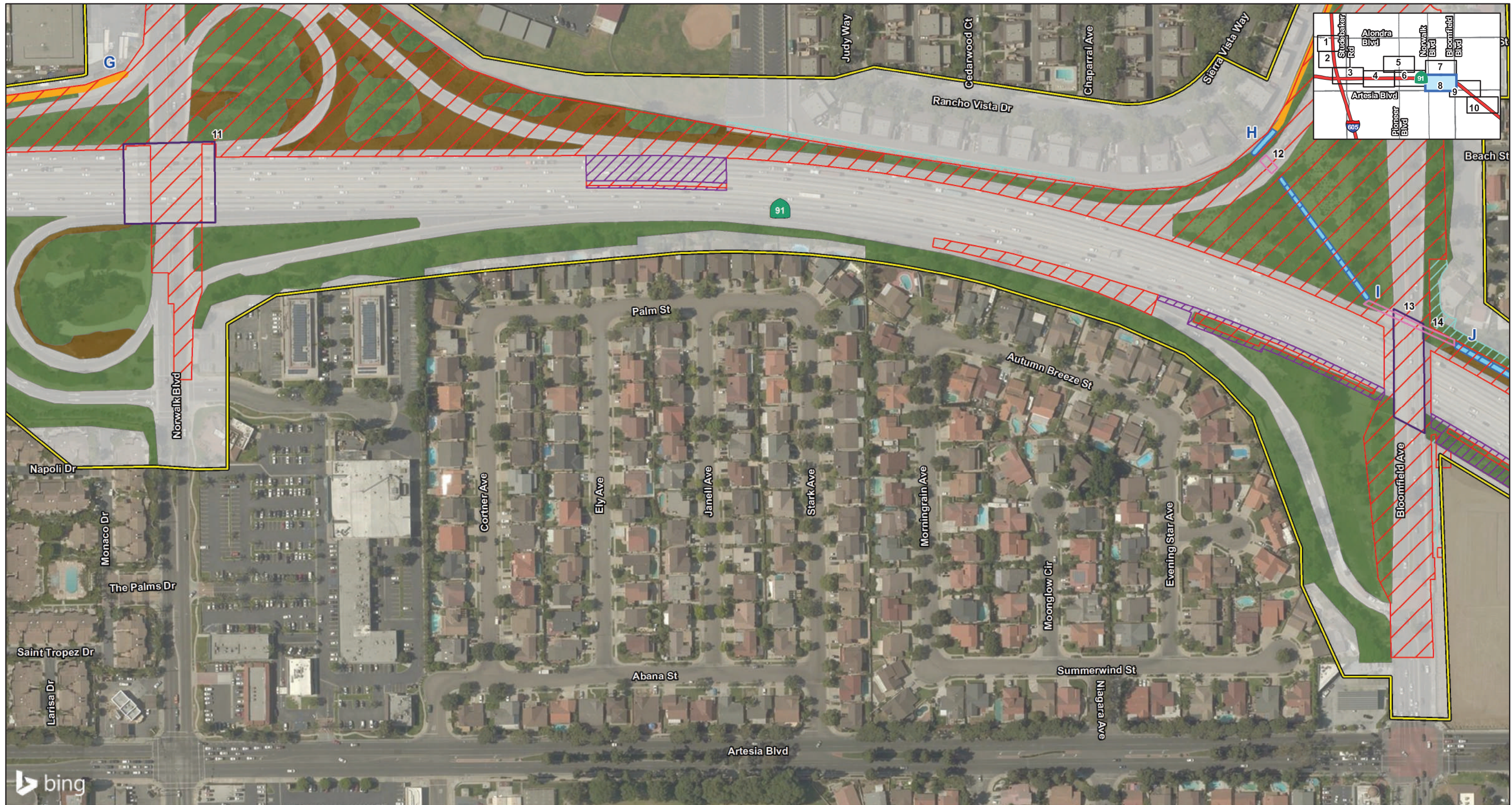


FIGURE 2.14-2  
Sheet 8 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

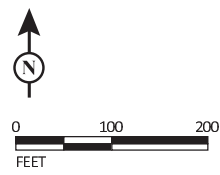
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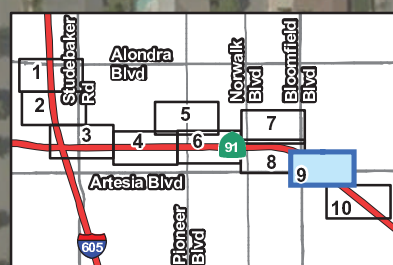
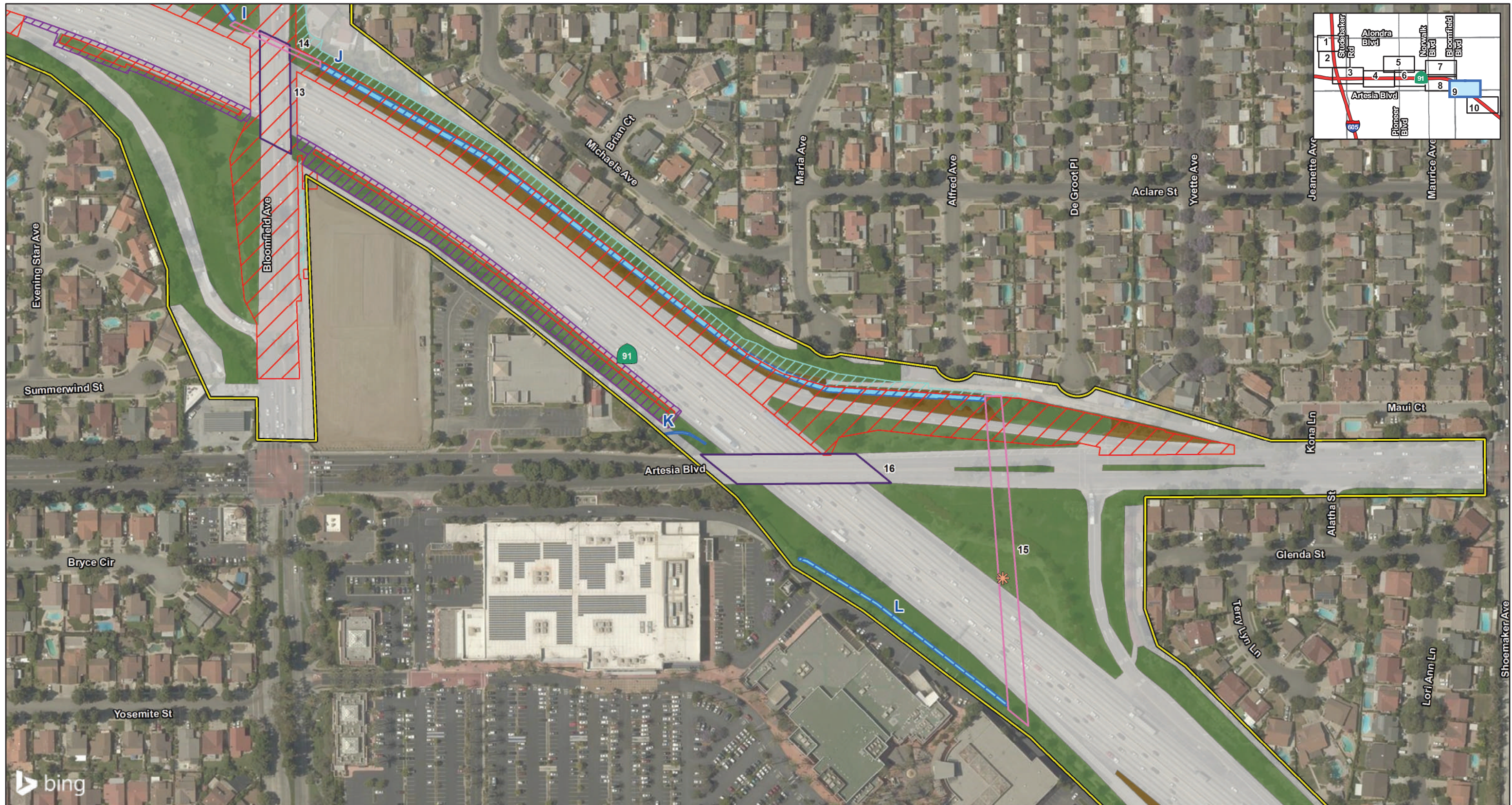


FIGURE 2.14-2  
Sheet 9 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement (TCE)

Bat Habitat

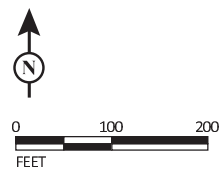
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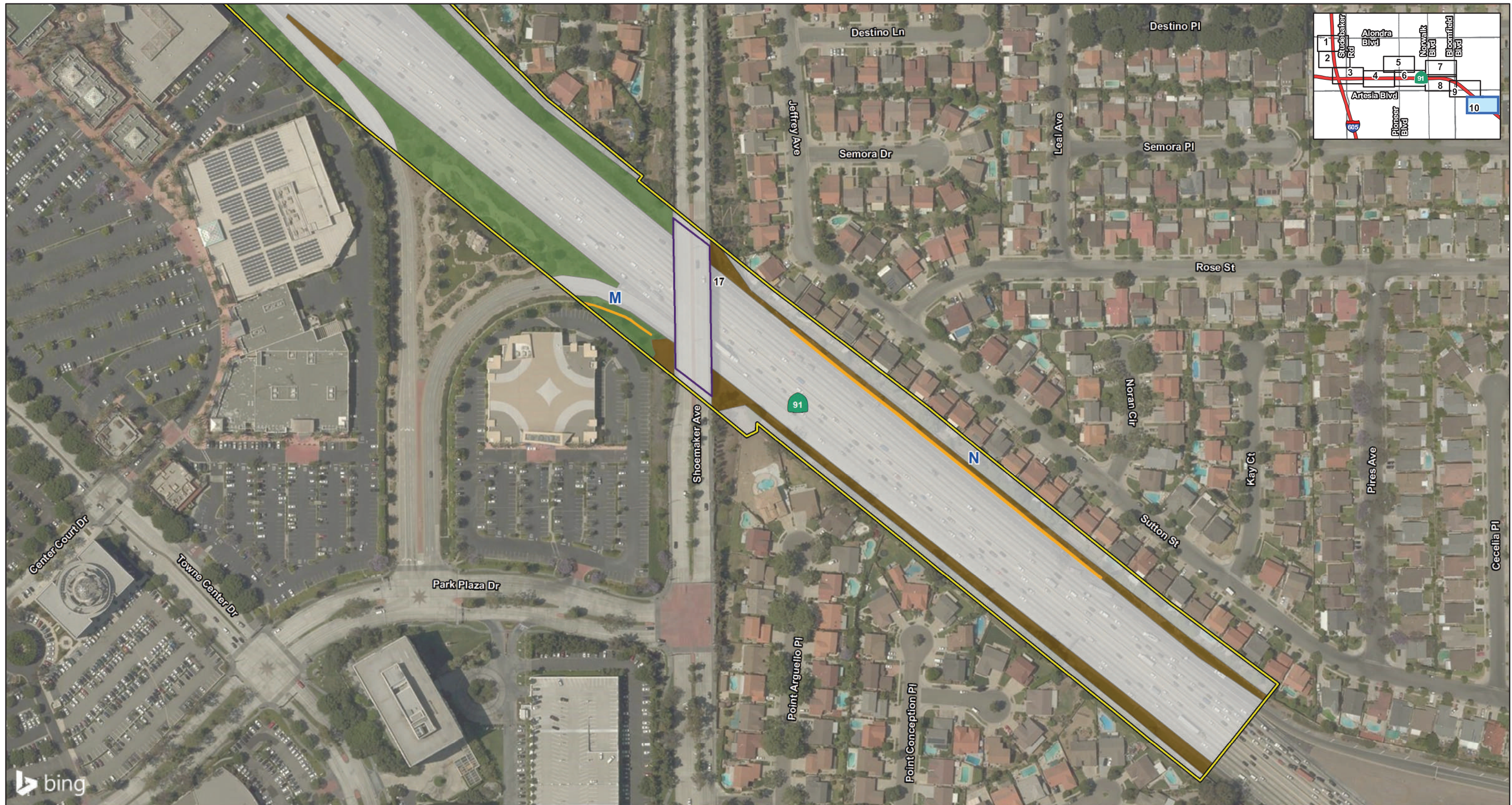


FIGURE 2.14-2  
Sheet 10 of 10

LEGEND

- Biological Study Area (BSA)
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- Temporary Construction Easement (TCE)

Bat Habitat

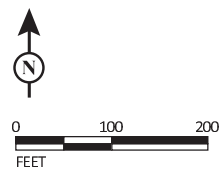
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## 2.15 Plant Species

### 2.15.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). The proposed project would not impact any species listed or proposed for listing as threatened or endangered as discussed earlier in the introduction to Chapter 2.

This section of the document discusses all other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), found at California Public Resources Code, Sections 21000-21177.

### 2.15.2 Affected Environment

The information in this section is based on the 2017 *Natural Environment Study (Minimal Impacts)* (NES [MI]) prepared for the project.

A literature review and records search were conducted to identify the existence or potential occurrence of sensitive or special-status plant species located within or in the vicinity of the biological study area (BSA). The results of the literature review identified 37 special-status plant species with the potential to occur within the nine United States Geological Service (USGS) topographical quadrangles surrounding the BSA. Of the 37 special-status plant species, 3 were identified by USFWS and the CDFW California Natural Diversity Database (CNDDDB) as potentially occurring

within the vicinity of the BSA. A figure of the BSA is provided in the NES (MI) prepared for this project.

Of the three special-status plant species, two are federally and/or State-listed as endangered or threatened and are not discussed in this document because, as noted earlier in the introduction to Chapter 2, there are no threatened or endangered species in or near the BSA; therefore, the Build Alternative will not impact any threatened or endangered species. The remaining special-status plant species identified as potentially occurring in or near the vicinity of the BSA is Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*).

Coulter's goldfields is a perennial herb that occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands, usually on ocean bluffs and ridgetops in alkaline or clay soils (from 10 to 1,510 feet [ft] in elevation). Coulter's goldfields is identified as occurring within 2 miles (mi) of the BSA. However, no suitable habitat to support this plant species occurs within the BSA, and the species was not observed during the surveys, which were conducted during the species' blooming period. Therefore, the species is not expected to occur within the BSA or to be affected by the proposed project.

The BSA does not contain, nor is it adjacent to, suitable habitat for any special-status plant species identified in the literature search.

In addition to the literature review, reconnaissance-level field surveys were conducted on May 25 and June 15, 2017, to characterize the general biological resources and to ascertain the presence or absence of special-status plant species and the likelihood of their occurrence in or near the BSA. No special-status plant species (i.e., listed, proposed for listing, or candidate species) were observed or otherwise detected in the BSA during the field surveys.

The BSA is composed of disturbed habitat and landscaped and nonvegetated urban/developed areas. Plant species occurring in the BSA are characteristic of those found in regularly disturbed and landscaped areas, consisting primarily of nonnative weeds, Hottentot-fig (*Carpobrotus edulis*), and mature pine (*Pinus* sp.) and eucalyptus (*Eucalyptus* sp.) trees.

### **2.15.3 Environmental Consequences**

The proposed project has been determined to have no effect on any of the federally or State listed species identified as potentially occurring within the vicinity of the proposed project (refer to Table 2.15.1).

#### **2.15.3.1 Temporary Impacts**

##### ***Build Alternative (includes Design Options)***

The project is not expected to affect any special-status plant species because they are considered absent from the BSA. As a result, the construction of the Build Alternative would not result in temporary impacts to special-status plant species.

##### ***No Build Alternative***

The No Build Alternative would not include construction of any of the proposed project improvements. Therefore, the No Build Alternative would not result in adverse temporary impacts to special-status plant species.

#### **2.15.3.2 Permanent Impacts**

##### ***Build Alternative (includes Design Options)***

The project is not expected to affect any special-status plant species because they are considered absent from the BSA. As a result, the construction and operation of the Build Alternative would not result in permanent impacts on special-status plant species.

##### ***No Build Alternative***

The No Build Alternative would not include construction of any of the proposed project improvements and, as noted above, there is no suitable habitat for special-status plant species in the BSA. Therefore, the No Build Alternative would not result in adverse permanent impacts to special-status plant species.

### **2.15.4 Avoidance, Minimization, and/or Mitigation Measures**

As the Build Alternative would not result in any temporary or permanent impacts related to plant species, no avoidance, minimization, or mitigation measures are required.



**Table 2.15.1 Effects Determination for Federally Listed Plant Species**

| Common Name              | Scientific Name  | Federal Status | General Habitat Description  | Habitat Present/Absent | Rationale   | Effect Determination                                       |
|--------------------------|--|----------------|--|------------------------|---|--|
| Ventura marsh milk-vetch | <i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i> | Endangered     | Perennial herb. Coastal salt marsh within reach of high tide or protected by barrier beaches, or more rarely near seeps on sandy bluffs, below 120 ft elevation. | Absent                 | Known only from Santa Barbara and Ventura Counties. Believed extirpated from Los Angeles and Orange Counties. No suitable habitat in BSA, and species not observed during survey. | The proposed project would have no effect on this species. |
| Salt marsh bird's-beak   | <i>Chloropyron maritimum</i> ssp. <i>maritimum</i>       | Endangered     | Annual herb. Coastal dunes and salt marshes.   | Absent                 | No suitable habitat in BSA, and species not observed during survey.   | The proposed project would have no effect on this species. |

Source: *Natural Environment Study (Minimal Impacts)* (2017 and 2018 errata).  
 BSA = biological study area  
 ft = feet

## 2.16 Animal Species

### 2.16.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. As stated earlier in the introduction to Section 2.0, the proposed project would not impact any animal species listed or proposed for listing as threatened or endangered, and they are therefore not further discussed in this document. All other special-status animal species are discussed here, including CDFW Fully Protected Species and Species of Special Concern, and USFWS or NOAA Fisheries Service Candidate Species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

### 2.16.2 Affected Environment

The information in this section is based on the *Natural Environment Study (Minimal Impacts)* (2017 and 2018 errata) prepared for the project.

#### 2.16.2.1 Literature Review, Records Search, and Field Survey Results

A literature review and records search were conducted to identify the presence or potential occurrence of sensitive or special-status animal species within or in the vicinity of the biological study area (BSA). The literature review and records searches identified 56 listed, proposed, and special-status animal species as having potential to occur within the nine United States Geological Service (USGS) topographical quadrangles surrounding the BSA. Unofficial species lists were received from the

USFWS on May 24, 2017, and from the NOAA Fisheries Service on June 30, 2017, and updated official species lists were received from the USFWS on March 19, 2018, and from the NOAA Fisheries Service on March 19, 2018, the most recent of which are provided in Chapter 4. Five wildlife species that are federally and/or State-listed as endangered or threatened were identified by the USFWS as potentially occurring within the vicinity of the BSA. These species are western snowy plover, coastal California gnatcatcher, California least tern, least Bell's vireo, and Pacific pocket mouse. One species, California steelhead trout, was reported on the NOAA Fisheries Service list to potentially have critical habitat occurring in the United States Geological Survey (USGS) *Los Alamitos, California* or *Whittier, California* 7.5 minute quadrangle areas; however, this habitat is not within or adjacent to the BSA. None of these species were observed during field surveys and none are expected to occur within the BSA because no suitable habitat for these species is in the BSA.

The following 10 special-status animal species (5 CDFW Species of Special Concern and 5 CDFW Special Animals) that are not federally and/or State-listed endangered or threatened were identified in the literature and record searches as potentially occurring in or near the BSA due to the presence of suitable habitat:

- Rufous hummingbird (*Selasphorus rufus*)
- Cooper's hawk (*Accipiter cooperii*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Pallid bat (*Antrozous pallidus*)
- Western mastiff bat (*Eumops perotis californicus*)
- Western yellow bat (*Lasiurus xanthinus*)
- Pocketed free-tailed bat (*Nyctinomops femorosaccus*)
- Big free-tailed bat (*Nyctinomops macrotis*)
- Hoary bat (*Lasiurus cinereus*)
- Yuma myotis (*Myotis yumanensis*)

Reconnaissance-level field surveys were conducted on May 25 and June 15, 2017, to characterize the general biological resources and to ascertain the presence or absence of special-status animal species and the likelihood of their occurrence in and near the BSA.

A habitat suitability assessment for bats was conducted on May 25 and June 15, 2017, to examine suitable roosting habitat (e.g., crevices or cavities) at various bridge and



culvert structures and to identify the presence of bats or bat sign (e.g., guano, staining, or vocalizations) within the BSA and immediate surrounding areas.

No special-status animal species were observed in the BSA during field surveys, but the Rufous hummingbird, Cooper's hawk, and six special-status bats have the potential to occur within the BSA due to the presence of suitable habitat. In addition, two structures with guano evidence indicating bat use of these structures for roosting were observed during the surveys.

Based on the literature search and field surveys, the overall habitat type in the BSA is classified as developed and includes flood control channels, transportation, ornamental landscaping, and disturbed or barren areas. The BSA has low biological value to native wildlife species. Wildlife species occurring in the BSA are characteristic of those found in a well-developed urban setting and are adapted to noise and other human-related disturbances. Animal species observed in the BSA during reconnaissance-level field surveys for the project include western fence lizard (*Sceloporus occidentalis*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Allen's hummingbird (*Selasphorus sasin*), red-tailed hawk (*Buteo jamaicensis*), black phoebe (*Sayornis nigricans*), California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), northern rough-winged swallow (*Stelgidopteryx serripennis*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos*), scaly-breasted munia (*Lonchura punctulata*), house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), orange-crowned warbler (*Oreothlypis celata*), song sparrow (*Melospiza melodia*), California ground squirrel (*Otospermophilus beecheyi*), and raccoon (*Procyon lotor*).

#### **2.16.2.2 Rufous Hummingbird, Cooper's Hawk, and Migratory Birds**

The rufous hummingbird is included on the CDFW Special Animals List (July 2017) as a CDFW Special Animal and is classified as a USFWS Bird of Conservation Concern (BCC). The Cooper's hawk is also included on the CDFW Special Animals List and is a California Watch List species. The nest locations for both of these species are protected. Both species are also protected under the Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] Sections 703–711) and under Sections 3503 and 3800 of the California Fish and Game Code.

The rufous hummingbird is well adapted to suburban environments and has the potential to occur in the BSA. The BSA contains suitable nesting habitat (mainly

ornamental vegetation) for the rufous hummingbird and other migratory birds. The typical nesting season extends from February 15 through September 1, but hummingbirds have been found to nest year-round.

Cooper's hawk lives primarily in forests and woodlands, but has recently adapted to suburban areas and can nest in tall ornamental trees. The BSA contains marginally suitable foraging and nesting habitat for the Cooper's hawk and other migratory birds.

Migratory birds are protected under the MBTA. In addition, Sections 3503, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of migratory birds, their nests, or their eggs.

### **2.16.2.3 Special-Status Bridge/Culvert- and Crevice-Dwelling Animal Species**

Special-status bat species that may roost within the BSA include western yellow bat (a CDFW Species of Special Concern), Yuma myotis (a CDFW Special Animal), pallid bat (a CDFW Special Animal), silver-haired bat (a CDFW Special Animal), and hoary bat (a CDFW Special Animal). However, all bat species (regardless of listing status) and other nongame mammals are protected by California Fish and Game Code Section 4150, which states that all nongame mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the California Fish and Game Commission. Activities resulting in the mortality of nongame mammals (e.g., destruction of an occupied bat roost, resulting in the death of bats) or disturbance that results in the loss of a maternity colony of bats (including the death of young) may be considered "take" by the CDFW. Furthermore, any structure occupied by a bat maternity colony of any species is considered a native wildlife nursery site that is essential to the viability of local populations. Bat species that may form maternity colonies in or near the BSA include Mexican free-tailed bat, Yuma myotis, and big brown bat.

A habitat suitability assessment for bats was conducted on May 25 and June 15, 2017. Bat roosting was confirmed through the presence of bat sign at two structures within the BSA, and the probability of roosting is moderate to high at an additional three structures. Although the habitat assessment surveys were performed during the bat maternity season, no evidence of any maternity colonies was observed within the BSA. However, the presence or absence of bats could not be confirmed at many of these structures during the daytime assessments, nor could the numbers or species of bats be determined, because the type of day-roosting habitat present at these locations

consists of the hollow interior spaces of the bridges accessed by bats via weep holes designed for drainage.

Based on the presence and distribution of bat sign, it is assumed that night roosting occurs at many of the culvert structures throughout the BSA.

Although roosts in structures such as bridges and culverts can be relatively easy to identify, tree roosts are more difficult to identify. Since roosting activity in trees is difficult to confirm (foliage-roosting species tend to roost singly, beneath leaves, and may roost in a different location each night), trees were not closely examined during the bat habitat suitability assessment. However, the presence of large trees and palm trees that are suitable for foliage-roosting species were noted within the BSA during the surveys.

There are no special-status bridge- and crevice-dwelling bird species with the potential to occur within the BSA. However, there is a potential for non-listed bird species to roost or nest in the BSA.

#### **2.16.2.4 Wildlife Movement**

Wildlife crossings are generally structural passages beneath or above roadways. “Wildlife crossing” is the umbrella term encompassing undercrossings, overcrossings, and culverts. All of these structures provide seminatural corridors above or below roads, and in some cases adjacent to roads, so that animals can safely cross without endangering themselves and motorists. Species of primary interest for wildlife movement within the BSA are medium-sized mammals such as raccoon.

The State Route 91 (SR-91) and Interstate 605 (I-605) freeways generally present barriers to wildlife movement and do not facilitate habitat connectivity. Specifically, these two freeways have high traffic volumes and are lined with fences and walls. The various flood control channels crossing under the two freeways may facilitate some wildlife movement, though very little evidence of this was observed. The only evidence observed was raccoon tracks in the drainage feature near Iron-Wood Nine Golf Course. However, raccoons are well adapted to the urban environment and are increasingly present in urban drainage channels. The drainage feature near Iron-Wood Nine Golf Course does not connect to any upstream natural habitat and therefore does not serve as a wildlife movement corridor. The BSA consists of developed areas, of which the mature ornamental shrubs and trees may serve as habitat linkages for urban-tolerant bird species.



### **2.16.3 Environmental Consequences**

The proposed project has been determined to have no impact on any of the federally listed species identified as potentially occurring within the vicinity of the proposed project (refer to Table 2.16.1). The following provides a discussion of potential impacts on nonlisted animal species.

#### **2.16.3.1 Temporary Impacts**

##### ***Build Alternative (includes Design Options)***

Construction of the Build Alternative could impact nesting birds, including the Rufous hummingbird and Cooper's hawk, protected under the MBTA and the California Fish and Game Code, either directly as a result of the removal of trees occupied by nesting birds or disturbances to bridge and crevice habitat, or indirectly as a result of disturbances near trees occupied by nesting birds.

In compliance with the requirements of the MBTA and California Fish and Game Code regarding nesting birds, to the maximum extent feasible, vegetation clearing and construction activities that impact existing vegetation will be conducted outside the primary nesting season for birds. The typical nesting season extends from February 15 through September 1, but hummingbirds have been found to nest year-round.

Structure Nos. 2, 12, 14, and 15 have moderate to high probabilities of supporting roosting bats (see Figure 2.16-1). Construction activities associated with the Build Alternative at these structures could result in temporary impacts to bats and other bridge- and crevice-nesting special-status species. During construction activities, indirect temporary impacts to bats and bat-roosting habitat include impacts from dust, lighting, and noise in the vicinity of the roost sites. Direct temporary impacts include destruction or loss of roosting habitat through demolition or removal of a structure or portions of a structure that contain roost features. The loss of a night roost can negatively affect the use of a foraging area, and consequently may result in reduced reproduction rates in species that are already slow to reproduce.

Humane eviction and exclusion of bats from a roost would be considered a temporary impact if alternative habitat is provided and if the bats are permitted to recolonize the original roost site following construction. In addition, construction of the Build Alternative could also impact tree-roosting habitat for bats through the removal of palm trees or their fronds within the BSA.

**Table 2.16.1 Impacts Determination for Federally Listed Animal Species**

| Common Name   | Scientific Name                           | Federal Status | Species Requirements   | Species Habitat Present/Absent | Rationale   | Impact Determination                                       |
|---|---|----------------|--|--------------------------------|---|--|
| <b>Fishes</b>   |   |                |  |                                |   |  |
| Steelhead (Southern California Distinct Population Segment) | <i>Oncorhynchus mykiss irideus</i>        | Endangered     | Occurs in cool water streams; spawns in areas of gravelly substrate in riffles or pool tails. Federal listing refers to naturally spawned anadromous steelhead originating below natural and manmade impassable barriers from the Santa Maria River to the U.S.-Mexico Border.         | Absent                         | The BSA is outside of the range for this species.                   | The proposed project would have no impact on this species. |
| <b>Birds</b>  |   |                |  |                                |   |  |
| California least tern                                       | <i>Sternula antillarum browni</i>         | Endangered     | Nests along the coast from the San Francisco Bay south to northern Baja California. Forages in shallow water. Colonial breeder on bare or sparsely vegetated, flat substrates, sand beaches, alkali flats, landfills, or paved areas.  | Absent                         | No suitable habitat in BSA, and species not observed during survey. | The proposed project would have no impact on this species. |
| Coastal California gnatcatcher                              | <i>Polioptila californica californica</i> | Threatened     | Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) in elevation in cismontane southwestern California and Baja California.   | Absent                         | No suitable habitat in BSA, and species not observed during survey. | The proposed project would have no impact on this species. |
| Least Bell's vireo  | <i>Vireo bellii pusillus</i>              | Endangered     | Riparian forests and willow thickets. The most critical structural component of Least Bell's Vireo habitat in California is a dense shrub layer 0.6–3 meters (2–10 feet) above ground. Nests from Central California to northern Baja California. Winters in southern Baja California. | Absent                         | No suitable habitat in BSA, and species not observed during survey. | The proposed project would have no impact on this species. |

**Table 2.16.1 Impacts Determination for Federally Listed Animal Species**

| Common Name          | Scientific Name                           | Federal Status | Species Requirements   | Species Habitat Present/Absent | Rationale  | Impact Determination                                       |
|----------------------|---|----------------|--|--------------------------------|--|--|
| Western snowy plover | <i>Charadrius nivosus nivosus</i>         | Threatened     | Sandy coastal beaches, lakes, and alkaline playas. Scattered locations along coastal California and the Channel Islands and inland at Salton Sea and various alkaline lakes. | Absent                         | No suitable habitat in BSA, and species not observed during survey.        | The proposed project would have no impact on this species. |
| <b>Mammals</b>       |   |                |  |                                |  |  |
| Pacific pocket mouse | <i>Perognathus longimembris pacificus</i> | Endangered     | Historically occupied open habitats on sandy soils along the coast from Los Angeles to the Mexican border. Now known from only four sites in Orange and San Diego Counties.  | Absent                         | No suitable habitat in BSA, and no sign of species observed during survey. | The proposed project would have no impact on this species. |

Source: *Natural Environment Study (Minimal Impacts)* (2017 and 2018 errata).  
BSA = biological study area





FIGURE 2.16-1  
Sheet 1 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



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SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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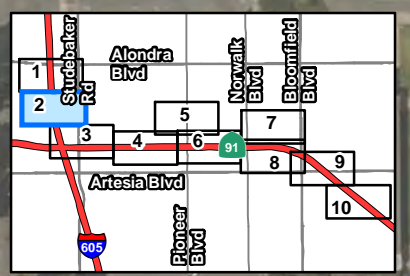
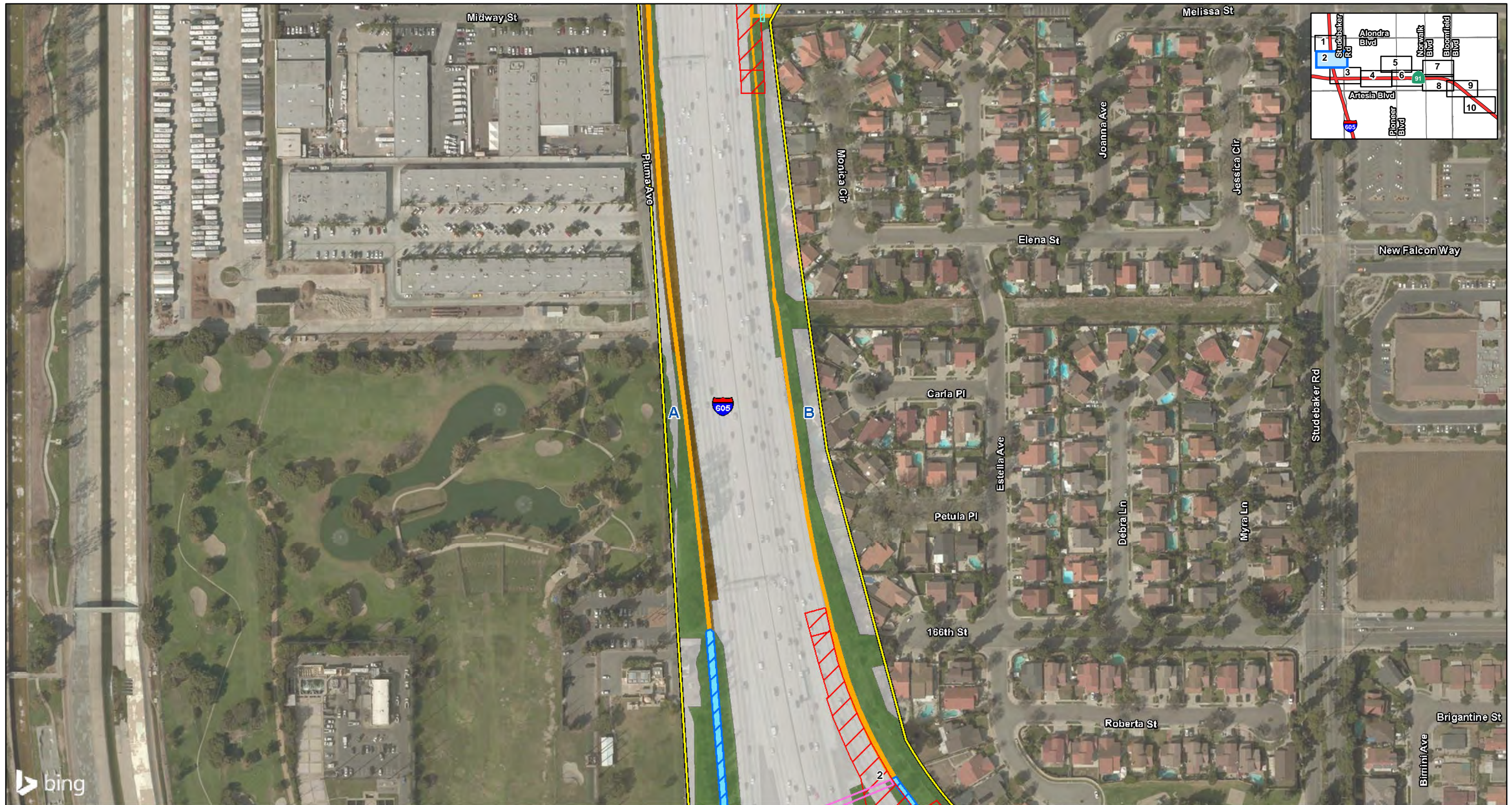


FIGURE 2.16-1  
Sheet 2 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

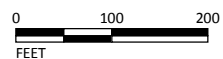
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- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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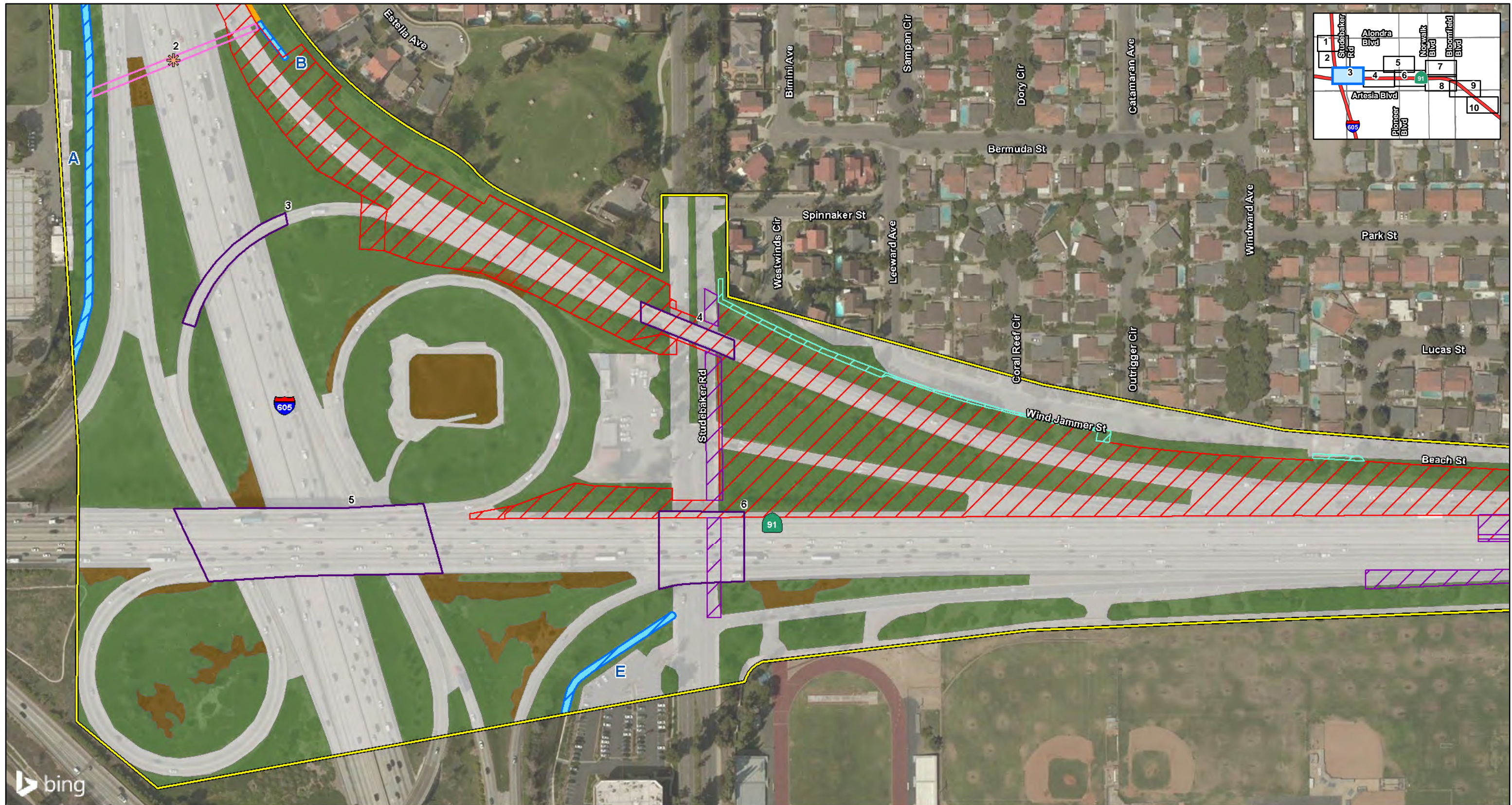


FIGURE 2.16-1  
Sheet 3 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

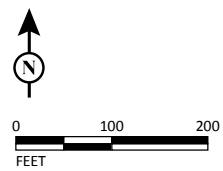
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- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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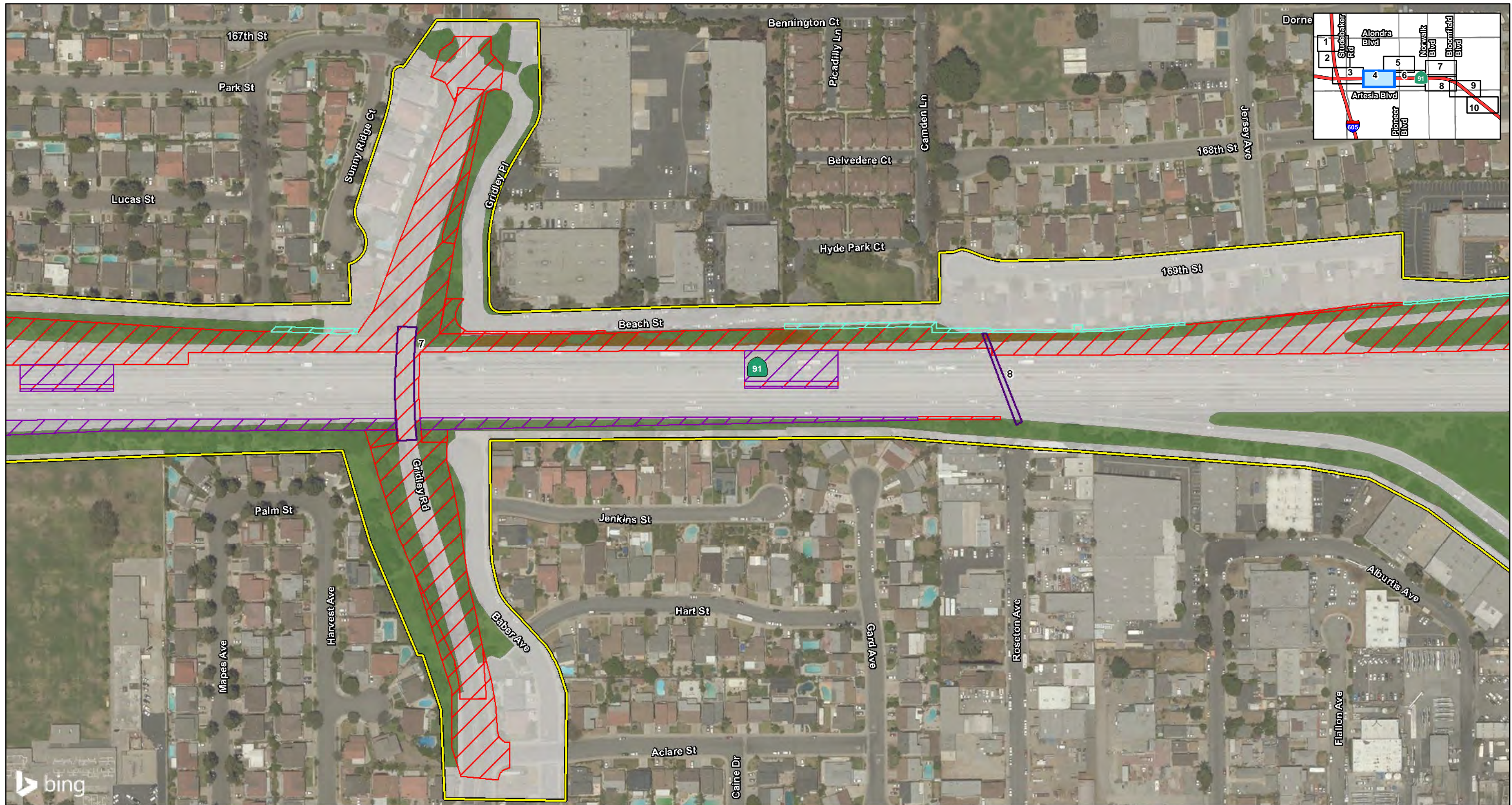


FIGURE 2.16-1  
Sheet 4 of 10

LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

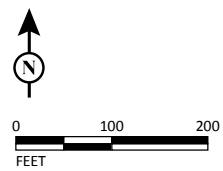
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- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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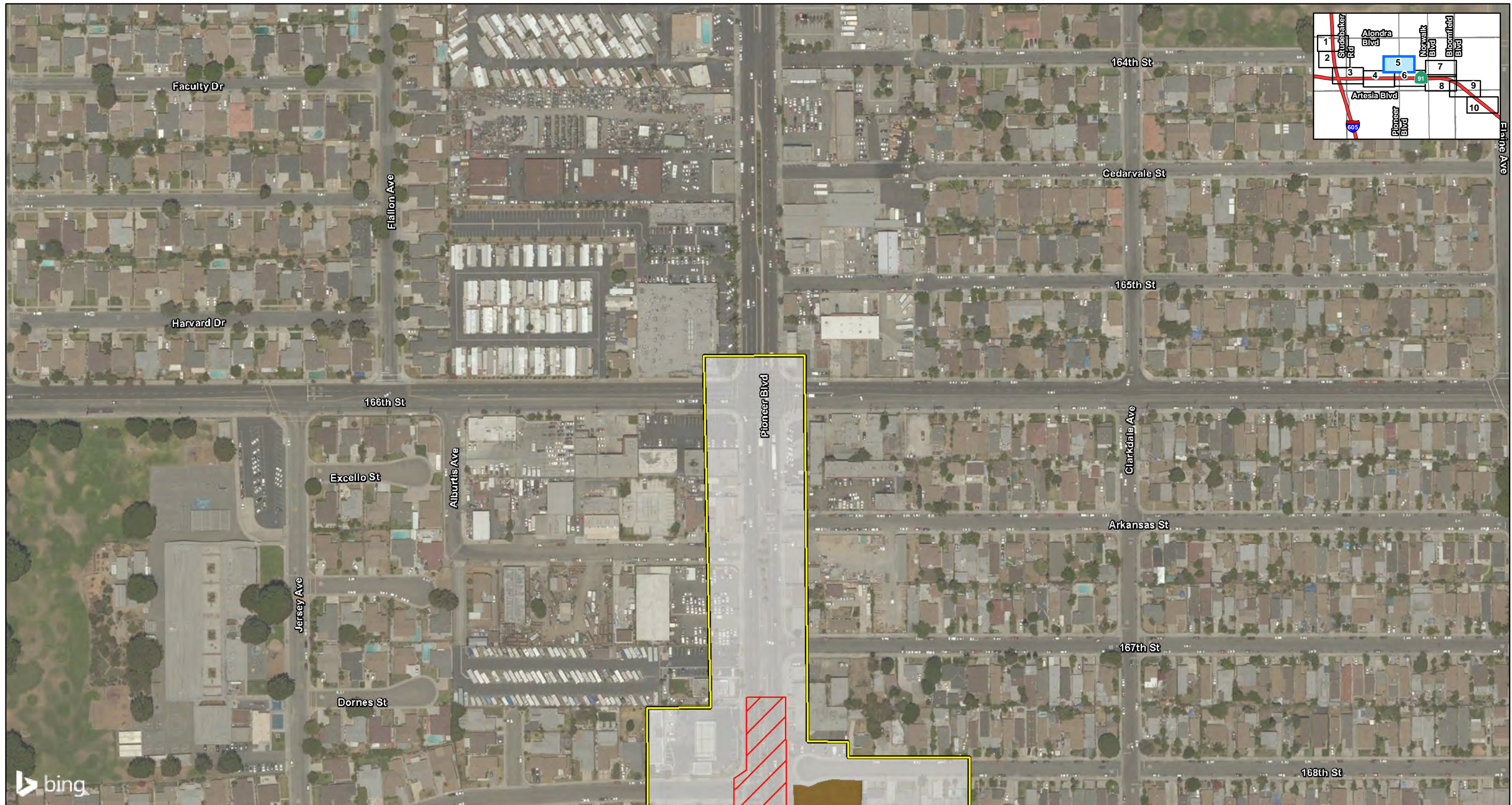


FIGURE 2.16-1  
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LEGEND

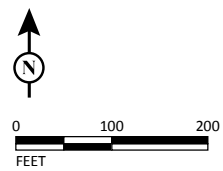
- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental
- Flood Control Channels Drainage Features (A-N)
- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



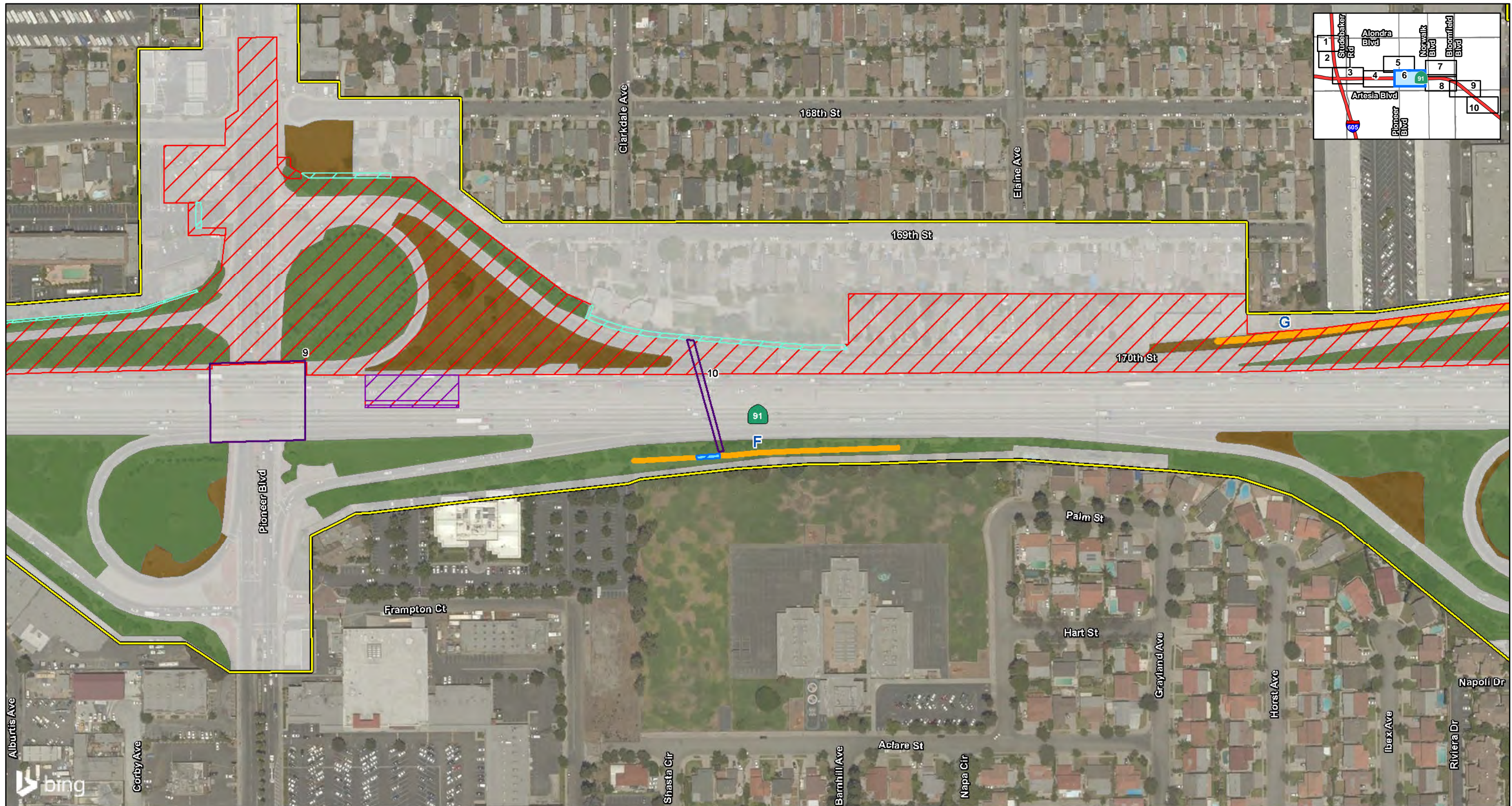
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LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

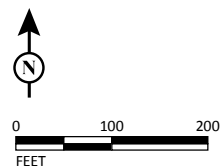
- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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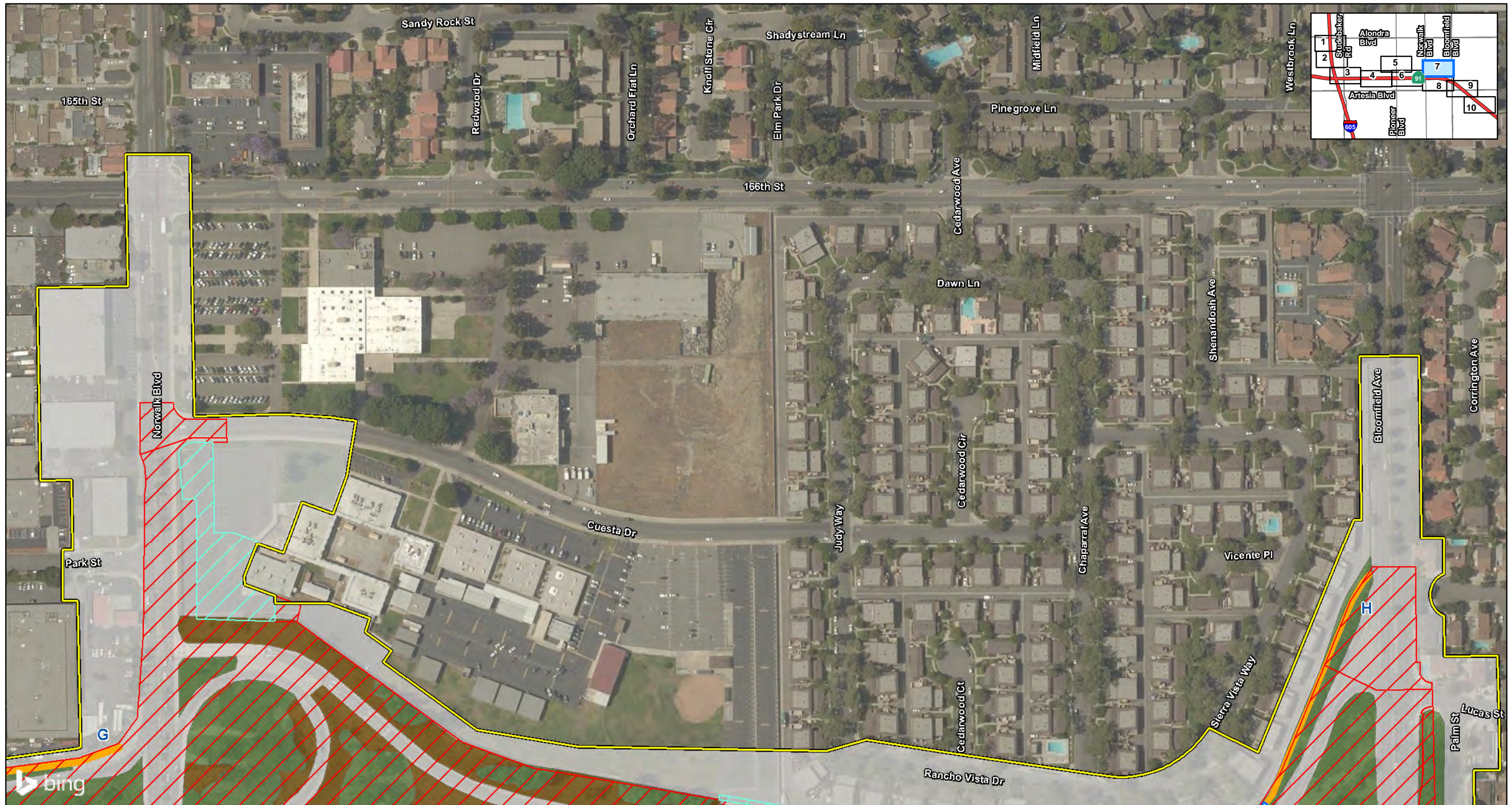
FIGURE 2.16-1  
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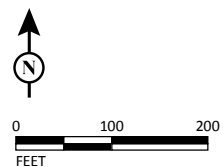
- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

- # Structure Number with ID<sup>1</sup>
- ✱ Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental
- Flood Control Channels Drainage Features (A-N)
- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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FIGURE 2.16-1  
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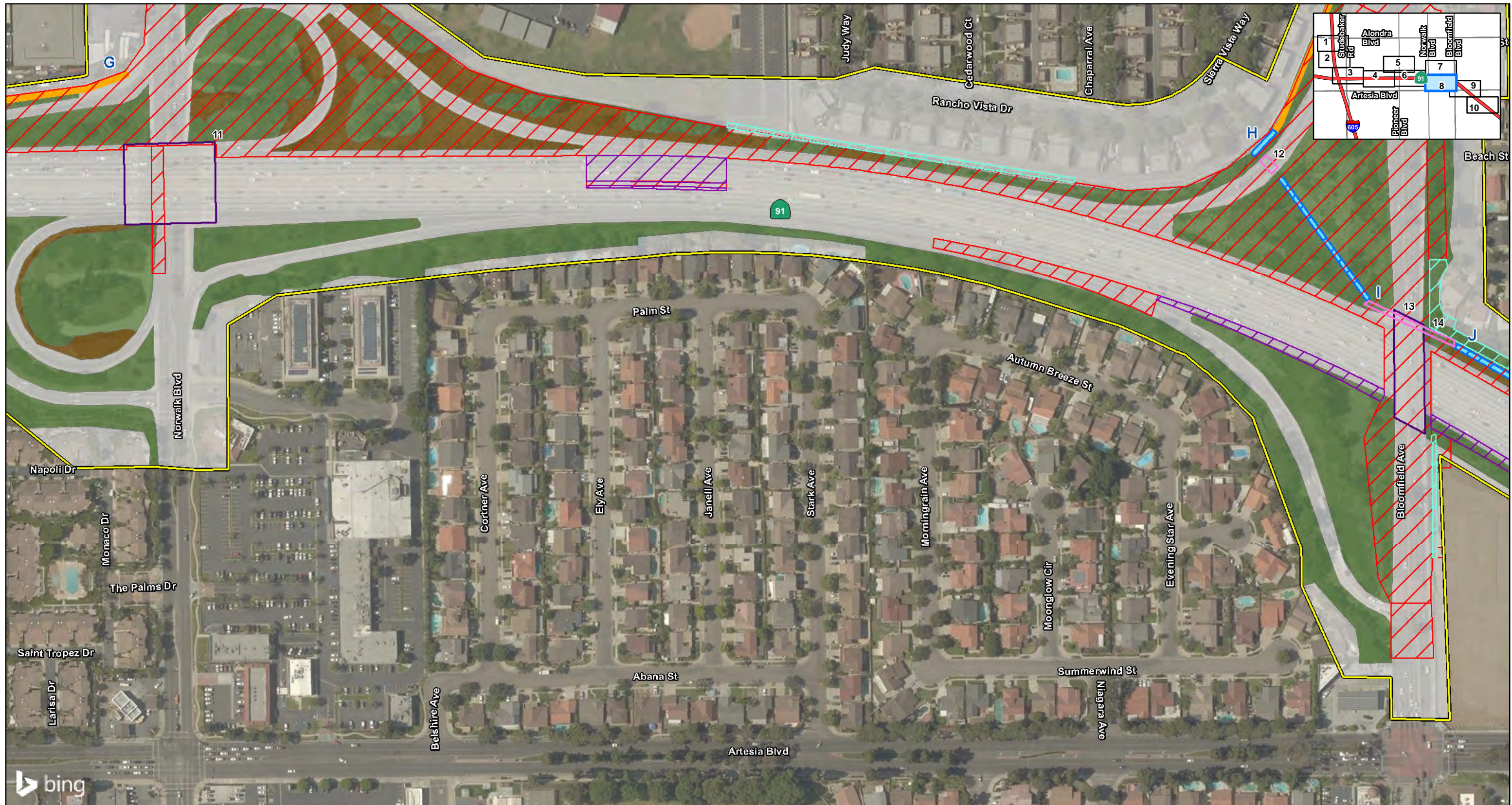


FIGURE 2.16-1  
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LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

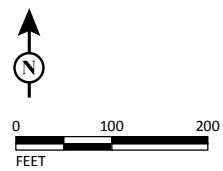
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- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



SOURCE: Bing Maps (2015); Michael Baker (4/2017)  
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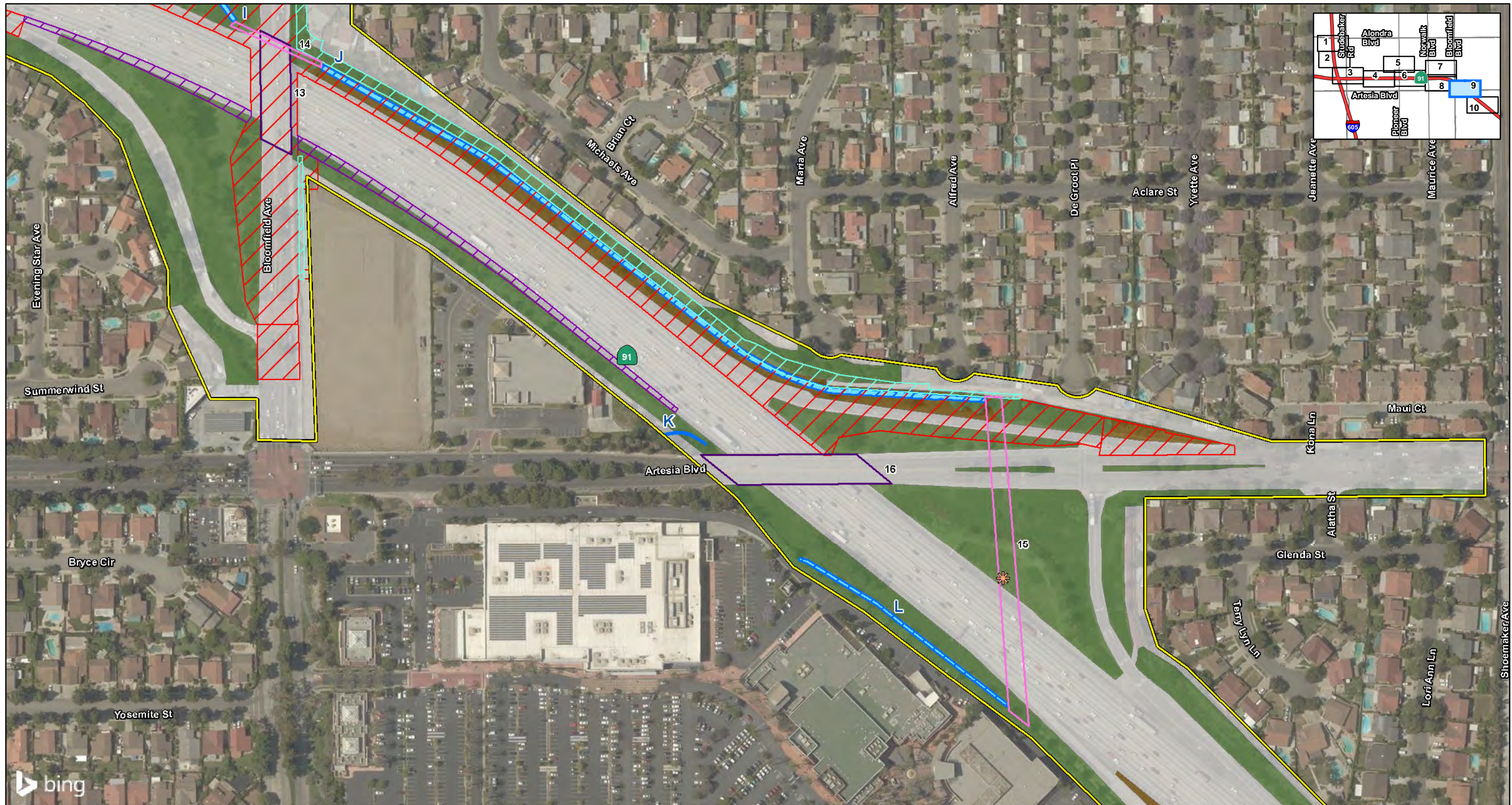


FIGURE 2.16-1  
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LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

- # Structure Number with ID<sup>1</sup>
- Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(\*Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



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SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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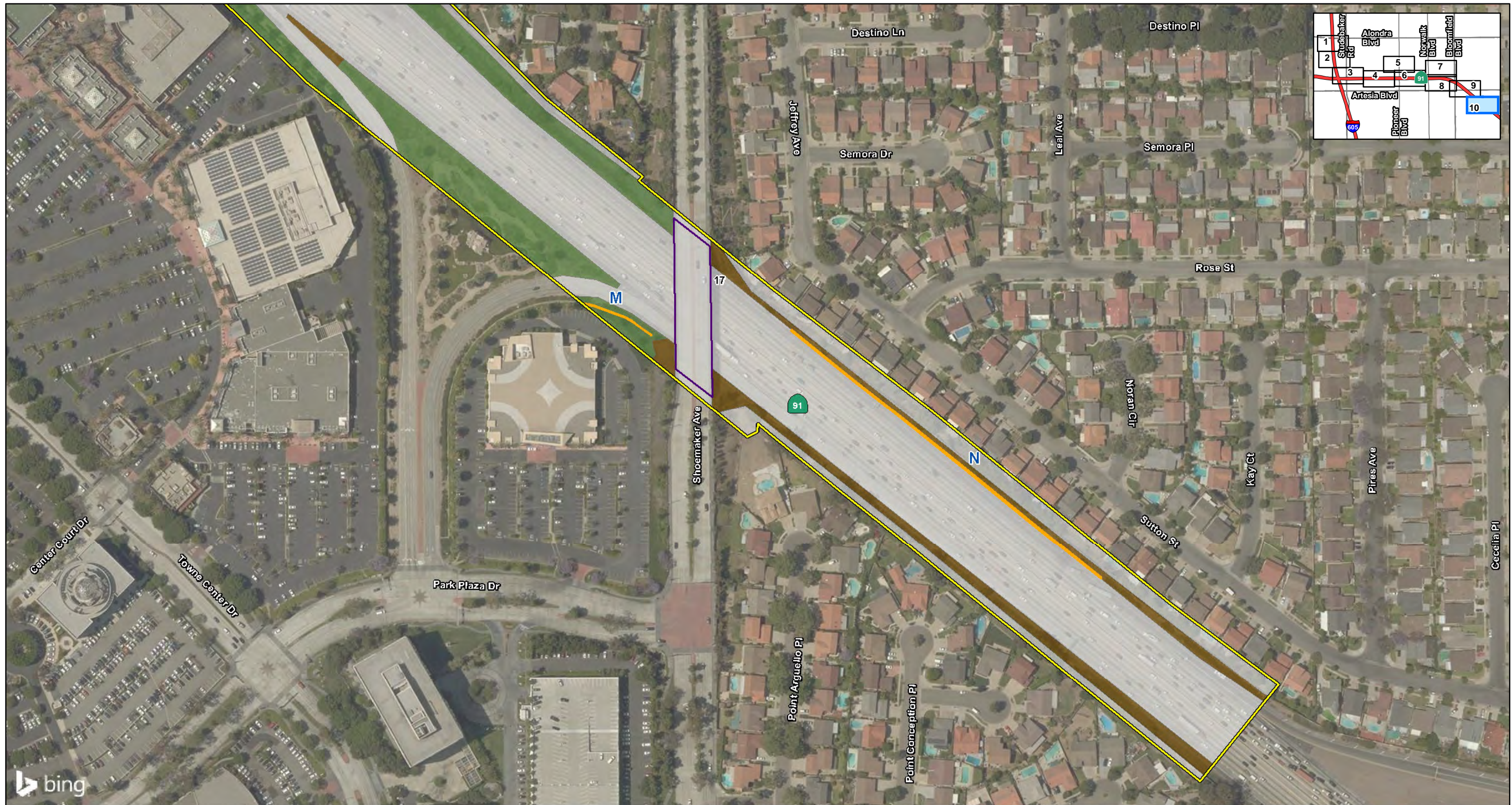


FIGURE 2.16-1  
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LEGEND

- Biological Study Area (BSA)
- Permanent Impact
- Temporary Impact
- Temporary Construction Easement

Bat Habitat

- # Structure Number with ID<sup>1</sup>
- ✱ Bat Roosting Confirmed (Bats, Roosting Bats, or Bat Sign)
- Structure with Low Probability of Roosting Bats
- Structure with Moderate to High Probability of Roosting Bats  
(<sup>1</sup>Structure Number Corresponds with Table A in Bat Memo)

Land Cover Types

- Developed and Transportation
- Disturbed or Barren
- Ornamental

Flood Control Channels Drainage Features (A-N)

- Potential USACE Jurisdiction (0.88 acres)
- Potential CDFW Jurisdiction (1.17 acres)
- Likely Non-Jurisdictional Drainage Features (1.33 acres)



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SOURCE: Bing Maps (2015); Michael Baker (4/2017)

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To minimize potential impacts to day-roosting bats (including maternity colonies) during the construction of the Build Alternative, the following project features shall be incorporated into the project:

- PF-BIO-2 Nighttime Exit Counts and Acoustic Surveys.** Nighttime exit counts and acoustic surveys shall be performed by a Qualified Bat Biologist at all structures that contain suitable bat-roosting habitat and that may be subject to project-related impacts. These surveys shall be performed within 2 weeks prior to commencement of construction activities in order to provide adequate time for mitigation planning.
- PF-BIO-3 Avoidance of Bat Roosts.** Upon confirmation of the presence of bats, construction shall avoid structures where bat day and night roosts have been confirmed to the maximum extent feasible. Where maternity roosting has been confirmed, demolition and pile-driving activities shall avoid the recognized bat maternity season (April 1–August 31) to prevent potential mortality of flightless young bats.
- PF-BIO-4 Avoidance of Maternity Colonies.** Upon confirmation of the presence of bats, construction activities at structures housing maternity colonies shall be coordinated with a Qualified Bat Biologist and the CDFW.
- PF-BIO-5 Humane Bat Eviction.** Upon confirmation of the presence of bats, if direct impacts to bat-roosting habitat are anticipated, humane evictions and exclusions of roosting bats shall be performed under the supervision of a Qualified Bat Biologist in the fall (September or October) prior to any work activities that would result in direct impacts or direct mortality to roosting bats, unless otherwise approved in coordination with CDFW. This action will be performed in coordination with the CDFW. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months (December–February) are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night and long-distance movements to other roost sites are more difficult during the winter when prey availability is scarce, resulting in high mortality rates of evicted bats.



**PF-BIO-6 Installation of Alternate Roosting Habitat.** Upon confirmation of the presence of bats, if permanent, direct impacts to bat-roosting habitat are anticipated and a humane eviction/exclusion is performed, alternate roosting habitat shall be provided to ensure no net loss of bat-roosting habitat. This alternate roosting habitat should be installed on the structure prior to the eviction/exclusion of bats from that structure. This action shall be coordinated with the CDFW and a Qualified Bat Biologist to ensure that the installed habitat will provide adequate mitigation for impacts.

**PF-BIO-7 Night Lighting During Construction.** At structures where night roosting is suspected or confirmed, work shall be limited to the daylight hours to the greatest extent feasible to avoid potential disruption of night foraging. If night work cannot be avoided, night lighting shall be focused only on the area of direct work, airspace access to and from the roost features of the structure shall not be obstructed, and light spillover into the adjacent foraging areas shall be minimized to the greatest extent feasible.

**PF-BIO-8 Avoidance of Foliage-Roosting Bats.** Foliage-roosting bat species such as western yellow bats and hoary bats may roost in trees throughout the biological study area (BSA). If mature ornamental trees (particularly palm trees) are removed or trimmed for project construction, measures should be implemented to avoid direct mortality to tree-roosting bats. To reduce potential impacts to tree-roosting bats, tree trimming/removal activities shall be performed outside the bat maternity season (April 1–August 31) to avoid direct impacts to flightless young bats that may roost in trees within the BSA. This period also coincides with the bird nesting season of March 15–September 15.

**PF-BIO-9 Biological Monitoring by a Bat Specialist.** A Qualified Biologist shall monitor construction activities near suitable bat-roost structures and tree removal/tree trimming during the bat maternity season (April 1–August 31). If bats are encountered, activities shall halt and remain halted until (a) the roost is confirmed to have been vacated by a Qualified Biologist or (b) a Qualified Biologist has coordinated with

the CDFW to develop alternative measures up to and including bat removal from the structure(s) or tree(s).

**PF-BIO-10 Access to Bat-Roosting Habitat.** If bird exclusion netting is installed to prevent birds from nesting on the bridge, care should be taken to ensure that access to the bat-roosting habitat is not obstructed. The bird exclusion netting shall have a mesh size no greater than ½ inch by ½ inch to prevent potential entrapment of bats in the netting.

**PF-BIO-11 Inspection of Swallow Nests.** If swallow nests are removed to prevent swallows from nesting in the project area during construction activities, the nests should be inspected for roosting bats and removed in the fall (September or October) in a manner that ensures they do not fall to the ground before lack of occupancy has been established. To avoid mortality by diurnal predators, any bats discovered in removed nests will need to be either housed in temporary shelters by a Qualified Bat Biologist and released that evening on site or, with the approval of the CDFW, released immediately into one of the previously existing or alternative bat roosts installed on site.

In order to prevent any impacts to Southern California steelhead trout that may occur in existing downstream suitable habitat, if any, the following project features will be incorporated into the project.

**PF-BIO-12 Best Management Practices During Construction.** All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive upland habitat areas. The designated upland areas will be located to prevent runoff from any spills or other discharge from entering waters of the United States.

Construction activities associated with the Build Alternative within the drainage feature near Iron-Wood Nine Golf Course would temporarily discourage raccoon presence in that relatively short section of the drainage, but raccoons would likely continue to utilize the adjacent areas. Therefore, construction of the Build Alternative would not result in any adverse temporary impacts to wildlife movement.

### **No Build Alternative**

The No Build Alternative would not include construction of any improvements and would not result in any disturbance on or near suitable bird and bat habitat. Therefore, the No Build Alternative would not result in temporary impacts to special-status animal species in the BSA, including bats and nesting birds.

#### **2.16.3.2 Permanent Impacts**

##### ***Build Alternative (includes Design Options)***

The Build Alternative would not result in any permanent direct impacts on the rufous hummingbird, Cooper's hawk, or other nesting birds because operations on SR-91, I-605, and the connecting arterial streets would be similar to existing conditions. Indirect noise impacts on nesting birds from traffic on SR-91, I-605, their connectors, and area streets would be similar to existing conditions.

In order to avoid and/or minimize potential impacts to fully protected raptors, special-status bird species, and other nesting birds protected by the MBTA and the California Fish and Game Code, the following project feature will be implemented:

**PF-BIO-1 Avoidance of Breeding Season.** All vegetation removal shall occur outside of bird nesting season, which is generally from February 15 to September 1. Should vegetation need to be removed during this period, the District Biologist shall be notified 2 weeks prior to the start of construction to determine whether nesting birds are present. In the event that nesting birds are observed, the Resident Engineer (RE) should stop work until a Qualified Biologist has determined that fledglings have left the nest. If this is not possible, the RE should coordinate with the District Biologist to minimize the risk of violating the Migratory Bird Treaty Act (MBTA) or California Fish and Game Code. Potential protective measures include establishing a buffer of an appropriate distance, as determined by the District Biologist, around any active nests during all phases of construction. Other measures to protect nesting birds include:

- Flagging, stakes, and/or construction fencing will be used to demarcate the inside boundary of the buffer between the project activities and the nest. California Department of Transportation (Caltrans) personnel, including all contractors working on site, will be instructed on the sensitivity of the area. Caltrans will document



the results of the recommended protective measures described above to demonstrate compliance with applicable State and federal laws pertaining to the protection of birds.

- The Biological Monitor will be present on site during all clearing and grubbing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated buffer); to ensure that the flagging/stakes/fencing is being maintained; and to minimize the likelihood that active nests are abandoned or fail due to project construction activities. The Biological Monitor will send weekly monitoring reports to Caltrans and will notify Caltrans immediately if project activities take, possess, or needlessly destroy any active bird nests or eggs of species. Caltrans will notify the United States Fish and Wildlife Service (USFWS)/California Department of Fish and Wildlife (CDFW) within 48 hours if damage to an active nest or eggs or death or injury of birds protected under State law or the MBTA is observed.

To prevent any impacts to the Southern California steelhead Distinct Population Segment that may occur in existing downstream suitable habitat, if any, a construction Storm Water Pollution Prevention Plan (SWPPP) and soil erosion and sedimentation plan will be developed to minimize erosion and identify specific pollution prevention measures that will eliminate or control potential point and nonpoint pollution sources on site during construction and operation. More details regarding the SWPPP are provided in Section 2.8, Water Quality, of this document.

Permanent impacts to bats and bat-roosting habitat include destruction or loss of roosting habitat through demolition or removal of a structure (Structure Nos. 2, 12, 14, and 15) or portions of a structure that contain roost features. Humane eviction and exclusion of bats from a roost would be considered a permanent impact if the roost site remained sealed.

Indirect noise impacts to bat species from traffic on SR-91, I-605, their connectors, and area streets would be expected to be the same as from existing conditions.

Since the BSA does not appear to function as a wildlife movement corridor, the Build Alternative would not result in any permanent impacts to wildlife movement.

**No Build Alternative**

The No Build Alternative would not include the operation of any of the project improvements. Therefore, the No Build Alternative would not result in permanent impacts to special-status animal species in the BSA, including bats and nesting birds.

**2.16.4 Avoidance, Minimization, and/or Mitigation Measures**

Because the Build Alternative would not result in any temporary or permanent impacts related to animal species with the implementation of Project Features PF-BIO-1 through PF-BIO-12, no additional avoidance, minimization, or mitigation measures are required.

## 2.17 Invasive Species

### 2.17.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State’s invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

### 2.17.2 Affected Environment

The information in this section is based on the 2017 *Natural Environment Study (Minimal Impacts)* (NES [MI]) (2017 and 2018 errata) prepared for this project.

The California Invasive Plant Council (Cal-IPC) 2006 Invasive Plant Inventory highlights nonnative plants that are serious problems in wildlands (i.e., natural areas that support native ecosystems, including national, State, and local parks; ecological reserves; wildlife areas; national forests; and Bureau of Land Management [BLM] lands). The inventory categorizes plants as High, Moderate, or Limited based on each species’ negative ecological impact in California. Plants categorized as High have severe ecological impacts. Plants categorized as Moderate have substantial and apparent, but not severe, ecological impacts. Plants categorized as Limited are invasive, but their ecological impacts are minor on a Statewide level.

As shown in Table 2.17.1, a total of 22 nonnative plant species occurring on the Cal-IPC Invasive Plant Inventory (1 High, 11 Moderate, and 10 Limited) were identified in the biological study area (BSA). A figure showing the BSA is provided in the NES (MI) prepared for this project.

No invasive animal species were observed in the BSA. Three nonnative bird species were observed but are not necessarily considered invasive.



**Table 2.17.1 Invasive Plant Species in the Biological Study Area**

| Scientific Name   | Common Name   | Rating   |
|---|---|--|
| Aizoaceae<br><i>Carpobrotus edulis</i>  | Iceplant Family<br>Hottentot-fig  | High   |
| Anacardiaceae<br><i>Schinus molle</i>   | Sumac Family<br>Peruvian pepper tree  | Limited  |
| Asteraceae<br><i>Carduus pycnocephalus</i><br><i>Cirsium vulgare</i><br><i>Helminthotheca echiodes</i>  | Sunflower Family<br>Italian thistle<br>Bull thistle<br>Bristly ox-tongue  | Moderate<br>Moderate<br>Limited                                  |
| Brassicaceae<br><i>Brassica nigra</i><br><i>Hirschfeldia incana</i><br><i>Raphanus sativus</i>  | Mustard Family<br>Black mustard<br>Shortpod mustard<br>Wild radish  | Moderate<br>Moderate<br>Limited                                  |
| Chenopodiaceae<br><i>Salsola tragus</i>   | Goosefoot Family<br>Russian-thistle   | Limited  |
| Euphorbiaceae<br><i>Ricinus communis</i>  | Spurge Family<br>Castor bean  | Limited  |
| Moraceae<br><i>Ficus carica</i>   | Mulberry Family<br>Edible fig   | Moderate   |
| Scrophulariaceae<br><i>Myoporum laetum</i>  | Figwort Family<br>Myoporum  | Moderate   |
| Simaroubaceae<br><i>Ailanthus altissima</i>   | Simarouba Family<br>Tree of heaven  | Moderate   |
| Solanaceae<br><i>Nicotiana glauca</i>   | Nightshade Family<br>Tree tobacco   | Moderate   |
| Arecaceae<br><i>Phoenix canariensis</i><br><i>Washingtonia robusta</i>  | Palm Family<br>Canary Island palm<br>Mexican fan palm   | Limited<br>Moderate  |
| Poaceae<br><i>Agrostis stolonifera</i><br><i>Bromus diandrus</i><br><i>Bromus hordeaceus</i><br><i>Cynodon dactylon</i><br><i>Polypogon monspeliensis</i><br><i>Stipa miliacea</i> var. <i>miliacea</i> | Grass Family<br>Creeping bentgrass<br>Rippgut grass<br>Soft chess<br>Bermuda grass<br>Rabbitfoot grass<br>Smilo grass | Limited<br>Moderate<br>Limited<br>Moderate<br>Limited<br>Limited |

Source: Natural Environment Study (Mitigated Impacts) (2017 and 2018 errata).

## 2.17.3 Environmental Consequences

### 2.17.3.1 Temporary Impacts

#### **Build Alternative (includes Design Options)**

Potential impacts from invasive species associated with the construction and operation of transportation projects are considered permanent. Refer to Section 2.18.3.2, Permanent Impacts, for the discussion regarding invasive species.

#### **No Build Alternative**

The No Build Alternative would not include the construction of any of the proposed project improvements. As a result, as described under Permanent Impacts, the No Build Alternative would not result in new impacts related to invasive species.

### **2.17.3.2 Permanent Impacts**

#### ***Build Alternative (includes Design Options)***

Potential impacts from invasive species associated with construction and operation of transportation projects are considered permanent because the introduction of invasive species into previously undisturbed areas would result in permanent impacts to any affected native habitats. However, although invasive plant species are present in the BSA, the BSA is not located adjacent to any native or open space areas. Because the BSA is fully developed and not adjacent to any native habitats or open space areas, the Build Alternative is not expected to cause an increase in the spread of invasive species into native and open space areas. Additionally, Project Features PF-BIO-13 and PF-BIO-14 will be implemented.

**PF-BIO-13 Plant Removal.** Any plants removed or soil disturbed during the course of construction should be contained and properly disposed of off the site. The project also will adhere to City tree removal requirements.

**PF-BIO-14 Prevention of the Spread of Invasive Species.** All mulch, topsoil, seed mixes, or other plantings used during landscaping activities and erosion-control best management practices (BMPs) implemented will be free of invasive plant species seeds or propagules. No vegetation listed on the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory will be installed on the proposed project. All plant palettes proposed for the project will be reviewed by a Qualified Biologist during the Plans, Specifications, and Estimates phase. The project will also adhere to City tree planting requirements.

As a result, construction and operation of the Build Alternative would not result in impacts related to invasive species.

#### ***No Build Alternative***

The No Build Alternative would not include the construction or operation of any of the proposed project improvements. Therefore, the No Build Alternative would not result in impacts related to invasive species.

### **2.17.4 Avoidance, Minimization, and/or Mitigation Measures**

As the Build Alternative would not result in any temporary or permanent impacts related to invasive species, no avoidance, minimization, or mitigation measures are required.

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## 2.18 Cumulative Impacts

### 2.18.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR) Section 1508.7.

### 2.18.2 Methodology

The cumulative impact analysis methodology utilized was based on the eight-step process set forth in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER) *Guidance for Preparers of Cumulative Impact Analysis* (Guidance) (2005). The eight-step process is as follows:

- Identify/define the project-specific resources to consider in a cumulative effect analysis.
- Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
- Describe the current health and the historical context of each resource.

- Identify the direct and indirect impacts of the proposed project that might contribute to a cumulative impact on the identified resources.
- Identify other current and reasonably foreseeable future actions or projects and their associated environmental impacts.
- Assess the potential cumulative impacts.
- Report the results of the cumulative impact analysis in the environmental document.
- Assess the need for avoidance, minimization, and/or mitigation measures and/or recommendations for actions by other agencies to address a cumulative impact.

### 2.18.2.1 Resources Excluded from Cumulative Impacts Analysis

As specified in the Guidance, if the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource and need not be evaluated with respect to potential cumulative impacts.

Those resources for which cumulative effects are not anticipated or for which the impacts were already analyzed in a cumulative context are briefly discussed below.

- **Farmlands and Timberlands:** The project is located in a heavily developed urban area surrounded by industrial and commercial properties. There are no timberlands or farmlands (including lands protected under the Williamson Act or lands designated under the Farmland Mapping and Monitoring Program) within the study area. Therefore, the project would not result in substantially adverse impacts on farmlands and timberlands.
- **Growth:** The project would not establish new businesses or homes or extend roads or infrastructure to undeveloped areas. As discussed in Section 2.2, Growth, of this Draft Initial Study/Environmental Assessment (IS/EA), the Build Alternative would not result in growth-inducing impacts.
- **Hydrology and Floodplain:** As discussed in Section 2.0 of this Draft IS/EA, there will be no effect on hydrology and floodplain because the project is not located within the 100-year base flood zone.
- **Natural Communities:** The project is located within developed areas of Los Angeles County, either adjacent to the highway corridor or directly adjacent to the highway. There are no habitats or natural communities of concern within or immediately adjacent to the Biological Study Area (BSA). The BSA consists of areas of ornamental landscaping, weeds, and bare ground and has low biological value to native plant and wildlife species. Therefore, the project would not result in substantially adverse impacts on natural communities.

- **Plant Species:** Vegetation in the BSA consists primarily of ornamental landscaping and ruderal/weedy vegetation cover. No special-status plant species were observed or are expected to occur within the BSA due to a lack of suitable habitat. Therefore, the project would not result in substantially adverse impacts on plant species.

### **2.18.3 Resources Evaluated for Cumulative Impacts**

The following discussion of potential cumulative impacts is presented by environmental resource area. The reasonably foreseeable action and projects considered in this analysis are presented in Table 2.18.1 and are shown on Figure 2.18-1.

The reasonably foreseeable actions discussed in this section include the proposed developments in proximity to the RSA that could contribute to a cumulative effect. Information on proposed developments was obtained from the Cities of Artesia and Cerritos, as well as the State Governor's Office of Planning and Research (OPR). Information on future transportation projects was obtained from the Los Angeles County Metropolitan Transportation Authority (Metro), Gateway Cities Council of Governments (GCCOG), Caltrans, and Southern California Association of Governments (SCAG).

In general, most of the development projects listed are infill projects, and the listed transportation projects would improve existing facilities rather than construct new facilities.

The following resources are evaluated in this section for cumulative impacts: land use, parks and recreation, community impacts, utilities/emergency services, traffic and transportation/pedestrian and bicycle facilities, visual/Aesthetics, cultural resources, water quality and storm water runoff, geology, soils seismicity, topography, paleontological resources, hazardous waste, air quality, noise, energy, wetlands and other waters, animal species, threatened and endangered species and invasive species. The Build Alternative and Build Alternative Design Options studied would have a similar potential contribution to cumulative impacts for these resources and are, therefore, discussed as one.



**Table 2.18.1 Reasonably Foreseeable Actions and Projects**

| ID No. | Project Name  | Status                       | Address   | Planned Use  |
|--------|---|------------------------------|---|--|
| 1      | Aria Apartment Homes  | Built                        | 12611 Artesia Boulevard                                       | Apartment complex with 198 units.  |
| 2      | Artesia Corridor Adaptive Traffic Control System (ATCS) Enhancement Project | Included in the 2016 RTP/SCS | City of Artesia and surrounding area                          | Upgrades traffic signals along Artesia Boulevard between Long Beach Boulevard and Downey Avenue to connect with the ATCS. Installs CCTV and CMSs on Artesia Boulevard. Installs fiber-optic cable and devices to connect signals to each other and to the traffic management center. Installs two new traffic signals in Compton. Installs a Class II Bike Lane in both directions from Atlantic Avenue to Susana Road. Pedestrian Improvements. |
| 3      | Artesia LIVE II Specific Plan   | Pre-Construction             | 18600 Gridley Road  | Mixed-use building with 130 residential units, commercial and restaurant uses, and parking.  |
| 4      | Burlington Northern Santa Fe Railroad Grade Separations                     | Ongoing                      | Gateway Cities  | Construction of rail and roadway grade separations in the Gateway Cities area at five locations, including: Rosecrans Avenue and Marquardt Avenue, Parsons Boulevard, Los Nietos Road and Norwalk Boulevard, and Lakeland Road and Pioneer Boulevard.  |
| 5      | Castella  | Built                        | 11042 Excelsior Drive   | Townhomes.   |
| 6      | City of Cerritos Transit Amenities  | Included in the 2016 RTP/SCS | City of Cerritos  | Implementation of citywide street furniture plan. The new amenities will increase transit use because they will serve as a marketing tool for public transit. The new amenities will be very visible and will increase pedestrian and potential transit users. The plan identifies all shared bus stops lacking transit amenities.   |
| 7      | Garfield Avenue Improvements  | Pre-Construction             | Garfield Avenue from 70 <sup>th</sup> Street to Howery Street | Street widening, lane addition in each direction, additional left turn lane in all directions, street resurfacing, and improvements to traffic signals, street lights, and storm water, as well as watershed best management practices (BMPs).   |
| 8      | Gateway Cities Forum Traffic Signal Corridors                               | Included in the 2016 RTP/SCS | Gateway Cities  | Design and construction of multijurisdictional traffic signal synchronization and intersection operational improvements on regional arterials in the Gateway Cities Region.  |
| 9      | I-5/Carmenita Road Interchange  | Under Construction           | Gateway Cities  | Removes existing two-lane structure and constructs a new eight-lane interchange with carpool lane on-ramps. Project is located in the cities of Santa Fe Springs and Norwalk, and could enable widening of I-5 in the area.  |
| 10     | I-5 Widening and HOV: I-605 to Orange County Line                           | Under Construction           | Gateway Cities  | Constructs one carpool lane and one mixed-flow lane in each direction extending 6.4 mi through the cities of Cerritos, La Mirada, Santa Fe Springs, and Norwalk. Includes interchange reconstruction and arterial modifications.   |

**Table 2.18.1 Reasonably Foreseeable Actions and Projects**

| ID No. | Project Name  | Status             | Address                             | Planned Use  |
|--------|---|--------------------|-------------------------------------|--|
| 11     | I-605 Corridor (Hot Spot) Interchanges                    | Pre-Construction   | Gateway Cities                      | Improvements to interchanges along the I-605 corridor, such as at the SR-60, I-5, SR-91, and I-405 interchanges. Examples of improvements include roadway widening, ramp expansion, and added signage within the interchange.  |
| 12     | I-710 Corridor Project                                    | Environmental      | Gateway Cities                      | Evaluating upgrades for the freeway and to improve truck and traffic flows between the Ports of Los Angeles and Long Beach and the SR-60 freeway. Also to be considered are upgrades to the I-710 freeway between Pacific Coast Highway and downtown city of Long Beach. |
| 13     | Sage at Cerritos  | Built              | 12651 Artesia Boulevard             | Apartment complex with 132 units.  |
| 14     | Studebaker Road at Alondra Road Intersection Improvements | Under Construction | Studebaker Road at Alondra Road     | Addition of an additional southbound left turn lane on Studebaker, an eastbound right turn overlap phasing, increased northbound left turn storage on Studebaker, and modifications to the median island, traffic signal, and street lights                              |
| 15     | West Santa Ana Branch Transit Corridor                    | Environmental      | City of Los Angeles, Gateway Cities | Provides for the development of a grade-separated transit corridor. Phase I is designed to go from the southern terminus in the city of Artesia toward downtown city of Los Angeles.   |

Source: *Draft Cumulative Impacts Assessment* (2018)

CCTV = closed-circuit television

CMS = changeable message sign

EIR/EIS = Environmental Impact Report/Environmental Impact Statement

HOV = high-occupancy vehicle

I-5 = Interstate 5

I-405 = Interstate 405

I-605 = Interstate 605

I-710 = Interstate 710

mi = mile/miles

RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy

SR-60 = State Route 60

SR-91 = State Route 91

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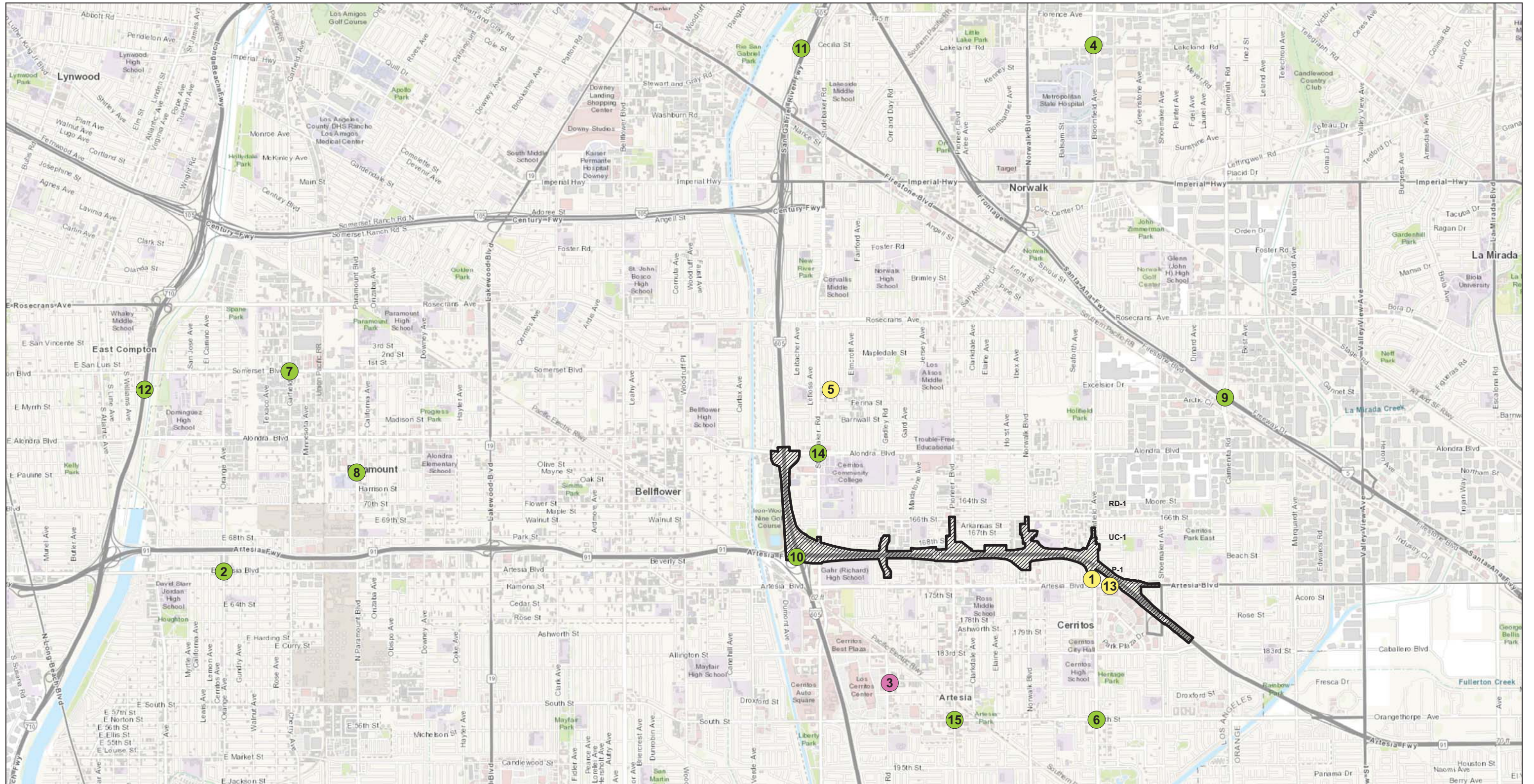
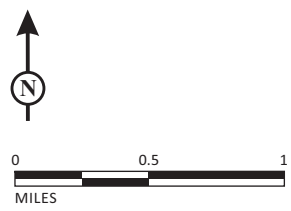


FIGURE 2.18-1



SOURCE: Metro  
 I:\RBF1601\G\Planned Projects.cdr (1/31/2018)



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### 2.18.3.1 Land Use

The cumulative RSA for land use is the Build Alternative RSA (i.e., Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1) because land use impacts would occur where construction and operation of the Build Alternative is occurring. The RSA includes a mixture of various types of residential, open space, commercial, and light industrial land use designations within the cities of Artesia and Cerritos (City of Artesia, 2013; City of Cerritos, 2013). The city of Cerritos also includes low density, medium density, educational use, and public and quasi-public land use designations (City of Cerritos, 2013). The RSA is highly developed with transportation infrastructure, commercial and industrial buildings, residential buildings, schools, and parks, with a limited availability of undeveloped land.

As described in the *Community Impact Assessment* (2018), operation of the Build Alternative would require the expansion of existing transportation facilities, which may encroach into residential areas. As a result, some properties would be acquired and incorporated into the project, and the existing residential and commercial uses would be relocated and replaced with transportation uses. However, property acquisition would be implemented in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Uniform Act), and sufficient replacement residential and properties have been identified in the *Relocation Impact Report* (2018) (refer to Section 2.18.3.3 for further discussion on relocations).

The RSA is within an existing highway corridor, and would not include the construction of land uses that are inconsistent with the zoning and land use designations for the Cities of Artesia and Cerritos. In addition, the Build Alternative would be consistent with the goals, objectives, and policies in the General Plans of the Cities of Artesia and Cerritos. The Build Alternative is also consistent with the SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and is included in the 2017 Federal Transportation Improvement Program (FTIP) as Project LA0G1119 (SCAG 2016). Therefore, impacts related to land use would not be substantially adverse.

Other reasonably foreseeable actions include new development and transportation improvement projects (see Table 2.18.1). These projects could result in changes in land use in the cumulative RSA. However, these actions would be planned to be consistent with land use policies and designations, as well as the goals, objectives, and policies within the cities of Artesia and Cerritos.



Other reasonably foreseeable actions would be evaluated on a project-by-project basis to determine the potential for impacts on land use and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with adherence to federal policies regarding property acquisition and relocation assistance, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to land use (with regards to conflicts with existing plans, policies, or regulations, or conflicts with surrounding land uses). Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### 2.18.3.2 Parks and Recreation

The cumulative RSA for parks and recreation is the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1) because parks and recreation impacts would occur where construction and operation of the Build Alternative is occurring. There are four existing parks adjacent to State Route 91 (SR-91), and 23 parks and recreation centers within a 0.5 mile (mi) buffer around the maximum disturbance limit, which is equivalent to the Build Alternative RSA.

In compliance with Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966, a Section 4(f) analysis was completed for the project. All parks and recreation resources in the RSA were evaluated for potential Section 4(f) uses associated with the Build Alternative (GPA Consulting 2017a). Of the potential Section 4(f) resources evaluated, one was found to have *de minimis* impacts, and the remaining resources would not be impacted. Implementation of project features pertaining to air quality would be required to make the *de minimis* findings (see Section 2.12.3 for project features). Therefore, the Build Alternative would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts on parks and recreation facilities and the appropriate measures required to reduce impacts. The transportation projects listed in Table 2.18.1 would be required to comply with the provisions outlined in Section 4(f) of the USDOT Act of 1966 to minimize impacts on parks and recreation resources. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to parks and recreation.

Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.3 Community Impacts**

The cumulative RSA for community impacts is the Build Alternative RSA (i.e., Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1) because land use impacts would occur where construction and operation of the Build Alternative is occurring. The RSA includes approximately 3 mi along westbound SR-91, bounded by approximately Shoemaker Avenue to the east, the Interstate 605 (I-605) interchange to the west, and the I-605 northbound off-ramp to Alondra Boulevard to the northwest. The RSA includes portions of the cities of Cerritos and Artesia.

#### ***Community Character and Cohesion***

The existing conditions for the communities of Artesia and Cerritos have been identified using the 2015 American Community Survey (ACS) (2011–2015 5-Year Estimates), provided by the United States Census Bureau, including 20 census tract block groups that surround the project area, within the cities of Artesia and Cerritos, and Los Angeles County.

The cities of Artesia and Cerritos began as farming and agricultural communities and have become increasingly urbanized, with a balance of residential, commercial, and industrial developments. Both cities are located approximately one hour south of the city of Los Angeles. The RSA is located along SR-91, which serves as a physical barrier between the northern and southern portions of both the cities of Artesia and Cerritos, essentially dividing the communities surrounding the RSA.

The following information is based on the *Community Impact Assessment* (2018):

- **Population Growth:** Although the majority of the identified census tracts in and around the RSA have demonstrated a steady growth in population from 2010 to 2015, three census tracts have shown a decrease in population over the 5-year period.
- **Age:** The median ages of residents of the cities of Artesia and Cerritos are 39.3 and 44.5 years old, respectively.
- **Ethnicity and Race:** The populations in the cities of Artesia and Cerritos are largely Non-Hispanic Asians, making up an average of 38.5 percent and 60.5 percent of the population, respectively. On average, the Hispanic or Latino

population makes up 36.5 percent of the population in the city of Artesia and 12.5 percent in the city of Cerritos.

- **Housing:** On average, a greater proportion of residents tend to own housing units rather than rent in the census tract block groups in the RSA.
- **Economic Conditions:** In 2013 and 2014 the personal income and per capita personal income (i.e., average income) in the city of Artesia both declined from 2012, but rebounded in 2015. In the city of Cerritos, personal income and per capita personal income have increased regularly since 2011, but declined in 2015.
- **Employment:** The unemployment rates in both the cities of Artesia and Cerritos are 6.5 percent, which are lower than the unemployment rate for Los Angeles County. In the city of Artesia, the largest industry occupation is Sales and Office Occupations, in which 31 percent of the civilian population over the age of 16 is employed, followed by Management, Business, Science and Arts Occupations, at 30.4 percent. The leading industry occupation in the city of Cerritos is Management Business, Science and Arts Occupations, in which 51 percent of residents over the age of 16 is employed, followed by Sales and Office Occupations at 26.8 percent.

The communities in the RSA may experience impacts from construction activities, which include but are not limited to traffic detours, lane closures, and increased noise. However, these impacts would be temporary and would cease once construction is completed. Therefore, community disruptions and displacements would be minimal, and construction of the Build Alternative is not expected to result in substantially adverse impacts on community character and cohesion.

The construction of transportation infrastructure in an existing residential neighborhood (further discussed in Relocations, below) could result in changes to community character. However, the acquired land may be developed to extend recreational areas to provide additional community resources for the existing residents.

In addition, operation of the Build Alternative would include improvements to existing roadways and to the circulation system and would not divide existing neighborhoods or affect community cohesion. The Build Alternative would also be consistent with the land use goals for the Cities of Artesia and Cerritos and the County of Los Angeles and would be compatible with adjacent and surrounding land uses. Aesthetics for surrounding residents and businesses would be similar to existing conditions with the exception of some additional infrastructure. Therefore,



implementation of the Build Alternative would not result in substantially adverse impacts on community character and cohesion.

Other reasonably foreseeable actions are primarily in-fill development and transportation improvement projects, which are not expected to substantially affect community character and cohesion (see Table 2.18.1). These actions would be evaluated on a project-by-project basis to determine the potential for impacts related to community character and cohesion, and the appropriate measures required to reduce impacts. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to community character and cohesion. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### ***Environmental Justice***

The RSA contains environmental justice populations that may be impacted by the Build Alternative. The proportion of minority groups in the census tract block groups in and around the RSA, which include Hispanic or Latino, Asian, and African American populations, is substantially higher than that of Los Angeles County. There are no census tract block groups in and around the RSA with a median income below the United States Department of Health and Human Services (HHS) threshold. Therefore, the RSA contains minority populations, but not low-income populations.

Construction of the Build Alternative would result in short-term effects related to access and circulation, aesthetics, noise, hazardous materials, and air quality. Because these effects would be temporary and would affect all populations equally, the Build Alternative would not result in a disproportionately high and adverse effect on environmental justice populations, in comparison to general population within the RSA.

Operation of the Build Alternative would result in additional traffic noise in areas with meaningfully greater (i.e., greater than 5 percent) percentages of environmental justice populations. However, with implementation of minimization measures, noise impacts would not result in a disproportionately high and adverse effect on environmental justice populations in the RSA.

The Build Alternative would result in the permanent acquisition of 18 residential and one non-residential property in Census Tract 5548.01, as well as one non-residential property in Census Tract 5548.02. The Pioneer Boulevard Westbound Ramps/168th

Alignment Design Option would require the acquisition of an additional eight properties, including five residential properties and three vacant lots, within Census Tract 5548.01. These eight properties are located along 168th Street in the city of Artesia, in a cul-de-sac adjacent to the east side of Pioneer Boulevard. These census tracts contain block groups that have at least one minority population that would be considered meaningfully greater, when compared to the city of Artesia and Los Angeles County. Acquisition of properties would result in the displacement of residents and businesses within the RSA. Property acquisition would be implemented in accordance with the Uniform Act. Sufficient replacement residential and business properties have been identified in the *Relocation Impact Report* (2018). Though there are sufficient replacement properties, relocations may have physical, financial, and psychological effects on displaced residents. Therefore, the Build Alternative would result in an adverse effect on environmental justice populations in the RSA.

The Project, however, would implement the avoidance, minimization, and/or mitigation measures listed in Section 2.18.4, which include relocation assistance services for all affected individuals and businesses. Environmental justice populations would not be denied benefits or receive fewer benefits than the general population. Therefore, relocation impacts on environmental justice populations would not be disproportionately high and adverse.

The Non-Standard Lane and Shoulder Widths Design Option under the Build Alternative is being considered at 170th Street and would result in non-standard mainline features. This design option would eliminate the right-of-way (ROW) impacts at 170th Street under the Build Alternative and would not require the acquisition of the 18 residential properties and 1 non-residential property in the census tracts with minority populations. Under this design option, the project would not result in a disproportionately high and adverse effect on environmental justice populations in the RSA.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts related to environmental justice populations and the appropriate measures would be required to reduce impacts. Because impacts on environmental justice populations would not be substantially high and adverse with implementation of the avoidance, minimization, and/or mitigation measures listed in Section 2.18.4, the project, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to environmental justice.

### **Relocations**

The Build Alternative would require full acquisitions of 20 total properties within the city of Artesia, including 18 residential properties (with approximately 80 residents) and 2 non-residential properties (with two commercial businesses). The Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would require the acquisition of an additional 8 properties along 168th Street, including 5 residential properties (with approximately 22 residents) and 3 vacant lots adjacent to the east side of Pioneer Boulevard/168th Street.

Under the Build Alternative, sufficient replacement residential and business properties have been identified in the *Relocation Impact Report* (2018). All property acquisition and relocation assistance would comply with the regulations and programs outlined under the Uniform Act, Title VI of the Civil Rights Act, and California Relocation Assistance Act. In addition, potential impacts would be minimized through implementation of Caltrans' Relocation Assistance Program (RAP) (see Section 2.3.1.3). Therefore, impacts related to relocations would not be substantially adverse.

As discussed in the Environmental Justice portion of Section 2.18.3.3, two design options to the Build Alternative at 170<sup>th</sup> Street and Pioneer Boulevard are also being considered that would alter the number of required property acquisitions. The Non-Standard Lane and Shoulder Widths Design Option would eliminate the need for property acquisitions at 170th Street. However, the Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would require the acquisition of eight additional properties. Under these design options, impacts related to relocations would not be substantially adverse.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts related to relocations and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with adherence to regulations and policies regarding property acquisition and relocation assistance, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to relocations. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.



### **Community Facilities**

Community facilities in the RSA include 17 parks, 6 community and recreation facilities, 1 golf course, 6 government facilities (i.e., post offices, city halls, civic centers, and libraries), and 11 religious facilities. The RSA also includes 30 educational facilities, including 3 public K-12 school districts, private schools, and colleges.

Construction activities could result in temporary noise from construction equipment and vehicles; traffic from construction vehicles on roadways; dust emissions from earth-moving activities and exhaust from construction vehicles/equipment; and visual impacts from construction equipment and debris that could affect community facilities and services in the RSA. However, impacts would be temporary and would cease once construction is completed. Therefore, construction impacts on community facilities from the Build Alternative would not be substantially adverse.

Operation of the Build Alternative would not require the construction of new community services because the existing facilities are expected to accommodate the needs of the community. In addition, the Build Alternative would not affect existing facilities through an increase in resident populations, or through the loss of facilities elsewhere.

The Build Alternative would require permanent and temporary incorporation of land at four parks and one school. However, the incorporation would not adversely affect accessibility, visual quality, noise, vegetation, air quality, or water quality at the parks or school. Therefore, operational impacts on community facilities from the Build Alternative would not be substantially adverse.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts on community facilities and the appropriate measures required to reduce impacts. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to community facilities and avoidance, minimization, and/or mitigation measures are not be required.

#### **2.18.3.4 Utilities/Emergency Services**

The cumulative RSA for utilities/emergency services is the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1), which includes approximately 3 mi along

westbound SR-91, bounded by approximately Shoemaker Avenue to the east, the I-605 interchange to the west, and the I-605 northbound off-ramp to Alondra Boulevard to the northwest.

Local facilities include power distribution systems, gas distribution pipelines, telephone systems, cable television systems, water distribution mains, sanitary sewer mains, and city telecommunication systems. Regional facilities include power transmission systems, gas transmission pipelines, petroleum pipelines, and sewer trunk lines.

A total of 22 utility facilities would be potentially impacted. Facilities in the RSA would be relocated, adjusted to grade, or protected in place to accommodate the Build Alternative. Utilities that are realigned outside of the public ROW would require the re-establishment of new utility easements along the new alignment. As required by California State law, Underground Service Alert Southern California (USA) would be contacted a minimum of 2 working days before initiating fieldwork. Prior to contacting USA, each boring location will be delineated with white spray paint to outline the proposed limits of subsurface work. A ticket number would be obtained to request utility clearance by parties with underground utilities in the areas. Following notification, utility owners and/or representatives will mark the approximate location of each subsurface utility. Prior to conducting subsurface fieldwork, each location will be visually inspected to verify potential conflicts. With compliance with State regulations related to subsurface utilities, the Build Alternative would not result in substantially adverse impacts on utilities.

There are currently two law enforcement stations within the project area, and no fire stations or hospitals and medical centers directly in the RSA.

Temporary traffic impacts could affect emergency response services, as well as access to other community service centers. However, with adherence to local policies and the implementation of construction best management practices (BMPs), including measures to limit construction hours and implement traffic management plans, these temporary impacts would not be substantially adverse.

The Build Alternative would not accommodate or result in a permanent increase in traffic volume in the project area and would not displace existing emergency facilities. Existing facilities are expected to accommodate the needs of the community after project implementation. Therefore, the Build Alternative would not affect

existing emergency services through an increase in resident populations or through the loss of facilities elsewhere.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts on utilities/emergency services and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with adherence to local and State policies and implementation of construction BMPs, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to utilities/emergency services. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.5 Traffic and Transportation/Pedestrian and Bicycle Facilities**

The cumulative RSA for traffic and transportation/pedestrian and bicycle facilities is the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1), which includes approximately 3 mi along westbound SR-91, bounded by approximately Shoemaker Avenue to the east, the I-605 interchange to the west, and the I-605 northbound off-ramp to Alondra Boulevard to the northwest.

The RSA has a dense street network ranging from major highways to local city streets. In addition, there are various bicycle and pedestrian facilities and public transportation services in the RSA. Public parking facilities in the RSA consist of on-road street parking.

The area around the I-605/SR-91 system interchange currently experiences traffic congestion. In the future, congestion in this area is forecast to increase if the existing traffic issues are not addressed. The examination of existing travel conditions along SR-91 and projected future (2044) traffic showed that capacity and operational problems are a result of several interrelated factors. These factors include: insufficient freeway mainline capacity on both SR-91 and I-605, closely spaced freeway entrance and exit ramps, and inadequate older design features at the freeway-to-freeway interchange.

The following information is based on the *Community Impact Assessment* (2018), which includes the findings from the *Traffic Operations Analysis Report* (2018):



- **Access and Circulation:** Construction of the Build Alternative may require temporary ramp and street closures on arterial streets. In addition, the movement of construction equipment on arterial roadways may result in additional congestion. Therefore, the Build Alternative has the potential to result in direct temporary impacts on access to homes or businesses. However, these impacts would be temporary and access would be re-established following construction. Therefore, construction impacts on access and circulation would not be substantially adverse.

During operation of the Build Alternative, interchange modifications could change arterial street operations and circulation patterns. Additionally, the Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would result in the loss of driveway access to three businesses on the west side of Pioneer Boulevard, including Denny's Restaurant, Artesia Inn and Suites, and El Pollo Loco Restaurant. Therefore, operation of the Build Alternative could result in direct impacts on access to homes or businesses in the study area. However, the Build Alternative would construct new interchange configurations to maintain and improve access in the study area. Therefore, operational impacts on access and circulation would not be substantially adverse.

- **Parking:** Construction of the Build Alternative would temporarily restrict access to residential parking. However, impacts would be short-term and access would be restored following construction. With implementation of the project features listed in Section 2.5.3, impacts on parking would not be substantially adverse.

Operation of the Build Alternative could result in the removal and/or relocation of parking spaces, depending on the selected design option. Because the project will incorporate the project feature outlined in Section 2.5.3, impacts on parking would not be substantially adverse.

- **Traffic Volumes:** The Build Alternative would reduce congestion and improve local and system freeway operations. The improvements are expected to result in substantial improved operating conditions throughout the RSA, including substantial reductions in vehicle delay, reductions in travel time, and increased speeds. The reduction in congestion, operational improvements to traffic flow, and improvements to the geometric design features of the corridor would improve safety throughout the corridor and in high-accident locations. Therefore, impacts related to traffic volumes would not be substantially adverse.

- **Public Transportation:** Construction and operation of the Build Alternative would not result in access reduction, displacement, or relocation of transit stops. Temporary lane closures during the construction period are anticipated to occur for approximately 24 months. However, such closures would not affect any existing transit stops. Therefore, impacts related to public transportation would not be substantially adverse.
- **Pedestrian and Bicycle Facilities:** During construction of the Build Alternative, the staging and moving of equipment on the roadways may temporarily restrict bicycle and pedestrian access; however, temporary measures and a construction staging plan would be implemented to minimize hazards on the roadways for bicyclists and pedestrians. Therefore, construction impacts on bicycle and pedestrian facilities would not be substantially adverse.

The Build Alternative would not impede pedestrian or bicycle access to existing transit services. Rather, the Build Alternative would provide improvements to transit access for pedestrians where possible. Therefore, the Build Alternative is expected to result in beneficial impacts on bicycle and pedestrian facilities in the RSA.

The *Traffic Operations Analysis Report* (2018) takes into account planned future transportation projects (see Table 2.18.1) and population growth when determining impacts. Therefore, no additional cumulative impacts beyond those disclosed in the traffic analysis are anticipated.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine the potential for impacts on traffic and transportation/pedestrian and bicycle facilities, and the appropriate measures required to reduce impacts. Because adverse impacts on traffic and transportation/pedestrian and bicycle facilities are not anticipated, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to traffic and transportation/pedestrian and bicycle facilities. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### 2.18.3.6 Visual/Aesthetics

The cumulative RSA for visual resources/aesthetics is the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas, which are depicted as the environmental study area on Figure 2.18-1), including Visual Assessment Unit 1 (VAU1) and six key views defined in the *Visual Impact Assessment* (VIA) (2018).

VAU1 is in the northern portion of the city of Artesia, and in the eastern and western portions of the city of Cerritos. The RSA is within a highly developed area and is surrounded by residential, commercial, recreational, institutional, light industrial, and transportation uses. The landscape in VAU1 is generally characterized by surrounding urban development, transportation uses (I-605), and other man-made features. Background views of the Angeles National Forest hillsides and ridgelines approximately 25 miles to the north are afforded throughout the project limits. The relatively flat topography of VAU1 provides for visually uniform views for viewers within the Build Alternative corridor. Vegetation within the area generally consists of numerous areas of ornamental landscaping.

During construction of the Build Alternative, sensitive uses (e.g., residents and motorists) would be exposed to views of construction areas. As described in the VIA, the Build Alternative would require staging areas to allow for construction activities and the storage of equipment. Construction vehicle access and staging of construction materials would be visible from motorists traveling along the project site as well as residents located in the project vicinity. These impacts would be short-term and would cease upon project completion. The Build Alternative would be required to comply with the Caltrans Standard Specifications for Construction, which would minimize visual impacts through the use of opaque temporary construction fencing that would be situated around construction staging areas. Therefore, construction impacts on visual resources/aesthetics would not be substantially adverse.

During operation, the Preferred Alternative would feature visual elements, which include a new mixed-flow lane on westbound SR-91, two new overcrossing structures (replacing the existing structures along Gridley Road and Bloomfield Avenue), reconfigured interchanges (at Pioneer Boulevard and Norwalk Boulevard), acquisition of five residential units, , upgraded traffic signals, the construction of several noise barriers (up to 16 feet [ft] in height) and a combination noise barrier/retaining wall, and some vegetation removal. The Build Alternative would result in an increase in hardscape in the area that would be visible to local residents, local roadway travelers (i.e., roadway motorists, bicyclists, and pedestrians), SR-91 motorists, recreational uses, institutional (school) uses, and commercial and light industrial uses.

As described in the VIA, all freeway improvements and new overcrossing structures would be similar in character and quality to the existing transportation facilities in the surrounding area. Visual impacts associated with the Build Alternative are



determined by a measurement of the resource change and viewer response, and the overall visual impact of the Build Alternative is considered to be moderate. With implementation of project features identified in Section 2.6.4, all landscaping plans and architectural treatments would be designed by the Caltrans District Landscape Architect in cooperation with the Cities of Artesia and Cerritos, and all tree-removal activities and roadway improvements would be conducted in compliance with the applicable City codes and policies. Therefore, operational impacts on visual resources/aesthetics would not be substantially adverse.

Other reasonably foreseeable actions have the potential to affect resource change and viewer response in proximity to the RSA. Many of the reasonably foreseeable actions in proximity to the RSA are infrastructure improvement and in-fill development projects that would not substantially change the highly urbanized and developed character of the area. These actions would be evaluated on a project-by-project basis to determine impacts on visual resources/aesthetics and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with implementation of project features, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to visual resources/aesthetics. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.7 Cultural Resources**

The cumulative RSA for cultural resources is the Area of Potential Effects (APE) used in the *Historic Property Survey Report (HPSR)* (2018) and *Archaeological Survey Report (ASR)* (2018). The APE covers 190.23 acres (ac) and includes the direct APE (i.e., the area of proposed and existing ROW, including the horizontal and vertical limits associated with ground-disturbing activities), which is 74.84 ac. The vertical APE extends to a maximum depth of 30 ft.

As documented in the HPSR, the horizontal APE includes transportation infrastructure as well as 85 private parcels. Buildings in the horizontal APE consist primarily of small single-family residences, but also include low-rise commercial buildings and institutional facilities. No historical resources listed in or determined eligible for the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), California Historical Resources Information System (CHRIS), California Historical Landmarks, or California Points of Historical Interest have been recorded within the APE (HPSR 2017). Caltrans has determined a Finding of No Historic Properties Affected is

appropriate for this undertaking because there are no historic properties within the APE. Therefore, impacts on historical resources are not anticipated.

As documented in the ASR (2017), the APE primarily consists of disturbed sediment mixed with asphalt, concrete, gravel, and abundant modern trash. Most areas contain either local sediment or artificial fill placed during the construction of existing freeways, overcrossings, undercrossings, drainage culverts, noise barriers, and intersections. Most areas within the direct APE were developed, and most open areas contained ornamental vegetation. All areas were highly disturbed from previous construction. No archaeological resources were identified in the APE through archival research or during the survey. Based on the findings in the ASR, the likelihood of encountering intact archaeological resources is very low. Therefore, impacts on archaeological resources are not anticipated. There is always a potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation for the Build Alternative. Those potential effects would be avoided or minimized by the project features described in Section 2.7.3.2. With implementation of the project features, potential impacts on previously unidentified cultural resources would not be substantially adverse.

Other reasonably foreseeable actions have the potential to unearth archaeological and cultural resources within the proposed project area. These actions would be evaluated on a project-by-project basis to determine impacts on cultural resources and the appropriate measures required to reduce impacts. Because impacts on cultural resources are not anticipated, and appropriate measures would be taken in the case that cultural materials are unearthed, the project, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to cultural resources. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.8 Water Quality and Storm Water Runoff**

The cumulative RSA for water quality and storm water runoff is the San Gabriel River Subbasin, which spans 409,600 ac. The subbasin is further divided into the Lower San Gabriel River Watershed, which receives runoff from approximately 78.5 sq mi of urbanized area. The watershed is predominately served by storm drain systems, which connect drainages in urbanized areas to the watershed's main tributaries.

The main reach through the Watershed is the San Gabriel River, which Flows through a concrete-lined channel parallel to I-605 within the Watershed. The river passes through 19 different cities and discharges to the Pacific Ocean in the city of Long Beach, California (County of Los Angeles Department of Public Works 2006). The main tributaries, Coyote Creek and San Jose Creek, are also channelized at their confluence with the San Gabriel River. Other tributaries of the river include Big and Little Dalton Wash, San Dimas Wash, Walnut Creek, San Jose Creek, Fullerton Creek, and Coyote Creek (California RWQCB 2000).

The California Clean Water Act Section 303(d) List for 2012 includes the following impaired water bodies near the project area and associated pollutants with established total maximum daily loads (TMDLs) (California State Water Resources Control Board 2012):

- **San Gabriel River Reach 1 (Estuary to Firestone):** Coliform bacteria and pH
- **Coyote Creek, North Fork:** Indicator bacteria and selenium
- **Coyote Creek:** Diazinon, indicator bacteria, pH, toxicity, copper (dissolved), lead, and ammonia
- **Artesia-Norwalk Drain:** Indicator bacteria and selenium

The RSA is located in the South Coast Hydrologic Region (HR), which consists of 56 delineated groundwater basins. Within the South Coast HR, the RSA is in the Central Subbasin of the Coastal Plain of Los Angeles Basin. The groundwater supply in the Subbasin comes primarily from surface flows through Whittier Narrows. Groundwater also enters from surface and subsurface flow, percolation of precipitation, stream flow, and imported and recycled water (California Department of Water Resources 2004). Percolation is limited in some areas due the amount of paved surfaces, and saltwater intrusion occurs in the basin.

According to the *Water Quality Assessment Report (2017)*, the Build Alternative would increase impervious surface area by 5.83 ac within the RSA, contributing to 19.85 ac of new impervious surface area (i.e., the sum of net new impervious surface area and replaced impervious surface area). The increase in impervious surfaces would contribute to an increase in runoff, which could contribute to exceeding the waste load allocations in approved TMDLs and impairments in the 2012 303(d)-listed waterbodies. To address impacts on water quality, BMPs would be implemented based on the requirements in the National Pollutant Discharge Elimination System (NPDES) Construction General Permits (CGPs) and Caltrans' NPDES permit (see



Section 2.8.3). With implementation of BMPs to minimize impacts related to runoff and pollutants, impacts on water quality would not be substantially adverse. Standard drainage design practices would also be implemented to minimize scour and sedimentation. Therefore, impacts on water quality and storm water runoff would not be substantially adverse.

In the event that groundwater and any other non-storm water dewatering are necessary during construction, these activities would be subject to the requirements of NPDES Permit No. CAS004001. With compliance with the NPDES permit, impacts on groundwater would not be substantially adverse.

The 19.85 ac of impervious surface area constructed from the Build Alternative would make up approximately 0.005 percent of the San Gabriel River Subbasin area (409,600 ac). Due to the minor increase in impervious surface area, impacts on water quality would be minimal. The implementation of appropriate treatment BMPs as a part of the Build Alternative to treat the pollutants generated by the Build Alternative is expected to adequately address any potential cumulative impacts due to construction, as well as long-term maintenance and operation of the Build Alternative.

Other reasonably foreseeable actions may increase impervious surface area within the RSA, but increases in impervious surfaces would be minimal because the RSA is already highly developed. These actions would be evaluated on a project-by-project basis to determine the impacts on water quality and storm water runoff and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with implementation of BMPs, the project, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to water quality and storm water runoff. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.9 Geology, Soils, Seismicity, and Topography**

The cumulative RSA for geology, soils, seismicity, and topography is the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas) because impacts would occur where construction and operation of the build Alternative is occurring.

As described in the *Preliminary Geotechnical Report* (2018), the RSA is characterized by the following features:

- **Geology:** The RSA is within the Los Angeles Basin, an actively subsiding basin with northwest-trending mountain ranges separated by subparallel fault zones and a coastal plain. The RSA is primarily underlain by rock types originating in the Quaternary period, along with rock types of marine origin from the Pliocene and Miocene. Quaternary rocks include unconsolidated (i.e., loose materials such as clay and sand) and semi-consolidated sediments that are formed from alluvium, lake, playa, and terrace deposits and are mostly non-marine in origin. Pliocene rocks are moderately consolidated (i.e., solid rock) and include sandstone, siltstone, shale, and conglomerate. Miocene rocks are moderately to well consolidated and include sandstone, siltstone, conglomerate, and breccia.
- **Soils:** The upper 60 ft of the underlying soils include fine- to medium-grained, loose- to medium-dense, silty and clayey sand; sandy silt; poorly graded sand; and clayey silt. Interbeds of soft silt and clay and occasionally organic materials were also observed. Below 60 ft, the soils become generally fine to coarse, dense silty sand with varying amounts of gravel.
- **Seismicity:** No faults, including those identified under the Alquist-Priolo Earthquake Fault Zoning Act, were identified within the RSA; however, the project is located in a seismically active area of Southern California. The RSA is in an area where there has been a historic occurrence of liquefaction, with potential for permanent ground displacements. There is also a potential for ground shaking events to occur from distant earthquakes.
- **Topography:** The RSA is located in the Peninsular Ranges geomorphic province, which is distinguished by northwest-trending mountain ranges and valleys following faults branching from the San Andreas Fault (California Geological Survey 2002). The terrain in the RSA is relatively flat, except for the interchange and ramp locations where the highway and adjacent roadways intersect.

Grading activities may result in a temporary, short-term increase in erosion. The Build Alternative would comply with standard engineering practices for erosion control, and a Storm Water Pollution Prevention Plan (SWPPP) would be implemented to minimize soil erosion impacts. In addition, the Build Alternative would implement BMPs, including erosion-control measures, and would adhere to the NPDES permit requirements.

Increased development in the RSA could expose people and property to potential impacts associated with seismic activities. The Build Alternative and other reasonably foreseeable actions would be constructed in accordance with the California Building Code, standard engineering practices, and other applicable local standards; therefore,

the potential for structural damage due to seismic activity, landslides, liquefaction, and other geologic hazards would be minimized. Therefore, impacts on geology, soils, seismicity, and topography would not be substantially adverse.

Other reasonably foreseeable actions could also increase erosion and sedimentation in the RSA. These actions would be evaluated on a project-by-project basis to determine impacts on geology, soils, seismicity, and topography, and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with the implementation of BMPs and other standard practices, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to geology, soils, seismicity, and topography. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.10 Paleontological Resources**

The RSA for paleontological resources includes areas where excavation would occur for the Build Alternative. The RSA includes approximately 3 mi along westbound SR-91, bounded by approximately Shoemaker Avenue to the east, the I-605 interchange to the west, and the I-605 northbound off-ramp to Alondra Boulevard to the northwest.

The entire RSA is underlain by Holocene to late Pleistocene (less than 126,000 years ago) Alluvial Fan and Valley Deposits, Undivided (California Geological Survey 2016). There is potential to find fossils from large and small mammals, reptiles, fish, invertebrates, and plants in the older sediments of this geologic unit. Fossils may be encountered below a depth of approximately 10 ft. However, artificial fill is likely present from the surface to varying depths throughout much of the project area where it was placed during construction of the existing freeways, streets, overcrossings, and undercrossings. Because of its disturbed context, artificial fill does not have the potential to contain scientifically significant paleontological resources.

Based on the findings in the *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER) (2017 and 2018 Errata), no vertebrate fossil localities were found within the boundaries of the Build Alternative, and no paleontological resources were observed during the field survey. No special paleontological situations that would require project redesign to avoid critical fossil localities or deposits are anticipated for the Build Alternative. However, the Build Alternative requires excavation that will reach paleontologically sensitive sediments



and, therefore, has the potential to impact scientifically significant, nonrenewable paleontological resources. With the preparation of a Paleontological Mitigation Plan (PMP) and development of minimization measures, impacts on paleontological resources would not be adverse. The PMP is a project feature of the Build Alternative.

Other reasonably foreseeable actions have the potential to disturb paleontological resources within the RSA. These actions would be evaluated on a project-by-project basis to determine impacts on paleontological resources and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with implementation of a PMP, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to paleontological resources. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.11 Hazardous Waste**

The cumulative RSA for hazardous waste is the same as the Build Alternative RSA (i.e., the Build Alternative footprint and construction areas), which includes approximately 3 mi along westbound SR-91, bounded by approximately Shoemaker Avenue to the east, the I-605 interchange to the west, and the I-605 northbound off-ramp to Alondra Boulevard to the northwest.

The *Preliminary Site Investigation for Hazardous Waste* (2018) prepared for the Build Alternative identified nine potential hazardous materials sites located in areas of proposed construction. Site disturbance at these locations could result in the potential for the release of petroleum, volatile organic compounds (VOCs), and/or other chemicals and hazardous materials. In addition, there is potential to encounter aerially deposited lead (ADL), lead-based paints, and pesticides during construction (i.e., during the excavation of soil or the disturbance of structures).

Hazardous and potentially hazardous materials used in or encountered during construction, as well as the transport and disposal of such materials, would be conducted in accordance with applicable federal, State, and local requirements so that potential risks are reduced or avoided. To avoid, minimize, and/or mitigate for potential impacts related to hazardous waste, a Phase II Site Investigation will be conducted. The Phase II Site Investigation will also address appropriate methods for handling and disposing of any present hazardous materials. Therefore, impacts related to hazardous waste would not be substantially adverse.

Construction of other reasonably foreseeable actions may expose or require handling contaminated soils. These actions would be evaluated on a project-by-project basis to determine the potential for encountering hazardous materials and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with compliance with applicable federal, State, and local requirements and the implementation of avoidance and minimization measures that will be determined after the Phase II Site Investigation, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to hazardous waste. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.12 Air Quality**

The air quality cumulative RSA includes the areas in proximity to active construction areas and nearby construction sites for the assessment of short-term construction impacts. At a regional level, the cumulative RSA also includes the South Coast Air Basin for the assessment of long-term operation impacts. The RSA is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD), which operates several air quality monitoring stations in the Basin. The closest monitoring station with data for all five criteria pollutants (carbon monoxide [CO], ozone [O<sub>3</sub>], nitrogen dioxide [NO<sub>2</sub>], particulate matter less than 2.5 microns in size [PM<sub>2.5</sub>], and particulate matter less than 10 microns in size [PM<sub>10</sub>]) is the Anaheim-Pampas Lane Station. The RSA is in a heavily urbanized area, and changes in air quality depend on emissions levels in the RSA and the Basin.

According to the *Air Quality Analysis* (2018), construction of the Build Alternative would result in short-term degradation of air quality due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment are also anticipated and would include CO, nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), VOCs, directly emitted particulate matter (PM) (i.e., PM<sub>2.5</sub> and PM<sub>10</sub>), and toxic air contaminants (TACs) (e.g., diesel exhaust PM). The Build Alternative may also expose sensitive receptors and workers to valley fever from fugitive dust generated during construction. With implementation of project features identified in Section 2.12.3, fugitive dust and exhaust emissions from construction activities would not result in substantially adverse air quality impacts.

Operation of the Build Alternative may result in an increase in vehicle miles traveled (VMT) in the RSA because traffic currently using other routes may choose to use the

new facilities. According to the models in the *Revised Draft Traffic Analysis Report* (2017), both the No Build and Build Alternative criteria pollutant emissions are all lower than the existing condition emissions. With the exception of PM<sub>2.5</sub> and PM<sub>10</sub>, the Build Alternative criteria pollutant emissions are all less than the No Build Alternative emissions. The increased PM<sub>2.5</sub> and PM<sub>10</sub> emissions are due to the increase in re-entrained dust emissions associated with the increased regional VMT. However, the increases in PM<sub>2.5</sub> and PM<sub>10</sub> emissions are low compared to the total emissions. Therefore, impacts related to air quality would not be substantially adverse.

Construction of other reasonably foreseeable actions may contribute to short-term air quality impacts in the SCAG region. However, the transportation projects listed in Table 2.18.1 are included in the SCAG RTP/SCS and the 2017 FTIP, which were found to be conforming by the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) on December 17, 2018. These strategies help the region achieve federal Clean Air Act (CAA) requirements and provide beneficial impacts related to long-term air quality (SCAG 2016b). The reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine air quality impacts and the appropriate measures required to reduce impacts. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect related to air quality. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.13 Noise**

The cumulative RSA for noise includes all areas adjacent to the Build Alternative where there are sensitive land uses that would be affected by noise from construction and traffic noise from operation of the Build Alternative. The cumulative RSA focuses on areas in the vicinity of the Build Alternative with potential noise-sensitive uses, including residential uses, parks, open spaces, and areas of frequent human activity. The cumulative RSA is a heavily urbanized area, with noise sources that include traffic on surrounding freeways and local roads, commercial and industrial facilities, construction activities, commercial centers, performing arts centers, and ambient noises from other land uses (e.g., schools, parks, hospitals, and churches).

As described in the *Noise Study Report* (NSR) (2018), short-term noise impacts occurring during construction of the Build Alternative include:



- **Transportation Noise:** Additional noise would be generated from construction crew commutes and the transport of construction equipment and materials. However, the noise would be minimal when compared to existing traffic volumes in the RSA, and long-term changes in noise level would not be perceptible.
- **Construction Noise:** Noise levels vary depending on the phase of construction and type of equipment. Typical noise levels at 50 ft from an active construction area range up to 86 A-weighted decibels (dBA) maximum instantaneous noise level ( $L_{max}$ ) during the noisiest construction phases (i.e., the site preparation phase). Sensitive receptors within 50 ft of the construction area may be subject to short-term noise higher than 86 dBA  $L_{max}$ .

Compliance with Caltrans Standard Specifications Section 14-8.02 (2015) will be required to minimize construction noise impacts on sensitive land uses adjacent to the Build Alternative. The noise level from the contractor's construction operations between the hours of 9:00 p.m. and 6:00 a.m. shall not exceed 86 dBA  $L_{max}$  at a distance of 50 ft. Contractors will not operate an internal combustion engine on the job site without the appropriate manufacturer-recommended muffler. With compliance with Caltrans Standard Specifications Section 14-8.02, the Build Alternative would not result in adverse construction noise impacts.

Long-term noise impacts associated with Build Alternative operation are solely from traffic noise. The Build Alternative would result in a portion of the highway being located closer to sensitive receptors, and, in many cases, travel lanes would be located beyond the current freeway ROW. In a variety of neighborhoods, noise barriers would be located less than 50 ft from residential structures. In addition, expansion of the highway would increase the capacity of the highway, further increasing the ambient noise.

The NSR includes traffic modeling results of future traffic noise levels based on worst-case traffic operations in the RSA. The NSR indicates that noise would approach or exceed the Noise Abatement Criteria (NAC) in several receptor locations within the RSA. Of the 362 modeled receptors, 56 receptors under the Build Alternative would approach or exceed the NAC. No additional impacts would occur under the Build Alternative with the Four-Lane Gridley Road Overcrossing Design Option, the Pioneer Boulevard L-9 Design Option, or the Pioneer Boulevard Westbound Ramps/168th Alignment Design Option. The Build Alternative with the Non-Standard Lane and Shoulder Widths Design Option would have 10 fewer impacted receptors compared to the Build Alternative (Receptors R-107, R-177

through R-183, R-248, and R-249). The Build Alternative with the Diamond Ramps Design Option would have 2 fewer impacted receptors compared to the Build Alternative (Receptors R-248 and R-249). No receptor would experience a substantial noise increase of 12 dBA or more over its corresponding existing noise levels under any scenario. Therefore, the Build Alternative would not result in substantially adverse impacts related to noise.

The operational noise impact analysis takes into account future projections of traffic noise, which assume that other planned projects in the region will contribute to projected noise levels. Therefore, no additional cumulative impacts beyond those disclosed in the NSR are anticipated.

Other reasonably foreseeable actions within the Build Alternative RSA would be evaluated on a project-by-project basis to determine noise impacts and the appropriate measures required to reduce impacts. Each project would be responsible for following applicable noise ordinances during construction. Because long-term noise would not be adverse, and NAC would be implemented, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on noise. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.14 Energy**

The cumulative RSA for energy consumption is the SCAG planning region because energy consumption is typically tracked on a regional or State level.

The Build Alternative would result in substantial increases in energy consumption in the RSA as a result of construction, including energy consumption from the use of construction equipment, materials delivery, and additional travel as a result of detours associated with lane and ramp closures. However, increases in energy consumption would be short-term and temporary, and would not be substantial at the regional level. In addition, the Build Alternative would provide substantial long-term benefits, including increased mobility in the region, enhanced safety, and improvements to non-standard design features. Though substantially adverse effects on energy consumption are not anticipated, and no avoidance, minimization, or mitigation measures are required, the Build Alternative would implement a construction efficiency plan to further reduce energy consumption during construction.

At the regional level, the cumulative increase in energy consumption for the Build Alternative would be negligible. Based on the data in the *Energy Technical Report*

(2017), the Build Alternative would not substantially contribute to overall energy consumption at the regional level, and would not be expected to result in substantially adverse energy impacts.

Other reasonably foreseeable actions could contribute to increased short-term energy consumption within the region. The transportation projects listed in Table 2.18.1 that are included in the SCAG RTP/SCS, which includes strategies to help the region achieve State greenhouse gas (GHG) emission reduction goals and federal CAA requirements, may provide beneficial impacts related to energy consumption. All reasonably foreseeable actions would be evaluated on a project-by-project basis to determine the energy consumption and the appropriate measures required to reduce impacts. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on energy consumption. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.3.15 Wetlands and Other Waters**

The cumulative RSA for wetlands and other waters is the BSA used in the *Natural Environment Study (Minimal Impacts)* (NES [MI]) (2017 and 2018 Errata) and the *Jurisdictional Delineation Report* (2017 and 2018 Errata). The BSA is in the cities of Cerritos and Artesia in Los Angeles County along westbound SR-91 from Shoemaker Avenue to I-605, and northbound I-605 to Alondra Boulevard. The 283 ac BSA encompasses the potential impact areas (temporary and permanent) for the Build Alternative, as well as a buffer area to account for any potential indirect impacts to adjacent potentially jurisdictional features. The majority of the drainage features within the BSA consist of unnamed storm water runoff and concrete flood control channels, which generally run parallel to SR-91, I-605, and the on/off-ramps, and are presumed to eventually drain into the San Gabriel River.

A total of 14 drainage features were described in the *Jurisdictional Delineation Report* (2017 and 2018 Errata). The Build Alternative is expected to result in the following impacts to areas within potentially jurisdictional drainage features: (1) 0.43 ac of permanent impacts and 0.01 ac of temporary impacts to potential United States Army Corps of Engineers (USACE) jurisdiction; and (2) 0.52 ac of permanent impacts and 0.02 ac of temporary impacts to potential California Department of Fish and Wildlife (CDFW) jurisdiction. RWQCB jurisdiction is expected to coincide with USACE jurisdiction. Therefore, permits (i.e., USACE Section 404 authorization,



CDFW Section 1602 Streambed Alteration Agreement, and RWQCB Section 401 Water Quality Certification) are expected to be necessary.

Although jurisdictional areas are likely to be affected by the project, compensatory mitigation is not expected to be required for impacts to waters that are subject to USACE, CDFW, or RWQCB regulatory authority permitting requirements because the drainage features proposed to be impacted consist of concrete-lined ditches that are excavated on dry land and did not replace previously existing natural drainages. With implementation of project features and BMPs (see Sections 2.14.3 and 2.14.4) to prevent loose soil or pollutants from entering the drainage features within and adjacent to the BSA, impacts on jurisdictional drainage features would be avoided. Therefore, impacts on wetlands and other waters would not be substantially adverse.

Other reasonably foreseeable actions may result in temporary and permanent impacts to jurisdictional drainage features. These actions would be evaluated on a project-by-project basis to determine the acreage of impacts to jurisdictional drainage features and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with the implementation of project features and BMPs, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on wetlands and other waters. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.16 Animal Species**

The cumulative RSA for animal species is the BSA used in the NES (MI) (2017). The BSA is in the cities of Cerritos and Artesia in Los Angeles County along westbound SR-91 from Shoemaker Avenue to I-605, and northbound I-605 to Alondra Boulevard. The 283 ac BSA encompasses the potential impact areas (temporary and permanent) for the Build Alternative, as well as a buffer area to account for any potential indirect impacts to adjacent biological resources. Land uses surrounding the BSA include transportation, commercial, residential, educational (i.e., schools), and recreational (e.g., neighborhood parks and golf courses).

Several California Species of Special Concern (SSC) and California Special Animals have the potential to occur within the BSA due to the presence of suitable habitat. However, no special-status animal species were observed during field surveys for the project. Animal species that can potentially occur in the BSA include:

- **Nesting Migratory Birds:** The BSA provides nesting habitat, consisting primarily of ornamental vegetation, for migratory birds.
- **Rufous Hummingbird:** This species is well adapted to suburban environments. The BSA provides nesting habitat (mainly ornamental vegetation) for this species.
- **Cooper's Hawk:** This hawk species lives primarily in forests and woodlands, but can nest in tall ornamental trees. The BSA provides marginally suitable foraging and nesting habitat for this species.
- **Special-Status Bat Species:** Bat species that may roost within the BSA include western yellow bat, Yuma myotis, pallid bat, silver-haired bat, and hoary bat. During the surveys, bat roosting was confirmed at two structures and was determined moderately to highly probable at three additional structures in the BSA. The surveys indicated that night roosting may occur at several structures throughout the BSA. The loss of a night roost can negatively affect the use of a foraging area, and consequently may result in reduced fecundity in species that are already slow to reproduce.

With the implementation of avoidance and minimization measures outlined in the NES (MI) (included in Section 2.16.4), the Build Alternative is not expected to result in substantially adverse impacts on nesting migratory birds, rufous hummingbirds, Cooper's hawks, or special-status bat species.

Other reasonably foreseeable actions may result loss of foraging, roosting, or nesting habitat for animal species. These actions would be evaluated on a project-by-project basis to determine the presence of animal species and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with the implementation of avoidance and minimization measures identified in Section 2.16.4, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on animal species. Therefore, no additional avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.17 Threatened and Endangered Species**

The cumulative RSA for threatened and endangered species is the BSA used in the NES (MI) and is described above in Section 2.18.3.17. Three federally and/or State-listed plant species potentially occur or are known to occur within the vicinity of the BSA, which are salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*). However, no suitable habitat

to support these plant species occurs within the BSA, and the species were not observed during the surveys. Therefore, no special-status plant species are expected to occur within the BSA or to be affected by the Build Alternative.

In addition, five wildlife species that are federally and/or State-listed as endangered or threatened were identified by the United States Fish and Wildlife Service (USFWS) as potentially occurring within the vicinity of the BSA. These species are western snowy plover (*Charadrius nivosus nivosus*), coastal California gnatcatcher (*Polioptila californica californica*), California least tern (*Sternula antillarum browni*), least Bell's vireo (*Vireo bellii pusillus*), and Pacific pocket mouse (*Perognathus longimembris pacificus*). However, no special-status animal species were observed during surveys. With the implementation of the project feature outlined in Section 2.16.3, the project is not expected to result in substantially adverse impacts on special-status species.

Other reasonably foreseeable actions within the Build Alternative BSA would be evaluated on a project-by-project basis to determine the presence of threatened or endangered species, the presence of critical habitat, and the appropriate measures required to reduce impacts. Because project impacts would not be adverse with the implementation of the project feature identified in Section 2.16.3, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on threatened or endangered species. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

### **2.18.3.18 Invasive Species**

The cumulative RSA for invasive species is the BSA used in the NES (MI) and is described in Section 2.18.3.17. Vegetation in the BSA consists primarily of ornamental landscaping and ruderal/weedy vegetation cover. A number of the plants observed within the BSA are classified as invasive species and listed on the California Invasive Plant Council (Cal-IPC) Inventory Database.

To ensure compliance with Executive Order (EO) 13112 (federal law that governs the prevention of introducing and spreading invasive species and supports efforts to eradicate and control the establishment of invasive species), invasive species would be removed from the Build Alternative work area and controlled during construction. With implementation of the project feature outlined in in Section 2.17.3.2, the Build Alternative is not expected to disperse exotic plant species seeds or otherwise



contribute to the invasion of exotic species into natural habitats. Therefore, impacts related to invasive species would not be substantially adverse.

Other reasonably foreseeable actions would be required to comply with EO 13112, and are not expected to result in substantially adverse impacts related to invasive species. These actions would be evaluated on a project-by-project basis to determine impacts related to invasive species and the appropriate measures to reduce these impacts. Because project impacts would not be adverse, the Build Alternative, in conjunction with past, present, and reasonably foreseeable projects, would not result in a cumulative effect on invasive species. Therefore, no avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

#### **2.18.4 Avoidance, Minimization, and/or Mitigation Measures**

No avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

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# **Chapter 3** California Environmental Quality Act (CEQA) Evaluation

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The Westbound State Route 91 (SR-91) Improvement Project (project) is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA’s responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a *whole* has the potential to “significantly affect the quality of the human environment.” The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of “mandatory findings of significance,” which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.



### **3.1 CEQA Environmental Checklist**

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

**3.1.1 Aesthetics**

| Would the project:   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?                                    | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**3.1.1.1 CEQA Significance Determinations for Aesthetics**

The potential for the Build Alternative (including design options) to adversely impact aesthetics was assessed in the *Visual Impact Assessment* (2018) and Section 2.6, Visual/Aesthetics, of this Initial Study/Environmental Assessment (IS/EA). The following discussion is based on those analyses.

**a, b) No Impact.** The project is located within a highly urbanized area and the landscape is characterized by developed land and an extensive transportation network. The land use within the study area for the Westbound SR-91 Improvement Project is primarily urban residential and transportation uses, but also includes areas of commercial and recreational uses. No scenic resources have been identified for this project, and no scenic corridors or designated scenic highways are located within the vicinity of the project. Therefore, a substantial adverse effect on a scenic vista or substantial damage to scenic resources would not occur.

**c) Less Than Significant Impact.** As discussed in more detail in Section 2.6, Visual/Aesthetics, of this IS/EA, the study area can be treated as a single landscape unit, defined as Visual Assessment Unit 1 (VAU1). The landscape in VAU1 is generally characterized by surrounding urban development, transportation uses, and other man-made features. Six key views were analyzed that would most clearly demonstrate the change in the project’s visual resources and represent the viewer groups that have the highest potential to be affected by the project, considering visual exposure and visual sensitivity. The selected key view locations simulations can be found on Figures 2.6-1 through 2.6-7 provided in Section 2.6. In general, the project would result in moderate visual impacts at Key Views 1 through 4, moderate-high visual impacts at Key View 5, and moderate-low visual impacts at Key View 6.

However, with the inclusion of Project Features PF-VIS-1 through PF-VIS-3, provided in Section 2.6.3, potential impacts that may degrade the existing visual character would be minimized with the inclusion of landscaping, architectural treatments, and review of the usage of construction lighting. Impacts would be less than significant, and no mitigation is required.

**d) Less Than Significant Impact.** Please also refer to the response to checklist question c), above. The proposed project would construct improvements to an existing freeway facility located within a highly urbanized area and would not introduce a new source of substantial light or glare which would adversely affect day or nighttime views in the area. During construction, lighting types, plans and placement shall be reviewed at the discretion of the Caltrans District Landscape Architect in order to minimize light and glare impacts on surrounding sensitive uses, as provided in measure PF-VIS-3. Therefore, impacts would be less than significant and no mitigation is required.



### 3.1.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

| Would the project:   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|--|------------------------------------|--|------------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d) Result in the loss of forest land or conversion of forest land to non-forest use?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

#### 3.1.2.1 CEQA Significance Determinations for Agriculture and Forest Resources

**a, b) No Impact.** The proposed project is located in a highly urbanized area and involves improvements to an existing freeway facility. As discussed in more detail in Section 2.1, Land Use, there are no existing or general plan agricultural land uses in the study area; therefore, no agricultural land would be converted as part of the project. In addition, a review of the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency as well as a review of the California Department of Conservation's (CDC) California Important Farmland Finder tool (online at <https://maps.conservation.ca.gov/DLRP/CIFF/>) indicated that no Prime or Unique Farmland, Farmland of Statewide Importance, or land subject to a Williamson Act contract is present within the study area. No impact would occur.

**c, d) No Impact.** As discussed in more detail in Section 2.1, there are no currently zoned forest lands or timberland zoned Timberland Production areas within the study area; therefore, there would be no conflict with or conversion of these lands as part of the project. No impact would occur.

**e) No Impact.** See also responses to questions a) through d) above. Because there are no farmland, timberland, or agricultural land uses within the study area, changes to the existing environment as a result of the project that, due to their location or nature, could result in the conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use are not reasonably foreseeable. No impact would occur.

### 3.1.3 Air Quality

| Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.  |                                    |  |                                     |                          |
|---|------------------------------------|--|-------------------------------------|--------------------------|
| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                |
| a) Conflict with or obstruct implementation of the applicable air quality plan?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

#### 3.1.3.1 CEQA Significance Determinations for Air Quality

The potential for the Build Alternative to adversely impact air quality was assessed in the *Air Quality Analysis* (2018) and Section 2.13, Air Quality, of this IS/EA. The following discussion is based on those analyses.

**a, b, c, d) Less Than Significant Impact.** The proposed project is located in an area of attainment for federal 1-hour nitrogen dioxide (NO<sub>2</sub>) and 24-hour sulfur dioxide (SO<sub>2</sub>) attainment/maintenance for federal carbon monoxide (CO), particulate matter less than 10 microns in size (PM<sub>10</sub>), and annual nitrogen dioxide (NO<sub>2</sub>), and nonattainment for federal ozone (O<sub>3</sub>), particulate matter less than 2.5 microns in size (PM<sub>2.5</sub>) and lead (Los Angeles County only) standards. The proposed project is located in an area of attainment for State CO and NO<sub>2</sub> and nonattainment for State O<sub>3</sub>, PM<sub>10</sub>, annual PM<sub>2.5</sub>, and lead (Los Angeles County only). The applicable Air Quality Plan is the current South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP) that was adopted by the SCAQMD in 2017, which is submitted as part of the California State Implementation Plan (SIP). Implementation of the SIP would bring the region into conformance with the applicable air quality standards. If a project “conforms” with the SIP, it would not conflict with or obstruct implementation of the applicable air quality plan. Project conformity with the SIP is demonstrated by inclusion of the project in the current Regional Transportation Plan (RTP) and detailed project-level analyses



demonstrating that the project will not contribute to any new violations of the national ambient air quality standards (NAAQS), increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any required interim milestone.

As described in Section 2.12.3.2, the project is listed in Amendment #3 to the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) as Project ID 1163S012, with a description as follows: “Improvements to the I-605/SR-91 interchange consist of adding an additional general purpose lane, adding auxiliary lanes, and on- and off-ramp improvements.” The 2016 RTP/SCS was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and was adopted on September 6, 2018. The proposed project is included in the Federal Transportation Improvement Program (FTIP), Amendment #17-22. The FTIP was approved by the SCAG on July 31, 2018, and the FTA and FHWA approved the FTIP on December 17, 2018. The RTP/SCS and FTIP listings are included in the *Air Quality Analysis* (2018).

Thus, the proposed Build Alternative is included in the regional emissions analysis used to meet regional air quality conformity. Construction and long-term operation of the project would be considered consistent with the purpose of the SIP, and the project Build Alternative would conform to the requirements of the federal Clean Air Act (CAA).

Air quality models were used to demonstrate the potential contribution of the project’s emissions to the deterioration of or impediment to progress of air quality goals as stated in the AQMP. The project has been determined to not be a project of air quality concern (POAQC) by the Transportation Conformity Working Group (TCWG) (a copy of the determination is included in Appendix C).

As described in Section 2.12.2.4, six pollutants have been established as criteria pollutants. Table 2.12.2 lists them, their associated thresholds of significance, and the health effects associated with exposure. As Table 2.12.1 shows, the background PM<sub>10</sub> concentrations currently exceed the State 24-hour and annual standards.

Section 2.12.3.2 describes the project permanent impacts, including detailed analyses of CO Hot Spots. The analyses conclude that the project is not expected to result in any concentrations exceeding the 1-hour or 8-hour State CO standards. However, the Build Alternative emissions listed in Table 2.12.11 would likely contribute to more violations of the PM<sub>10</sub> California ambient air quality standards (CAAQS) compared

with the No Build Alternative. Similarly, because the Basin is in nonattainment for PM<sub>2.5</sub>, the increase in PM<sub>2.5</sub> emissions from the Build Alternative as listed in Table 2.12.11 would likely worsen the existing violation of the PM<sub>2.5</sub> CAAQS in the Basin compared with the No Build Alternative. However, these increases in PM<sub>10</sub> and PM<sub>2.5</sub> are primarily due to tire wear and brake dust rather than exhaust emissions, and are relatively minor (less than 2 pounds/day regionally). Additionally, when compared to the Existing (2016) conditions as shown in Table 2.12.11, PM<sub>10</sub> and PM<sub>2.5</sub> exhaust emissions would be lower in the Build Alternative. Thus, the proposed Build Alternative would not create a new violation or worsen an existing violation of the federal PM<sub>10</sub> or PM<sub>2.5</sub> standards.

As described in more detail in Section 2.12.3.2, the project is not expected to result in higher CO concentrations than those existing within the region at the time of attainment demonstration, the project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards, and a detailed California Line Source Dispersion Model, version 4 (CALINE4), CO hot-spot analysis is not required for the project. The proposed project will not conflict with the AQMP, violate any air quality standard, result in a net increase of any criteria pollutant, or expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant, and mitigation is not required.

**e) Less Than Significant Impact.** During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated. However, SCAQMD Rule 403 regarding fugitive dust minimization requirements would reduce potential dust emissions during construction. Also, project features and standard measures PF-AQ-1 through PF-AQ-6 would be implemented during construction to avoid and minimize air quality-related impacts. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below-detectable levels as distance from the site(s) increases. Therefore, objectionable odors affecting a substantial number of people would be less than significant, and no mitigation is required.

### 3.1.4 Biological Resources

| Would the project:   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

#### 3.1.4.1 CEQA Significance Determinations for Biological Resources

The potential for the Build Alternative to result in adverse impacts to biological resources was assessed in the *Natural Environment Study (Minimal Impacts) (NES [MI]) (2017 and 2018 Errata)*, the *Jurisdictional Delineation Report (2017 and 2018 Errata)*, and Sections 2.15, Plant Species; 2.16, Animal Species; and 2.17, Invasive Species, in this IS/EA. The following discussions are based on those analyses.

**a, b) Less Than Significant Impact.** A literature review and records search as well as reconnaissance-level field surveys were conducted to identify the existence or potential occurrence of sensitive or special-interest plant species located in or within the vicinity of the biological study area (BSA). The BSA is composed of disturbed habitat and landscaped and nonvegetated urban/developed areas. Plant species occurring in the BSA are characteristic of those found in landscaped and regularly disturbed areas. The results of the literature review indicated three special-status plant



species as potentially occurring in the BSA. Of these three species, two are federally designated and/or State-listed endangered or threatened species: Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) and Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*). Neither of these species was observed during surveys, and no suitable habitat was observed within the BSA. Therefore, the proposed project would have no impact on these species. The remaining special-status plant species identified as potentially occurring in or within the vicinity of the BSA is Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), a perennial herb that occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands, usually on ocean bluffs and ridgetops in alkaline or clay soils (from 10 to 1,510 ft (ft) in elevation). The Coulter's goldfields is identified as occurring within 2 miles (mi) of the BSA. However, no suitable habitat to support this plant species occurs within the BSA, and the species was not observed during surveys. Therefore, the species will not be impacted by the proposed project.

The following 10 special-species animal species (5 California Species of Special Concern [SSC] and 5 California Special Animals) that are not federally and/or State-listed endangered or threatened were identified as potentially occurring in or near the BSA due to the presence of suitable habitat: rufous hummingbird (*Selasphorus rufus*), Cooper's hawk (*Accipiter cooperii*), silver-haired bat (*Lasionycteris noctivagans*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), southwestern yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), hoary bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*). No special-status animal species were observed in the BSA during field surveys, but the rufous hummingbird, Cooper's hawk and six special-status bats have the potential to occur within the BSA due to the presence of suitable habitat, and two structures with guano evidence indicating bat use for roosting were observed during surveys. To avoid impacts to special-status bird species during construction, and in compliance with the requirements of the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code regarding nesting birds, vegetation clearing and construction activities that impact existing vegetation will be conducted, to the maximum extent feasible, outside the primary nesting season for birds (typically February 15–September 1), as described in Project Feature PF-BIO-1. To avoid impacts to special-status bat species during construction, humane eviction and exclusion of bats from a roost would be employed and alternate habitat provided, with the bats permitted to recolonize the original roost site following construction. These and other avoidance strategies are outlined in Project Features PF-BIO-2 through PF-BIO-12.

With the inclusion of applicable project features, BMPs, and other measures, impacts to candidate, sensitive, or special status species, riparian habitat, or other sensitive natural communities would be less than significant, and no mitigation is required.

**c) Less Than Significant Impact.** There is preliminarily 0.88 acre (ac) of jurisdictional United States Army Corps of Engineers (USACE) area, 1.17 ac of jurisdictional CDFW area, and 1.33 ac of nonjurisdictional USACE area within the BSA. These are entirely across 14 concrete-lined drainage features within the highly urbanized study area (designated as Drainage Features A through N). Drainages E, I, J, K, and L, as well as portions of Drainage Features A, B, F, and H, are human-altered and surrounded by urban habitat but appear to contain relatively permanent water (RPW) and function like streams with a nexus to a traditional navigable water (TNW). Based on preliminary project design, it is anticipated that some of the flood control channels within the BSA, particularly on the westbound side of SR-91, may be impacted by the project. Specifically, the Build Alternative is expected to result in 0.01 ac of temporary effects to nonwetland waters subject to USACE jurisdiction due to construction within Drainage Feature J. The Build Alternative is expected to result in 0.002 ac of temporary effects to nonjurisdictional USACE areas within Drainage Features C and D. The Build Alternative would result in the temporary removal of 0.02 ac of nonwetland water subject to CDFW jurisdiction during construction within Drainage Feature J. Construction of the Build Alternative would also potentially result in 0.002 ac of temporary impacts to nonjurisdictional CDFW areas within Drainage Features C and D. Finally, temporary impacts to Regional Water Quality Control Board (RWQCB) areas would be the same as noted above for USACE areas (0.01 ac).

Permanent impacts to these drainage features are outlined in Tables 2.14.2 and 2.14.3 in Section 2.14, Wetlands and Other Waters. As shown in Table 2.14.2, the Build Alternative will result in the permanent impacts to 0.43 ac of nonwetland waters potentially subject to USACE jurisdiction (i.e., Drainage Features B, H, I, and J). The Build Alternative will result in 0.461 ac of permanent effects to nonjurisdictional USACE areas. The potential nonjurisdictional impact areas are within portions of Drainage Features B, C, D, G, and H. As shown in Table 2.14.3, the Build Alternative will result in the permanent impacts to 0.52 ac of nonwetland waters subject to CDFW jurisdiction. The permanent impacts would occur within Drainage Features B, H, I, and J. The Build Alternative would result in the permanent impacts to 0.461 ac of nonjurisdictional CDFW areas. The impact areas are within Drainage Features B,

C, D, G, and H. The permanent impacts to RWQCB areas under the Build Alternative would be the same as shown in Table 2.14.2 for the USACE areas, 0.43 ac.

Project Features PF-WET-1 through PF-WET-4 provide for securing permits prior to construction initiation, which would also implement specifications outlined in those permits as required by the USACE, CDFW, and RWQCB. In addition to permits and permit requirements, BMPs will be utilized to prevent loose soil or pollutants associated with the project from inadvertently entering the drainage features located within and adjacent to the BSA. Because impacts to these drainage features will be minor and addressed by implementation of project features, standard BMPs, and permit conditions, impacts will be less than significant.

**d) Less Than Significant Impact.** Seminal corridors above or below roads that are utilized for wildlife crossings include undercrossings, overcrossings, and culverts. Species of primary interest for wildlife movement within the BSA are medium-sized mammals such as raccoon (*Procyon lotor*). The existing SR-91 and Interstate 605 (I-605) freeways generally present barriers to wildlife movement and do not facilitate habitat connectivity or movement, as the freeway facilities have high traffic volumes and are lined with fences and walls. The various flood-control channels crossing under the two freeways may facilitate some wildlife movement, though little evidence of this was observed. Raccoon tracks were observed in the drainage feature near Iron-Wood Nine Golf Course. However, raccoons are well adapted to the urban environment and are increasingly present in urban drainage channels. The drainage feature near Iron-Wood Nine Golf Course does not connect to any upstream natural habitat and therefore does not serve as a wildlife movement corridor. Construction activities associated with the Build Alternative within the drainage feature near Iron-Wood Nine Golf Course would temporarily discourage raccoon presence in that relatively short section of the drainage, but raccoons would likely continue to utilize the adjacent areas. No native wildlife nursery sites are present within the BSA. Therefore, a less than significant impact would occur with regards to substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impediment to the use of native wildlife nursery sites.

**e) Less Than Significant Impact.** Although the Cities of Cerritos and Artesia do have several ordinances and policies governing biological resources, the project will not have a significant impact to biological resources. Several project features and standard BMPs will address the potential for effects on animal and plant species, but



the project area is generally within an area of developed and ornamental landscaping. Per the requirements of Project Features PF-BIO-13 and PF-BIO-14, Prevention of the Spread of Invasive Species, provided in Section 2.17.3, city tree planting and removal requirements would be adhered to. Therefore, the project would not conflict with local policies or ordinances protecting biological resources, and no mitigation is necessary.

**f) No Impact.** The project is not located within or near a Los Angeles County regional habitat linkage or wildlife corridor, existing or proposed significant ecological area, or adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

### 3.1.5 Cultural Resources

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                |
|---|------------------------------------|--|-------------------------------------|--------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?    | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?       | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of dedicated cemeteries?                       | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

#### 3.1.5.1 CEQA Significance Determinations for Cultural Resources

The potential for the proposed project to result in adverse impacts related to cultural and paleontological resources was assessed in the *Historic Property Survey Report* (HPSR) (2018) and its attachments, the *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER) (2017 and 2018 Errata), and Sections 2.7, Cultural Resources, and 2.10, Paleontology, of this IS/EA. The following discussions are based on those analyses. In accordance with Public Resource Code (PRC) section 21080.3.1 and Assembly Bill (AB) 52, Caltrans initiated early consultation with California Native American tribes in May 2017. Refer to Chapter 4 of this IS/EA for detailed information pertaining to California Native American tribal consultation.

**a, b) Less Than Significant Impact.** It was determined that there are no National Register of Historic Places (National Register) listed or eligible cultural resources within the project’s Area of Potential Effect (APE). As a result, no cultural resources qualify as historical resources pursuant to CEQA, or are exempt per the Section 106 Programmatic Agreement (PA). In addition, it has been determined that a finding of No Historic Properties Affected is appropriate for the project because there are no historical resources within the APE and there are no impacts to historical resources pursuant to *State CEQA Guidelines* Section 15064.5(b)(3). Six built environment resources were evaluated for the proposed project and determined ineligible for listing on the National Register and also determined ineligible as a historical resource under CEQA. These resources were listed in Table 2.7.1.

No archaeological resources were identified within the APE through archival research, Native American consultation, or field surveys, and the majority of the

direct APE is within Caltrans' right-of-way (ROW). Pedestrian surveys for archaeological resources showed that all surveyable areas in the direct APE exhibited high levels of disturbance from the freeway, adjacent drainages, and nearby road construction. The entire direct APE has been substantially altered from previous construction activities, indicating that the likelihood of encountering intact archaeological resources is very low.

However, there is always a potential for previously undocumented cultural materials to be unearthed during construction activities. It is Caltrans' policy that if cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be halted and diverted until a qualified archaeologist can assess the nature and significance of the find. Potential effects to these materials would be avoided or minimized with the inclusion of Project Features PF-CR-1 and PF-CR-2, provided in Section 2.7.3. Therefore, any impacts would be less than significant.

**c) Less Than Significant Impact.** Geologic mapping indicates the entire study area is underlain by Holocene to late Pleistocene (less than 126,000 years ago) Alluvial Fan and Valley Deposits, Undivided. Although not mapped, artificial fill is likely present from the surface to varying depths throughout much of the study area where it was placed during construction of the existing freeways, streets, overcrossings, and undercrossings. Because of its disturbed context, artificial fill does not have the potential to contain scientifically significant paleontological resources. Young Alluvial Fan and Valley Deposits below a depth of 10 ft may be old enough to contain scientifically significant paleontological resources. The results of the locality search through the Natural History Museum of Los Angeles County (LACM) indicated that there are no vertebrate fossil localities within the study area. However, LACM has records of several fossil localities near the project from deposits similar to those found in the study area. The museum notes that these deposits are not usually paleontologically sensitive in the uppermost layers, but that scientifically important fossils may be encountered in the older deposits found at varying depths. Various vertebrate fossil localities have been recorded in cities surrounding the study area. Similarly, the pedestrian survey indicated that most of the study area is underlain by artificial fill. Other sediments observed are consistent with the Young Alluvial Fan and Valley Deposits, Undivided mapped in the study area.

Construction of the Build Alternative may require excavation that extends more than 10 ft below the original ground surface, potentially resulting in impacts to



paleontological resources. Excavation depths and locations of retaining walls, bridge abutments and piers, sewer lines, power and signal poles, drainage improvements, and noise barriers would be established during final design. A project feature addressing the development of a Paleontological Mitigation Plan (PMP) would provide procedures for the treatment of paleontological resources discovered during construction. As described in Project Feature PF-PAL-1, provided in Section 2.10.3.2, Paleontology, a qualified paleontologist will prepare the PMP following the guidelines in the Caltrans Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (June 2016 or more current) and those developed by the Society of Vertebrate Paleontology (SVP) (2010). The PMP shall be prepared concurrently with final design plans during the Plans, Specifications, and Estimates (PS&E) phase. The PMP would detail the work plan to mitigate project effects, monitoring to be conducted, excavation methods, and curation agreement. Therefore, with implementation of the PMP during construction, impacts to paleontological resources would be less than significant, and no mitigation is required.

**d) Less Than Significant Impact.** As discussed previously and in Section 2.7, all surveyable areas in the direct APE exhibited high levels of disturbance from the freeway, adjacent drainages, and nearby road construction. The entire direct APE has been substantially altered from those previous construction activities and the likelihood of encountering intact archaeological resources, including human remains, is very low. However, there is always a potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation for construction of the Build Alternative. If human remains are discovered, the State of California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the Los Angeles County Medical Examiner-Coroner shall be contacted. Pursuant to California PRC Section 5097.98, if the remains are thought by the Coroner to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At that time, the person who discovered the remains will contact the Caltrans Resident Engineer, who will then contact the Caltrans District 7 Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 will be followed as applicable. This provision is included as Project Feature PF-CR-2. Therefore, any potential impacts to human remains would be less than significant.

### 3.1.6 Geology and Soils

| Would the project:   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:   |                                    |  |                                     |                                     |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| ii) Strong seismic ground shaking?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| iii) Seismic-related ground failure, including liquefaction?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| iv) Landslides?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

#### 3.1.6.1 CEQA Significance Determinations for Geology and Soils

The potential for the proposed project to result in adverse impacts related to geology and soils was assessed in the *Preliminary Geotechnical Report* (2018) and the *Preliminary Geotechnical Materials Report* (2017). The findings of the report are discussed in Section 2.9, Geology/Soils/Seismic/Topography, in this IS/EA. The following discussions are based on those analyses.

**a) i) Less Than Significant Impact.** The study area is located within a seismically active region of Southern California. Earthquakes within the region occur primarily as loose clusters along the Newport-Inglewood Structural Zone, along the southern margin of the Santa Monica Mountains, the southern margin of the Santa Susana and San Gabriel Mountains, and in the Coyote Hills-Puente Hills area. The study area is not located within an Alquist-Priolo Fault Zone. The closest noteworthy active fault with Holocene surface rupture is the Newport-Inglewood-Rose Canyon Fault,

crossing approximately 6 mi southwest of the I-605/SR-91 interchange. The closest mapped active fault with surface rupture is the late Quaternary Los Alamitos Fault, located approximately 3 mi southwest of the I-605/SR-91 interchange. Additionally, the Anaheim Fault crosses SR-91 at the on-ramp from Bloomfield Avenue; however, the top of the rupture plane of this Holocene-age fault is approximately 2.4 mi below ground surface (bgs). Therefore, given the distance of the study area to active faults which may be subject to surface rupture, the project would have a less than significant impact with regards to exposure of people or structures to potential substantial adverse effects involving rupture of a known earthquake fault.

**a) ii) Less Than Significant Impact.** The nearest substantial local sources of earthquakes and estimated peak ground acceleration (PGA) was summarized in Table 2.9.1 in Section 2.9, Geology/Soils/Seismic/Topography, in this IS/EA. PGA is a measurement of maximum ground acceleration in a particular area and can be described as how hard the ground may shake in a given geographic area based on several factors. The study area is likely to experience strong ground motion with an approximate PGA of 0.61 g. During construction, activities could be affected by ground motion from seismic activities. Possible ground rupture, liquefaction, and consolidation settlement could occur in the study area if an earthquake were to occur during construction. Implementation of safe construction practices and compliance with Caltrans and the California Division of Occupational Safety and Health (Cal-OSHA) safety requirements would minimize the impacts to worker safety during construction activities. Since the potential for strong seismic ground shaking is currently present within the study area, and construction or operation of the project would not further expose people or structures to substantial adverse effects involving strong seismic ground shaking. Therefore, impacts would be less than significant.

**a) iii) Less Than Significant Impact.** Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid; potentially resulting in large total and differential ground surface settlements as well as possible lateral spreading during an earthquake. Based on the California Geological Survey (CGS) Seismic Hazard Maps, the study area is located within a liquefaction study zone. Underlying soils within the study area are expected to consist of fine to medium grained, loose to medium dense sand. The groundwater table is relatively shallow and the site is subject to strong ground motion. Therefore, liquefaction potential is high. The preliminary estimate for free-field liquefaction settlement is in the range of between 4 and 8 inches at different locations of the study area. According to the City of Cerritos General Plan Safety



Element (2004), the entire city is located within a liquefaction hazard zone. According to the City of Artesia General Plan (2010), the city of Artesia is located within a mapped Liquefaction Zone of Required Investigation. Project Feature PF-GEO-1, provided in Section 2.9.3.2 in this IS/EA, would provide for a detailed geotechnical investigation and make project-specific recommendations to be incorporated into the final design of the selected Build Alternative. Project Features PF-GEO-2 and PF-GEO-3 would minimize soil erodibility and address slope stability and reduce the compressibility of soils and potential for liquefaction. Construction and operation of the project would not have substantial effects on seismic-related ground failure, including liquefaction. Therefore, impacts that would expose people or structures to substantial adverse effects involving seismic-related ground failure, including liquefaction, would be less than significant.

**a) iv) No Impact.** The study area is not located within an earthquake-induced landslide zone (CGS 1999). Evidence of landslides was not observed during the site investigation and the study area topography is relatively flat. Additionally, according to the City of Cerritos General Plan Safety Element (2004), the city does not have the potential for landslides. The City of Artesia General Plan Geology and Soils Element (2010) states that the city is not located within a mapped Earthquake-Induced Landslide Zone of Required Investigation and earthquake-induced landsliding is not anticipated to occur. The existing embankment slopes along the proposed project alignment are generally inclined 1.5:1 (horizontal:vertical) or flatter and are generally vegetated. No sign of slope instability was observed during site investigation. No hazardous geologic structure exists near the surface that may cause instability of the existing embankments. Therefore, no impact related to exposure of people or structures to substantial adverse effects involving landslides would occur.

**b) Less Than Significant Impact.** According to the *Preliminary Geotechnical Materials Report* (2017), due to a predominance of granular soils throughout the study area, the soils are not expected to be corrosive. Construction of the Build Alternative would result in a total Disturbed Soil Area (DSA) of approximately 29.25 ac. Excavated soil in the construction areas would be exposed and, as a result, there would be an increased potential for soil erosion during construction compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. Temporary cut slopes would follow the guidelines of Caltrans Trenching and Shoring Manual (2011) and Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1926 Subpart-P would be followed for temporary excavations.

During all construction activities for the Build Alternative, the construction contractor will be required to adhere to the requirements of the Construction General Permit (CGP) and to implement erosion and sediment control BMPs specifically identified in the project Storm Water Pollution Prevention Plan (SWPPP) to keep sediment from moving off site into receiving waters and impacting water quality. Refer to Section 2.8, Water Quality and Storm Water Runoff, for additional discussion regarding construction-related water quality issues and mitigation, including BMPs.

Worker safety hazards resulting from erosion during construction of the Build Alternative would be minimized based on implementation of the requirements in the CGP and erosion and sediment control BMPs in the SWPPP.

Adherence to recommendations within the detailed geotechnical recommendation report provided in Project Feature PF-GEO-1 would substantially reduce substantial adverse effects from geologic hazards. In addition, surficial soils that are sandy can be susceptible to soil erosion produced by running water. The clayey surficial soils are expected to expand when wet, and crack upon drying. Cracking allows infiltration of water from storms and irrigation, ultimately causing loosening of the surficial soils. This results in an increase of soil erodibility. Proposed fill slopes are generally 4:1 (horizontal:vertical) which satisfy Caltrans *Highway Design Manual* (HDM) (2016) requirements for side slopes. Other proposed grading requires 1.5:1 or flatter cut slopes. Revegetation and engineering of graded slopes specified in Project Feature PF-GEO-2 will be performed prior to construction that would minimize the soil erodibility and slope stability. Therefore, impacts related to substantial soil erosion or the loss of topsoil would be less than significant.

**c) Less Than Significant Impact.** The main geotechnical considerations for the study area are the presence of potentially compressible (shallow and deep) and liquefiable soils. Settlement is anticipated at the SR-91 crossing street off/on ramps where approach fills are required. Preliminary liquefaction settlement estimates indicate settlements between 4 and 8 inches could occur within the study area. Future subsidence of the site should also be expected. Recommendations to reduce the compressibility of soils and potential for liquefaction would be followed, as included in Project Feature PF-GEO-3. The proposed project would not be, and the existing facility is not, located on a geologic unit or soil that is unstable, and the geologic unit or soil would not become unstable as a result of the proposed project. Therefore, potential for on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse is considered less than significant.

**d) Less Than Significant Impact.** Soils within the study area are predominantly silty and clayey sand, sandy silt, poorly graded sand, and clayey silt. The sandy soils are primarily silty sand, which are not considered to be expansive. The clayey soils consist of sandy and clayey silt and silty clay; the corresponding expansion potential is considered to be moderate to high. Design and construction of the proposed improvements would comply with the HDM and other required standards, and recommendations from the Geotechnical Report, as included in Project Feature PF-GEO-1. Adherence to recommendations within these reports would substantially reduce substantial adverse effects from geologic hazards. Therefore, impacts related to soil expansion will be less than significant.

**e) No Impact.** As discussed in detail in Section 2.8, construction work related to the disposal of waste water will include the construction of drainage structures, protection in place and possible extension of existing drainage facilities, and creation of permanent water quality BMPs. The use of septic tanks or alternative waste water systems is not applicable, and current sewer systems within this highly urbanized area are available. No impact related to soils that are incapable of adequately supporting use of septic tanks or alternative waste water disposal systems would occur.



### 3.1.7 Greenhouse Gas Emissions

| Would the project:   | Significant and Unavoidable Impact   | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--|--|------------------------------|-----------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?      | <p>Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.</p> |  |                              |           |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? |  |  |                              |           |

### 3.1.8 Hazards and Hazardous Materials

| Would the project:   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?                                   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

#### 3.1.8.1 CEQA Significance Determinations for Hazards and Hazardous Materials

The potential for the proposed project to result in significant impacts related to hazards and hazardous materials was assessed in the *Phase I Initial Site Assessment (ISA)* (2018), Section 2.11, Hazardous Waste/Materials, and Section 2.4, Utilities and Emergency Services, of this IS/EA. The following discussions are based on those analyses.

**a) Less Than Significant Impact.** Construction of the project would result in temporary impacts related to hazardous materials/waste that could occur within the maximum disturbance limits for the Build Alternative and design options, although

no hazardous waste concerns were observed or reported within parcels on which temporary construction easements (TCEs) and/or partial acquisitions would occur. An aerially deposited lead (ADL) site investigation report indicated that concentrations of lead in soil samples along on- and off-ramp locations along SR-91 between I-605 and Shoemaker Road exceed regulatory limits. Project Feature PF-HAZ-1, in Section 2.11.3.1, would reduce the effects of ADL by implementing a project-specific ADL site investigation to evaluate and regulate the handling, reuse, and disposal of excess soils.

Yellow traffic striping and pavement marking materials (paint, thermoplastic, permanent and temporary tape) that would be removed during construction may contain elevated concentrations of metals such as lead, and the removal of these materials during construction could impact workers and the surrounding environment. Project Feature PF-HAZ-2, in Section 2.11.3.1, would minimize effects related to yellow traffic striping by mandating testing and regulating disposal of materials in accordance with Caltrans' *Construction Manual* (2017).

The Build Alternative would require the acquisition of 18 single-family residences and two commercial parcels. The Build Alternative would also require improvements to the following bridges: Studebaker Road (both the SR-91 mainline Undercrossing [Br. No. 53-1706] and the westbound SR-91 to I-605 Connector Undercrossing [Br. No. 53-1707F]), Gridley Road Overcrossing (Br. No. 53-1324), Pioneer Boulevard Undercrossing (Br. No. 53-1335), Norwalk Boulevard Undercrossing (Br. No. 53-1334), and Bloomfield Avenue Overcrossing (Br. No. 53-1433). The Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would result in five residential acquisitions. Based on the construction dates of these structures, asbestos-containing materials (ACMs) and LBP may be present in these bridges and structures. ACMs and lead-based paint (LBP) represent a concern during demolition of these bridges and structures. The acquired parcels are shown in Figure 2.11-1. Project Features PF-HAZ-3, PF-HAZ-4, PF-HAZ-5, PF-HAZ-6, and PF-HAZ-7 specifically require proper testing, monitoring, removal, and disposal of ACMs and LBP as well as focused ISAs and site investigations.

Soils within the study area may contain residue pesticide, based on the historical use of many areas within or in the vicinity. It is likely that the previous construction of SR-91 and I-605 will have reduced the potential for pesticide contamination within the project limits, but Project Feature PF-HAZ-8, in Section 2.11.3.1, requires a site investigation be performed for any undeveloped areas that might contain elevated



contaminations of pesticide to identify residual contamination that might be present and determine if associated potential hazards could occur during construction. Project Feature PF-HAZ-9 requires sampling, handling, and disposal of soils contaminated with pesticides in accordance with applicable federal, State, and local regulations.

Removal of sign posts and/or guard rails located along the SR-91 and I-605 ROW as well as at on-/off-ramps during construction of the Build Alternative would generate treated wood waste (TWW). Removal of these materials during construction could affect construction workers and the surrounding environment. Project Feature PF-HAZ-10 would minimize this effect.

Polychlorinated biphenyls (PCBs) were used prior to the 1980s as insulating oils in electrical transformers, fluorescent light ballasts, and/or as hydraulic oils in elevator equipment. There are 21 electrical distribution transformers (both ground-mounted and utility pole-mounted) present within the project area along the north side of SR-91 and the east side of I-605. Of these 21, 8 are located over bare soil and 1 is located partially over bare soil. Soil disturbance during construction activities may affect construction workers and the surrounding environment. Project Feature PF-HAZ-11 would minimize this effect.

Construction could disturb potentially contaminated soil and/or groundwater originating at properties beyond the maximum disturbance limits and the boundaries of property. Six properties located in the vicinity of the maximum disturbance limits of the Build Alternative have been identified as contributing to known groundwater impacts. These six properties are located at 16821 Norwalk Boulevard, 16604/16620 Pioneer Boulevard, 16632 Pioneer Boulevard, 16905 Pioneer Boulevard, 16849 Studebaker Road, and 10802 College Place. None of these properties would be fully or partially acquired for the proposed project; however, there is potential that contaminated groundwater originating at these parcels could be encountered during project construction. Measure PF-HAZ-12, in Section 2.11.4, requires a site investigation be performed on these parcels to identify potential hazards associated with contaminated soil and groundwater that could occur during project construction, and to provide appropriate measures to address these hazards.

Operation and maintenance of the transportation facilities proposed as part of the Build Alternative and/or design options would not introduce new sources of hazardous materials or waste. Routine maintenance activities would be required to

follow applicable regulations with respect to the handling and disposal of potentially hazardous materials.

With the incorporation of applicable project features and measures as outlined above, a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials would not occur. Impacts associated with hazardous materials would be less than significant. No mitigation is necessary.

**b) Less Than Significant Impact.** Vehicles utilizing SR-91 would continue to transport hazardous substances that could spill and impact the roadway and adjacent properties or resources. However, one purpose of the proposed project is to improve traffic safety on this roadway segment, which would help to minimize impact related to hazardous waste spills. In addition, transport of hazardous materials is subject to strict regulation. Caltrans, the California Highway Patrol, and local police and fire departments are trained in emergency response procedures for safely responding to accidental spills of hazardous substances on public roads, which further reduces impacts. For these reasons, operation of the Build Alternative and/or design options would not result in a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Impacts would be less than significant, and no mitigation is necessary.

**c) Less Than Significant Impact.** Table 2.3.6, provided in Section 2.3, Community Impacts, lists the community facilities, including schools, that are within 0.5 mi of the Build Alternative. Although construction of the project would result in temporary impacts related to hazardous materials/waste that could occur within the maximum disturbance limits for the Build Alternative and design options (although no hazardous waste concerns were observed or reported within parcels on which TCEs and/or partial acquisitions would occur), with the implementation of project features and measures intended to address the handling of hazards and hazardous materials, impacts would be less than significant. Additionally, the proposed project would operate in the same manner as existing conditions, and would not result in new hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mi of an existing or proposed school in a manner that would differ from existing conditions. Therefore, impacts would be less than significant and no mitigation is required.

**d) No Impact.** The project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.

**e) No Impact.** The study area is not located within an airport land use plan, nor is it within 2 mi of a public airport or public use airport. The nearest public airport is the Long Beach Airport (Daugherty Field), approximately 4.5 mi southwest of the study area. The project would not result in a safety hazard for persons residing or working within the project area.

**f) No Impact.** The project is not within the vicinity of a private airstrip and would not result in a safety hazard for persons residing or working within the project area.

**g) Less Than Significant Impact.** Construction of the project could require partial or complete closures of local streets and ramps during night time and off-peak hours during critical construction phases. Some impairment to the delivery of emergency services, including fire and response times, may occur due to limited lane closures on the freeway mainline, ramps, and arterials. Emergency service providers, including local fire and police departments and the California Highway Patrol (CHP), could experience travel delays when traveling to and from emergency scenes during closures. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Project features would be incorporated into the Build Alternative to address the temporary impacts of project construction on emergency services and to ensure that no impairment of an adopted emergency response plan would occur. Project Feature PF-UES-2 (refer to Section 2.4.2.1 for more detailed information) states that prior to and during construction, the construction contractor will coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including the identification of alternative routes for emergency vehicles and routes across the construction areas that are developed in coordination with the affected agencies. In addition, Project Feature PF-T-1 (refer to Section 2.5.3.2 for more detailed information) requires the development and implementation of a Transportation Management Plan (TMP) during construction of the Build Alternative to address traffic delays, maintain traffic flow in the study area, manage detours and temporary road, lane, and ramp closures, provide ongoing information to the public regarding construction activities, closures, and detours, and maintain a safe



environment for construction works and travelers. Implementation of these project features would reduce the likelihood of impaired implementation of an adopted emergency response plan or emergency evacuation plan. The proposed project would add lanes to an existing freeway facility and would not construct structures which would physically interfere with an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

**h) No Impact.** The project is located in a highly urbanized area, not near wildlands, and would add lanes to an existing freeway facility. The project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

### 3.1.9 Hydrology and Water Quality

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f) Otherwise substantially degrade water quality?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

#### 3.1.9.1 CEQA Significance Determination for Hydrology and Water Quality

The potential for the Build Alternative to adversely impact hydrology and water quality was assessed in the *Water Quality Assessment Report (WQAR)* (2017), and Section 2.8, Water Quality and Storm Water Runoff, of this IS/EA. The following discussions are based on those analyses.

**a) Less Than Significant Impact.** The State Water Resources Control Board (SWRCB) administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving basin plans, total maximum daily loads (TMDLs) and National Pollutant Discharge Elimination System (NPDES) permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility. The SWRCB has identified Caltrans as an owner/operator of an Municipal Separate Storm Sewer System (MS4) under federal regulations. Caltrans' MS4 permit covers all Caltrans ROW, properties, facilities, and activities in the state. The permit has three basic requirements: Caltrans must comply with the requirements of the CGP; Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the maximum extent practicable, and other measures as the SWRCB determines necessary to meet water quality standards. To comply with the MS4 permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California, and describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff. Adherence to the applicable permits as well as the inclusion of project features and standard BMPs outlined in Section 2.8.3.1 would ensure that impacts related to the violation of water quality standards or waste discharge requirements would be less than significant.

**b) Less Than Significant Impact.** Previous studies have estimated the depth to historically high groundwater in the vicinity of the study area to range from 8 to 35 ft bgs. The nearest groundwater wells with current groundwater level and quality data is nearly 2 mi south of the southern limits of the study area. Depletion or dewatering of groundwater, or interference with groundwater recharge, is not anticipated to occur during construction or operation of the proposed project. In the event that groundwater and any other non-storm water dewatering activities become necessary, these activities would be subject to the requirements and permitting authority of the RWQCB. Any impacts to groundwater would be less than significant.



**c, d) Less Than Significant Impact.** As described in Section 2.8 of this IS/EA, construction activities under the Build Alternative involve construction of drainage structures, protection in place of existing drainage facilities where feasible and extension to the widening limits, and creation of permanent water quality BMPs. The existing man-made drainage pattern in the study area would not be substantially changed as a result of the proposed project, and no alteration to the course of a stream or river would occur, including those to which the project's storm water runoff would discharge. Construction BMPs addressing erosion and siltation would be implemented during the construction phase, and Design Pollution Prevention and Treatment BMPs would be designed, implemented, and maintained during operation of the proposed project, reducing any impacts related to erosion or siltation on- or off-site. The Build Alternative results in a 5.83 ac increase in impervious surface area over the baseline conditions due to new roadway area, interchanges, and bridges, as well as alteration of drainage patterns on roadways. This permanent increase in impervious surface area will result in a permanent increase in runoff and pollutant loading by increasing peak loads and runoff volumes, in turn increasing the potential for erosion and sedimentation in surface waters. Turbidity in downstream water bodies may increase due to the increase in impervious surface area. Overall, once Design Pollution Prevention and Treatment pollution BMPs are properly designed, implemented, and maintained, impacts related to substantial erosion, siltation, or flooding would be less than significant.

**e) Less Than Significant Impact.** As stated previously, the Build Alternative represents a 5.83 ac increase in impervious surface over existing conditions due to new roadway area, interchanges, and bridges, as well as an alteration of drainage patterns on roadways. This permanent increase in impervious surface area will result in a permanent increase in runoff and pollutant loading by increasing peak loads and runoff volumes, in turn increasing the potential for erosion and sedimentation in surface waters. Contaminants in the runoff from the widened roadway could include sediments, oils, grease, and metals, similar to existing contaminants within the study area. Targeted Design Constituents are defined in the Caltrans NPDES Permit as pollutants that are expected to be generated by the proposed project and may "cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters," or their properties, or may cause the impairment of Section 303(d) listed receiving waters. Targeted Design Constituents anticipated to be generated by the proposed project include copper, lead, pesticides, and nutrients. As required by the Caltrans NPDES Permit, the proposed project is required to prepare a Storm Water Data Report (SWDR) and evaluate the project for the feasibility of

Treatment BMPs that will be implemented during construction to the maximum extent practicable. The SWDR will document the Caltrans-approved Treatment BMPs that will treat the Targeted Design Constituents listed above. Also included as a project element is the incorporation of Design Pollution Prevention BMPs that include the preservation of existing vegetation and slope and surface protection systems (e.g., permanent soil stabilization), as well as the use of 4:1 or flatter slopes. A new substantial source of pollutants would not be introduced, as the project is proposed to accommodate existing uses. Turbidity in downstream water bodies may increase due to the increase in impervious surface area. Overall, once Treatment and Design Pollution Prevention BMPs are properly designed, implemented, and maintained, a less than significant impact related to the creation of runoff water that would exceed the capacity of existing or planned storm water drainage systems or substantial additional sources of polluted runoff would occur.

**f) Less Than Significant Impact.** As discussed in the responses to questions a) through e) above and in Section 2.8, the inclusion of project features and standard temporary and permanent BMPs intended to address potential impacts to water quality would minimize and prevent substantial degradation of water quality in general. Impacts would be less than significant.

**g) No Impact.** The proposed project is a highway improvement project and would add lanes and modify an interchange at an existing facility. The proposed project is not within a 100-year flood hazard area, and would not construct housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map (FIRM) or other flood hazard delineation map, nor would construction of such housing be reasonably foreseeable as a result of the project. No impact would occur.

**h) No Impact.** The study area is not within the 100-year flood hazard area, and therefore construction of the project would not place structures that would impede or redirect flood flows within a 100-year flood hazard area. No impact would occur.

**i) No Impact.** The proposed project involves addition of lanes and alteration of an interchange at an existing facility, and would not make alterations to a levee or dam. No work to be done during construction or operation of the Build Alternative would substantially alter the baseline conditions so as to expose people or structure to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. No impact would occur.

**j) Less Than Significant Impact.** Seiches are large waves generated in enclosed bodies of waters, such as lakes, in response to ground shaking. Tsunamis are waves generated in large bodies of water as a result of fault displacement or major ground movement. There are no enclosed bodies of water near the study area and the Pacific Ocean is approximately 17.25 mi west of the study area. As a result, the existing potential risks related to tsunamis and seiches are considered negligible. Mudflows generally occur on steep slopes lacking sufficient vegetation. The study area is generally flat, and existing embankment slopes along the proposed project alignment are generally inclined 1.5:1 (horizontal:vertical) or flatter and are generally vegetated. Therefore, a less than significant impact would occur related to seiches, tsunamis, and mudflows.



**3.1.10 Land Use and Planning**

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Physically divide an established community?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**3.1.10.1 CEQA Significance Determinations for Land Use and Planning**

The potential for the Build Alternative to result in adverse impacts related to land use and planning was assessed in Sections 2.1, Land Use, and 2.3, Community Impacts, in this IS/EA. The following discussions are based on those analyses.

**a) Less Than Significant Impact.** The proposed project would add lanes and widen an existing freeway facility. Up to 20 residential and non-residential acquisitions would be needed to construct the project; however, the acquisitions would occur on the fringes of neighborhoods. Therefore, the proposed improvements would not result in the physical division of an established community.

**b) Less Than Significant Impact.** The Build Alternative would require the permanent conversion from current and planned land uses to transportation uses to accommodate the proposed project improvements. As shown in Table 2.1.4 in Section 2.1.1.4, the Build Alternative would result in the conversion of approximately 0.76 ac of land for commercial and services uses, approximately 1.24 ac of existing educational/institutional uses, approximately 0.57 ac of existing industrial uses, approximately 1.74 ac of existing single-family residential uses, approximately 0.08 ac of existing multi-family residential uses, approximately 0.13 ac of open space and recreation uses, approximately 0.002 ac of transportation, communications, and utility uses, and approximately 1.07 ac of vacant land, as identified in local General Plans. With the inclusion of the design options, the Build Alternative would result in the conversion of a slightly smaller overall amount of General Plan land uses

The local land use policy consistency analysis for the Build Alternative can be found in Table 2.1.3 in Section 2.1.4.1. The Build Alternative would be generally consistent

with the applicable policies and objectives contained in the General Plans of the Cities of Artesia and Cerritos, including those intended to improve regional transportation facilities, maximize the efficiency of the circulation system, and improve access to city streets. Changes to existing land use patterns along SR-91 and I-605 after implementation of the Build Alternative would not occur because these freeways are existing transportation facilities located in a highly developed area, and a limited number of acquisitions would occur. No amendments to the General Plans of the Cities of Artesia and Cerritos would be required. Therefore, a less than significant impact would occur, and no mitigation would be required.

**c) No Impact.** The project is not located within or near a Los Angeles County regional habitat linkage or wildlife corridor, existing or proposed significant ecological area, or adopted HCP, NCCP, or other approved local, regional, or State HCP. Therefore, no impact would occur.

**3.1.11 Mineral Resources**

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?                                | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

**3.1.11.1 CEQA Significance Determinations for Mineral Resources**

The potential for the Build Alternative to result in adverse impacts related to mineral resources was assessed based on information from the Cities of Cerritos and Artesia General Plans.

**a) No Impact.** The General Plans of the Cities of Cerritos or Artesia and the CGS Map of the Aggregate Sustainability in California do not identify any known mineral resource deposits that would be of value to the region and the residents of the state within their respective city limits. Therefore, construction and operation of the proposed project would have no impact on any known mineral resources.

**b) No Impact.** The General Plans of the Cities of Cerritos and Artesia, the City of Artesia’s Artesia Boulevard Corridor Specific Plan, land use maps for the Cities of Cerritos and Artesia, and the CGS Map of the Aggregate Sustainability in California do not identify or delineate any mineral resource recovery sites, locally-important or otherwise. Therefore, construction and operation of the proposed project would have no impact on any such site.



### 3.1.12 Noise

| Would the project result in:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

#### 3.1.12.1 CEQA Significance Determinations for Noise

The potential for the proposed project to result in significant noise impacts was assessed in the *Noise Study Report (NSR)* (2018) and *Noise Abatement Decision Report (NADR)* (2018), and in Section 2.13, Noise, of this IS/EA. The following discussion is based on those analyses.

**a, c) Less Than Significant Impact.** The *Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (Noise Protocol) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The Noise Abatement Criteria (NAC) specified in the Noise Protocol are the same as those specified in 23 CFR 772. The FHWA NAC were established by considering hearing impairment, annoyance, sleep, and task interference or disturbance, and interference with speech communication. The Noise Protocol defines a noise increase as “substantial” when the predicted noise levels under build conditions exceed existing noise levels by 12 A-weighted decibels (dBA). For this CEQA analysis, which is independent of the 23 CFR 772 analysis contained in Section 2.13, Noise, the “substantial increase” of 12 dBA has been used as the “applicable standards of other agencies” referred to in checklist question a).

Noise analysis for projects under CEQA centers on whether the proposed project or the proposed noise abatement would result in significant adverse environmental effects. Whether an increase in future noise level would result in a significant effect for purposes of CEQA is determined by comparison of the existing noise level (the baseline environmental setting) to the predicted noise level with the project. The assessment entails looking at the setting of the noise impact and the perceptibility of the noise increase. Key considerations include the uniqueness of the setting, sensitive nature of the receptors, magnitude of the noise increase, number of residences affected, and the absolute noise level.

Future with-project noise levels for Horizon Year 2044 were modeled and are included in Tables B-1 through B-11 in Appendix B of this IS/EA. Generally, with-project noise increases over the existing conditions under the Build Alternative and all design options will be imperceptible (e.g., less than a 5 dBA increase in noise levels is considered not readily perceptible to the human ear<sup>1</sup>). Noise increases across all receptor locations and Build Alternative/options range from zero to four dBA. There is one residential location (Receptor R-190) at which a perceptible (5 dBA) increase was projected to occur in the with-project condition over existing baseline conditions for the Build Alternative, the Build Alternative with Design Option 2 (Pioneer Boulevard L-9), and the Build Alternative with Design Option 4 (Diamond Ramps). A 5 dBA noise increase is not considered significant under CEQA. Additionally, this location contains three noise-sensitive receptors currently shielded from the freeway facility by an existing sound wall. The existing sound wall would be removed and reconstructed to accommodate widening of the freeway, and the replacement wall would reduce the noise increase at this receptor to, which is below the level of perceptibility by the human ear. Therefore, under CEQA, there would be no substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Impacts would be less than significant, and no mitigation is required.

**b) Less Than Significant Impact.** For purposes of determining significance under CEQA, the Caltrans *Transportation- and Construction-Induced Vibration Guidance Manual* (2013) shows that the vibration damage threshold for continuous/frequent

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<sup>1</sup> Federal Highway Administration (FHWA). Highway Traffic Noise Analysis and Abatement Policy and Guidance. Website: [https://www.fhwa.dot.gov/environment/noise/regulations\\_and\\_guidance/polguide/polguide02.cfm](https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/polguide/polguide02.cfm) (accessed January 24, 2018).

intermittent sources is 0.25 peak particle velocity (PPV) inches per second (in/sec) for historic and old buildings, 0.3 PPV in/sec for old residential structures, and 0.5 PPV in/sec for new residential structures. The same manual shows the vibration annoyance potential criteria to be barely perceptible at 0.01 PPV in/sec, distinctly perceptible at 0.04 PPV in/sec, strongly perceptible at 0.1 PPV in/sec, and severe at 0.4 PPV in/sec. Both of these criteria for damage and annoyance were used to evaluate short-term, construction-related ground-borne vibration.

Because the rubber tires and suspension systems of trucks and other on-road vehicles provide vibration isolation, it is unusual for on-road vehicles to cause ground-borne noise or vibration problems. When on-road vehicles cause effects such as rattling of windows, the source is almost always airborne noise. Groundborne vibrations are mostly associated with passenger vehicles and trucks traveling on roadways with poor conditions such as potholes, bumps, expansion joints, or other discontinuities in the road surface. Smoothing the bump or filling the pothole will usually solve the problem. As the proposed project will use new asphalt pavement followed with proper maintenance, there will be no potholes, bumps, expansion joints, or other discontinuities in the road surface that would generate ground-borne vibration or direct or indirect noise impacts from vehicular traffic traveling on SR-91.

Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that would result in damage to nearby structures. However, old and fragile structures would require special consideration to avoid damage.

The proposed project may require the use of pile drivers and other heavy-tracked construction equipment during construction. The FTA, in its *Transit Noise and Vibration Impact Assessment* (2006), shows that a typical-impact pile driver would generate approximately 0.644 PPV in/sec when measured at 25 ft. It also shows that typical heavy-tracked construction equipment would generate approximately 0.003 to 0.089 PPV in/sec when measured at 25 ft.



The closest sensitive receptors are within 50 ft of project construction areas for the Build Alternative and design options, so therefore, potential pile-driving activities could be located approximately 50 ft from the closest residence. The closest residence would be subject to a vibration level of 0.3 PPV in/sec. This vibration level is considered to be strongly perceptible and would have the potential to damage residential structures that are considered old, such as many of the structures that could be exposed to these vibration levels during construction activities. Other construction equipment and activities would generate vibration levels much lower than those of pile driving and heavy-tracked construction equipment and would therefore result in lower vibration levels at adjacent receiver locations. A review of the structures evaluated for inclusion on the National Register of Historic Places (and thereby may be “considered old”) shows that none of these structures are residential in nature, and moreover, none are within 50 ft of potential pile-driving activities. Therefore, ground-borne vibration levels generated by the proposed project would be less than significant.

**d) Less Than Significant Impact.** As described in more detail in Section 2.13.3.1, two types of short-term noise impacts would occur during construction of the proposed project. Construction crew commute and equipment transportation would have the potential to result in a high single-event noise exposure to receptors at a maximum of 75 dBA maximum instantaneous noise level ( $L_{max}$ ), due to trucks passing at 50 ft from the receptor. Noise generated during roadway construction would take a variety of forms and are generally categorized by work phase. Types of construction equipment and their actual maximum sound levels at 50 ft can be found in Table 2.13-9 in Section 2.13.3.1. Sensitive receptor locations may be subject to short-term noise higher than 86 dBA  $L_{max}$  generated by construction activities along the project alignment. However, existing conditions within the project vicinity include the operation of the existing SR-91 freeway facility, and temporary noise impacts from the project would not dominate the noise environment. However, Project Feature PF-N-1 would control noise levels during construction between the hours of 9:00 p.m. and 6:00 a.m. to minimize construction noise impacts on sensitive land uses adjacent to the project site, as well as requiring internal combustion engines on the job site to be equipped with the appropriate manufacturer-recommended muffler. With the incorporation of this project feature, impacts would be less than significant, and no mitigation is required.

**e) No Impact.** The study area is not located within an airport land use plan, nor is it within 2 mi of a public airport or public use airport. The nearest public airport is the

Long Beach Airport (Daugherty Field), approximately 4.5 mi southwest of the study area. The project would not result in the exposure of people residing or working in the project area to excessive noise levels. No impact would occur.

**f) No Impact.** The project is not within the vicinity of a private airstrip and would not result in a safety hazard for persons residing or working within the project area.

### 3.1.13 Population and Housing

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

#### 3.1.13.1 CEQA Significance Determinations for Population and Housing

The potential for the Build Alternative to result in adverse impacts related to population and housing was assessed in the *Relocation Impact Report* (2018), and Sections 2.2, Growth, and 2.3, Community Impacts, of this IS/EA. The following discussions are based on those analyses.

**a) No Impact.** As discussed in detail in Section 2.2 of this IS/EA, the Build Alternative proposes only improvements to an existing freeway facility and intends to accommodate projected growth that is already expected to occur with or without the project (3 percent for the City of Cerritos and 8 percent for the City of Artesia by 2040 as projected by the SCAG 2016–2040 RTP/SCS Final Growth Forecasts). The proposed project is located in a highly urbanized and built-out area, with little land available for new development, and the proposed improvements do not provide a new transportation facility or provide access to previously inaccessible areas. Although the improvements made to alleviate congestion and enhance the capacity of the existing facilities could make growth in the study area more attractive, a number of development projects were proposed and approved prior to the initiation of the planning studies for the proposed project. This indicates that development in the study area cities is not dependent or otherwise related to the completion of this transportation project. Table 2.18.1 in Section 2.18, Cumulative Impacts, provides a status of developments proximate to the study area. These developments would presumably be developed with or without the proposed project. Therefore, the project would not influence the rate, type, or amount of growth that would otherwise occur, and reasonably foreseeable growth that is anticipated to occur in the study area is not project-related. The project would not induce substantial population growth, either directly or indirectly. No impact would occur.



**b, c) Less Than Significant Impact.** According to the *Relocation Impact Report* (2018) and as described in Section 2.3.2, Relocations and Real Property Acquisition, the Preferred Alternative (which includes both Design Option 1 and Design Option 3) would result in the displacement of five residences, which could affect approximately 24 residents. This estimate was determined based on an average of 4.86 persons per household according to the American Community Survey (ACS) 2015 Estimates (utilizing the average of the three average household size figures of the applicable census tract block groups in the displacement area). The displaced properties are entirely single-family residences. The replacement area is defined as the local area where residential and business displacees would likely secure replacement sites. Generally, displacees prefer to remain in existing school systems and their immediate familial and cultural settings. The communities within the replacement area are located within the boundaries of the existing school district, ABC Unified School District (ABCUSD), which serves the city of Artesia, most of the cities of Cerritos and Hawaiian Gardens, the portion of the city of Lakewood east of the San Gabriel River, as well as small portions of the cities of Long Beach, Norwalk, and La Mirada. The replacement neighborhoods are generally located less than 3 mi from the displacement areas and are homogenous to the displacement areas. They are comparable in terms of amenities, public utilities, and accessibility to public services, transportation, and shopping.

Currently there are a limited number of available properties for sale within the specific displacement neighborhood. Therefore, adjacent neighborhoods within the ABCUSD boundaries were also analyzed for replacement housing availability. The results of the analysis indicated that there are affordable replacement properties within the identified replacement areas, but there could be relocation problems for displacees as a result of overcrowded residences, higher rents, real estate market competition, among other issues. Therefore, a longer timeline to vacate properties may be required, and Last Resort Housing Program payments may be required to relocate residential households being displaced. The construction of replacement housing under the Last Resort Housing Program would not be required, because there are adequate availability of replacement properties with similar purchase prices and amenities as the displaced properties, and there are currently no scheduling constraints for the project related to replacement housing. Therefore, as the project does not displace substantial numbers of people or housing, and the construction of replacement housing would not be required, this impact would be less than significant and no mitigation is required.

**3.1.14 Public Services**

|   | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                |
|---|------------------------------------|--|-------------------------------------|--------------------------|
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: |                                    |  |                                     |                          |
| i) Fire protection?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii) Police protection?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Schools?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iv) Parks?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| v) Other public facilities?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**3.1.14.1 CEQA Significance Determinations for Public Services**

The potential for the Build Alternative to impact public services and facilities is assessed in the *Utility Impacts and Relocation Report (2018)* and Sections 2.1, Land Use, and 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

**a) i, ii) Less Than Significant Impact.** Potential impacts to fire and police protection response times due to construction activity may occur due to traffic diversion resulting from temporary closures to local roadways, sidewalks, and bikeways, and freeway lanes, and would be addressed by Project Feature PF-T-1, provided in Section 2.5.3.2. Project Feature PF-T-1 provides for a TMP to be developed in detail during final design and include elements intended to reduce traveler delays and enhance traveler safety during project construction. Project Feature PF-UES-2, provided in Section 2.4.2.1, would require the construction contractor to coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including identification of alternate routes. With the inclusion of these project features, acceptable service ratios, response times, and other performance objectives for fire and police protection would be maintained, and the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, would not be necessary. Impacts would be less than significant, and no mitigation is necessary.

**a) iii, iv, and v) Less Than Significant Impact.** No schools, parks, or other public facilities would be substantially impacted or displaced by construction or operation of the proposed project and so current acceptable service ratios of these resources would be maintained. In addition, and as discussed in more detail in Section 2.2, Growth, the proposed project is planned to accommodate existing and planned growth in the study area and would not induce growth that would require the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. Impacts would be less than significant, and no mitigation is necessary.



**3.1.15 Recreation**

|  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?                        | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**3.1.15.1 CEQA Significance Determinations for Recreation**

The potential for the Build Alternative to adversely impact recreation resources was assessed in Section 2.1, Land Use, in this IS/EA. The following discussions are based on the findings of that analysis.

**a) Less Than Significant Impact.** As described in more detail in Section 2.2, Growth, the proposed project would be located within an existing highly urbanized area, and would not provide accessibility to a previously inaccessible area or provide a new transportation facility. Rather, the project would help alleviate existing and forecasted traffic volumes and improve operations on SR-91, I-605, and surrounding arterials. Growth is not a reasonably foreseeable outcome of the proposed project, and therefore, an increase in the use of existing neighborhood and/or regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated. In addition, although the project would require small temporary acquisitions for TCEs and small permanent acquisitions at Ecology Park and the parking lot of Tracy High School in Cerritos, these acquisitions would occur at the peripheries of the facilities and would not contribute to the deterioration of the facilities or inhibit the facility’s ability to function normally. Impacts would be less than significant and no mitigation is required.

**b) No Impact.** Please also refer to the response given for checklist question a) above. The proposed project consists of improvements to an existing freeway facility and does not include the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. No impact would occur.

### 3.1.16 Transportation/Traffic

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Result in inadequate emergency access?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

#### 3.1.16.1 CEQA Significance Determinations for Transportation/Traffic

The potential for Build Alternative to result in adverse traffic impacts was assessed in the *Traffic Operations Analysis Report* (2018) and in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, in this IS/EA. The following discussions are based on those analyses.

**a) Less Than Significant Impact.** The analysis evaluation criteria used to determine acceptable traffic operation conditions are based on the level of service (LOS) policies identified by Caltrans. Caltrans strives for freeway facilities to operate at either LOS C or D. Based on Caltrans policy, LOS D was used as the threshold for the freeway facilities analysis. Any future freeway facilities projected to operate at an unacceptable LOS (LOS E or F) would be considered to be significantly impacted and require mitigation, as follows:

- Degrade the LOS on the freeway facility from LOS D to LOS E or F, or
- Impact (worsen) a facility that is already operating at an unacceptable LOS (E or F) when compared to the 2016 Baseline (and is not projected to operate at unacceptable LOS under the Future No Build Alternative scenario, indicating that the degradation in LOS is attributable to the proposed project)

In addition to freeway facilities, six local study area intersections were also analyzed utilizing *Highway Capacity Manual* (HCM) 2010 methodology. Intersections would be impacted if they are projected to operate at an unacceptable LOS (E or F) under the Build Alternative (and are not projected to operate at unacceptable LOS under the No Build Alternative scenario, indicating that the degradation in LOS is attributable to the proposed project).

The traffic analysis evaluated the existing baseline conditions (2016) as well as two future scenarios: the Opening Year (2024) and the Horizon Year (2044), for the Build Alternative and design options, as well as the No Build Alternative.

As shown in Table 2.5.6 provided in Section 2.5.4, some freeway segments experience a worsening of LOS (from LOS C to LOS D) in the p.m. peak hour when compared to existing baseline conditions, including the segments from Carmenita Road off-ramp to 183rd Street on-ramp and from Artesia Boulevard off-ramp to Artesia Boulevard on-ramp, but other segments would experience an improvement from LOS D to LOS C when compared to existing baseline conditions, including the segments from Artesia Boulevard on-ramp to Bloomfield Avenue on-ramp and from Norwalk Boulevard off-ramp to Norwalk Boulevard Loop on-ramp. None of the segments analyzed for the Opening Year (2024) would experience a degradation in LOS to E or F.

Freeway weave and merge/diverge areas were also analyzed for the Opening Year (2024) and can be found in Tables 2.5.7 and 2.5.8 in Section 2.5.4. One segment experiences a degradation in LOS when compared to existing baseline conditions (183rd Street on-ramp to Artesia Boulevard off-ramp). During both the a.m. and p.m. peak hours, LOS at this weave segment would worsen from LOS C in the existing baseline condition to LOS D for both the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps). Similarly, the Artesia Boulevard on-ramp merge junction LOS would worsen slightly from LOS C in the existing baseline condition to LOS D in both the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps) scenarios. However, none



of the weave and merge/diverge areas analyzed for the Opening Year (2024) would experience a degradation in LOS to E or F.

Intersection LOS analysis for the Opening Year (2024) can be found in Table 2.5.9. Some intersections experience a worsening of LOS in the Opening Year (2024) when compared to existing baseline conditions. For example, in the a.m. peak period, the Studebaker Road/WB SR-91 off-ramp would operate at LOS C under the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps) scenarios compared to LOS B under the existing baseline condition. However, none of the analyzed intersections would experience a degradation of LOS to E or F in Opening Year (2024).

Freeway mainline LOS analysis for Horizon Year (2044) can be found in Table 2.5.10, in Section 2.5.4. Similar to the Opening Year (2024), some segments experience a worsening of LOS when compared to the existing baseline conditions. For example, during the p.m. peak hour, the freeway mainline segments from Carmenita Road off-ramp to 183rd Street on-ramp, Artesia Boulevard off-ramp to Artesia Boulevard on-ramp, and northbound I-605/westbound SR-91 loop on-ramp to southbound I-605/westbound SR-91 on-ramp, would experience a worsening in LOS from C to D when compared to the existing baseline conditions. An improvement in LOS from D to C also occurs during the p.m. peak hour for the freeway mainline segments between the Artesia Boulevard on-ramp to the Bloomfield Avenue off-ramp and the I-605 off-ramp (northbound and southbound) to the Studebaker Road off-ramp. No mainline freeway segments are projected to degrade to LOS E or F in the Horizon Year (2044) under the Build Alternative or any design options when compared to the existing baseline condition.

The freeway weave and merge/diverge analyses for Horizon Year (2044) are contained in Tables 2.5.11 and 2.5.12 in Section 2.5.4. During both the a.m. and p.m. peak hours, the LOS of the weave segment between the 183rd Street on-ramp to Artesia Boulevard off-ramp would worsen from LOS C in existing conditions to LOS D under the 2044 Build Alternative and 2044 Build Alternative with Design Option 4 (Diamond Ramps). Also similarly to the Opening Year 2024 conditions, the merge junction at the Artesia Boulevard on-ramp would worsen to LOS D under the 2044 Build Alternative and 2044 Build Alternative with Design Option 4 (Diamond Ramps) scenarios when compared to existing baseline conditions (LOS C). However, during the p.m. peak hour, the Studebaker Road off-ramp diverge area would experience an improvement in LOS under the 2044 Build Alternative and 2044 Build

Alternative with Design Option 4 (Diamond Ramps) scenarios when compared to the existing baseline conditions (from LOS D to LOS C). No weave or merge/diverge areas would degrade to LOS E or F in the Horizon Year (2044) Build Alternative or any design option scenario when compared to the existing baseline condition.

Table 2.5.13 in Section 2.5.4 illustrates the intersection LOS analysis for Horizon Year (2044). In both the a.m. and p.m. peak hours, the Studebaker Road/WB SR-91 off-ramp would experience a worsening of LOS when compared to existing baseline conditions (from LOS B to LOS C during a.m. peak hour, and from LOS A to LOS B during p.m. peak hour). However, no intersections are projected to degrade to LOS E or F in the Horizon Year (2044) Build Alternative or any design option scenario when compared to the existing baseline condition.

Because no freeway mainline segments, weave, merge/diverge areas, or intersections would degrade to LOS E or F in any future with-project condition when compared to the existing baseline condition, impacts would be less than significant and no mitigation is necessary.

**b) Less Than Significant Impact.** As the Congestion Management Agency for the County of Los Angeles, the Los Angeles County Metropolitan Transportation Authority (Metro) is responsible for implementing the Congestion Management Program (CMP). As identified in the CMP, the County of Los Angeles LOS standard is LOS E, except where base year (for the 2010 CMP, the base year has been identified as 1992) LOS is worse than E, in which case the base year LOS is the standard. Please refer to the response to checklist question a) above. No freeway mainline segments, weave, merge/diverge areas, or intersections would degrade to LOS E or F in any future with-project condition when compared to the existing baseline condition, impacts would be less than significant and no mitigation is necessary.

**c) No Impact.** The proposed project would add mixed flow and auxiliary lanes to an existing freeway facility as well as make modifications to interchanges, and would not result in any change in air traffic patterns that would result in either an increase in traffic levels or a change in location that results in substantial safety risks.

**d) Less Than Significant Impact.** The proposed project would add mixed flow and auxiliary lanes to an existing freeway facility as well as make modifications to interchanges. No features that would substantially increase hazards, such as a sharp curve or dangerous intersection, would be included in the project design, as the

project would be designed and constructed to the standards as specified in the HDM (Caltrans 2017). Any mandatory or advisory design exceptions to these standards would be required to proceed through an approval process. These design exceptions are outlined in Section 1.3.3.1. Additionally, the proposed project would correct some existing nonstandard features that are inconsistent with the HDM, including (but not limited to) stopping sight distance, superelevation and transition, ramp curvature, and lane and shoulder width. The project would also not introduce any incompatible uses to the facility; it would remain a controlled-access highway in the same manner as it currently exists.

**e) Less Than Significant Impact.** During construction of the proposed project, some impairment to the delivery of emergency services, including fire and police response times, may occur due to limited lane closures on the mainline, ramps and arterials. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Emergency services providers (including the local fire and police departments and California Highway Patrol) could experience these travel delays when traveling to/from emergency scenes during these closures. Project Feature PF-UES-2, in Section 2.4.2.1, addressing coordination with emergency service providers regarding closures and alternative routes, and Project Feature PF-T-1, in Section 2.5.3.2, providing for development and implementation of a TMP during construction, would minimize potential impacts to emergency access. Because the proposed project would not remove access points to or from the freeway facility, no impacts to emergency access would occur during operation of the project. Overall, impacts would be less than significant.

**f) Less Than Significant Impact.** As discussed in the Section 2.1, Land Use, in this IS/EA, the Build Alternative would not conflict with adopted policies, plans, or programs supporting alternative transportation modes. The design of the freeway and ramp improvements in the Build Alternative would accommodate public and private buses. The improvements to arterials at their crossings of SR-91 would be designed to accommodate transit vehicles, pedestrians, and bicyclists. The arterial improvements would also include features consistent with Americans with Disabilities Act requirements. As a result, the Build Alternative would not conflict with alternative transportation modes. No mitigation is required.



**3.1.17 Tribal Cultural Resources**

| Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:                             | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

**3.1.17.1 CEQA Significance Determinations for Tribal Cultural Resources**

The potential for Build Alternative to adversely impact Tribal Cultural Resources was assessed in the HPSR (2018), the attachments to the HPSR, Section 2.7, Cultural Resources; and through tribal consultation as required by AB 52. AB 52 went into effect on July 1, 2015, and introduced a new class of resources into the CEQA analysis: Tribal Cultural Resources. The California Office of Administrative Law approved the changes to the CEQA Checklist to incorporate the Tribal Cultural Resources Questions on September 27, 2016. The proposed project is subject to the requirements of AB 52, the CEQA Tribal Consultation law. As such, additional Native American coordination under AB 52 was initiated by Caltrans in May 2017. Details on this coordination and copies of the correspondence is provided in Chapter 4, Comments and Coordination, of this IS/EA. The tribes and representatives contacted per the requirements of AB 52 include the NAHC (Gayle Totton, Associate Governmental Program Analyst), Gabrieleño Band of Mission Indians – Kizh Nation (Andrew Salas, Chairperson), Gabrieleño/Tongva San Gabriel Band of Mission Indians (Anthony Morales, Chairperson), Gabrielino/Tongva Nation (Sandonne Goad, Chairperson), Gabrielino Tongva Indians of California Tribal Council (Robert F. Dorame, Chairperson), Gabrielino-Tongva Tribe (Linda Candelaria, Co-Chairperson), Juaneño Band of Mission Indians Acjachemen Nation – Belardes (Matias Belardes, Chairperson, and Joyce Perry, Tribal Manager). An initial project

notification letter was sent as well as follow up contact via phone and/or email. During a follow-up phone call, Mr. Morales of the Gabrieleño/Tongva San Gabriel Band of Mission Indians asked to be informed of the recommendations for monitoring and recommended that a monitor from his group specifically be present. Ms. Perry of the Juaneño Band of Mission Indians Acjachemen Nation – Belardes indicated on a follow-up phone call that her group does not have any concerns regarding the proposed project work. During a follow-up phone call, Mr. Dorame of the Gabrielino Tongva Indians of California Tribal Council expressed concern about the project, stating that the area is culturally sensitive and that Native American monitoring should occur during project work. Additional background research was conducted to address Mr. Dorame’s concerns and verify the sensitivity of the project areas for cultural resources. Mr. Dorame was provided a summary of these findings in a letter dated November 20, 2017. No other responses were received from the tribes contacted. Further detail of the tribal coordination process subject to the requirements of AB 52 can be found in Chapter 4, Comments and Coordination.

**a) No Impact.** Six properties were identified as falling within the APE requiring formal evaluation for the California Register of Historical Resources (California Register). No archaeological resources were identified within the APE through archival research, Native American Consultation, or field survey. All six of these properties are built environment resources, and none of them are listed in a local register of historical resources or that have been identified as significant in a historical resources survey. None of these resources appear to be eligible for the California Register. Therefore, the proposed project would have no impact on a tribal cultural resource that is listed or eligible for listing on the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k).

**b) No Impact.** Based on the information provided above in the response to question a), as well as the results of AB 52 tribal coordination summarized above and outlined in more detail in Chapter 4, Comments and Coordination, there would be no impact to a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, or a resource considered significant to a California Native American tribe, as a result of the proposed project.

**3.1.18 Utilities and Service Systems**

| Would the project:  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                            | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                     | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**3.1.18.1 CEQA Significance Determinations for Utilities and Service Systems**

The potential for the Build Alternative to adversely impact utilities and service systems was assessed in Section 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

**a) Less Than Significant Impact.** The proposed project would reconstruct and incrementally expand storm water treatment facilities that currently exist to serve the existing SR-91. The project is required to meet the requirements of the SWRCB NPDES CGP, along with any other permits deemed necessary that may be issued by the State or Los Angeles RWQCB. Because there are already existing storm water treatment facilities serving the existing SR-91, and the expansion of said facilities under the Build Alternative would be minor, there would not be a significant increase in wastewater treatment requirements under the Build Alternative, and the project would incorporate project features to address potential water quality impacts and standard BMPs for construction and operation. No mitigation is necessary.

**b, c) Less Than Significant Impact.** The proposed project would reconstruct and incrementally expand storm water treatment facilities that currently exist to serve the existing SR-91 as part of the project description. The environmental impacts of that expansion is analyzed and discussed in Section 2.8, Water Quality. The construction of these facilities would not have significant environmental effects. BMPs would be employed both during construction and operation to avoid and minimize impacts to water quality, and impacts would be less than significant. No mitigation is necessary.

**d, e, f) No Impact.** The proposed project is a highway improvement project and would not require a substantially greater water supply, wastewater treatment facilities, or landfill accommodation during construction or operation. An increase of water supply entitlements, increased wastewater treatment capacity, or landfill capacity will not be necessary; therefore, no impact would occur.

**g) No Impact.** The proposed project is a highway improvement project and would not conflict with federal, state, or local statutes and regulations related to solid waste. No impact would occur.



**3.1.19 Mandatory Findings of Significance**

|  | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact        | No Impact                |
|--|------------------------------------|--|-------------------------------------|--------------------------|
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?   | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?  | <input type="checkbox"/>           | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**3.1.19.1 CEQA Significance Determinations for Mandatory Findings of Significance**

**a) Less Than Significant Impact.** As described in more detail in the various resource sections contained in Chapter 2 of this IS/EA, the proposed project consists of modifications to an existing freeway facility within a highly urbanized area. With appropriate project features and measures contained within the various sections of Chapter 2 that address potential impacts to the quality of the environment, the project would not cause degradation of the quality of the environment. As there is little to no suitable fish or wildlife habitat in the highly urbanized study area, the project would not substantially reduce such habitat. Therefore, there is no correlative impact to fish or wildlife populations that would cause any populations to drop below self-sustaining levels. As discussed in more detail in Section 2.15, Plant Species, and 2.16, Animal Species, the project would not result in permanent impacts to any federally or State-listed special status plant or animal species of concern. Any temporary impacts to day-roosting bats, fully protected raptors, special-status bird species, and other nesting birds protected by the MBTA or the California Fish and Game Code, as well as any southern steelhead that may occur in existing downstream suitable habitat, would be avoided and minimized with the incorporation of project features PF-BIO-1 through PF-BIO-12. There are no species listed or proposed for listing as threatened

or endangered occurring within the study area. Similarly, there are no known important examples of the major periods of California history or prehistory that would be eliminated by construction and operation of the project, and any potential impacts to currently unknown paleontological resources would be addressed by incorporation of Project Feature PF-PAL-1, which would implement a PMP. Therefore, impacts would be less than significant, and no mitigation is necessary.

**b) Less Than Significant.** Cumulative impacts were assessed by looking at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time. As described in detail in Section 2.18, Cumulative Impacts, potential cumulative impacts are presented by environmental resource area, and reasonably foreseeable actions and projects discussed in that section can be found in Table 2.18.1 and are shown geographically on Figure 2.18-1. In general, for all resource areas, impacts resulting from the project would not be adverse and, therefore, not cumulatively considerable. Therefore, impacts would be less than significant and no mitigation is required.

**c) Less Than Significant Impact.** Because of the nature of the project (the addition of lanes to an existing freeway facility) and the highly urbanized setting, and taking into account the impact analyses detailed in Chapter 2 of this IS/EA and the CEQA significance determinations included in this chapter, none of the environmental effects resulting from the project would have a substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant, and no mitigation is necessary.

### **3.1.20 Climate Change**

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O),

tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.<sup>1</sup> In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.<sup>2</sup> The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or “mitigate” the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (e.g., adjusting transportation design standards to withstand more intense storms and higher sea levels).

### **3.1.20.1 Regulatory Setting**

This section outlines federal and State efforts to comprehensively reduce GHG emissions from transportation sources.

#### ***Federal***

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

NEPA (42 USC Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

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<sup>1</sup> United States Environmental Protection Agency. 2017. U.S. Greenhouse Gas Inventory Report: 1990–2014 (last updated February 23, 2017). Website: <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>.

<sup>2</sup> California Air Resources Board (ARB). 2017. California Greenhouse Gas Emission Inventory. 2017 Edition. Website: <https://www.arb.ca.gov/cc/inventory/data/data.htm>.

The FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.<sup>1</sup> This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”<sup>2</sup> Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, [Congress](#) set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the [U.S. Department of Energy](#) administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of this Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2)

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<sup>1</sup> Federal Highway Administration (FHWA). 2017. Sustainability (last updated October 19, 2017). Website: <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

<sup>2</sup> FHWA. Sustainable Highways Initiative. Website: <https://www.sustainablehighways.dot.gov/overview.aspx>.



renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

The Environmental Protection Agency's (EPA's) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in [Massachusetts v. EPA](#) (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing [Clean Air Act](#) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an [endangerment finding](#) in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

The EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010<sup>1</sup> and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted

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<sup>1</sup> <https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy>, accessed March 15, 2018..

standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered the EPA to reopen the review and reconsider the mileage target.<sup>1,2</sup>

NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO<sub>2</sub> emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

### **State**

With the passage of legislation including State Senate and Assembly Bills and Executive Orders, California has been innovative and proactive in addressing GHG emissions and climate change.

- **Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002:** This bill requires the California ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.
- **Executive Order S-3-05 (June 1, 2005):** The goal of this EO is to reduce California’s GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

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<sup>1</sup> NBC News. 2017. Websites: <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256>, and Federal Register 14671. Website: <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>.

<sup>2</sup> *Federal Register*. 2017. Notice of Intention to Reconsider the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for model Year 2022–2025 Light Duty Vehicles. March 22. Website: <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse> (accessed October 2017).

- **Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006:** AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.
- **Executive Order S-01-07 (January 18, 2007):** This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.
- **Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions:** This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the *State CEQA Guidelines* for addressing GHG emissions. The amendments became effective on March 18, 2010.
- **Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection:** This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.
- **Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan:** This bill requires the State’s long-range transportation plan to meet California’s climate change goals under AB 32.
- **Executive Order B-16-12 (March 2012):** This EO orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.
- **Executive Order B-30-15 (April 2015):** This EO establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order

to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMT CO<sub>2</sub>e). Finally, it requires the Natural Resources Agency to update the State's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

- **Senate Bill 32, (SB 32) Chapter 249, 2016:** This bill codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

### 3.1.20.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 ([AB 32](#)), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

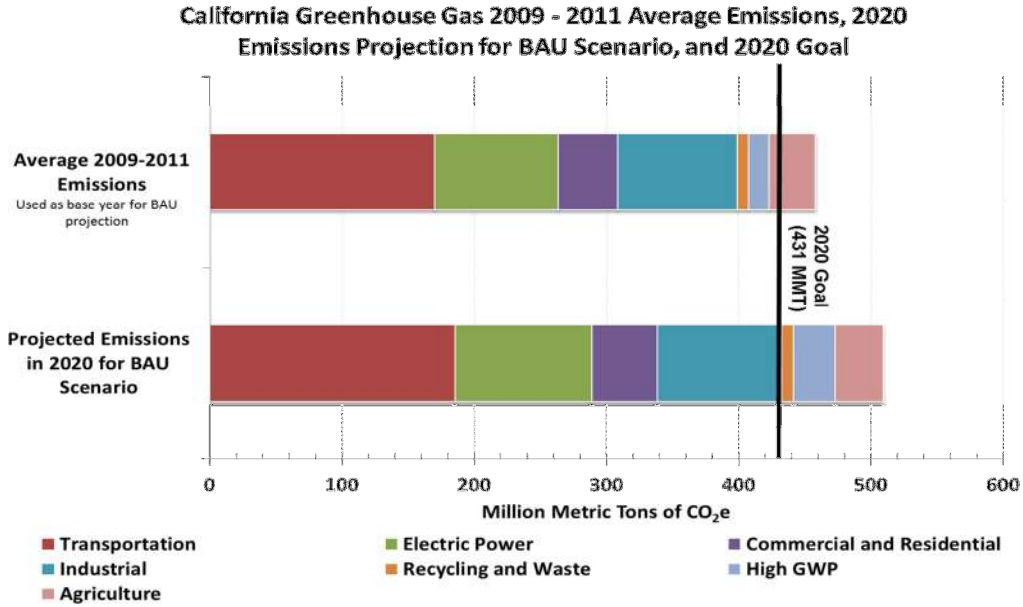
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California.<sup>1</sup> ARB is responsible for maintaining and updating California's GHG Inventory per Health and Safety Code Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3.2-1 represent

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<sup>1</sup> ARB. 2017. California Greenhouse Gas Emission Inventory (Released June 2017). Website: <https://www.arb.ca.gov/cc/inventory/data/data.htm>.





**Figure 3.2-1 2020 Business as Usual (BAU) Emissions Projection 2014 Edition**

a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMT CO<sub>2</sub>e.<sup>1</sup> The 2017 edition of the GHG emissions inventory ([released in June 2017](#)) found total California emissions of 440.4 MMT CO<sub>2</sub>e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery.

The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMT CO<sub>2</sub>e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMT CO<sub>2</sub>e.

<sup>1</sup> The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4).

### 3.1.20.3 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.<sup>1</sup> In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (*State CEQA Guidelines* Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best-faith effort to describe the potential GHG emissions related to the proposed project.

#### ***Operational Emissions***

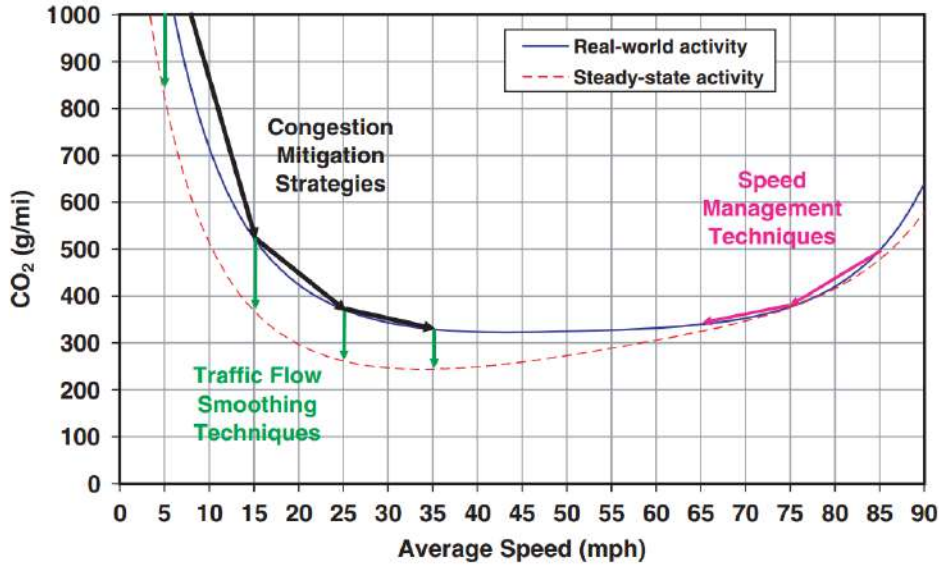
Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the State of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO<sub>2</sub> from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 3.2-2). To the extent

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<sup>1</sup> This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the SCAQMD (Chapter 6: The CEQA Guide, April 2011), and the United States Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside (May 2010). Website: <http://uctc.berkeley.edu/research/papers/846.pdf>.

**Figure 3.2-2 Possible Use of Traffic Operation Strategies in Reducing On-Road CO<sub>2</sub> Emissions**

that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO<sub>2</sub>, may be reduced.

SCAG’s 2016 RTP/SCS complies with the emission reduction targets established by the California Air Resources Board (ARB) and meets the requirements of SB 375 as codified in Government Code §65080(b) et seq. by achieving per capita GHG emission reductions relative to 2005 of 8 percent by 2020 and 18 percent by 2035, which meets or exceeds targets set by ARB. As required by SB 375, the SCS outlines growth strategies that better integrate land use and transportation planning and help reduce the State’s GHG emissions from cars and light trucks. The proposed project is listed in Amendment #3 of the 2016 RTP/SCS (project ID: 1163S012), which can be found in Appendix E. The project will assist the region with its overall goals to reduce vehicle-related GHGs by relieving congestion and improving traffic flow, thereby reducing emissions. This is consistent with the RTP/SCS’s identified strategies to manage congestion by maximizing the current system and ensuring it operates with maximum efficiency and effectiveness.

The 2016 RTP/SCS commits \$6.9 billion toward transportation demand management (TDM) strategies and \$9.2 billion for transportation systems management (TSM) improvements in the region. As described in Section 1.3.3, both TSM and TDM elements may be incorporated into the Build Alternative for the proposed project. Together, congestion management, TDM, and TSM strategies will all help the region achieve its goals of VMT and VHT reduction. Specifically, TSM and TDM measures may provide the following benefits: lessen the number of trips, lessen peak-hour travel, conserve energy, and provide more travel alternatives. Further, Section 1.3.3 states that the Build Alternative for the proposed project will replace existing bicycle and pedestrian facilities and construct new bicycle and pedestrian facilities at specific locations within the project limits. As a result, these strategies may reduce GHG emissions.

### **Quantitative Analysis**

The regional vehicle miles traveled (VMT) for the Existing (2016), No Build Alternative, and Build Alternative were estimated using the daily traffic volumes included in the *Traffic Operations Analysis Report* (2018). The VMT data, along with the Caltrans Emissions Factor Model (CT-EMFAC2014) emission rates, were used to calculate and compare the CO<sub>2</sub> emissions for the 2016, 2024, and 2044 regional conditions.

The results of the modeling were used to calculate the CO<sub>2</sub> emissions listed in Tables 3.2.1 and 3.2.2. These tables show that both the future No Build and Build Alternatives would result in a net decrease in CO<sub>2</sub> emissions in 2024 and 2044, compared to the existing (2016) condition. The Build Alternative in both opening and horizon years would result in an increase in CO<sub>2</sub> emissions in the region when compared to the No Build Alternative in each year. The CO<sub>2</sub> emissions numbers in Tables 3.2.1 and 3.2.2 are only useful for a comparison between project alternatives. The numbers are not necessarily an accurate reflection of what the true CO<sub>2</sub> emissions would be because CO<sub>2</sub> emissions are dependent on other factors that are not part of the model (e.g., the fuel mix [EMFAC model emission rates are only for direct engine-out CO<sub>2</sub> emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives such as ethanol and the source of the fuel components], rate of acceleration, and the aerodynamics and efficiency of the vehicles).



**Table 3.2.1 2024 Opening Year Greenhouse Gas Emissions and Vehicle Miles Traveled**

| Alternative                        | Annual VMT         | CO <sub>2</sub> (MT/yr) | CH <sub>4</sub> (MT/yr) | CO <sub>2</sub> e (MT/yr) |
|------------------------------------|--------------------|-------------------------|-------------------------|---------------------------|
| Existing (2016)                    | 131,516,161        | 49,810                  | 1.8                     | 49,861                    |
| 2024 No Build                      | 109,391,887        | 36,938                  | 1.0                     | 36,966                    |
| <i>Change from Existing (2016)</i> | <i>-22,124,274</i> | <i>-12,872</i>          | <i>-0.8</i>             | <i>-12,895</i>            |
| 2024 Build Alternative             | 114,828,749        | 38,170                  | 1.0                     | 38,197                    |
| <i>Change from Existing (2016)</i> | <i>-16,687,412</i> | <i>-11,640</i>          | <i>-0.9</i>             | <i>-11,664</i>            |
| <i>Change from No Build</i>        | <i>5,436,862</i>   | <i>1,232</i>            | <i>0.0</i>              | <i>1,231</i>              |

Source: Air Quality Analysis (2018).

Note: Totals may not appear to sum correctly due to rounding.

Caltrans = California Department of Transportation

CH<sub>4</sub> = methane

CO<sub>2</sub> = carbon dioxide

CO<sub>2</sub>e = carbon dioxide equivalent

CT-EMFAC = Caltrans Emissions Factors Model

MT/yr = metric tons per year

VMT = vehicle miles traveled

**Table 3.2.2 2044 Horizon Year Greenhouse Gas Emissions and Vehicle Miles Traveled**

| Alternative                        | Annual VMT         | CO <sub>2</sub> (MT/yr) | CH <sub>4</sub> (MT/yr) | CO <sub>2</sub> e (MT/yr) |
|------------------------------------|--------------------|-------------------------|-------------------------|---------------------------|
| Existing (2016)                    | 131,516,161        | 49810                   | 1.816                   | 49,861                    |
| 2044 No Build                      | 109,391,887        | 29449                   | 0.572                   | 29,465                    |
| <i>Change from Existing (2016)</i> | <i>-22,124,274</i> | <i>-20361</i>           | <i>-1.244</i>           | <i>-20,396</i>            |
| 2044 Build Alternative             | 114,828,749        | 30380                   | 0.541                   | 30,395                    |
| <i>Change from Existing (2016)</i> | <i>-16,687,412</i> | <i>-19430</i>           | <i>-1.275</i>           | <i>-19,466</i>            |
| <i>Change from No Build</i>        | <i>5,436,862</i>   | <i>931</i>              | <i>0.0</i>              | <i>930</i>                |

Source: Air Quality Analysis (2018).

Caltrans = California Department of Transportation

CH<sub>4</sub> = methane

CO<sub>2</sub> = carbon dioxide

CO<sub>2</sub>e = carbon dioxide equivalent

CT-EMFAC = Caltrans Emissions Factors Model

MT/yr = metric tons per year

VMT = vehicle miles traveled

### Limitations and Uncertainties with Modeling

#### EMFAC

Although EMFAC can calculate CO<sub>2</sub> emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO<sub>2</sub> emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study,<sup>1</sup> brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO<sub>2</sub> emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate

<sup>1</sup> Matthew Barth, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system*. Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410

emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the California Air Resources Board (CARB) have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

### *Other Variables*

With the current understanding, project-level analysis of GHG emissions has limitations. Although a GHG analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO<sub>2</sub> emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2016,"<sup>1</sup> which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 29 percent from model year 2004 to 2015 and is attributed to new technology that improved fuel economy while keeping vehicle weight relatively constant. Table 3.2.3 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025, from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

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<sup>1</sup> <https://www.epa.gov/fueleconomy/light-duty-automotive-technology-carbon-dioxide-emissions-and-fuel-economy-trends-1975-1>

**Table 3.2.3 Average Required Fuel Economy (mpg)**

|                | 2012 | 2013 | 2014 | 2015 | 2016 | 2017      | 2018      | 2020      | 2025      |
|----------------|------|------|------|------|------|-----------|-----------|-----------|-----------|
| Passenger Cars | 33.3 | 34.2 | 34.9 | 36.2 | 37.8 | 39.6-40.1 | 41.1-41.6 | 44.2-44.8 | 55.3-56.2 |
| Light Trucks   | 25.4 | 26   | 26.6 | 27.5 | 28.8 | 29.1-29.4 | 29.6-30.0 | 30.6-31.2 | 39.3-40.3 |
| Combined       | 29.7 | 30.5 | 31.3 | 32.6 | 34.1 | 35.1-35.4 | 36.1-36.5 | 38.3-38.9 | 48.7-49.7 |

Source 1: Environmental Protection Agency (2013), <http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf>.

Source 2: Environmental Protection Agency (2012), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle#rule-summary>.

mpg = miles per gallon

Second, new lower-emission and zero-emission vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO 2013):

“LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case.”<sup>1</sup>

The greater percentage of lower-emissions and zero-emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in Title 17, California Code of Regulations [CCR], Sections 95480–95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

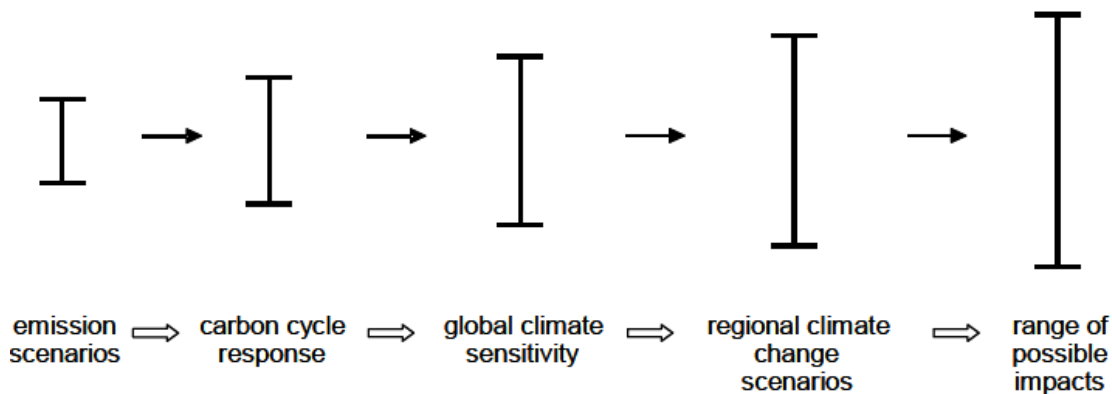
#### *Limitations and Uncertainties with Impact Assessment*

Figure 3.2-3 illustrates how the range of uncertainties in assessing GHG impacts grows with each step of the analysis, as noted in the *National Highway Traffic Safety Administration Final EIS for MY2017–2025 CAFE Standards* (NHTSA 2012):

“Moss and Schneider (2000) characterize the ‘cascade of uncertainty’ in climate change simulations (Figure 3.2-3). As indicated in Figure

<sup>1</sup> [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf)

3.2-3, the emission estimates ... have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources ...). Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood.”<sup>1</sup>



Source: National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012). Page 5-22.

### Figure 3.2-3 Cascade of Uncertainty in Climate Change Simulations

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO<sub>2</sub> emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO<sub>2</sub>e. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global GHG emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce GHG emissions. Non-mitigation IPCC scenarios project an increase in global GHG emissions of 9.7 billion metric tons CO<sub>2</sub>, which would represent an increase up to

<sup>1</sup> [http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cape/FINAL\\_EIS.pdf](http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cape/FINAL_EIS.pdf). page 5-21



36.7 billion metric tons CO<sub>2</sub> from 2000 to 2030 (i.e., between 25 percent and 90 percent increase).<sup>1</sup>

The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of GHG emissions rather than causing “new” GHG emissions. It is difficult to assess the extent to which any project-level increase in CO<sub>2</sub> emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

### **Construction Emissions**

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Table 3.2.4 shows maximum construction CO<sub>2</sub>e emissions for the Build Alternative.

**Table 3.2.4 Construction Greenhouse Gas Emissions**

| Project Phases                                   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2</sub> e |
|--|-----------------|-----------------|------------------|-------------------|
| Grubbing/Land Clearing (metric tons/phase)       | 73.65           | 0.02            | 0.00             | 67.42             |
| Grading/Excavation (metric tons/phase)           | 1,250.56        | 0.36            | 0.01             | 1,145.84          |
| Drainage/Utilities/Sub-Grade (metric tons/phase) | 505.20          | 0.10            | 0.00             | 461.86            |
| Paving (metric tons/phase)                       | 135.94          | 0.03            | 0.00             | 124.44            |
| Maximum (metric tons/phase)                      | 1250.56         | 0.36            | 0.01             | 1,145.84          |
| Total (metric tons/construction project)         | 1965.36         | 0.51            | 0.02             | 1,799.55          |

Source: *Air Quality Analysis* (2018).

Note: Totals may not appear to sum correctly due to rounding.

CH<sub>4</sub> = methane                      CO<sub>2</sub>e = carbon dioxide equivalent  
 CO<sub>2</sub> = carbon dioxide            N<sub>2</sub>O = nitrous oxide

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis: Summary for Policy Makers*. February. [https://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/spm.html](https://www.ipcc.ch/publications_and_data/ar4/wg1/en/spm.html)

Project features to reduce construction GHG emissions are included as part of the proposed project and can be found in Section 2.12, Air Quality. Project Feature PF-AQ-2 includes maintaining construction equipment engines to reduce and control air quality emissions, and Project Feature PF-AQ-6 requires all construction vehicles both on and off site to be prohibited from idling in excess of 5 minutes. Project Feature PF-AQ-4 requires compliance with Caltrans Standard Specifications Section 14-9.02, which requires contractors to adhere to all CARB, regional, and local air quality rules, regulations, ordinances, and statutes for air pollution control. Proper engine maintenance, idling restrictions on construction vehicles, and some air pollution control measures also help reduce GHG emissions due to construction.

### **3.1.20.4 CEQA Conclusion**

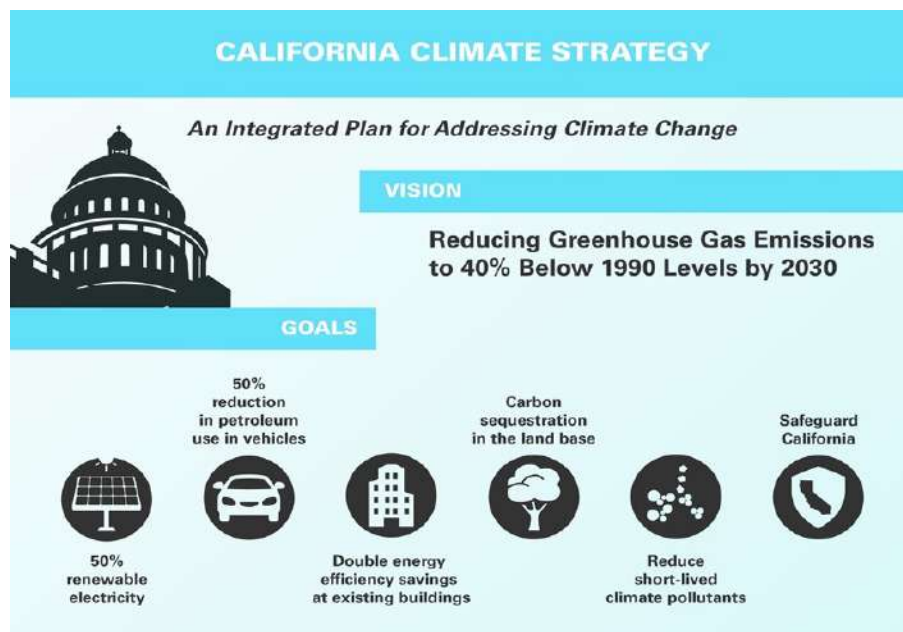
As discussed above, both the No Build and Build Alternatives show a reduction in GHGs in 2024 and 2044 compared to existing conditions, due to improvements in fuel efficiency and engine technologies. However, the Build Alternative shows an increase in GHG emissions in 2024 and 2044 compared to the No Build Alternative. Nonetheless, there are also limitations with EMFAC and with assessing what a given CO<sub>2</sub> emissions increase means for climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

### ***Greenhouse Gas Reduction Strategies***

#### ***Statewide Efforts***

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars include: (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent of the State's electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy, *Safeguarding California*.

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction in VMT. One of [Governor Brown's key pillars](#) sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030. See Figure 3.2-4.



**Figure 3.2-4 The Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals**

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

*Caltrans Activities*

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

### *California Transportation Plan (CTP 2040)*

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391(Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

### *Caltrans Strategic Management Plan*

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

### *Funding and Technical Assistance Programs*

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in [\*Activities to Address Climate Change\*](#) (Caltrans 2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.



[Activities to Address Climate Change](#) (Caltrans 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

### **Project-Level Greenhouse Gas Reduction Strategies**

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project:

- Project Feature PF-AQ-2 includes maintaining construction equipment engines to reduce and control air quality emissions. Proper engine maintenance can also help reduce vehicle GHG emissions.
- Project Feature PF-AQ-4 requires compliance with Caltrans Standard Specifications Section 14-9.02, which requires contractors to adhere to all CARB, regional, and local air quality rules, regulations, ordinances, and statutes for air pollution control. Measures that reduce emission of air pollutants may also reduce GHG emissions.
- Project Feature PF-AQ-6 requires all construction vehicles both on and off site to be prohibited from idling in excess of 5 minutes. Restricting idling reduces vehicle GHG emissions.
- Project Feature PF-T-1 requires a Transportation Management Plan (TMP) be implemented during construction of the Build Alternative to address changes in traffic flows and pedestrian and bicycle circulation and to provide measures to minimize the adverse effects of construction activities on traffic flows and pedestrian and bicycle travel within the study area. Managing traffic flows to reduce delays reduces excess emissions, including GHG emissions, from idling vehicles.
- Caltrans Standard Specification 7-1.02C, Emissions Reduction, requires contractors to certify they are aware of, and will comply with, the emissions reduction regulations being mandated by the CARB throughout the duration of the contract.

### **Adaptation Strategies**

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation

infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

### *Federal Efforts*

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011<sup>1</sup>, outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The United States Department of Transportation issued USDOT Policy Statement on Climate Adaptation in June 2011, committing to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions.”<sup>2</sup>

To further the USDOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (Transportation System Preparedness and Resilience to Climate Change and

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<sup>1</sup> Obama White House. 2017. Council on Environmental Quality Climate Change Resilience. Website:  
[https://www.whitehouse.gov/sites/whitehouse.gov/files/ceq/2011\\_adaptation\\_progress\\_report.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/ceq/2011_adaptation_progress_report.pdf).

<sup>2</sup> FHWA. Sustainability (Guidance withdrawn on May 19, 2017). Website:  
[https://www.fhwa.dot.gov/environment/sustainability/resilience/policy\\_and\\_guidance/usdot.cfm](https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm).

Extreme Weather Events).<sup>1</sup> This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, State, and local levels.<sup>2</sup>

### *State Efforts*

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of State agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all State agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences, Engineering, and Medicine to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report),<sup>3</sup> was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates as well as the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing

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<sup>1</sup> FHWA. 2014. FHWA Order 5520. Website: <https://www.fhwa.dot.gov/legregs/directives/orders/5520.cfm>.

<sup>2</sup> FHWA. 2017. Sustainability Resilience (updated October 19, 2017). Website: <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

<sup>3</sup> National Academy of Sciences, Engineering, and Medicine. 2012. *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Website: <https://www.nap.edu/read/13389/chapter/1>.

information on projected sea-level rise impacts to State infrastructure (e.g., roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems as well as a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, State, federal, and public and private entities, developed [\*The California Climate Adaptation Strategy\*](#) (December 2009),<sup>1</sup> which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across State agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as [\*Safeguarding California: Reducing Climate Risk \(Safeguarding California Plan\)\*](#).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring State agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how State agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the [\*State of California Sea-Level Rise Interim Guidance Document\*](#) (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.”<sup>2</sup>

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively

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<sup>1</sup> State of California. Climate Change – California Climate Adaptation Strategy. 2011–2017. Website: <http://www.climatechange.ca.gov/adaptation/strategy/index.html>.

<sup>2</sup> <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>



engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

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# **Chapter 4**      **Comments and Coordination**

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Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required and to identify potential impacts, as well as avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for the Westbound State Route 91 (SR-91) Improvement Project (project) have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, and Project Development Team (PDT) meetings. This chapter summarizes the results of the California Department of Transportation's (Caltrans) efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

## **4.1 Notice of Initiation of Studies**

The environmental scoping process to involve the public on the project Draft Initial Study/Environmental Assessment (IS/EA) was initiated with two public information meetings held by the Los Angeles County Metropolitan Transportation Authority (Metro) in October 2016. These public information meetings were held at two different locations: the North Artesia Community Center in the City of Artesia on October 18, 2016, at 6:30 p.m.; and Cerritos High School in the City of Cerritos on October 19, 2016, at 6:30 p.m.

The Notice of Initiation of Studies and the dates and locations of the open houses were advertised in three local newspapers. Additionally, Metro compiled a project-specific mailing list of stakeholders that includes over 2,300 property owners within the study area. An invitation was mailed to the stakeholders on this list with information about the project, the dates of the two open house meetings, and contact information. The meetings began with an open house segment, featured a formal presentation, and closed with a question-and-answer session. Meetings were scheduled in the evenings to allow residents the opportunity to attend after their workday. Public agencies were invited to attend the open houses; additional meetings for public agencies were not scheduled.

The meetings included a presentation and informational handouts to help participants understand the scope and schedule of the project, and learn about the planning and environmental review process as well as the proposed alternative concepts.

Participants were encouraged to sign in, provided with informational materials and a comment card, and invited to review the display boards with project staff. Fifteen comment cards were received at the meeting in the City of Artesia and six were received at the meeting in the City of Cerritos. Areas of concern included the right-of-way impacts (e.g., property acquisitions), acquisition of specific properties, and noise and vibration impacts.

Attendance at the October 18, 2016, meeting included 71 persons, and attendance at the October 19, 2016, meeting included 59 persons.

Copies of the Notice of Initiation of Studies and the attendance sign-in sheets are provided at the end of this chapter.

## **4.2 Interagency Coordination and Consultation**

The formulation of project alternatives and mitigation has been carried out through a cooperative dialogue among representatives of the following agencies or organizations:

- Metro
- Caltrans
- The City of Cerritos
- The City of Artesia
- Native American Tribes
- Local historical societies/historic preservation groups
- Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG)
- United States Fish and Wildlife Service (USFWS)
- United States Army Corps of Engineers (USACE)

The following sections summarize the results of the efforts of both Caltrans and Metro to fully identify, address, and resolve project-related issues through early and continuing coordination.



**4.2.1 State Historic Preservation Officer**

**4.2.2 As assigned by the Federal Highway Administration (FHWA), Caltrans has determined that the resources evaluated as a result of the project are not eligible for inclusion in the National Register of Historic Places (National Register) within the project Area of Potential Effects (APE). Under the Section 106 Programmatic Agreement (PA) Stipulation VIII.C, Caltrans requested the State Historic Preservation Officer's (SHPO) concurrence on this eligibility determination. SHPO concurrence on this determination was received on July 24, 2018. A copy of the SHPO concurrence is provided at the end of this chapter. Native American Tribes**

Consultation with a number of Native American Tribes (groups and individuals) was conducted in May 2017 in compliance with Section 106 of the National Historic Preservation Act (NHPA). Assembly Bill 52 (AB 52), which amended the California Environmental Quality Act (CEQA) to require consultation with Native American Tribes, became effective July 1, 2015. As a result, additional Native American coordination under AB 52 was initiated by Caltrans in May 2017. The consultation with the Native American Heritage Commission (NAHC) and Native American representatives is summarized in Table 4.1. A copy of the NAHC correspondence is included at the end of this chapter.

**4.2.3 Local Historical Societies/Historic Preservation Groups**

The following local historical societies/historic preservation groups were contacted by letter on July 11, 2017. The purpose of the letters was to inform each organization/interested party of the proposed undertaking and to solicit information on known historic properties in the vicinity of the project area.

- Clifton M. Brakensiek Library
- D.D. Johnston-Hargitt House Museum
- Artesia Library
- Angelo M. Iacoboni Library
- Norwalk Library
- Artesia Historical Museum
- George Nye Jr. Library
- Cerritos Library Local History Room

The Clifton M. Brakensiek Library confirmed receipt via email on August 11, 2017, but did not respond with comments nor reply that it had no comments. The Norwalk Library confirmed receipt via email on August 15, 2017, and requested an extension of time to submit its response. The Artesia Historical Museum confirmed receipt via telephone on July 13, 2017, and forwarded the letter to the Artesia Historical Society

**Table 4.1 Summary of Native American Consultation**

| Agency and Agency Representative  | Date of First Contact (Formal Letter)                | Date of Reply | Dates of Follow-up Contact   | Consultation Topic  |
|---|--|---------------|--|---|
| NAHC<br>Gayle Totton, Associate Governmental Program Analyst                            | May 18, 2017 (Section 106), and May 18, 2017 (AB 52) | May 22, 2017  | N/A  | <p><b>May 18, 2017:</b> A letter was sent to the NAHC requesting a search of the SLF in order to identify areas of religious or cultural significance to Native Americans. The NAHC request letter is included at the end of this chapter.</p> <p><b>May 22, 2017:</b> The NAHC responded on May 22, 2017, to say that the SLF search was negative for the immediate APE, but recommended that seven Native American individuals representing the Gabriolino, Gabriolino Tongva, and Juaneño groups be contacted for possible additional information.</p>   |
| Gabrieleño Band of Mission Indians – Kizh Nation<br>Andrew Salas, Chairperson           | May 24, 2017 (Section 106), and May 26, 2017 (AB 52) | June 29, 2017 | June 12, 2017, June 19, 2017, June 30, 2017, and August 3, 2017    | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Gabrieleño Band of Mission Indians – Kizh Nation was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Mr. Salas. He did not answer, so a voicemail was left for him.</p> <p><b>June 29, 2017:</b> Mr. Salas responded by letter and requested consultation. However, the request was for consultation regarding a different project.</p> <p><b>June 30, 2017:</b> Caltrans sent Mr. Salas an email to request clarification as to which project the June 29 letter pertained.</p> <p><b>August 3, 2017:</b> A follow-up phone call was made to Mr. Salas. No response was received.</p>  |
| Gabrieleño/Tongva San Gabriel Band of Mission Indians<br>Anthony Morales<br>Chairperson | May 24, 2017 (Section 106), and May 26, 2017 (AB 52) | June 19, 2017 | June 12, 2017, June 19, 2017, August 3, 2017, and January 10, 2018 | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Gabrieleño/Tongva San Gabriel Band of Mission Indians was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Mr. Morales. He asked to be informed of the Caltrans and consultant recommendations for monitoring and recommended that a monitor from this group specifically be present.</p> <p><b>August 3, 2017:</b> Another follow-up phone call was made to Mr. Morales. He again requested that, if monitoring is deemed necessary, a Native American monitor from his group also be present.</p> <p><b>January 10, 2018:</b> LSA contacted Mr. Morales on behalf of Caltrans to notify him that Caltrans determined monitoring for the project is not warranted because no cultural resources were identified through Native American consultation, background research, field surveys, and records searches. No response was received.</p> |

**Table 4.1 Summary of Native American Consultation**

| Agency and Agency Representative  | Date of First Contact (Formal Letter)                         | Date of Reply | Dates of Follow-up Contact   | Consultation Topic  |
|---|---|---------------|--|---|
| Gabrielino/Tongva Nation<br>Sandonne Goad<br>Chairperson                                  | May 24, 2017<br>(Section 106), and<br>May 26, 2017<br>(AB 52) | None          | June 12, 2017,<br>June 19, 2017, and<br>August 3, 2017   | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Gabrielino/Tongva Nation group was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Ms. Goad. She did not answer, so a voicemail was left for her.</p> <p><b>August 3, 2017:</b> A follow-up phone call was made to Ms. Goad. She did not answer, so a voicemail was left. No response was received.</p>   |
| Gabrielino Tongva Indians of California Tribal Council<br>Robert F. Dorame<br>Chairperson | May 24, 2017<br>(Section 106), and<br>May 26, 2017<br>(AB 52) | None          | June 12, 2017,<br>June 19, 2017,<br>August 3, 2017,<br>August 4, 2017,<br>August 11, 2017,<br>and November 20,<br>2017 | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Gabrielino Tongva Indians of California Tribal Council was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Mr. Dorame. It was answered, and a request was made to call back in 1 hour. When the call back was made, an automated message said that the voicemail was not set up and a follow-up email was sent in its place.</p> <p><b>August 3, 2017:</b> A follow-up phone call was made to Mr. Dorame. He expressed concern about the project and stated that the area is culturally sensitive. Mr. Dorame also stated that Native American monitoring should occur during project work. LSA sent Mr. Dorame an email to document the phone call and copied Caltrans on the message. Caltrans called Mr. Dorame to discuss his concerns, and Mr. Dorame requested that the initial AB 52 letter be re-sent to him for review along with information on project excavation depths and methods.</p> <p><b>August 4, 2017:</b> The letter and additional information were emailed to Mr. Dorame.</p> <p><b>August 11, 2017:</b> Mr. Dorame called Caltrans to state the presence of a Traditional Indian Cultural Property. When Caltrans asked for more information, Mr. Dorame was hesitant to respond and said the in-house archaeological background research should provide that information. Mr. Dorame also noted the presence of midden deposits.</p> <p><b>November 20, 2017:</b> Mr. Dorame was provided a letter containing a summary of LSA's background research regarding his statements.</p> |



**Table 4.1 Summary of Native American Consultation**

| Agency and Agency Representative   | Date of First Contact (Formal Letter)                   | Date of Reply | Dates of Follow-up Contact                             | Consultation Topic  |
|--|---|---------------|--|---|
| Gabrielino-Tongva Tribe<br>Linda Candelaria<br>Co-Chairperson                                  | May 24, 2017 (Section 106), and<br>May 26, 2017 (AB 52) | None          | June 12, 2017,<br>June 19, 2017, and<br>August 3, 2017 | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Gabrielino-Tongva Tribe was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Ms. Candelaria. She did not answer, so a voicemail was left for her..</p> <p><b>August 3, 2017:</b> A follow-up phone call was made to Ms. Candelaria. She did not answer, so a voicemail was left. No response was received.</p>   |
| Juaneño Band of Mission Indians Acjachemen Nation – Belardes<br>Matias Belardes<br>Chairperson | May 24, 2017 (Section 106), and<br>May 26, 2017 (AB 52) | June 19, 2017 | June 12, 2017,<br>June 19, 2017, and<br>August 3, 2017 | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Juaneño Band of Mission Indians Acjachemen Nation – Belardes was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> A voicemail was left for Joyce Perry (Whose number is listed as the contact for Mr. Belardes). See the correspondence for Ms. Perry below; she is the spokesperson for cultural resources.</p>   |
| Juaneño Band of Mission Indians Acjachemen Nation – Belardes<br>Joyce Perry, Tribal Manager    | May 24, 2017 (Section 106), and<br>May 26, 2017 (AB 52) | June 19, 2017 | June 12, 2017,<br>June 19, 2017, and<br>August 3, 2017 | <p><b>May 24, 2017:</b> Per the NAHC recommendation, the Juaneño Band of Mission Indians Acjachemen Nation – Belardes group was contacted under Section 106 for information regarding cultural resources that could be affected by the project.</p> <p><b>May 26, 2017:</b> The group was sent a letter for consultation under AB 52.</p> <p><b>June 12, 2017:</b> No initial response was received as a result of the project notification letter. A follow-up email was sent to the group.</p> <p><b>June 19, 2017:</b> A follow-up phone call was made to Ms. Perry. She said that the group does not have any concerns about the project work.</p> <p><b>August 3, 2017:</b> A follow-up phone call was made to Ms. Perry. She stated that her group has no concerns about the project.</p> |

AB 52 = Assembly Bill 52  
 APE = Area of Potential Effects  
 Caltrans = California Department of Transportation  
 N/A = not applicable  
 NAHC = Native American Heritage Commission  
 project = Westbound State Route 91 Improvement Project  
 SLF = Sacred Lands File

on that same date; the historical society did not confirm receipt or respond with comments. Non-responsive organizations and interested parties were contacted again by email on August 11, 2017. No additional responses have been received.

#### **4.2.4 Southern California Association of Governments Transportation Conformity Working Group**

The proposed project was presented at a TCWG meeting in June 2017, pursuant to the interagency consultation requirement of 40 Code of Federal Regulations (CFR) 93.105 (c)(1)(i). The United States Environmental Protection Agency (EPA), California Air Resources Board (ARB), South Coast Air Quality Management District (SCAQMD), and other interagency consultation participants concurred that the project is not a project of air quality concern (POAQC) under 40 CFR 93.123(b)(1). The project would not add diesel-truck capacity or be a major truck traffic generator as diesel heavy-truck traffic makes up approximately 13 percent of the total traffic volumes within the project limits. Therefore, the proposed project would not be considered a POAQC under 40 CFR 93.126 as it would not create a new or worsen an existing violation of the National Ambient Air Quality Standard for particulate matter less than 2.5 microns in size (PM<sub>2.5</sub>).

Copies of the TCWG determinations are included at the end of this chapter.

#### **4.2.5 FHWA Project Level Conformity Determination**

On December 15, 2018, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the Westbound SR-91 Improvement Project. The project is in an area that is designated Non-Attainment or Maintenance for Ozone, PM 10 and PM<sub>2.5</sub>.

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Southern California Association of Governments' (SCAG) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

Based on the information provided, FHWA made a finding on January 9, 2019, that the Westbound SR-91 Improvement Project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

A copy of the FHWA Project Level Conformity Determination is included at the end of this chapter.

#### **4.2.6 United States Fish and Wildlife Service**

Unofficial species lists were obtained from the USFWS on May 24, 2017, and updated official species lists were provided on March 19, 2018. The species lists provide information about the threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur in the vicinity of a proposed project. The species lists provided by the USFWS are included at the end of this chapter.

#### **4.2.7 United States Army Corps of Engineers**

A jurisdictional delineation was conducted in July 2017 to determine the potential for federal and State jurisdictional waters and wetland resources. The biological study area (BSA) contains potentially jurisdictional waters. The project is expected to impact some of the jurisdictional waters that are within the BSA, and permits from the USACE, California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) are expected to be required. The jurisdictional delineation is considered preliminary until verified by the appropriate regulatory agencies because it has not yet been submitted for approval. The project is anticipated to require the following agency permits:

- A federal Clean Water Act (CWA) Section 404 permit authorization from the USACE
- A CWA Section 401 Water Quality Certification from the RWQCB
- A Fish and Game Code Section 1602 Streambed Alteration Agreement from the CDFW

### **4.3 Community Outreach and Public Involvement**

Metro developed a community engagement program with the goals of building project awareness, sharing project information, identifying key issues and concerns important to the public, and integrating public feedback into the project planning process to the greatest extent possible.

#### **4.3.1 Public Information Meetings**

Metro conducted two (2) rounds of public information meetings, two in 2016 during scoping as described in Section 4.1 and another two meetings in January of 2018. A total of four (4) public information meetings were conducted for the environmental

process. Each of these meetings were supported by a notification campaign. Collectively, the meetings engaged 320 participants and gathered approximately 129 comments. Comments were collected in a variety of formats, including comment cards received at the meetings, through US mail, via email and an electronic comment form provided through the project website.

The first round of meetings initiated the studies and shared the goals of the PA/ED phase by presenting the history for the highway corridor, status and schedule of the project, outlining the intentions of the environmental process and technical studies, and soliciting public feedback on the project. Comments gathered informed the technical team of the shared public concerns and aided in directing their technical studies and in the creation of this draft document.

The second round of public information meetings were scheduled and held to report on project activity and progress made toward completing the draft IS/EA. As with the first round of meetings, public comments received during the second round of meetings provided an opportunity for the technical team to further refine their work and the draft IS/EA. Attendance sign-in sheets are provided at the end of this chapter.

- Public Meeting on Tuesday, January 30, 2018, from 6:00 to 8:00 p.m. at the Cerritos High School Theatre (12500 183rd St, Cerritos)
- Public Meeting on Wednesday, January 31, 2018, from 6:00 to 8:00 p.m. at the AJ Padelford Park, North Artesia Community Center (11870 169th St, Artesia)

In support of the Release of this environmental document Metro will continue to reach out to stakeholders by holding an additional two public hearings in late July or early August of 2018. Metro will continue to document and gather public comments and input for consideration and inclusion in the Final IS/EA.

Metro also engaged in multiple briefings with local agencies, specifically the Cities of Artesia and Cerritos, elected officials, special districts, and key stakeholders to garner insight on their communities in order to help inform and improve upon the technical and environmental work. These briefings were held throughout the course of the environmental process:

- May 22, 2017: Artesia City Manager Briefing at the City of Artesia
- August 2, 2017: Artesia City Council Briefing at the City of Artesia
- September 21, 2017: ABC Unified School District Briefing at the ABC Unified School District Office



- October 5, 2017: Artesia City Mayor Briefing at the City of Artesia
- December 12, 2017: Gateway Cities Regional Legislative Briefing at the Cerritos Library
- January 23, 2018: SR-91/I-605/I-405 Technical Advisory Committee Meeting at the Gateway Cities Council of Governments (GCCOG) Office
- January 24, 2018: SR-91/I-605/I-405 Technical Advisory Committee Meeting at the GCCOG Office
- February 9, 2018: Gateway Cities COG Transportation Summit at the GCCOG Office
- February 14, 2018: Artesia City Briefing at the City of Artesia Notifications & Resources

Metro developed a comprehensive notification plan in support of the Project’s outreach goals and the four public meetings. The outreach activities consisted of direct-mail notices, electronic mail notices, newspaper advertisements, social media posts, and a variety of other engagement methods. All notices provided a brief summary of the Project, stated the purpose of the meetings, and highlighted meeting details. The tools listed in Table 4.2 were used to inform the public of the meetings and gather public input.

**Table 4.2 Notification Outreach Methods**

| Outreach Method   | 2016 Meetings<br>(2) | 2018 Meetings<br>(2) |
|---|----------------------|----------------------|
| Postal notice invitations   | 2,503                | 4,165                |
| Press releases  | 0                    | 1                    |
| Print newspaper ads   | 3                    | 4                    |
| Bulk notice deliveries to public counter locations  | 31                   | 33                   |
| Electronic invitation tool kits shared with active community organizations                  | 30                   | 34                   |
| Flyer invitations   | 0                    | 1,500                |
| Electronic mail notifications to Project identified key stakeholders and interested parties | 4                    | 4                    |
| Social media posts via Twitter  | 0                    | 2                    |
| Blog posts “The Source” and “El Pasajero”   | 0                    | 2                    |

Sources: Westbound SR-91 Improvement Project Open House Summary Report; January 2017; and Westbound SR-91 Improvement Project Public Meetings Summary Report, April 2018.

In addition to the targeted outreach efforts, Metro established a website (<https://www.metro.net/projects/wb-sr-91/>) to serve as the project’s main portal and repository, providing visitors with a project summary, schedule, and links to reports and presentations. During the public comment period, materials that had been

provided during the public meetings were posted and accessible on the project website. The project website also contains phone and email information, an electronic comment form where comments or inquiries can be submitted, and a link that will allow users to opt-into the project contact list. Metro also created a Project helpline as an additional resource for public comment and engagement. Both, website and helpline were monitored and updated routinely. As with previous rounds of public meetings, the website and helpline both publicized the public hearings held during the public review period of the Draft IS/EA.

#### **4.3.2 Public Review Period of Draft Initial Study/Environmental Assessment (Including Public Hearings)**

As required by CEQA Guidelines Section 15087, a Notice of Availability of the Draft Initial Study/Environmental Assessment for the Westbound State Route 91 Improvement Project was published as a display ad in the *Long Beach Press-Telegram* (July 18, 2018), *Gateway Guardian* (July 19, 2018), *La Opinión*<sup>1</sup> (July 25, 2018), *World Journal*<sup>2</sup> (*Chinese Daily News*) (July 25, 2018), *Los Cerritos Community News* (July 27, 2018), and the *Norwalk Patriot* (July 27, 2018).

The Draft IS/EA was circulated for public review for a period of 30 days, from July 18, 2018, to August 16, 2018. Copies of the Draft IS/EA were distributed to the State Clearinghouse, the Governor's Office of Planning and Research (15 copies of Summary Form), and other federal, State, and local agencies. Copies of the Draft IS/EA were available for public review at Caltrans District 7, the Artesia Library, and the Cerritos Library. The Draft IS/EA was also made available online at the Caltrans District 7 website and the Metro website. A copy of the distribution list for the Draft IS/EA is provided in Chapter 6 of this Final IS/EA.

Metro and Caltrans hosted two (2) public hearings held on August 1 and August 2, 2018, for the purpose of complying with State and federal laws and to provide the public an opportunity to provide their comments on the project. Hearings were scheduled on weekday evenings to allow residents and commuters the opportunity to attend after their workday. Public agency representatives were also invited to attend the two public hearings. Copies of the Notice of Availability, the postcard announcement, and newspaper advertisements are provided at the end of this chapter.

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<sup>1</sup> The public notice was provided in Spanish.

<sup>2</sup> The public notice was provided in Chinese.

A public hearing (presentation and open house format) was held on August 1, 2018, from 6:00 p.m. to 8:00 p.m. at the Cerritos Center for the Performing Arts, 18000 Park Plaza Drive, Cerritos, California 90703. A second public hearing (presentation and open house format) was held on August 2, 2018, from 6:00 p.m. to 8:00 p.m. at Albert O. Little Community Center, 18750 Clarkdale Avenue, Artesia, California 90701. Questions were addressed, and a court reporting service was made available to accept comments or document any other inquiries. Approximately 100 members of the public attended the first public hearing, and approximately 70 members of the public attended the second public hearing.

Forty-two (42) comment letters on the Draft IS/EA were received during the public review period and 5 comments were submitted after the public review period for a total of 47 comment letters. Comments were received from federal, State, and local agencies, organizations and businesses, and private citizens. The 47 comment letters include 13 public comments that were recorded by a court reporter during the public hearings for the project.

Responses to comments received during the public circulation period of the IS/EA, including those provided at the public hearing, are provided in Appendix G. Where changes to the text of the Final IS/EA were required to clarify text in response to comments, a vertical line has been provided in the margin to denote where a revision to the text has occurred.

#### **4.4 Project Development Team**

The Cities of Cerritos and Artesia participate in the monthly PDT meetings conducted by Metro and Caltrans for the SR-91 Westbound Widening Project Approval/Environmental Documentation (PA/ED) project. The PDT meetings cover a wide range of topics related to the proposed project, including development and evaluation of alternatives, engineering considerations, environmental issues, and the environmental document and documentation process.

## **Notice of Initiation of Studies and Attendance Sign-in Sheets**



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## ENVIRONMENTAL INITIATION NOTICE

### Notice of Initiation of Environmental Studies for the Westbound SR-91 (between Shoemaker Avenue and the I-605 Interchange) Project

#### Project Location Map



#### What is Being Planned?

The California Department of Transportation (Caltrans) is initiating environmental studies for the proposed Westbound State Route 91 (SR-91) Project, between Shoemaker Avenue and the Interstate 605 (I-605) interchange, in the cities of Artesia and Cerritos, Los Angeles County, California. The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety and improve local and system interchange operations while minimizing adjacent right-of-way, environmental and economic impacts.

A No-Build Alternative and Build Alternatives, which include design option configurations, are proposed for the project and include the addition of travel lanes, modification of existing interchanges, removal of some existing non-standard design features, and other operational improvements.

#### Why This Notice?

Caltrans is initiating environmental studies for this project. In order to better identify the issues to be addressed for the proposed project, Caltrans is soliciting comments from public agencies, private entities and interested individuals regarding potential social, economic, traffic, safety, environmental issues, and agency permit and review requirements related to the project.

#### Where do you come in?

The first public open house will be held for the project on Tuesday, October 18, 2016 from **6:30pm to 8:30pm** at: **North Artesia Community Center, 11870 169th Street, Artesia, CA 90701**

The second public open house will be held for the project on Wednesday, October 19, 2016 from **6:30pm to 8:30pm** at: **Cerritos High School, 12500 183rd Street, Cerritos, CA 90703**

Written comments regarding the Notice of Initiation of Environmental Studies will be accepted at the meeting. You may also send comments, suggestions or inquiries by **November 18, 2016**, to:

Jinous Saleh, Senior Environmental Planner  
Caltrans Division of Environmental Planning – Westbound SR-91  
100 South Main Street, MS 16A  
Los Angeles, CA 90012

#### Contact

More information can also be found at <https://www.metro.net/projects/i-605/wb-sr-91/>.  
If you have further questions, Ms. Saleh can be reached at [jinous.saleh@dot.ca.gov](mailto:jinous.saleh@dot.ca.gov) or at (213) 897-0683.

Thank you for your interest and participation in this transportation project.



# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|----------------|--------------------------|----------------------|--|------------------------------|
| Stephen Poon   |                          |                      |  |                              |
| JAKE Vu        |                          |                      |  |                              |
| Jina Perin     |                          |                      |  |                              |
| NIE-LONG TSE   |                          |                      |  |                              |
| Harvey Kwan    |                          |                      |  |                              |
| RASEN BUDNIK   |                          |                      |  |                              |
| Ken Russell    |                          |                      |  |                              |
| Agus Ibezum    |                          |                      |  |                              |







# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre    | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-------------------|--------------------------|----------------------|--|------------------------------|
| JOANNA CRUZ       |                          |                      |  |                              |
| Miguel Hernandez  |                          |                      |  |                              |
| Brianna<br>Shelly |                          |                      |  |                              |
| Dora Martinez     |                          |                      |  |                              |
| Phil Cunningham   |                          |                      |  |                              |
| MANUK KAPRANIAN   |                          |                      |  |                              |
| ROSA JASSO        |                          |                      |  |                              |
| DON VEATER        |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre   | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|------------------|--------------------------|----------------------|--|------------------------------|
| ANICEYO JASSO    |                          |                      |  |                              |
| RAMON LIZARRA    |                          |                      |  |                              |
| Dewey WEFSTON    |                          |                      |  |                              |
| Dewey A. Jackson |                          |                      |  |                              |
| SOSAMMA JOSEPH   |                          |                      |  |                              |
| Maria Rivera     |                          |                      |  |                              |
| Van Duong        |                          |                      |  |                              |
| Amofia Ceñido    |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre  | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|---|--------------------------|----------------------|--|------------------------------|
| Alicia Oropeza  |                          |                      |  |                              |
| Esperanza   |                          |                      |  |                              |
| FRANCISCO, Ed   |                          |                      |  |                              |
| GUILLERMINA SOTO  |                          |                      |  |                              |
| LAWRENCE STERN  |                          |                      |  |                              |
| Wilbert J. PALACO   |                          |                      |  |                              |
| Sandra Sun  |                          |                      |  |                              |
|  Tommy Wong |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

## Sign-in Sheet



| Name<br>Nombre              | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-----------------------------|--------------------------|----------------------|--|------------------------------|
| Sharon Morton               |                          |                      |  |                              |
| DAVE ALBRIGHT               |                          |                      |  |                              |
| Gerald Soto                 |                          |                      |  |                              |
| Gustavo<br>Ledesma Martinez |                          |                      |  |                              |
| Antonia Parask              |                          |                      |  |                              |
| Yamira Begazo               |                          |                      |  |                              |
| Michael Vuong               |                          |                      |  |                              |
| Monique Kennedy             |                          |                      |  |                              |
| Opal Kennedy                |                          |                      |  |                              |





# Westbound SR-91 Improvement Project

Public Open House

Tuesday, October 18, 2016, 6:30 – 8:30pm

A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre        | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-----------------------|--------------------------|----------------------|--|------------------------------|
| Enrique Quintanar     |                          |                      |  |                              |
| David Quintanar       |                          |                      |  |                              |
| Jaquelyn Morgenthaler |                          |                      |  |                              |
| KATHERINE GEORGE CHU  |                          |                      |  |                              |
| CARLITO CENIDO        |                          |                      |  |                              |
| JOYCE CENIDO          |                          |                      |  |                              |
| James Nieuwdoorn      |                          |                      |  |                              |
| David Hudson          |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

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A J Padleford Park – North Artesia Community Center

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| Name<br>Nombre           | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | EMail<br>Correo Electrónico |
|--------------------------|--------------------------|----------------------|--|-----------------------------|
| CECILIA RAIBAN           |                          |                      |  |                             |
| AC RAIBAN                |                          |                      |  |                             |
| Jan Halford              |                          |                      |  |                             |
| MARIA & RAUL ROMANA      |                          |                      |  |                             |
| Hugh C. Villegas         |                          |                      |  |                             |
| Christina Ayala-Alcantar |                          |                      |  |                             |
| MARCO BEZERRA            |                          |                      |  |                             |
| Carlos, Martinez         |                          |                      |  |                             |



# Westbound SR-91 Improvement Project

Public Open House

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A J Padleford Park – North Artesia Community Center

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| Name<br>Nombre | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|----------------|--------------------------|----------------------|--|------------------------------|
| PAUL HO        |                          |                      |  |                              |
| PAULO MENEZES  |                          |                      |  |                              |
| Mel Carter     |                          |                      |  |                              |
| Juan Garza     |                          |                      |  |                              |
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Public Open House

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A J Padleford Park – North Artesia Community Center

Sign-in Sheet



| Name<br>Nombre  | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-----------------|--------------------------|----------------------|--|------------------------------|
| ARLENE CHUNG    |                          |                      |  |                              |
| Thelma Gonzalez |                          |                      |  |                              |
| Sophia Tse      |                          |                      |  |                              |
| Menalca Peiris  |                          |                      |  |                              |
| Maria Alonso    |                          |                      |  |                              |
| Linda Kusuda    |                          |                      |  |                              |
| MIKE BHAKTA     |                          |                      |  |                              |
|                 |                          |                      |  |                              |





# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Sign-in Sheet



| Name<br>Nombre   | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | EMail<br>Correo Electrónico |
|------------------|--------------------------|----------------------|--|-----------------------------|
| Guillermina Soto |                          |                      |  |                             |
| PATERNO CABEBE   |                          |                      |  |                             |
| RISHI GOEL       |                          |                      |  |                             |
| Maria Alonso     |                          |                      |  |                             |
| Thelma Gonzalez  |                          |                      |  |                             |
| HERMES ABELLA    |                          |                      |  |                             |
|                  |                          |                      |  |                             |
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# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Sign-in Sheet



| Name<br>Nombre                | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-------------------------------|--------------------------|----------------------|--|------------------------------|
| Rosanna chung                 |                          |                      |  |                              |
| <del>EPYAKPO</del><br>Ken Cha |                          |                      |  |                              |
| Fredy Bonilla                 |                          |                      |  |                              |
| Menaka Peiris                 |                          |                      |  |                              |
| Nancy Garcia                  |                          |                      |  |                              |
| Mary Shun                     |                          |                      |  |                              |
| Nitesh Bhabha                 |                          |                      |  |                              |
| VICTORIA SOTO                 |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Sign-in Sheet



| Name<br>Nombre    | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|-------------------|--------------------------|----------------------|--|------------------------------|
| Sue Carter        |                          |                      |  |                              |
| Jean Pylman       |                          |                      |  |                              |
| Craig Wharton     |                          |                      |  |                              |
| Jim & Lynn Bugher |                          |                      |  |                              |
| Jean Halfinberg   |                          |                      |  |                              |
| MARILYN McSHANE   |                          |                      |  |                              |
| SANDRA BRUBSCH    |                          |                      |  |                              |
| DEBRA THOMAS      |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

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Cerritos High School

Sign-in Sheet



| Name<br>Nombre       | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|----------------------|--------------------------|----------------------|--|------------------------------|
| ROBERT OLIVAS        |                          |                      |  |                              |
| Sandra Incega        |                          |                      |  |                              |
| Norma Shioya         |                          |                      |  |                              |
| Peter Barton         |                          |                      |  |                              |
| <del>Fred Owen</del> |                          |                      |  |                              |
| JIALUNG YU           |                          |                      |  |                              |
| MARK PULIDO          |                          |                      |  |                              |
| Margaret Chapman     |                          |                      |  |                              |





# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Sign-in Sheet



| Name<br>Nombre   | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | EMail<br>Correo Electrónico |
|------------------|--------------------------|----------------------|--|-----------------------------|
| Sophia Te        | [REDACTED]               | [REDACTED]           | [REDACTED]   | [REDACTED]                  |
| MADHURI PETKAR   |                          |                      |  |                             |
| Trena Blackwell  |                          |                      |  |                             |
| Anro H           |                          |                      |  |                             |
| Victor Blackwell |                          |                      |  |                             |
|                  |                          |                      |  |                             |
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Public Open House

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| Name<br>Nombre    | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | EMail<br>Correo Electrónico |
|-------------------|--------------------------|----------------------|--|-----------------------------|
| Joseph A. Cagn    |                          |                      |  |                             |
| Gabriela Martinez |                          |                      |  |                             |
| Elic Burgin       |                          |                      |  |                             |
| Vipul Vimeel      |                          |                      |  |                             |
| Vicki DePirro     |                          |                      |  |                             |
| GARRET OHOTA      |                          |                      |  |                             |
| Dixie Primosch    |                          |                      |  |                             |
|                   |                          |                      |  |                             |



# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

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| Name<br>Nombre     | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|--------------------|--------------------------|----------------------|--|------------------------------|
| Mike Rosario       |                          |                      |  |                              |
| KIRSTEN ABUNDO     |                          |                      |  |                              |
| MUKUND BHARWA      |                          |                      |  |                              |
| Guilleming<br>SOYC |                          |                      |  |                              |
| EVAN OWEN          |                          |                      |  |                              |
|                    |                          |                      |  |                              |
|                    |                          |                      |  |                              |
|                    |                          |                      |  |                              |



# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Sign-in Sheet



| Name<br>Nombre   | Affiliation<br>Afilación | Address<br>Dirección | Phone Number / Cell Number<br>Número de Teléfono y Celular | E-Mail<br>Correo Electrónico |
|------------------|--------------------------|----------------------|--|------------------------------|
| Rogelio Chua     |                          |                      |  |                              |
| Maria Campos     |                          |                      |  |                              |
| Jose Campos      |                          |                      |  |                              |
| Al RAHMAN        |                          |                      |  |                              |
| Shawna Olan      |                          |                      |  |                              |
| Rene Olan        |                          |                      |  |                              |
| Maria Gonzalez   |                          |                      |  |                              |
| Claudia Gastelum |                          |                      |  |                              |





Metro

# Westbound SR-91 Improvement Project

Public Open House

Wednesday, October 19, 2016, 6:30 – 8:30pm

Cerritos High School

Business Card Sign-in Sheet



Take Action Now!  
Energy Integration Services

Alan Williamson  
C - 46 SOLAR 984380  
562 / 712 - 4703

alan.action.now@gmail.com




LOS ANGELES COUNTY  
DEPARTMENT OF  
MENTAL HEALTH

Direct: (213) 738-2529  
Cell: (213) 434-5116  
Fax: (213) 384-0729  
tblackwell@dmh.lacounty.gov

TREVA BLACKWELL, MPA  
Health Program Analyst II  
Service Area 7 Administration




550 S. Vermont Avenue  
Los Angeles, CA 90020



MARK E. PULIDO  
Councilmember  
Phone: (562) 916-1310  
Residence Phone: (562) 404-2343  
E-mail: markpulido@yahoo.com

**CITY OF CERRITOS**<sup>SM</sup>  
18125 BLOOMFIELD AVENUE • FAX: (562) 468-1095  
P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130  
cerritos.us



EDUARDO VEGA  
Associate Planner  
Community Development Department  
Phone: (562) 916-1201  
E-mail: evega@cerritos.us

**CITY OF CERRITOS**<sup>SM</sup>  
18125 BLOOMFIELD AVENUE • FAX: (562) 916-1242  
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www.cerritos.us

Sophia Te

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ABCUSD

Board Member

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**Community Meeting #1** ✨  
**Cerritos High School - Theatre Building**  
**12500 183rd St, Cerritos, CA 90703**  
**Tuesday, January 30, 2018, 6 - 8 pm**

**Community Meeting #2**  
**AJ Padelford Park**  
**11870 169th St, Artesia, CA 90701**  
**Wednesday, January 31, 2018, 6 - 8 pm**



**Sign-in Sheet**



**Robert Kay**  
 Manager  
 Maintenance & Facilities

**ABC Unified School District**  
 11865 E. 178th Street, Artesia, California 90701

16700 Norwalk Boulevard (562) 926-5566 Ext. 22455  
 Cerritos, California 90703 Cell (562) 254-5031  
 Email: Robert.Kay@abcusd.us Fax (562) 229-7927

**Sophia Tse**  
 Board of Education  
 Board Member

**ABC Unified School District**  
 16700 Norwalk Boulevard (562) 926-5566 Ext. 21161  
 Cerritos, California 90703 Cell (562) 565-0988  
 Fax (562) 404-1092

*607-1871*




TEL: (562) 420-2641 ext. 240  
 FAX: (562) 496-3708

**CITY OF HAWAIIAN GARDENS**

**LUCIE COLOMBO**  
 ASSISTANT CITY CLERK/  
 ASSISTANT RECORDS MANAGER

21815 PIONEER BLVD., HAWAIIAN GARDENS, CA 90716-1237  
 E-MAIL: LColombo@hgcity.org



**DARIO SIMOES**  
 Assistant City Engineer  
 Public Works Department  
 Phone: (562) 916-1219  
 E-mail: dsimoes@cerritos.us

**CITY OF CERRITOS**  
 18125 BLOOMFIELD AVENUE • FAX: (562) 916-1211  
 P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130



*send ppt*


**LINDA T. SANCHEZ**  
 MEMBER OF CONGRESS  
 38TH DISTRICT, CALIFORNIA

**IRMA GORROCINO**  
 CASEWORKER/ FIELD REPRESENTATIVE

17906 CRUSADER AVE., SUITE 100 PHONE: (562) 860-5050  
 CERRITOS, CA 90703 FAX: (562) 924-2914  
<http://www.lindasanchez.house.gov> Irma.Gorrocino@mail.house.gov

**Sharon L. Weissman**  
 Board Deputy to Mayor Robert Garcia  
 Metro Board Office  
 213-418-3112 Tel  
 weissmans@metro.net

**Los Angeles County Metropolitan Transportation Authority**  
 One Gateway Plaza  
 Mail Stop: 99-3-1  
 Los Angeles, CA 90012-2952  
 metro.net

**MARK E. PULIDO**  
 Mayor Pro Tem and Former Mayor  
 Phone: (562) 916-1310  
 Residence Phone: (562) 404-2343  
 E-mail: markpulido@yahoo.com

**CITY OF CERRITOS**  
 18125 BLOOMFIELD AVENUE • FAX: (562) 468-1095  
 P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130  
 cerritos.us



**JANICE HAHN**  
 Supervisor, Fourth District  
 County of Los Angeles

**LYNDA P. JOHNSON**  
 Field Deputy

Bellflower Field Office Office: (562) 804-8208  
 10025 East Flower Street Fax: (562) 804-2746  
 Bellflower, California 90706 LyJohnson@bos.lacounty.gov

Empty space for sign-in.





**Community Meeting #1**  
 Cerritos High School - Theatre Building  
 12500 183rd St, Cerritos, CA 90703  
 Tuesday, January 30, 2018, 6 - 8 pm

**Community Meeting #2**  
 AJ Padelford Park  
 11870 169th St, Artesia, CA 90701  
 Wednesday, January 31, 2018, 6 - 8 pm

**Sign-in Sheet**

| Name<br>Nombre        | Affiliation<br>Afilación | Address<br>Dirección | Phone Number<br>Número de Teléfono | E-mail<br>Correo Electrónico |
|-----------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Don W. Good, Sr.      |                          |                      |                                    |                              |
| S. CRONES             |                          |                      |                                    |                              |
| Alan Williams         |                          |                      |                                    |                              |
| Madhuri Petkar        |                          |                      |                                    |                              |
| Eileen McKinney       |                          |                      |                                    |                              |
| John McElroy          |                          |                      |                                    |                              |
| Shirley & Juan Montes |                          |                      |                                    |                              |
| James Nieuwoudt       |                          |                      |                                    |                              |



**Community Meeting #1**  
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 11870 169th St, Artesia, CA 90701  
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**Sign-in Sheet**

| Name<br>Nombre                       | Affiliation<br>Afilación | Address<br>Dirección | Phone Number<br>Número de Teléfono | E-mail<br>Correo Electrónico |
|--------------------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| SUE<br>CARRUTHERS                    |                          |                      |                                    |                              |
| STANLEY HARRIS                       |                          |                      |                                    |                              |
| Reyna Reynoso                        |                          |                      |                                    |                              |
| Alfonso Ochoa                        |                          |                      |                                    |                              |
| Linda + Julio<br>Hernandez           |                          |                      |                                    |                              |
| Bill Zimmerman                       |                          |                      |                                    |                              |
| OLLIE Robertshaw<br>WAYNE ROBERTSHAW |                          |                      |                                    |                              |
| PHIL CUNNEEN                         |                          |                      |                                    |                              |





**Sign-in Sheet**



**Community Meeting #1**  
 Cerritos High School - Theatre Building  
 12500 183rd St, Cerritos, CA 90703  
 Tuesday, January 30, 2018, 6 - 8 pm

**Community Meeting #2**  
 AJ Padelford Park  
 11870 169th St, Artesia, CA 90701  
 Wednesday, January 31, 2018, 6 - 8 pm

| Name<br>Nombre          | Affiliation<br>Afilación | Address<br>Dirección | Phone Number<br>Número de Teléfono | E-mail<br>Correo Electrónico |
|-------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| JACQUE & ROGER<br>KLINE |                          |                      |                                    |                              |
| Citlan Nishibayashi     |                          |                      |                                    |                              |
| Maria Cortez            |                          |                      |                                    |                              |
| Murali Vasudevan        |                          |                      |                                    |                              |
| Sheela Advani           |                          |                      |                                    |                              |
| Jean<br>Halgsberg       |                          |                      |                                    |                              |
| Robert Key              |                          |                      |                                    |                              |
| Steve Warner            |                          |                      |                                    |                              |



**Community Meeting #1**  
 Cerritos High School - Theatre Building  
 12500 183rd St, Cerritos, CA 90703  
 Tuesday, January 30, 2018, 6 - 8 pm

**Community Meeting #2**  
 AJ Padelford Park  
 11870 169th St, Artesia, CA 90701  
 Wednesday, January 31, 2018, 6 - 8 pm

**Sign-in Sheet**

| Name<br>Nombre              | Affiliation<br>Afilación | Address<br>Dirección | Phone Number<br>Número de Teléfono | E-mail<br>Correo Electrónico |
|-----------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Glen Tedesco                |                          |                      |                                    |                              |
| RONALD +<br>Guadalupe Allen |                          |                      |                                    |                              |
| Mark & Nancy<br>Nagayama    |                          |                      |                                    |                              |
| Cynthia Yoshimoto           |                          |                      |                                    |                              |
| Dixie Primosch              |                          |                      |                                    |                              |
| Julie Abeyta                |                          |                      |                                    |                              |
| Frank Abeyta                |                          |                      |                                    |                              |
| George Soto                 |                          |                      |                                    |                              |



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 Tuesday, January 30, 2018, 6 - 8 pm

**Community Meeting #2**  
 AJ Padelford Park  
 11870 169th St, Artesia, CA 90701  
 Wednesday, January 31, 2018, 6 - 8 pm

**Sign-in Sheet**

| Name<br>Nombre         | Affiliation<br>Afilación | Address<br>Dirección | Phone Number<br>Número de Teléfono | E-mail<br>Correo Electrónico |
|------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Sandia Morgan          |                          |                      |                                    |                              |
| DAVID &<br>CAROL HORN  |                          |                      |                                    |                              |
| Melissa Astudillo      |                          |                      |                                    |                              |
| David & Patsy Tremmell |                          |                      |                                    |                              |
| R. ALVARADO            |                          |                      |                                    |                              |
| RAPHAEL PERERA         |                          |                      |                                    |                              |
| Johnny Garcia          |                          |                      |                                    |                              |
| James Yee              |                          |                      |                                    |                              |



**Community Meeting #1**  
 Cerritos High School - Theatre Building  
 12500 183rd St, Cerritos, CA 90703  
 Tuesday, January 30, 2018, 6 - 8 pm

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|------------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| RAWL ROMANA<br>& MARIA       |                          |                      |                                    |                              |
| Jim Bugh                     |                          |                      |                                    |                              |
| PETER<br>JAZMIN              |                          |                      |                                    |                              |
| Linda<br>Kusuda              |                          |                      |                                    |                              |
| LAURENCE P.<br>STERN JUDITH  |                          |                      |                                    |                              |
| STEVE & SYNTHIA<br>YUSHIMOTO |                          |                      |                                    |                              |
| Shel Carter                  |                          |                      |                                    |                              |
| Maced Maravilla              |                          |                      |                                    |                              |





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|-----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Isabel Valdivia |                          |                      |                                    |                              |
| Steve Patel     |                          |                      |                                    |                              |
| Irma GARCIA     |                          |                      |                                    |                              |
| Maica Wasserman |                          |                      |                                    |                              |
| Gerald SOTO     |                          |                      |                                    |                              |
| ROBERT GRAY     |                          |                      |                                    |                              |
| JAICE VU        |                          |                      |                                    |                              |
| VIFUL VINEET    |                          |                      |                                    |                              |
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|----------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| DEBRA THOMAS         |                          |                      |                                    |                              |
| KATHERINE GEORGE CHU | CHU                      |                      |                                    |                              |
| HUBERT FOK           |                          |                      |                                    |                              |
| Tom Zepko            |                          |                      |                                    |                              |
| AL RAINBOW           |                          |                      |                                    |                              |
| Teri Chapman         |                          |                      |                                    |                              |
| Sarah Montes         |                          |                      |                                    |                              |
| Joseph Chapman       |                          |                      |                                    |                              |



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|---------------------|--------------------------|----------------------|------------------------------------|------------------------------|--|
| RANDY NEYLAND       |                          |                      |                                    |                              |  |
| ERROC CROVETS       |                          |                      |                                    |                              |  |
| ALEX VILARIN        |                          |                      |                                    |                              |  |
| VIRGINIA NGERMUCHIT |                          |                      |                                    |                              |  |
| BEN WAIA            |                          |                      |                                    |                              |  |
| GABRIEL SHIOTA      |                          |                      |                                    |                              |  |
| Debra Gomez         |                          |                      |                                    |                              |  |
| MARGARETE FASSOMDER |                          |                      |                                    |                              |  |
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|-----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| OPAL KENNEDY    |                          |                      |                                    |                              |
| CHERYL ROTO     |                          |                      |                                    |                              |
| DAN KLAFKE      |                          |                      |                                    |                              |
| John Rhee       |                          |                      |                                    |                              |
| RIANA WEHRMAN   |                          |                      |                                    |                              |
| Sam Desa        |                          |                      |                                    |                              |
| QUINTIN SUMABAT |                          |                      |                                    |                              |
| Erlinda Garcia  |                          |                      |                                    |                              |





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|--------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Sharon Weissman          |                          |                      |                                    |                              |
| SOPHIA TSE               |                          |                      |                                    |                              |
| Victor Blackwell         |                          |                      |                                    |                              |
| Lucie Colombo            |                          |                      |                                    |                              |
| Nancy                    |                          |                      |                                    |                              |
| Margaret Chapman         |                          |                      |                                    |                              |
| Susan Tse Koo & Mike Koo |                          |                      |                                    |                              |
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|----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| JIA YU         |                          |                      |                                    |                              |
| MARK PULIDO    |                          |                      |                                    |                              |
| Mei Pan        |                          |                      |                                    |                              |
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**Wednesday, January 31, 2018, 6 - 8 pm**

**Sign-in Sheet**

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|--|--|--|
|  <p><b>ALI SAJJAD TAJ</b><br/> <i>Councilman</i></p> <p>18747 Clarkdale Avenue<br/>         Artesia, California 90701<br/>         Phone (562) 865-6262<br/>         Fax (562) 865-6240</p> <p>Cell (562) 450-3214<br/>         ataj@cityofartesia.us<br/>         www.cityofartesia.us</p>   |  <p><b>SENATOR TONY MENDOZA</b><br/>         THIRTY-SECOND SENATE DISTRICT</p> <p><b>URSULA PARRA NUÑEZ</b><br/>         DISTRICT REPRESENTATIVE</p> <p>CAPITOL OFFICE<br/>         STATE CAPITOL, ROOM 5061<br/>         SACRAMENTO, CA 95814<br/>         TEL (916) 651-4032<br/>         FAX (916) 651-4932<br/>         URSULA.PARRA@SEN.CA.GOV</p> <p>DISTRICT OFFICE<br/>         17315 STUDEBAKER ROAD<br/>         SUITE 332<br/>         CERRITOS, CA 90703<br/>         TEL (562) 860-3202<br/>         FAX (562) 924-4802</p> |  |
|  <p><b>JANICE HAHN</b><br/>         Supervisor, Fourth District<br/>         County of Los Angeles</p> <p><b>LYNDA P. JOHNSON</b><br/>         Field Deputy</p> <p>Bellflower Field Office<br/>         10025 East Flower Street<br/>         Bellflower, California 90706</p> <p>Office: (562) 804-8208<br/>         Fax: (562) 804-2746<br/>         LyJohnson@bos.lacounty.gov</p> |  |  |
|  |  |  |



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|--------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Lillian M. Montoya |                          |                      |                                    |                              |
| Narae Han          |                          |                      |                                    |                              |
| Gustavo Ledesma    |                          |                      |                                    |                              |
| Lourdes Francisco  |                          |                      |                                    |                              |
| Ed Francisco       |                          |                      |                                    |                              |
| Lourdes Alvarado   |                          |                      |                                    |                              |
| Daniel Arana       |                          |                      |                                    |                              |
| Youngeri Kim       |                          |                      |                                    |                              |
| Harabedian         |                          |                      |                                    |                              |





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|-----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Peter Lin       |                          |                      |                                    |                              |
| Samer Momani    |                          |                      |                                    |                              |
| Mamie Cummings  |                          |                      |                                    |                              |
| Gerardo Moreno  |                          |                      |                                    |                              |
| Pat Tan.        |                          |                      |                                    |                              |
| Daniel Horn     |                          |                      |                                    |                              |
| Thelma Gonzalez |                          |                      |                                    |                              |
| Marie Alonso    |                          |                      |                                    |                              |



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|------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| HILARIO SALINAS  |                          |                      |                                    |                              |
| Mario Chacón     |                          |                      |                                    |                              |
| Baldomero Lopez  |                          |                      |                                    |                              |
| Joseph M Glynn   |                          |                      |                                    |                              |
| DAVE             |                          |                      |                                    |                              |
| Carlos, Martinez |                          |                      |                                    |                              |
| Marina Sanchez   |                          |                      |                                    |                              |
| MARTIN MEDINA    |                          |                      |                                    |                              |



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|------------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Enrique Pineda         |                          |                      |                                    |                              |
| JAIME Equihua          |                          |                      |                                    |                              |
| Maria A. Marquez       |                          |                      |                                    |                              |
| Santiago & Susana Cruz |                          |                      |                                    |                              |
| RENZ TREVINO           |                          |                      |                                    |                              |
| Steve Leon             |                          |                      |                                    |                              |
| Ma                     |                          |                      |                                    |                              |
| MARTIN ORTEGA          |                          |                      |                                    |                              |





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|-----------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Ramón Quesada         |                          |                      |                                    |                              |
| Tara Griffin          |                          |                      |                                    |                              |
| CECI LOPEZ            |                          |                      |                                    |                              |
| SYLVIA Collier        |                          |                      |                                    |                              |
| Ursula Parra          |                          |                      |                                    |                              |
| Ariana Yui<br>Mendoza |                          |                      |                                    |                              |
| ROBERT J WITT         |                          |                      |                                    |                              |
| Wilbert Palaco        |                          |                      |                                    |                              |





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|----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| JUAN BORJA     |                          |                      |                                    |                              |
| GUILLYMINA     |                          |                      |                                    |                              |
| Jorge Escobar  |                          |                      |                                    |                              |
| Rafael BORJA   |                          |                      |                                    |                              |
| ANIBERTO JASSO |                          |                      |                                    |                              |
| FCO. CARDENAS  |                          |                      |                                    |                              |
| Juan Gracian   |                          |                      |                                    |                              |
| MANUEL PEREZ   |                          |                      |                                    |                              |
| GREG WEAR      |                          |                      |                                    |                              |



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|------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Carlos Peregrina |                          |                      |                                    |                              |
| Maria Torres     |                          |                      |                                    |                              |
| Luisa Moreno     |                          |                      |                                    |                              |
| Natalie Chavero  |                          |                      |                                    |                              |
| . Qianbei mca    |                          |                      |                                    |                              |
| SRIVARA WATABUR  |                          |                      |                                    |                              |
| Maria Quintanar  |                          |                      |                                    |                              |
| Noemi J Mora     |                          |                      |                                    |                              |



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|-------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| KENNY, James      |                          |                      |                                    |                              |
| LEN GOLD SMITH    |                          |                      |                                    |                              |
| Norma Atamariano  |                          |                      |                                    |                              |
| Ma Luisa Carbajal |                          |                      |                                    |                              |
| Isabel Salinas    |                          |                      |                                    |                              |
| BRYAN Hill        |                          |                      |                                    |                              |
| Ken Russell       |                          |                      |                                    |                              |
| James Nieuwdoof   |                          |                      |                                    |                              |





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|-----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Irene Flores    |                          |                      |                                    |                              |
| Rosa Paredes    |                          |                      |                                    |                              |
| Fatima Watabatr |                          |                      |                                    |                              |
| Joseph Carbajal |                          |                      |                                    |                              |
| Rocky Prose     |                          |                      |                                    |                              |
| Maria Subel     |                          |                      |                                    |                              |
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|------------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Araceli Martinez |                          |                      |                                    |                              |
| Allen Nich       |                          |                      |                                    |                              |
| Tom Kotcha       |                          |                      |                                    |                              |
| Gerardo Martinez |                          |                      |                                    |                              |
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|----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Sean Ashton    |                          |                      |                                    |                              |
| Dolce Martinez |                          |                      |                                    |                              |
| Reyna Reynoso  |                          |                      |                                    |                              |
| Milagro Rivera |                          |                      |                                    |                              |
| ROBERTO ANWAR  |                          |                      |                                    |                              |
| Teresa Batdals |                          |                      |                                    |                              |
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|-----------------|--------------------------|----------------------|------------------------------------|------------------------------|
| Alicia Onpeza   |                          |                      |                                    |                              |
| Esperanza Jesus |                          |                      |                                    |                              |
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## **State Historic Preservation Officer's Concurrence**



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**DEPARTMENT OF PARKS AND RECREATION  
OFFICE OF HISTORIC PRESERVATION**

Lisa Ann L. Mangat, Director

Julianne Polanco, State Historic Preservation Officer  
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100  
Telephone: (916) 445-7000 FAX: (916) 445-7053  
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

July 24, 2018

VIA EMAIL

In reply refer to: FHWA\_2018\_0618\_001

Ms. Kelly Ewing-Toledo  
Senior Environmental Planner  
Environmental Branch Chief, Cultural Resources Unit  
Caltrans, District 7  
100 S Main Street, MS 16A  
Los Angeles, CA 90012

Subject: Determination of Eligibility for the Proposed Westbound SR-91 Improvement Project, Cities of Cerritos and Artesia, Los Angeles County, CA

Dear Ms. Ewing-Toledo:

Caltrans is initiating consultation for the above project in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*. As part of your documentation, Caltrans submitted a Historic Property Survey Report (HPSR), Historical Resource Evaluation Report (HRER), and an Archaeological Survey Report (ASR) for the project.

Caltrans District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro) in collaboration with the Gateway Cities Council of governments, the City of Cerritos and the City of Artesia. The purpose of the project is to reduce congestion, as well as improve freeway operations, safety, and local and system interchange operations. Proposed improvements would include adding freeway mainline capacity leading to the westbound SR-91 connector ramp to the northbound and southbound I-605; improvements to freeway entrance and exit ramps in the westbound direction on SR-91, and operations improvements for the northbound I-605 at the Alondra Boulevard off-ramp. The maximum depth of disturbance is 30 feet. A full project description and description of the area of potential effect (APE) can be found on pages 1-3 of the HPSR.

In accordance with Stipulation VIII.C.6 of the PA, Caltrans is requesting concurrence that the following properties are not eligible for the National Register of Historic Places (NRHP):

- College Hospital, 10802 College Place, Cerritos, CA
- 16706 Pioneer Boulevard, Artesia, CA
- 16712 Pioneer Boulevard, Artesia, CA
- 12111 Park Street, Cerritos, CA
- 12120 Park Street, Cerritos, CA
- Tracy High School, 12222 Cuesta Drive, Cerritos, CA

Based on my review of the submitted documentation, I concur.

If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 with e-mail at [natalie.lindquist@parks.ca.gov](mailto:natalie.lindquist@parks.ca.gov) or Alicia Perez at (916) 445-7020 with e-mail at [alicia.perez@parks.ca.gov](mailto:alicia.perez@parks.ca.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Julianne Polanco', with a long horizontal stroke extending to the right.

Julianne Polanco  
State Historic Preservation Officer

## **Native American Heritage Commission Correspondence**



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BERKELEY  
CARLSBAD  
FRESNO  
IRVINE  
PALM SPRINGS  
POINT RICHMOND  
RIVERSIDE  
ROCKLIN  
SAN LUIS OBISPO

May 18, 2017

Gayle Totton, M.A., PhD.  
Associate Governmental Program Analyst  
Native American Heritage Commission  
1550 Harbor Blvd., Suite 100  
West Sacramento, CA 95691

Subject: Section 106 Consultation List and Sacred Lands File Search Request for the Westbound SR-91 Improvement Project, Cities of Artesia, Cerritos, and Norwalk, County of Los Angeles, California

Dear Ms. Totton:

Attached please find a map showing the location of the Westbound SR-91 Improvement Project in the Cities of Artesia, Cerritos, and Norwalk, County of Los Angeles, California. Specifically, the project is in the following Townships (T), Ranges (R), and Sections (S) of the *Whittier, California* and *Los Alamitos, California* 7.5-minute United States Geological Survey (USGS) topographic quadrangle maps as identified below:

T: 03 S; R: 11 W; S: 29

T: 03 S; R: 11 W; S: 30

T: 03 S; R: 12 W; S: 25

T: 03 S; R: 12 W; S: 26

T: 03 S; R: 11 W; S: 32

LSA is assisting the California Department of Transportation (Caltrans) in preparing the cultural resources assessment for the project. Per Section 106 of the National Historic Preservation Act, please notify us of any Native American cultural resources that might be impacted, and include a list of potential Native Americans that may be contacted for Section 106 Native American consultation.

Thank you very much for your assistance. If you have any questions or comments, please contact me at (949) 553-0666, or at [kerrie.collison@lsa.net](mailto:kerrie.collison@lsa.net).

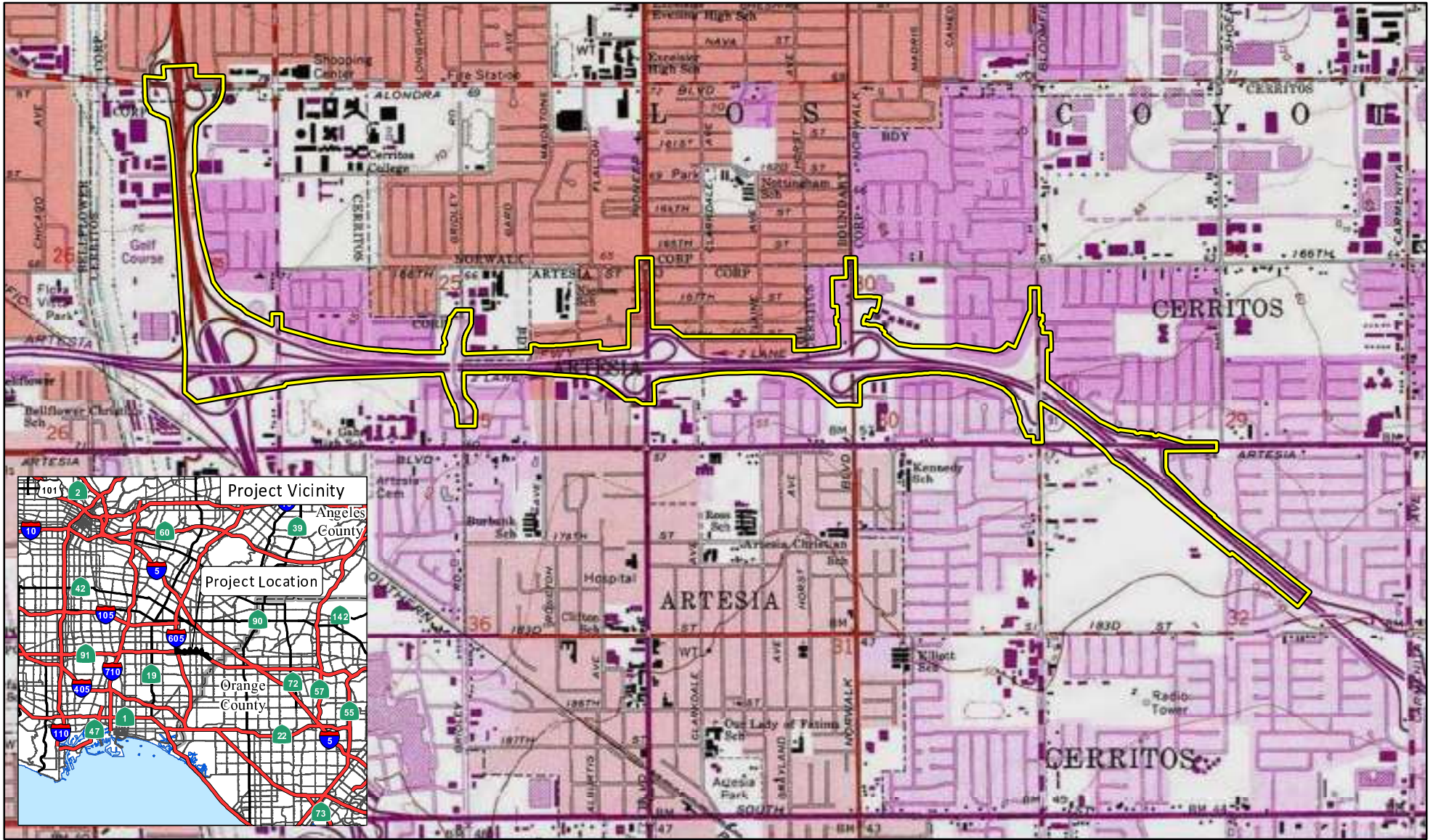
Best Regards,


**LSA Associates, Inc.**

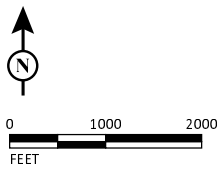
Kerrie Collison, M.A., RPA  
Archaeologist

Attachments: Figure 1: Project Location Map

5/18/17 «P:\RBF1601\LSA Technical Studies\Cultural\Native American consultation\2017 05 18 NAHC SLF request Section 106.docx»



LEGEND  
 Study Area Limits



SOURCE: USGS 7.5' Quad - Whittier (1981) and Los Alamitos (1981); Michael Baker (3/2017)  
 I:\RBF1601\GIS\MXD\ProjectLocation\_USGS.mxd (3/29/2017)

FIGURE 1

Westbound SR-91 Improvement Project

Project Location

07-LA-91

SR-91 PM 16.9-19.8; I-605 PM 5.0-5.8

EFIS 0716000284; EA 07-29811



**NATIVE AMERICAN HERITAGE COMMISSION**

Environmental and Cultural Department  
1550 Harbor Blvd., Suite 100  
West Sacramento, CA 95691  
(916) 373-3710



May 22, 2017

Kerrie Collison  
LSA

Sent by E-mail: Kerrie.collison@lsa.net

RE: Proposed Westbound SR-91 Improvement, Cities of Artesia, Cerritos, and Norwalk;  
Whittier and Los Alamitos USGS Quadrangles, Los Angeles County, California

Dear Ms. Collison:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: [gayle.totton@nahc.ca.gov](mailto:gayle.totton@nahc.ca.gov).

Sincerely,

A handwritten signature in blue ink that reads "Gayle Totton".

Gayle Totton, M.A., PhD.  
Associate Governmental Program Analyst



Native American Heritage Commission  
Native American Contact List  
Los Angeles County  
5/22/2017

**Gabrieleño Band of Mission  
Indians - Kizh Nation**

Andrew Salas, Chairperson  
P.O. Box 393  
Covina, CA, 91723  
Phone: (626) 926 - 4131  
gabrieleñoindians@yahoo.com

Gabrieleño

**Juaneno Band of Mission  
Indians Acjachemen Nation -  
Belardes**

Matias Belardes, Chairperson  
32161 Avenida Los Amigos  
San Juan Capistrano, CA, 92675  
Phone: (949)293-8522

Juaneno

**Gabrieleño/Tongva San Gabriel  
Band of Mission Indians**

Anthony Morales, Chairperson  
P.O. Box 693  
San Gabriel, CA, 91778  
Phone: (626) 483 - 3564  
Fax: (626)286-1262  
GTTribalcouncil@aol.com

Gabrieleño

**Gabrielino /Tongva Nation**

Sandonne Goad, Chairperson  
106 1/2 Judge John Aiso St.,  
#231  
Los Angeles, CA, 90012  
Phone: (951)807-0479  
sgoad@gabrielino-tongva.com

Gabrielino

**Gabrielino Tongva Indians of  
California Tribal Council**

Robert Dorame, Chairperson  
P.O. Box 490  
Bellflower, CA, 90707  
Phone: (562) 761 - 6417  
Fax: (562) 761-6417  
gtongva@gmail.com

Gabrielino

**Gabrielino-Tongva Tribe**

Linda Candelaria, Co-Chairperson  
23453 Vanowen Street  
West Hills, CA, 91307  
Phone: (626) 676 - 1184  
palmsprings9@yahoo.com

Gabrielino

**Juaneno Band of Mission  
Indians Acjachemen Nation -  
Belardes**

Joyce Perry, Tribal Manager  
4955 Paseo Segovia  
Irvine, CA, 92603  
Phone: (949) 293 - 8522  
kaamalam@gmail.com

Juaneno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 6097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Westbound SR-91 Improvements Project, Los Angeles County.



BERKELEY  
CARLSBAD  
FRESNO  
IRVINE  
LOS ANGELES  
PALM SPRINGS  
POINT RICHMOND  
RIVERSIDE  
ROSEVILLE  
SAN LUIS OBISPO

May 24, 2017

Gabrieleno Band of Mission Indians—Kizh Nation  
Andrew Salas, Chairperson  
P.O. Box 393  
Covina, CA 91723

Subject: Section 106 Consultation for the Westbound State Route 91 Improvement Project, Cities of Artesia and Cerritos, County of Los Angeles, California

Dear Mr. Salas:

The Los Angeles County Metropolitan Transportation Authority and the California Department of Transportation District 7, in collaboration with the Gateway Cities Council of Governments, and the Cities of Artesia and Cerritos, propose to widen and improve approximately 3 miles of westbound State Route 91 (SR-91), also known as the Artesia Freeway, between approximately Shoemaker Avenue and the Interstate 605 (I-605) northbound off-ramp to Alondra Boulevard.

The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations. Proposed improvements include the following:

- Additional freeway mainline capacity leading to the westbound SR-91 connector ramp to northbound and southbound I-605
- Improvements to freeway entrance and exit ramps on westbound SR-91
- Operational improvements to northbound I-605 at the Alondra Boulevard off-ramp

Associated improvements are also anticipated on the arterial streets near the freeway ramp intersections.

The project location is shown on Figure 1: Project Location (attached). Because all cultural resource efforts will be completed in compliance with Section 106 of the National Historic Preservation Act, you are being contacted per the Native American consultation guidelines of Section 106.

As part of the cultural resources studies, a records search for the project area was completed at the South Central Coastal Information Center of the California Historical Resources Information System at California State University, Fullerton. The records search indicated there are no known prehistoric sites within the project area. One prehistoric site is located within a half-mile of the project area. A Sacred Lands File search requested from the Native American Heritage Commission was also negative for the project area.

If you know of any cultural resources of religious and/or cultural significance to your community that may be affected, or if you would like more information, please do not hesitate to contact me at (949) 553-0666 or at [kerrie.collison@lsa.net](mailto:kerrie.collison@lsa.net). If I do not receive a response from you, I will contact

you again in the near future to discuss any comments or concerns you may have. Also, please feel free to forward this to others in your group whom you believe may have information that would be helpful in identifying cultural resources that could be affected by the project.

Thank you for your involvement in this process. Your comments are important, and I look forward to hearing from you.

Respectfully,

**LSA Associates, Inc.**

A handwritten signature in blue ink that reads "Kerrie Collison". The signature is written in a cursive style with a large initial "K".

Kerrie Collison, M.A., RPA  
Cultural Resources Analyst

Attachment: Figure 1: Project Location





## Kerrie Collison

---

**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:32 AM  
**To:** Andrew Salas (gabrielenoindians@yahoo.com)  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Andrew Salas.pdf

Good afternoon, Mr. Salas.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
[LSA](#) | 20 Executive Park, Suite 200  
Irvine, CA 92614

-----  
949-553-0666 ext. 312 Tel

949-413-2134 Mobile

[Website](#)

## Kerrie Collison

---

**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:34 AM  
**To:** Anthony Morales (GTtribalcouncil@aol.com)  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Anthony Morales.pdf

Good morning, Mr. Morales.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
[LSA](#) | 20 Executive Park, Suite 200  
Irvine, CA 92614

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949-553-0666 ext. 312 Tel

949-413-2134 Mobile

[Website](#)

## Kerrie Collison

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**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:36 AM  
**To:** Joyce Perry (kaamalam@gmail.com)  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Joyce Perry.pdf

Good morning, Ms. Perry.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie Collison

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
[LSA](#) | 20 Executive Park, Suite 200  
Irvine, CA 92614

-----  
949-553-0666 ext. 312 Tel

949-413-2134 Mobile

[Website](#)

## Kerrie Collison

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**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:38 AM  
**To:** 'palmsprings9@yahoo.com'  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Linda Candelaria.pdf

Good morning, Ms. Candelaria.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie Collison

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
[LSA](#) | 20 Executive Park, Suite 200  
Irvine, CA 92614

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949-553-0666 ext. 312 Tel

949-413-2134 Mobile

[Website](#)



## Kerrie Collison

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**From:** Kerrie Collison  
**Sent:** Monday, June 19, 2017 11:19 AM  
**To:** Robert Dorame (gtongva@gmail.com)  
**Subject:** RE: Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Robert Dorame.pdf

Good morning, Mr. Dorame.

I called your cell phone earlier this morning to follow up with you regarding this project, and was asked to call back later. I just tried calling again, and got an automated message saying that your voice mailbox is not set up, so I wanted to follow up with you via email.

I wanted to check in one more time regarding this project (I have attached the initial consultation letter). If you have any concerns or comments about this project, please let me know. Thank you!

Best,  
Kerrie Collison

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
LSA | 20 Executive Park, Suite 200  
Irvine, CA 92614

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949-553-0666 ext. 312 Tel  
949-413-2134 Mobile  
[Website](#)

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**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:40 AM  
**To:** Robert Dorame ([gtongva@gmail.com](mailto:gtongva@gmail.com))  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles

Good morning, Mr. Dorame.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie Collison

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
LSA | 20 Executive Park, Suite 200  
Irvine, CA 92614

-----  
949-553-0666 ext. 312 Tel  
949-413-2134 Mobile  
[Website](#)

## Kerrie Collison

---

**From:** Kerrie Collison  
**Sent:** Monday, June 12, 2017 11:42 AM  
**To:** Sandonne Goad (sgoad@gabrielino-tongva.com)  
**Subject:** Section 106 Consultation for the Proposed WB-91 Improvement Project, County of Los Angeles  
**Attachments:** Sandonne Goad.pdf

Good morning, Ms. Goad.

I sent a project notification letter to you dated May 24, 2017, for the proposed WB-91 Improvement Project in Los Angeles County. I have attached a copy of the letter for your reference. Please let me know at your earliest convenience if you have concerns about this project and the potential to impact cultural resources. Thank you for your input.

Best,  
Kerrie Collison

**Kerrie Collison, M.A., RPA** | Cultural Resources Analyst  
[LSA](#) | 20 Executive Park, Suite 200  
Irvine, CA 92614

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949-553-0666 ext. 312 Tel

949-413-2134 Mobile

[Website](#)

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# **Transportation Conformity Working Group Determination**



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**TRANSPORTATION CONFORMITY WORKING GROUP  
of the  
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS**

**September 25, 2018  
Minutes**

---

**1.0 CALL TO ORDER AND SELF-INTRODUCTION**

Lori Huddleston, TCWG Chair, called the meeting to order at 10:06 am.

**2.0 PUBLIC COMMENT PERIOD**

None.

**3.0 CONSENT CALENDAR**

**3.1. August 28, 2018 TCWG Meeting Minutes**

The meeting minutes will be revised to incorporate edits to Section 4.2 as requested via email by Andrew Yoon, Caltrans District 7.

**4.0 INFORMATION ITEMS**

**4.1 Review of PM Hot Spot Interagency Review Forms**

**1) LA0G1119**

It was reaffirmed that this is not a POAQC.

(Updated PM hot spot interagency review form will be resubmitted to SCAG with minor corrections to 2044 ADT figures).

**2) RIV070308**

It was reaffirmed that this is not a POAQC.

**3) RIV071254**

It was determined that this is not a POAQC.

**4.2 Draft Revised Ozone Transportation Budgets**

Shannon Hatcher, ARB, reported the following:

- As part of respective ozone SIP updates, ozone transportation conformity budgets had been revised for South Coast, Coachella Valley, and Western Mojave Desert nonattainment areas to reflect most recent travel activity data from SCAG's 2016-2040 RTP/SCS Amendment #2.
- Budgets for ozone precursors ROG and NO<sub>x</sub> had been set for same years of 2020, 2023, and 2026 in Coachella Valley and Western Mojave Desert areas; and for 2020, 2023, 2026, 2029, and 2031 in South Coast area.
- Safety margins were currently proposed only to Western Mojave Desert area.
- Budgets were calculated with EMFAC 2014.

RTIP ID# LA0G1119

TCWG Consideration Date October 23, 2018

**Project Description** (*clearly describe project*)

Proposed improvements include: (1) additional freeway mainline capacity leading to the westbound SR-91 connector ramp to the northbound and southbound I-605, (2) improvements to freeway entrance and exit ramps in the westbound direction on SR-91, and (3) operational improvements for the northbound I-605 at the Alondra Boulevard off-ramp. Associated improvements are also anticipated on the arterial streets in the vicinity of the freeway ramp intersections.

**ALTERNATIVES**

The proposed alternatives include the No Build Alternative, a Build Alternative and a Design Option at the SR-91/Pioneer Boulevard and SR-91/Norwalk Boulevard interchanges for the Build Alternative. These alternatives are each discussed below.

**No Build Alternative**

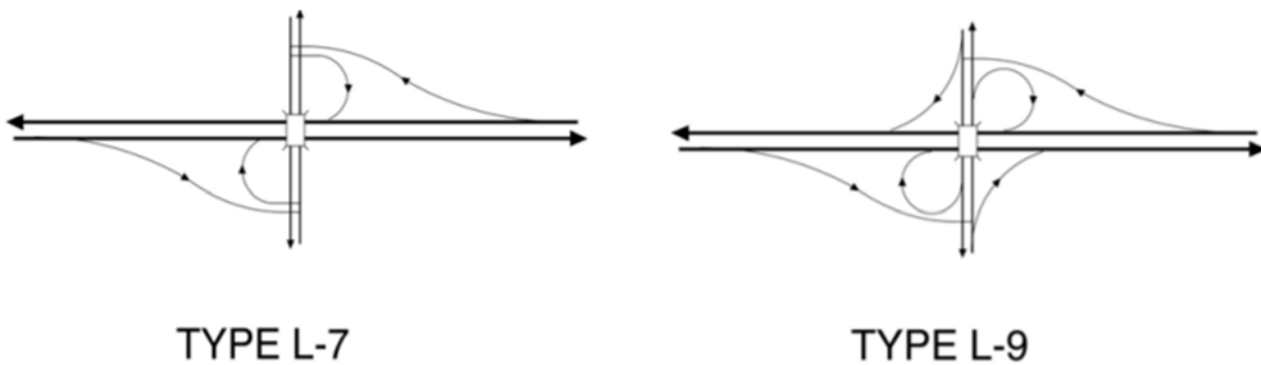
The No Build Alternative does not include any planned improvements to the Study Area. Under this alternative, there would be no reconstruction or improvements to the Study Area. Within the project limits, westbound SR-91 would continue to have four mixed-flow lanes that are 11 ft wide, a 1.5 ft wide median shoulder, one 12 ft wide HOV lane, and one 12 ft wide auxiliary lane between certain successive on- and off-ramps.

**Build Alternative**

The Build Alternative would add one new mixed-flow lane in the westbound direction on SR-91 from approximately Shoemaker Avenue to I-605, joining at the point where the westbound SR-91 to northbound I-605 connector ramp flares from one to two lanes. In addition, the new mixed-flow lane would create a three-lane exit movement on westbound SR-91 to both the northbound and southbound I-605 connector ramps where only a two-lane exit movement exists now.

The Build Alternative would keep the existing auxiliary lanes between Bloomfield Avenue and Norwalk Boulevard, Norwalk Boulevard and Pioneer Boulevard, and Pioneer Boulevard and westbound SR-91 to the northbound and southbound I-605 connector ramps.

Interchange modifications at Pioneer Boulevard and Norwalk Boulevard are also proposed under the Build Alternative. These modifications include reconstructing existing Type L-9 cloverleaf interchanges into Type L-7 cloverleaf interchanges. Typical Type L-7 and Type L-9 local street interchanges are shown on Figure 1..

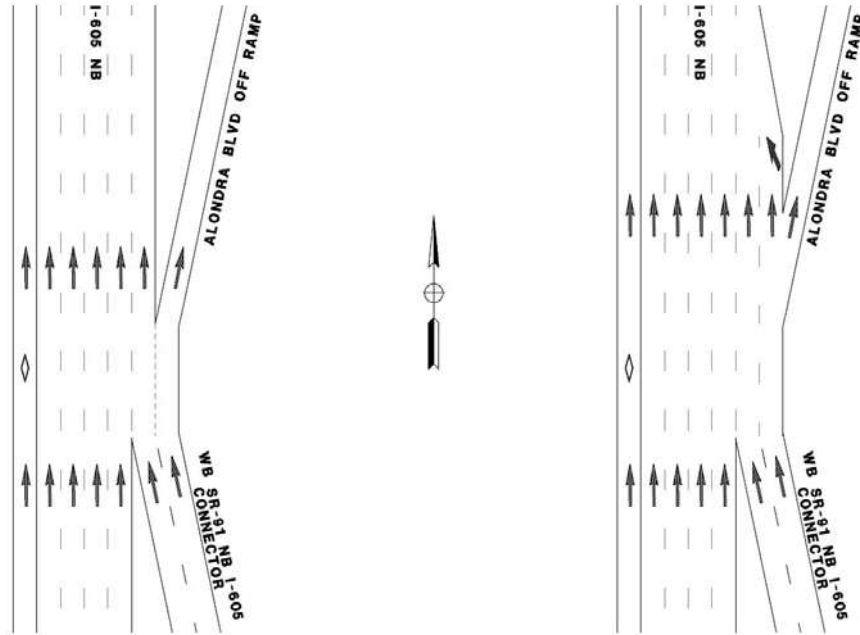


**Figure 1. Typical Type L-7 and L-9 Local Street Interchanges**

These new configurations will eliminate loop on-ramp free right-turn and direct on ramp movements, and will increase the vehicular weaving and merging distances on the westbound SR-91 mainline between these two interchanges, as well as on the I-605 northbound/southbound connector ramp. These modifications will alter the arterial street operations as a result of the changed interchange access point for the arterial street to westbound SR-91.

The existing outside lane of westbound SR-91 to the northbound I-605 two-lane connector ramp terminates at Alondra Boulevard,

forcing the driver in the outside lane to exit at Alondra Boulevard. Modifications are proposed at the Alondra Boulevard exit point to provide a single-lane exit movement and to carry the outside lane past the exit point and merge it with the northbound I-605 mainline prior to the Alondra Boulevard undercrossing. No Build and Build Alternatives for the I-605 northbound Alondra Boulevard off-ramp are shown on Figure 2.



No Build Alternative

Build Alternative

Figure 2. I-605 NB Alondra Blvd. Off-Ramp

The Build Alternative would include standardized features (such as Best Management Practices [BMPs] for water quality) that are generally applied to Caltrans' highway improvement projects. These standardized features avoid and minimize environmental impacts.

**Build Alternative Design Options**

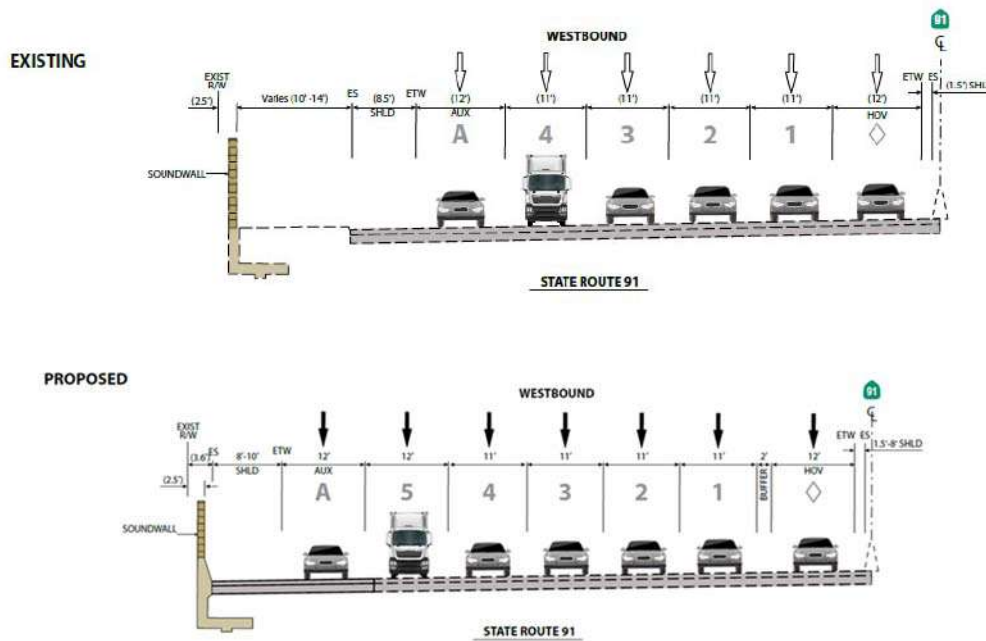
To compare overall freeway, ramp, and arterial street operations, the following design options for the Build Alternative were evaluated:

- **Design Option: Full Build.** Using standard (12 ft) lane and shoulder widths. This standard option would acquire 18 residences and one business on the north side of the freeway along 170th Street between the Norwalk Boulevard and Pioneer Boulevard interchanges in Artesia, as well as the Arco Gas Station on Pioneer Boulevard. A typical section of this design option is shown below under the heading Typical Cross Sections as the Proposed Standard.
- **Design Option 1: Reduced Lane/Shoulder Width.** Using non-standard (narrower than standard) lane and shoulder widths. This non-standard option would eliminate the need for right-of-way acquisition (18 residences and one business) on the north side of the freeway along 170th Street between the Norwalk Boulevard and Pioneer Boulevard interchanges in Artesia. A typical section of this design option is shown under the heading Typical Cross Sections.
- **Design Option 2: Pioneer Boulevard L-9.** By keeping the Type L-9 interchange configuration at Pioneer Boulevard, both the loop and direct westbound on-ramps would remain. Both loop and direct westbound on-ramps would intersect Pioneer Boulevard at a 90-degree angle, which would slow vehicle speeds at the Pioneer Boulevard interchange and improve pedestrian and bicycle safety.
- **Design Option 3: Pioneer Boulevard Westbound Ramps/168th Alignment.** Aligning the SR-91 westbound ramps with 168th Street in Artesia at the Pioneer Boulevard interchange would create a four-legged intersection with Pioneer Boulevard as the north and south legs, the westbound ramps as the east leg, and 168th Street as the west leg. This option would require right-of-way acquisition of approximately eight parcels, which would include five residences, but would eliminate the need to acquire one gas station along Pioneer Boulevard.



- Design Option 4: Diamond Ramps.** This design option utilizes diamond ramp configurations at Pioneer Boulevard and Norwalk Boulevard in lieu of the proposed Type L-7 cloverleaf interchange configurations. The diamond ramps were analyzed for comparison purposes to the partial cloverleaf ramp configuration options. The diamond ramps have a smaller footprint than the cloverleaf options but provide less weaving distance between successive on- and off-ramps, and therefore do not improve safety and traffic operations as much as the cloverleaf design options.
- Design Option 5: Four-Lane Gridley Road Overcrossing.** The four-lane Gridley Road overcrossing structure is a design option that the City of Cerritos requested be studied. This would add approximately \$4 million of construction cost, require no additional right-of-way acquisition, and is within the environmental footprint that is being studied with this project. However, since a four-lane Gridley Road overcrossing, when compared to the existing two-lane, is not required to fulfill the purpose and need of the project, the City of Cerritos would need to find and obtain the additional funds necessary for the improvement.

**Typical Cross Sections**



On September 27th, 2018, the Project Development Team identified the Preferred Alternative. The Preferred Alternative includes the Design Option 1: Reduced Lane/Shoulder Width and the Design option 3: Pioneer Boulevard Westbound Ramps/168th Alignment.

**Design Exceptions (Advisory and Mandatory)**

The Build Alternative would require design exceptions. Design exceptions are necessary when the proposed design deviates from the standard design features presented in the Caltrans *Highway Design Manual* (2017). For example, the design standard for a freeway left-side shoulder is 10 ft; design exceptions would be requested for locations where the columns supporting overcrossing bridges encroach into the shoulder and narrow the shoulder to approximately 7 ft where it is beneath the bridge. The proposed Build Alternative would not be standard; therefore, mandatory and advisory design exceptions would be required for the Build Alternative. A standard alternative would not be cost effective, would require an extensive rebuild of the existing freeway, and would have extensive right-of-way impacts. There are 28 mandatory and 17 advisory design standards that would require design exceptions at one or more locations in the Study Area (see the Draft Project Report for a full list of design exceptions). Notably, Design Option 1 (Reduced Lane/Shoulder Width) includes reduced non-standard lane and shoulder widths.

**Transportation Systems Management and Transportation Demand Management Alternatives**

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

Transportation Systems Management (TSM) provides cost-effective improvements that increase transportation system performance without the major expense of capital expansion projects. These programs include minor geometric improvements, bicycle and pedestrian improvements, and other measures such as signal synchronization, motorist information, bus signal priority, and freeway ramp metering. Transportation Demand Management (TDM) provides cost-effective improvements that reduce system demand by eliminating trips or shifting trips out of the peak periods to other, less-congested time periods during the day, thus increasing transportation system performance without implementing travel restrictions. TDM programs include rideshare programs, employer flex-time, parking pricing, and intermodal improvements that support TDM programs and transfers between modes at key locations. TDM programs are devised to change the behavior of travelers. Some TDM approaches are voluntary, and they motivate participants with incentives. Other TDM approaches apply disincentives to drive single-occupancy vehicles, such as fees and constraints.

A TSM/TDM alternative is not considered a viable stand-alone option because it does not fulfill the project’s purpose and need. A TSM/TDM alternative on its own would:

- Provide minimal congestion reduction,
- Provide minimal enhancement of operations and improvement in trip reliability,
- Not increase mobility significantly because it would have a limited effect on congestion, and
- Not maximize traffic throughput because no additional through lanes are provided.

TSM and TDM are similar in a number of ways, because they may:

- Lessen the number of trips,
- Lessen peak-hour travel,
- Conserve energy,
- Reduce emissions, and
- Provide more travel alternatives.

Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures are beneficial and may be incorporated into the Build Alternative for the proposed project:

- Improved ramp-metering hardware and software and closed-circuit television systems for viewing ramps and nearby arterials
- Upgraded traffic signals that are interconnected and coordinated with adjacent signals and ramp meters at locations of interchange improvements
- Additional way-finding signs on freeways and arterials
- On- and off-ramps designed to limit impacts to non-motorized travel and preserve access to bike lanes and trails
- Intelligent Transportation Systems (ITS) elements, including fiber-optic and other communication systems for improved connectivity and remote management; changeable message signs; closed-circuit television coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection systems for volume, speed, and vehicle classification
- Advanced traffic management system improvements to the hardware and software systems at the Caltrans District 7 Traffic Management Center
- Traveler information management system improvements to enhance dissemination of real-time information on roadway conditions

**Type of Project** (use Table 1 on instruction sheet)

Change to existing state highway

|                              |   |  |
|------------------------------|---|--|
| <b>County</b><br>Los Angeles | <b>Narrative Location/Route &amp; Postmiles:</b><br><br><b>Caltrans Projects – EA#</b> 07-29811 | SR-91 PM 16.9-19.8<br>I-605 PM 5.0-5.8 |
|------------------------------|---|--|

**Lead Agency:** Caltrans District 7

|                                      |                               |                             |  |
|--------------------------------------|-------------------------------|-----------------------------|--|
| <b>Contact Person</b><br>Andrew Yoon | <b>Phone#</b><br>213-897-6117 | <b>Fax#</b><br>213-897-1634 | <b>Email</b><br>andrew_yoon@dot.ca.gov |
|--------------------------------------|-------------------------------|-----------------------------|--|

**Hot Spot Pollutant of Concern** (check one or both)    **PM2.5 X**    **PM10 X**

| <b>Federal Action for which Project-Level PM Conformity is Needed</b> <i>(check appropriate box)</i>  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
|---|--|---------------------------|--|--------------|-------|-----------------------|--|-----------|-------------|--------|-------------|---|------------------|---------------|-----------------|------------------|---------|-------|-------|
| <b>Categorical Exclusion (NEPA)</b>   | <input checked="" type="checkbox"/> <b>EA or Draft EIS</b> | <b>FONSI or Final EIS</b> | <b>PS&amp;E or Construction</b>  | <b>Other</b> |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Scheduled Date of Federal Action:</b> 2017   |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>NEPA Assignment – Project Type</b> <i>(check appropriate box)</i>  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Exempt</b>   | <b>Section 326 – Categorical Exemption</b>                 |                           | <input checked="" type="checkbox"/> <b>Section 327 – Non-Categorical Exemption</b> |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Current Programming Dates</b> <i>(as appropriate)</i>  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
|   | <b>PE/Environmental</b>                                    | <b>ENG</b>                | <b>ROW</b>   | <b>CON</b>   |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Start</b>  | 2016   | 2016                      | June 2020  | Jan 2021     |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>End</b>  | 2018   | 2017                      | Jan 2021   | June 2024    |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Project Purpose and Need (Summary):</b> <i>(attach additional sheets as necessary)</i>   |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Purpose:</b><br>The purpose of the project is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety and improve local and system interchange operations.   |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Need:</b><br>The westbound SR-91 approaching the connector ramp for both the northbound and southbound I-605 currently experiences substantial congestion, which will continue in the future No Build condition. Congestion is a result of inadequate capacity of the existing two-lane connector for the westbound SR-91 to northbound and southbound I-605, as well as the closely spaced freeway entrance and exit ramps resulting in a high concentration of accidents.  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b>Capacity and Transportation Demand</b><br>The need for the Project is based on an assessment of the existing and future transportation demand in the Study Area compared to the available capacity. Based on the examination of existing travel conditions and projected future traffic (2044), the SR91 currently experiences, and will continue to experience, capacity and operational problems due to a number of interrelated factors. The existing westbound SR-91 mainline and connector ramp to the northbound and southbound I-605 has insufficient capacity for the existing traffic volumes, resulting in deficient levels of service. No major improvements have been undertaken on SR-91 in the Study Area since it was built in 1968, except for pavement rehabilitation and re-striping in 1994 to provide for an HOV lane in each direction. Extensive population growth occurred both before and after SR-91 was built. The increase in regional traffic during that time has contributed to traffic volumes that exceed the existing design capacity of the SR-91, particularly at the I-605 interchange. Table A below shows the average daily weekday automobile and heavy-duty truck volumes on SR-91. The SR-91 westbound traffic volumes range from lower volumes on the eastern end near Shoemaker Avenue and higher volumes on the western end near I-605.  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <p style="text-align: center;"><b>Table A. SR-91 Corridor Average Daily (24-hour) Weekday Traffic Volumes.</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px auto;"> <thead> <tr> <th rowspan="2" style="text-align: left; vertical-align: bottom;">Route</th> <th colspan="2" style="text-align: center; border-bottom: 1px solid black;">General Purpose Lanes</th> <th style="text-align: center; border-bottom: 1px solid black;">HOV Lanes</th> </tr> <tr> <th style="text-align: center;">Automobiles</th> <th style="text-align: center;">Trucks</th> <th style="text-align: center;">Automobiles</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">SR-91 Westbound<br/>(east of connector ramp)</td> <td style="text-align: center;">90,630 – 118,050</td> <td style="text-align: center;">7,000 – 7,500</td> <td style="text-align: center;">15,800 – 19,600</td> </tr> <tr> <td style="vertical-align: top;">I-605 Northbound</td> <td style="text-align: center;">140,700</td> <td style="text-align: center;">8,700</td> <td style="text-align: center;">6,200</td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 10px;">Sources: SR-91 Automobile counts were based on PeMS data from spring and fall 2016; SR-91 truck counts were based on WILTEC video counts conducted in 2016; I-605 automobile counts were based on PeMS data from spring and fall 2013; and I-605 truck counts were calculated based on the 2013 Caltrans reported truck percentages.</p> |  |                           |  |              | Route | General Purpose Lanes |  | HOV Lanes | Automobiles | Trucks | Automobiles | SR-91 Westbound<br>(east of connector ramp) | 90,630 – 118,050 | 7,000 – 7,500 | 15,800 – 19,600 | I-605 Northbound | 140,700 | 8,700 | 6,200 |
| Route   | General Purpose Lanes                                      |                           | HOV Lanes  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
|   | Automobiles  | Trucks                    | Automobiles  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| SR-91 Westbound<br>(east of connector ramp)   | 90,630 – 118,050   | 7,000 – 7,500             | 15,800 – 19,600  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| I-605 Northbound  | 140,700  | 8,700                     | 6,200  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |
| <b><u>Social Demand and Economic Development</u></b>  |  |                           |  |              |       |                       |  |           |             |        |             |   |                  |               |                 |                  |         |       |       |

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|---|
| <p>Regional population is forecast to grow by 18 percent, and the Study Area population is forecast to grow by 12 percent from 2016 to 2044. Employment is anticipated to follow a different pattern, with regional growth of 23 percent and Study Area employment growth of 27 percent. Population growth is projected to be lower in the Study Area than in the Southern California Association of Governments (SCAG) region because the Study Area is almost completely developed. New growth will be limited to smaller, infill-type developments. For historical context, the regional population was approximately eight million in 1960. The 2016 population of nearly nineteen million for the region represents a 135 percent increase since 1960. The 2016 Regional Transportation Plan (RTP) growth forecast was the basis for the regional traffic modeling that was conducted for the SR-91 Project.</p> |
| <p><b>Surrounding Land Use/Traffic Generators</b> (<i>especially effect on diesel traffic</i>)<br/>Existing land uses in the project area include single- and multifamily residences, churches, schools, an institution, a community center, a day-care center, an after-school facility, a park, a golf course, recreational areas, hotels, restaurants, vacant land, retail, office, commercial, and light industrial uses. The majority of the sensitive receptors within or adjacent to the project area are residential uses.</p>  |
| <p><b>Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility</b><br/>2024<br/>See attached analysis</p>  |
| <p><b>RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility</b><br/>2044<br/>See attached analysis</p>  |
| <p><b>Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT</b><br/>N/A<br/><br/><b>RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT</b><br/>N/A</p>  |
| <p><b>Describe potential traffic redistribution effects of congestion relief</b> (<i>impact on other facilities</i>)<br/>See attached analysis</p>  |
| <p><b>Comments/Explanation/Details</b> (<i>attach additional sheets as necessary</i>)<br/>See attached analysis</p>   |



### **PM<sub>2.5</sub>/PM<sub>10</sub> Hot-Spot Analysis**

The proposed project is located within a nonattainment area for federal PM<sub>2.5</sub> and PM<sub>10</sub> standards. Therefore, per 40 CFR Part 93 hot-spot analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in section 93.123(b)(1) as an air quality concern. The project does not qualify as a project of air quality concern (POAQC) because of the following reasons:

- i. The proposed project would improve SR-91 by changing the existing highway. As shown in Tables 1 and 2, while traffic volumes along SR-91 would exceed the 125,000 average daily trips criteria for a POAQC and the truck percentage exceeds 8 percent, the truck traffic volumes and percentages would not change significantly with the project. The two highlighted roadway segments in each table are between two existing on-ramps. The build alternative would combine the southbound on-ramp with the northbound on-ramp, thus putting the combined traffic volumes onto these segments. Thus, while the project will result in shifting some traffic (both truck and auto) from other routes to SR-91 westbound as a result of the increased capacity of the roadway and enhanced operating conditions, it will not result in a higher proportion of trucks overall. While some segments could experience a very small increase in truck percentage (one tenth of one percent), other segments will experience a decrease in truck percentage due to a proportionally larger increase in shifted auto volumes as compared to truck volumes. Finally, the trucks that will operate on the improved corridor under the build condition would experience much less congestion, higher speeds, less delay and lower travel times in the corridor.
- ii. The proposed project does not affect intersections that are at LOS D, E, or F that have a significant number of diesel vehicles. Based on the Traffic Operations Analysis Report (Michael Baker International, March 7, 2018), the proposed project would reduce the delay and improve the LOS at intersections within the project vicinity. The LOS conditions in the project vicinity with and without the proposed project are shown in Tables 3 through 10. While some of the road segments shown show a worsening of LOS, all of the segments where the LOS worsens are located outside of the area where the project results in physical changes (improvements) to the roadway network. These locations are either to the east or west of the area of improvement. The improvements themselves, by adding capacity (due to the new freeway lane and other measures which improve operating conditions), attract traffic to the westbound corridor. The attraction of trips extends beyond the limits of the physical improvements themselves because these improvements alleviate a major bottleneck in the corridor. Each of the segments which show a degradation in service levels are forecast to experience an increase in travel demand of approximately 5 percent to 7.5 percent. In these segments, without a physical or operational improvement to go along with the increase in traffic flow, the Highway Capacity Manual (HCM) analysis will result in a degraded service level (higher traffic flow, but the same capacity). However, it is also important to note that HCM does not account for upstream or downstream improvements which will occur as a result of the project. The traffic microsimulation model that was developed to assess the project area showed significant improvements in traffic flow, increased speeds and decreased delay in the study area and outside of the study area, which is not captured by the HCM results. Thus, while the HCM shows a slight worsening of LOS for these segments, the microsimulation model demonstrates that they will likely improve in operation conditions in the future.

## PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

- iii. The proposed project does not include the construction of a new bus or rail terminal that would have a significant number of diesel vehicles congregating at a single location.
- iv. The proposed project does not expand an existing bus or rail terminal that would significantly increase the number of diesel vehicles congregating at a single location.
- v. The proposed project is not in or affecting locations, areas, or categories of sites that are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Therefore, the proposed project meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hot-spot analysis. The proposed project would not create a new, or worsen an existing, PM<sub>10</sub> or PM<sub>2.5</sub> violation.

**Table 1: Opening Year (2024) Traffic Volumes**

| Roadway Segment                  | No Build (2024) |           |         | Build (2024) Both Without and With Design Option |           |         | Project Percent Increase |           |
|----------------------------------|-----------------|-----------|---------|--|-----------|---------|--------------------------|-----------|
|                                  | Total ADT       | Truck ADT | Truck % | Total ADT  | Truck ADT | Truck % | Total ADT                | Truck ADT |
| <b>WESTBOUND SR-91</b>           |                 |           |         |  |           |         |                          |           |
| East of Studebaker Rd            | 106,700         | 11,240    | 10.5%   | 109,700  | 11,590    | 10.6%   | 2.8%                     | 3.1%      |
| West of Pioneer Blvd             | 136,400         | 13,570    | 9.9%    | 149,000  | 13,590    | 9.1%    | 9.2%                     | 0.1%      |
| East of Pioneer Blvd             | 132,400         | 13,120    | 9.9%    | 139,300  | 13,880    | 10.0%   | 5.2%                     | 5.8%      |
| West of Norwalk Blvd             | 131,100         | 12,980    | 9.9%    | 144,400  | 13,120    | 9.1%    | 10%                      | 1.1%      |
| East of Norwalk Blvd             | 128,500         | 12,820    | 10.0%   | 135,200  | 12,340    | 9.1%    | 5.2%                     | -3.7%     |
| West of Bloomfield Ave           | 124,800         | 12,410    | 9.9%    | 130,200  | 13,020    | 10.0%   | 4.3%                     | 4.9%      |
| East of Artesia Blvd             | 116,800         | 11,530    | 9.9%    | 119,500  | 11,840    | 9.9%    | 2.3%                     | 2.7%      |
| West of 183rd St                 | 126,400         | 12,580    | 10.0%   | 128,400  | 12,830    | 10.0%   | 1.6%                     | 2.0%      |
| <b>NORTHBOUND I-605</b>          |                 |           |         |  |           |         |                          |           |
| North of Westbound SR-91 On-Ramp | 153,900         | 11,790    | 7.7%    | 155,200  | 11,880    | 7.7%    | 0.8%                     | 0.8%      |

Source: Cambridge Systematics, Inc., June 2017.

**Table 2: Future Year (2044) Traffic Volumes**

| Roadway Segment                  | No Build (2044) |           |         | Build (2044) Both Without and With Design Option |           |         | Project Percent Increase |           |
|----------------------------------|-----------------|-----------|---------|--|-----------|---------|--------------------------|-----------|
|                                  | Total ADT       | Truck ADT | Truck % | Total ADT  | Truck ADT | Truck % | Total ADT                | Truck ADT |
| <b>WESTBOUND SR-91</b>           |                 |           |         |  |           |         |                          |           |
| East of Studebaker Rd            | 108,500         | 14,960    | 13.8%   | 111,200  | 15,250    | 13.7%   | 2.5%                     | 1.9%      |
| West of Pioneer Blvd             | 137,700         | 17,320    | 12.6%   | 150,600  | 17,960    | 11.9%   | 9.4%                     | 3.7%      |
| East of Pioneer Blvd             | 133,600         | 17,140    | 12.8%   | 140,300  | 17,570    | 12.5%   | 5.0%                     | 2.5%      |
| West of Norwalk Blvd             | 132,100         | 16,950    | 12.8%   | 145,300  | 17,780    | 12.2%   | 10%                      | 4.9%      |
| East of Norwalk Blvd             | 129,400         | 17,390    | 13.4%   | 135,900  | 18,390    | 13.5%   | 5.0%                     | 5.8%      |
| West of Bloomfield Ave           | 125,200         | 15,990    | 12.8%   | 130,400  | 16,330    | 12.5%   | 4.2%                     | 2.1%      |
| East of Artesia Blvd             | 116,400         | 15,580    | 13.4%   | 119,000  | 15,840    | 13.3%   | 2.2%                     | 1.7%      |
| West of 183rd St                 | 126,700         | 16,040    | 12.7%   | 128,800  | 16,310    | 12.7%   | 1.7%                     | 1.7%      |
| <b>NORTHBOUND I-605</b>          |                 |           |         |  |           |         |                          |           |
| North of Westbound SR-91 On-Ramp | 154,900         | 21,800    | 14.1%   | 155,100  | 21,800    | 14.1%   | 0.1%                     | 0.0%      |

Source: Cambridge Systematics, Inc., June 2017.

**Table 3 Freeway Mainline Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>   |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | -                                | C                                   | C   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | D                        | D             | -          | -                                | -                                   | -   | D                        | D             | -          | -                                | -                                   | -   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Direct On-Ramp     | -                        | -             | -          | -                                | -                                   | -   | -                        | -             | -          | C                                | -                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | D                        | D             | C          | C                                | C                                   | C   | D                        | D             | D          | -                                | D                                   | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | D                        | D             | -          | -                                | C                                   | -   | D                        | D             | -          | -                                | D                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Direct On-Ramp     | -                        | -             | -          | -                                | -                                   | -   | -                        | -             | -          | D                                | -                                   | -   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to Lane Drop                              | -                        | -             | B          | B                                | B                                   | B   | -                        | -             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | -                                   | -   |
| Lane Drop to I-605 NB On-Ramp                                      | -                        | -             | C          | C                                | C                                   | C   | -                        | -             | D          | D                                | D                                   | D   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605 LOS = level of service NB = northbound SB = southbound SR-91 = State Route 91 WB = westbound

**Table 4 Freeway Weaving Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>   |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | C                        | C             | D          | D                                | D                                   | D   | C                        | C             | D          | D                                | D                                   | D   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | D                        | D             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | D                        | D             | D          | D                                | D                                   | D   | D                        | D             | D          | D                                | D                                   | D   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |
| <b>Northbound I-605</b>  |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |

Source: Intueor Consulting, Inc. (2017).

Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).

I-605 = Interstate 605 LOS = level of service NB = northbound SB = southbound SR-91 = State Route 91 WB = westbound



**Table 5 Freeway Merge and Diverge Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Junction                       | Merge/Diverge | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--------------------------------|---------------|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|                                |               | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>         |               |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Artesia Boulevard On-Ramp      | Merge         | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Loop On-Ramp | Merge         | C                        | C             | –          | –                                | –                                   | –   | C                        | C             | –          | –                                | –                                   | –   |
| Pioneer Boulevard Loop On-Ramp | Merge         | C                        | C             | –          | –                                | C                                   | –   | C                        | C             | –          | –                                | C                                   | –   |
| Studebaker Road Off-Ramp       | Diverge       | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| I-605 NB On-Ramp               | Merge         | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605 LOS = level of service NB = northbound SR-91 = State Route 91

**Table 6 Intersection Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2024 Opening Year**

| Junction                               | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2024 No Build | 2024 Build | 2024 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>                 |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| WB SR-91 Off-Ramp/Artesia Boulevard    | C                        | B             | B          | B                                | B                                   | B   | B                        | B             | B          | B                                | B                                   | B   |
| Bloomfield Avenue/WB SR-91 On-Ramp     | B                        | B             | B          | B                                | B                                   | B   | B                        | B             | B          | B                                | B                                   | B   |
| Norwalk Boulevard/WB SR-91 Off-Ramp    | A                        | A             | –          | –                                | –                                   | –   | A                        | A             | –          | –                                | –                                   | –   |
| Norwalk Boulevard/WB SR-91 On-Off Ramp | –                        | –             | C          | A                                | C                                   | C   | –                        | –             | B          | A                                | B                                   | B   |
| Pioneer Boulevard/WB SR-91 Off-Ramp    | A                        | A             | –          | –                                | –                                   | –   | A                        | A             | –          | –                                | –                                   | –   |
| Pioneer Boulevard/WB SR-91 On-Off Ramp | –                        | –             | C          | B                                | B                                   | C   | –                        | –             | C          | A                                | B                                   | C   |
| Studebaker Road/WB SR-91 Off-Ramp      | B                        | B             | C          | C                                | C                                   | C   | A                        | A             | B          | B                                | B                                   | B   |
| <b>Northbound I-605</b>                |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| NB I-605 Off-Ramp/Alondra Boulevard    | C                        | C             | C          | C                                | C                                   | C   | D                        | C             | C          | C                                | C                                   | C   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605

LOS = level of service

NB = northbound

SR-91 = State Route 91

WB = westbound

**Table 7 Freeway Mainline Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2044 No-Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>   |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Carmenita Road Off-Ramp to 183rd Street On-Ramp                    | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard Off-Ramp to Artesia Boulevard On-Ramp            | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Artesia Boulevard On-Ramp to Bloomfield Avenue On-Ramp             | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Loop On-Ramp       | C                        | D             | C          | -                                | C                                   | C   | D                        | D             | D          | -                                | D                                   | D   |
| Norwalk Boulevard Loop On-Ramp to Norwalk Boulevard Direct On-Ramp | D                        | D             | -          | -                                | -                                   | -   | D                        | D             | -          | -                                | -                                   | -   |
| Norwalk Boulevard Off-Ramp to Norwalk Boulevard Direct On-Ramp     | -                        | -             | -          | C                                | -                                   | -   | -                        | -             | -          | D                                | -                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Loop On-Ramp       | D                        | D             | C          | -                                | C                                   | C   | D                        | D             | -          | D                                | D                                   | D   |
| Pioneer Boulevard Loop On-Ramp to Pioneer Boulevard Direct On-Ramp | D                        | D             | -          | -                                | D                                   | -   | D                        | D             | -          | D                                | -                                   | -   |
| Pioneer Boulevard Off-Ramp to Pioneer Boulevard Direct On-Ramp     | -                        | -             | -          | C                                | -                                   | -   | -                        | -             | -          | D                                | -                                   | -   |
| I-605 Off-Ramp (NB & SB) to Studebaker Road Off-Ramp               | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to Lane Drop                              | -                        | -             | C          | C                                | C                                   | C   | -                        | -             | C          | C                                | C                                   | C   |
| Studebaker Road Off-Ramp to I-605 NB/WB SR-91 Loop On-Ramp         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | -                                   | -   |
| Lane Drop to I-605 NB On-Ramp                                      | -                        | -             | C          | C                                | C                                   | C   | -                        | -             | D          | D                                | D                                   | D   |
| I-605 NB/WB SR-91 Loop On-Ramp to I-605 SB/WB SR-91 On-Ramp        | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605

LOS = level of service

NB = northbound

SB = southbound

SR-91 = State Route 91

WB = westbound

**Table 8 Freeway Weaving Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Segment Location   | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>   |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| 183rd Street On-Ramp to Artesia Boulevard Off-Ramp             | C                        | C             | D          | D                                | D                                   | D   | C                        | D             | D          | D                                | D                                   | D   |
| Bloomfield Avenue On-Ramp to Norwalk Boulevard Off-Ramp        | C                        | D             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Direct On-Ramp to Pioneer Boulevard Off-Ramp | D                        | D             | D          | D                                | D                                   | D   | D                        | D             | D          | D                                | D                                   | D   |
| Pioneer Boulevard Direct On-Ramp to I-605 Off-Ramp (NB & SB)   | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |
| <b>Northbound I-605</b>  |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| SR-91 WB On-Ramp to Alondra Boulevard Off-Ramp                 | F                        | F             | F          | F                                | F                                   | F   | F                        | F             | F          | F                                | F                                   | F   |

Source: Intueor Consulting, Inc. (2017).

Note: Shaded cells indicate unsatisfactory LOS levels (i.e., LOS E or F).

I-605 = Interstate 605 SB = southbound

LOS = level of service SR-91 = State Route 91

NB = northbound WB = westbound

**Table 9 Freeway Merge and Diverge Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Junction                       | Merge/Diverge | AM Peak-Hour LOS         |               |            |                                  |                                     |   | PM Peak-Hour LOS         |               |            |                                  |                                     |   |
|--------------------------------|---------------|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|--------------------------|---------------|------------|----------------------------------|-------------------------------------|---|
|                                |               | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/ 168th Alignment Design Option |
| <b>Westbound SR-91</b>         |               |                          |               |            |                                  |                                     |   |                          |               |            |                                  |                                     |   |
| Artesia Boulevard On-Ramp      | Merge         | C                        | C             | C          | C                                | C                                   | C   | C                        | C             | D          | D                                | D                                   | D   |
| Norwalk Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | -                                   | -   | C                        | C             | -          | -                                | -                                   | -   |
| Pioneer Boulevard Loop On-Ramp | Merge         | C                        | C             | -          | -                                | C                                   | -   | C                        | C             | -          | -                                | C                                   | -   |
| Studebaker Road Off-Ramp       | Diverge       | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | C          | C                                | C                                   | C   |
| I-605 NB On-Ramp               | Merge         | C                        | C             | C          | C                                | C                                   | C   | D                        | D             | D          | D                                | D                                   | D   |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605 NB = northbound

LOS = level of service SR-91 = State Route 91

**Table 10 Intersection Level of Service Analysis – Year 2016 Existing Conditions vs. Year 2044 Horizon Year**

| Junction                               | AM Peak-Hour LOS         |               |            |                                  |                                     |  | PM Peak-Hour LOS         |               |            |                                  |                                     |  |
|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|--------------------------|---------------|------------|----------------------------------|-------------------------------------|--|
|  | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option | 2016 Existing Conditions | 2044 No Build | 2044 Build | 2044 Diamond Ramps Design Option | 2024 Pioneer Blvd L-9 Design Option | 2024 Pioneer Blvd WB Ramps/168th Alignment Design Option |
| <b>Westbound SR-91</b>                 |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| WB SR-91 Off-Ramp/Artesia Boulevard    | C                        | B             | B          | B                                | B                                   | B  | B                        | B             | B          | B                                | B                                   | B  |
| Bloomfield Avenue/WB SR-91 On-Ramp     | B                        | B             | B          | B                                | B                                   | B  | B                        | B             | B          | B                                | B                                   | B  |
| Norwalk Boulevard/WB SR-91 Off-Ramp    | A                        | A             | -          | -                                | -                                   | -  | A                        | A             | -          | -                                | -                                   | -  |
| Norwalk Boulevard/WB SR-91 On-Off Ramp | -                        | -             | C          | B                                | C                                   | C  | -                        | -             | B          | A                                | B                                   | B  |
| Pioneer Boulevard/WB SR-91 Off-Ramp    | A                        | A             | -          | -                                | -                                   | -  | A                        | A             | -          | -                                | -                                   | -  |
| Pioneer Boulevard/WB SR-91 On-Off Ramp | -                        | -             | C          | B                                | B                                   | C  | -                        | -             | C          | B                                | B                                   | C  |
| Studebaker Road/WB SR-91 Off-Ramp      | B                        | B             | C          | C                                | C                                   | C  | A                        | A             | B          | B                                | B                                   | B  |
| <b>Northbound I-605</b>                |                          |               |            |                                  |                                     |  |                          |               |            |                                  |                                     |  |
| NB I-605 Off-Ramp/Alondra Boulevard    | C                        | C             | C          | C                                | C                                   | C  | D                        | C             | C          | C                                | C                                   | C  |

Source: Intueor Consulting, Inc. (2017).

I-605 = Interstate 605      SR-91 = State Route 91

LOS = level of service      WB = westbound

NB = northbound



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# FHWA Project Level Conformity Determination

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U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Federal Highway Administration  
California Division**

January 9, 2019

650 Capitol Mall, Suite 4-100  
Sacramento, CA 95814  
(916) 498-5001  
(916) 498-5008 (fax)

In Reply Refer To:  
HDA-CA

John Bulinski, District Director  
California Department of Transportation  
District 7  
100 South Main Street, Suite 100  
Los Angeles, CA 90012-3606

Attention: Andrew Yoon

**SUBJECT: Project Level Conformity Determination for the West Bound SR-91 Improvement Project (FTIP ID# LA0G1119)**

Dear Mr. Bulinski:

On December 15, 2018, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the West Bound SR-91 Improvement Project. The project is in an area that is designated Non-Attainment or Maintenance for Ozone, PM10 and PM2.5.

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Southern California Association of Governments' (SCAG) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

Based on the information provided, FHWA finds that the West Bound SR-91 Improvement Project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn at (916) 498-5346 or at [Joseph.Vaughn@dot.gov](mailto:Joseph.Vaughn@dot.gov).

Sincerely,

Tashia J. Clemons  
Director, Planning and Environment



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**USFWS IPaC Species List**

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# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Carlsbad Fish And Wildlife Office  
2177 Salk Avenue - Suite 250  
Carlsbad, CA 92008-7385  
Phone: (760) 431-9440 Fax: (760) 431-5901  
<http://www.fws.gov/carlsbad/>

In Reply Refer To:

December 17, 2018

Consultation Code: 08ECAR00-2018-SLI-0707

Event Code: 08ECAR00-2019-E-00721

Project Name: Westbound State Route 91 Improvement Project (EA 29811)

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Carlsbad Fish And Wildlife Office**

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

(760) 431-9440

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## Project Summary

Consultation Code: 08ECAR00-2018-SLI-0707

Event Code: 08ECAR00-2019-E-00721

Project Name: Westbound State Route 91 Improvement Project (EA 29811)

Project Type: TRANSPORTATION

Project Description: The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia, propose to widen and improve approximately 3 miles (mi) of freeway along westbound State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange. The study area includes westbound SR-91 (Post Miles [PM] 16.9–19.8) and northbound I-605 (PM 5.0–5.8) and traverses the cities of Cerritos and Artesia.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.87722020350006N118.08322091323316W>



Counties: Los Angeles, CA

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## Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

| NAME  | STATUS     |
|---|------------|
| Pacific Pocket Mouse <i>Perognathus longimembris pacificus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8080">https://ecos.fws.gov/ecp/species/8080</a> | Endangered |

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## Birds

| NAME   | STATUS     |
|--|------------|
| California Least Tern <i>Sterna antillarum browni</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>   | Endangered |
| Coastal California Gnatcatcher <i>Polioptila californica californica</i><br>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8178">https://ecos.fws.gov/ecp/species/8178</a>  | Threatened |
| Least Bell's Vireo <i>Vireo bellii pusillus</i><br>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/5945">https://ecos.fws.gov/ecp/species/5945</a>   | Endangered |
| Western Snowy Plover <i>Charadrius nivosus nivosus</i><br>Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast)<br>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/8035">https://ecos.fws.gov/ecp/species/8035</a> | Threatened |

## Flowering Plants

| NAME  | STATUS     |
|---|------------|
| Salt Marsh Bird's-beak <i>Cordylanthus maritimus ssp. maritimus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/6447">https://ecos.fws.gov/ecp/species/6447</a>  | Endangered |
| Ventura Marsh Milk-vetch <i>Astragalus pycnostachyus var. lanosissimus</i><br>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/1160">https://ecos.fws.gov/ecp/species/1160</a> | Endangered |

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **Posted Notice of Availability**

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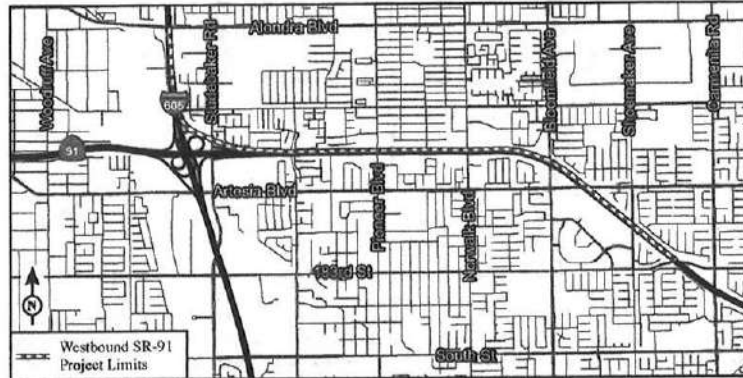


# PUBLIC NOTICE

JUL 18 2018

LOS ANGELES, COUNTY CLERK

**Notice of Intent to Adopt a Negative Declaration  
 Notice of Availability of an Initial Study/Environmental Assessment  
 Study Results Available  
 Announcement of Public Hearing  
 Westbound SR-91 (between Shoemaker Avenue and the I-605  
 Interchange) Improvement Project**



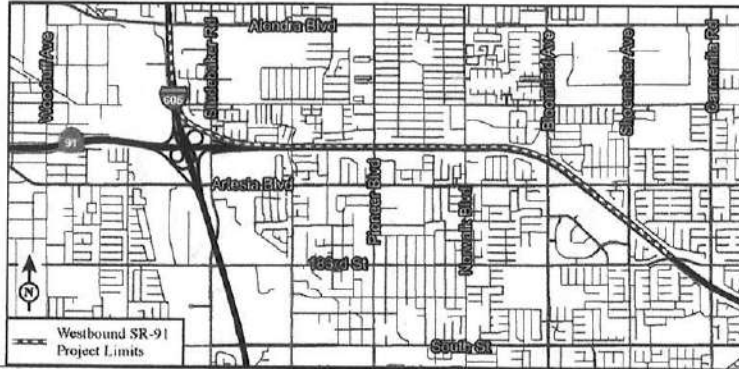
|  |  |  |  |
|--|--|--|--|
| <p><b>WHAT'S BEING PLANNED?</b></p>  | <p>The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the Cities of Cerritos and Artesia, propose improvements along westbound State Route 91 (SR-91) between approximately Shoemaker Avenue and the Interstate 605 (I-605) interchange, and at the I-605 northbound exit to Alondra Boulevard. The purpose of the Westbound SR-91 Improvement Project (project) is to reduce congestion and improve freeway operations (both mainline and ramps), improve safety, and improve local and system interchange operations.</p> <p>A No-Build Alternative and a Build Alternative are proposed for the project. The Build Alternative would add one mixed flow lane, modify existing interchanges, improve existing freeway design features, and other operational improvements in the westbound direction of SR-91 and at the I-605 northbound exit to Alondra Boulevard. Five Design Options for the Build Alternative were also evaluated in the environmental document. These Design Options include varying lane and shoulder widths on westbound SR-91, varying interchange configurations at Pioneer Boulevard and Norwalk Boulevard, as well as varying bridge widths on the Gridley Lane overcrossing.</p> |  |  |
| <p><b>WHY THIS AD?</b></p>   | <p>Caltrans has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of the environment. The report that explains the justification for the conclusion is called an Initial Study/Environmental Assessment (IS/EA). This notice is to inform you of the preparation of the proposed Negative Declaration (ND) and IS/EA and of its availability for your review. A public hearing will be held to provide you with an opportunity to discuss the proposed work with Caltrans staff and provide public comments before the final project design is selected.</p>   |  |  |
| <p><b>WHAT'S AVAILABLE?</b></p>  | <p>The proposed ND and IS/EA and other project information are available for review and copying (for a fee) at the Caltrans District 7 Office, 100 S Main Street, Los Angeles, California 90012, on weekdays from 8:00 a.m. to 5:00 p.m. The proposed ND and IS/EA are also available for review at the following locations during normal business hours:</p> <ul style="list-style-type: none"> <li>• Artesia Library, 18801 Elaine Avenue, Artesia, CA 90701</li> <li>• Cerritos Library, 18025 Bloomfield Avenue, Cerritos, CA 90703</li> </ul> <p>In addition, the documents are available online at <a href="http://www.metro.net/projects/wb-sr-91/">www.metro.net/projects/wb-sr-91/</a> and <a href="http://www.dot.ca.gov/d7/env-docs/">http://www.dot.ca.gov/d7/env-docs/</a></p>  |  |  |
| <p><b>WHERE YOU COME IN</b></p>  | <p>Do you have any comments about processing the project with a proposed ND and IS/EA? Do you disagree with the findings of our study as set forth in the proposed ND? Would you care to make any other comments on the project? Please submit your comments in writing no later than August 16, 2018 to Jinous Saleh, Senior Environmental Planner, Caltrans District 7, Division of Environmental Planning, 100 South Main Street, Suite MS 16A, Los Angeles, CA 90012 or via e-mail to <a href="mailto:jinous.saleh@dot.ca.gov">jinous.saleh@dot.ca.gov</a>. We will begin accepting comments on July 18 through August 16, 2018.</p>   |  |  |
| <p><b>WHEN &amp; WHERE?</b></p>  | <table border="0"> <tr> <td> <p><b>Public Hearing #1</b><br/> <b>Date:</b> Wednesday, August 1, 2018<br/> <b>Time:</b> 6:00pm – 8:00pm<br/> <b>Place:</b> Cerritos Center for the Performing Arts<br/>                     18000 Park Plaza Drive, Cerritos, CA 90703</p> </td> <td> <p><b>Public Hearing #2</b><br/> <b>Date:</b> Thursday, August 2, 2018<br/> <b>Time:</b> 6:00pm – 8:00pm<br/> <b>Place:</b> Albert O. Little Community Center<br/>                     18750 Clarkdale Avenue, Artesia, CA 90701</p> </td> </tr> </table>   | <p><b>Public Hearing #1</b><br/> <b>Date:</b> Wednesday, August 1, 2018<br/> <b>Time:</b> 6:00pm – 8:00pm<br/> <b>Place:</b> Cerritos Center for the Performing Arts<br/>                     18000 Park Plaza Drive, Cerritos, CA 90703</p> | <p><b>Public Hearing #2</b><br/> <b>Date:</b> Thursday, August 2, 2018<br/> <b>Time:</b> 6:00pm – 8:00pm<br/> <b>Place:</b> Albert O. Little Community Center<br/>                     18750 Clarkdale Avenue, Artesia, CA 90701</p> |
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## AVISO PÚBLICO

**Aviso sobre la intención de adoptar una Declaración Negativa**  
**Aviso de disponibilidad de un Estudio Inicial/Evaluación Ambiental**  
**Resultados disponibles del estudio**  
**Anuncio de Audiencia Pública**  
**Proyecto sobre las mejoras en el carril con dirección oeste de la autopista SR-91**  
**(entre Shoemaker Avenue y la intersección con la autopista I-605)**



|  |  |  |  |
|--|--|--|--|
| <p><b>¿QUÉ ES LO QUE HA SIDO PLANEANDO?</b></p>  | <p>El Distrito 7 del Departamento de Transporte de California (Caltrans) y la Autoridad de Transporte Metropolitano del Condado de Los Ángeles (Metro), en colaboración con el Consejo de los gobiernos municipales de las ciudades Gateway (GCCOG, por sus siglas en inglés) y las alcaldías de las ciudades de Cerritos y Artesia, proponen mejoras a lo largo de los carriles con dirección oeste de la Ruta Interestatal 91 (SR-91), aproximadamente entre Shoemaker Avenue y la intersección con la Autopista Interestatal 605 (I-605) y la salida a Alondra Boulevard desde el carril con dirección norte de la I-605. El propósito del Proyecto de Mejoras de la Autopista SR-91 en Dirección Oeste (Proyecto) es el de reducir el congestionamiento y mejorar las operaciones de la autopista (en los carriles principales y las rampas), mejorar la seguridad y mejorar las operaciones en las intersecciones locales y del sistema.</p> <p>Se proponen para el proyecto una alternativa que no incluye construcción y otra que si contempla construcciones. La alternativa que incluye construcciones añadiría un carril de flujo mixto, modificaría las intersecciones actuales, mejoraría los elementos del diseño actual de la autopista y haría otras mejoras operacionales en el carril con dirección oeste de la SR-91 y en la salida a Alondra Boulevard del carril con dirección norte de la I-605. Se evaluaron también en el documento ambiental cinco opciones de diseño para la alternativa que incluye construcciones. Estas opciones de diseño incluyen la variación en el ancho del carril con dirección oeste de la SR-91 y su arcén, la variación en las configuraciones de la intersección entre Pioneer Boulevard y Norwalk Boulevard, así como una variación en el ancho del puente del paso a desnivel de Gridley Lane.</p> |  |  |
| <p><b>¿POR QUÉ SE HACE ESTE ANUNCIO?</b></p>   | <p>Caltrans ha estudiado los efectos que este proyecto pudiera tener en el medio ambiente. Nuestros estudios muestran que no habrá un efecto significativo en la calidad del medio ambiente. El informe que explica la justificación de esta conclusión se denomina Estudio Inicial/Evaluación Ambiental (IS/EA, por sus siglas en inglés). El presente aviso tiene el fin de informarle acerca de la preparación de la propuesta de Declaración Negativa (ND) y del IS/EA, así como de su disponibilidad para su consulta. Se llevará a cabo una audiencia pública para darle la oportunidad de hablar con el personal de Caltrans sobre el trabajo propuesto y para presentar sus comentarios antes de seleccionar el diseño final del proyecto.</p>   |  |  |
| <p><b>¿QUÉ ES LO QUE ESTÁ DISPONIBLE?</b></p>  | <p>La propuesta de la ND y del IS/EA, así como otra información sobre el proyecto, se encuentran disponibles para su revisión y fotocopiado (pagando una cuota), en la Oficina del Distrito 7 de Caltrans, ubicada en 100 S Main Street, Los Angeles, California 90012, solo durante los días laborables de la semana, de 8:00 a.m. a 5:00 p.m. La propuesta de la ND y del IS/EA están también disponibles para su consulta en los siguientes lugares durante horas laborables normales:</p> <ul style="list-style-type: none"> <li>• Artesia Library, 18801 Elaine Avenue, Artesia, CA 90701</li> <li>• Cerritos Library, 18025 Bloomfield Avenue, Cerritos, CA 90703</li> </ul> <p>Así mismo, los documentos están disponibles en internet, visitando <a href="http://www.metro.net/projects/wb-sr-91/">www.metro.net/projects/wb-sr-91/</a> y <a href="http://www.dot.ca.gov/d7/env-docs/">http://www.dot.ca.gov/d7/env-docs/</a></p>  |  |  |
| <p><b>¿DÓNDE INTERVIENE USTED?</b></p>   | <p>¿Tiene algún comentario sobre el proceso del proyecto, el ND y el IS/EA? ¿Está usted en desacuerdo con los resultados de nuestro estudio, tal como se establecen en la propuesta de la ND? ¿Le gustaría hacer algún otro comentario sobre el proyecto? Envíe sus comentarios por escrito, a más tardar hasta el 16 de agosto de 2018, dirigidos a Jinous Saleh, Planificador Ambiental en Jefe de la División de Planeamiento Ambiental del Distrito 7 de Caltrans, 100 South Main Street, Suite MS 16A, Los Angeles, CA 90012 o a través de correo electrónico a la dirección <a href="mailto:jinous.saleh@dot.ca.gov">jinous.saleh@dot.ca.gov</a>. Empezaremos a aceptar los comentarios a partir del 18 de julio hasta el 16 de agosto de 2018.</p>  |  |  |
| <p><b>¿CUÁNDO Y DÓNDE?</b></p>   | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p><b>Audiencia Pública N° 1</b><br/> <b>Fecha:</b> Miércoles 1 de agosto de 2018<br/> <b>Hora:</b> 6:00pm a 8:00pm<br/> <b>Lugar:</b> Cerritos Center for the Performing Arts<br/> 18000 Park Plaza Drive, Cerritos, CA 90703</p> </td> <td style="width: 50%; border: none;"> <p><b>Audiencia Pública N° 2</b><br/> <b>Fecha:</b> Jueves 2 de agosto de 2018<br/> <b>Hora:</b> 6:00pm a 8:00pm<br/> <b>Lugar:</b> Albert O. Little Community Center<br/> 18750 Clarkdale Avenue, Artesia, CA 90701</p> </td> </tr> </table>   | <p><b>Audiencia Pública N° 1</b><br/> <b>Fecha:</b> Miércoles 1 de agosto de 2018<br/> <b>Hora:</b> 6:00pm a 8:00pm<br/> <b>Lugar:</b> Cerritos Center for the Performing Arts<br/> 18000 Park Plaza Drive, Cerritos, CA 90703</p> | <p><b>Audiencia Pública N° 2</b><br/> <b>Fecha:</b> Jueves 2 de agosto de 2018<br/> <b>Hora:</b> 6:00pm a 8:00pm<br/> <b>Lugar:</b> Albert O. Little Community Center<br/> 18750 Clarkdale Avenue, Artesia, CA 90701</p> |
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| <p><b>CONTACTOS</b></p>  | <p>Se pide que las personas que requieran adaptaciones especiales (Intérprete en lenguaje de señas estadounidense, asientos accesibles, documentación elaborada en un formato alternativo, etc.) contacten a Jinous Saleh llamando al (213) 897-0683, con al menos 21 días de anticipación a la fecha programada para la audiencia, o utilicen el Servicio de Retransmisión de California (California Relay) al 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (voz).</p>  |  |  |

Dean C. Logan  
Los Angeles County Registrar / Recorder  
12400 Imperial Highway, Norwalk, CA  
(800)201-8999

BUSINESS FILINGS REGISTRATION  
NORWALK DEPARTMENT HEADQUARTER

Cashier: I. CORREA



Wednesday, July 18, 2018 9:11 AM

Item(s)

| <u>Fee</u>                     | <u>Qty</u> | <u>Total</u>  |
|--------------------------------|------------|---------------|
| NoA - County Fee<br>2018176720 | 1          | \$0.00        |
| <b>Total</b>                   |            | <b>\$0.00</b> |

Total Documents:

1

Customer payment(s):

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## **Postcard Announcement**



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metro.net/605hotspots

# Westbound SR-91 Improvements Project

Metro and Caltrans District 7 are proposing to make improvements along westbound SR-91, between Shoemaker Av and the I-605/SR-91 Interchange, and at the I-605 northbound exit to Alondra Bl.

Technical studies and preliminary design work on the project alternatives have been conducted and are compiled in a Draft Environmental Document (DED). The DED is available for 30 days for public review and comment both online and at local libraries (see project website for details). Public comments will be accepted through August 16, 2018.

Agenda and presentation materials will be the same for both meetings. Please attend the community meeting that is most convenient for you.

## Join Us!

**Wednesday, August 1, 2018**

**6 - 8pm**

Cerritos Center for the Performing Arts

18000 Park Plaza Dr

Cerritos, CA 90703

**Thursday, August 2, 2018**

**6 - 8pm**

Albert O. Little Community Center

18750 Clarkdale Av

Artesia, CA 90701

Both locations provide free parking and are accessible by transit.

Download the Draft Environmental Document (DED) at:

<https://www.metro.net/projects/wb-sr-91/>

<http://www.dot.ca.gov/d7/env-docs/>

All Metro meetings are held in ADA accessible facilities and are accessible by transit. ADA accommodations and translations are available by calling 213.922.3012 at least 72 hours in advance.

### STAY CONNECTED:

213.922.4782

[wbsr91@metro.net](mailto:wbsr91@metro.net)

[metro.net/605hotspots](http://metro.net/605hotspots)

323.466.3876 x2  
*Español*

323.466.3876 x3

한국어

中文

ភាសាខ្មែរ

Tiếng Việt

日本語

русский

ภาษาไทย

ព្រំប្រទល់



Metro



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## **Newspaper Advertisements**



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**News feed**

**LOS ALAMOS FACILITY**

**Secretary Perry's alma mater says he didn't tilt nuke lab bid**

**AUSTIN, TEXAS** » Texas A&M University leaders said Tuesday Energy Secretary Rick Perry wasn't involved in his alma mater getting a \$2.5 billion nuclear weapons lab contract at the birthplace of the atomic bomb, which is changing management after years of safety and security lapses.

The new director over Los Alamos National Laboratory near Santa Fe, New Mexico, also defended the University of California staying on with the lab despite being part of the current team that is losing the job over a checkered record and missed goals.

At a time when the U.S. is pushing to restart production of plutonium cores for the nation's nuclear arsenal, a new consortium called Triad National Security LLC is taking over the lab that began in the 1940s as part of the Manhattan Project. Triad won the bid in June and is comprised of Texas A&M, the University of California and Ohio-based Battelle Memorial Institute.

— *The Associated Press*

**ROME**



GREGORIO BORGIA — THE ASSOCIATED PRESS

**Taking in the sights:** Tourists enjoy slices of pizza Tuesday as they sit in front of Rome's Colosseum. Over 4 million tourists visit the popular destination each year.

**MIDTERM ELECTIONS**

**Many state lawmakers accused of sexual misconduct**

**ATLANTA** » Allegations of sexual misconduct against Kentucky lawmakers have become so common that the statehouse has seemed more like a frat house: Seven have faced accusations, including four who settled secretly with a female legislative aide.

Voters' response? Mostly, keep them in office.

Of the five lawmakers up for re-election this year, three easily made it through their party primaries and will be favored to retain their seats in November. The other two chose not to run.

It's not just Kentucky. An Associated Press review finds that 25 state lawmakers who have been accused of sexual misconduct are running for re-election or another office this year. Of those, 15 have already advanced to the general election.

In California, of the six state lawmakers who faced misconduct allegations and ran for re-election or another office, four advanced. That includes two women.

— *The Associated Press*

**CONCERT MASSACRE**

**MGM sues mass shooting victims, argues it isn't liable**

**LAS VEGAS** » MGM Resorts International has sued hundreds of victims of the deadliest mass shooting in modern U.S. history in a bid to avoid liability for the gunfire that rained down from its Mandalay Bay casino-resort in Las Vegas.

The company argues in lawsuits filed Friday in Nevada and California that it has "no liability of any kind" to survivors or families of slain victims under a federal law enacted after the Sept. 11 terrorist attacks.

The lawsuits target victims who have sued the company and voluntarily dismissed their claims or have threatened to sue after a gunman fired from a Mandalay Bay suite.

High-stakes gambler Stephen Paddock killed 58 people and injured hundreds more last year before killing himself. Victims with active lawsuits against MGM don't face the company's legal claim.

MGM says the 2002 law limits liabilities.

— *The Associated Press*

**SOUTH AFRICA**

**Obama gives Trump sharp rebuke in address on values**

**JOHANNESBURG** » Without ever mentioning President Donald Trump by name, former U.S. President Barack Obama on Tuesday took aim at "strongman politics" in his highest-profile speech since leaving office, urging people around the world to respect human rights and other values now under threat in an impassioned address marking the 100th anniversary of anti-apartheid leader Nelson Mandela's birth.

Obama's speech to a cheering crowd of thousands in South Africa countered many of Trump's policies, rallying people around the world to keep alive the ideas that Mandela worked for including democracy, diversity and tolerance. Obama opened by calling today's times "strange and uncertain," adding that "each day's news cycle is bringing more head-spinning and disturbing headlines."

These days "we see much of the world threatening to return to a more dangerous, more brutal, way of doing business," he said.

— *The Associated Press*

**WHITE HOUSE**

**New Air Force One will be painted red, white and blue**

**WASHINGTON** » President Donald Trump has ordered a bold, new paint job for Air Force One.

In an interview with CBS News, Trump said that two new replacements of the presidential jet due to be unveiled in several years will be painted red, white and blue, in a departure from the plane's current light-blue color scheme.

"I said, 'I wonder if we should use the same baby blue colors?' And we're not. You know what colors we're using? Take a guess," Trump told CBS' Jeff Glor. "Red, white and blue."

Trump made the comments in an interview that aired Tuesday.

He added he likely won't get the chance to fly in it himself as president, or at least, not for long.

The new Air Force One "will be largely for future presidents, because by the time it gets built — I hate to say this — it's going to be a long time; it's a very complex project," Trump said.

— *The Washington Post*

**NEW ORLEANS**

**Zoo director: Jaguar may have bitten through steel cable**

**NEW ORLEANS** » A jaguar that killed nine other animals during a week-end escape from its habitat at the Audubon Zoo is believed to have bitten through a steel-cable barrier that forms the roof of its habitat, the zoo's managing director said Tuesday.

Kyle Burks told reporters at a zoo news conference the jaguar apparently slipped through the resulting small gap in the cables. He estimated the hole to be about 8 inches by 10 inches.

The interlocking steel cables that form what looks like a hard net over the habitat meet Association of Zoos and Aquariums guidelines but zoo officials are now looking for stronger materials, Burks said. "We haven't determined the final material we're going to use yet," he said. Meanwhile, the jaguar exhibit will remain closed.

No people were hurt during the escape. The animal was tranquilized and was safely removed.

— *The Associated Press*

**Online:** For continuous coverage of national and international news, go to our website.

**PUBLIC NOTICE**

Notice of Intent to Adopt a Negative Declaration  
 Notice of Availability of an Initial Study/Environmental Assessment  
 Study Results Available  
 Announcement of Public Hearing  
 Westbound SR-91 Improvements Project  
 (between Shoemaker Avenue and the I-605 Interchange)

**WHAT'S BEING PLANNED?** The California Department of Transportation (Caltrans) District 7 and the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the Gateway Cities Council of Governments (GCCOG) and the cities of Cerritos and Artesia, propose improvements along westbound State Route 91 (SR-91) between approximately Shoemaker Av and the Interstate 605 (I-605) interchange, and at the I-605 northbound exit to Alondra Bl. The purpose of the Westbound SR-91 Improvement Project (project) is to reduce congestion and improve freeway operations (both mainline and ramps), safety, and local and system interchange operations.

A No-Build Alternative and a Build Alternative are proposed for the project. The Build Alternative would add one mixed flow lane, modify existing interchanges, improve existing freeway design features, and other operational improvements in the westbound direction of SR-91 and at the I-605 northbound exit to Alondra Bl. Five Design Options for the Build Alternative were also evaluated in the environmental document. These Design Options include varying lane and shoulder widths on westbound SR-91, varying interchange configurations at Pioneer Bl and Norwalk Bl, as well as varying bridge widths on the Gridley Ln overcrossing.

**WHY THIS AD?** Caltrans has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of the environment. The report that explains the justification for the conclusion is called an Initial Study/Environmental Assessment (IS/EA). This notice is to inform you of the preparation of the proposed Negative Declaration (ND) and IS/EA and of its availability for your review. A public hearing will be held to provide you with an opportunity to discuss the proposed work with Caltrans staff and provide public comments before the final project design is selected.

**WHAT'S AVAILABLE?** The proposed ND and IS/EA and other project information are available for review and copying (for a fee) at the Caltrans District 7 Office, 100 S Main St, Los Angeles, CA 90012, on weekdays from 8am – 5pm. The proposed ND and IS/EA are also available for review at the following locations during normal business hours:

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- Cerritos Library, 18025 Bloomfield Av, Cerritos, CA 90703

In addition, the documents are available online at [www.metro.net/projects/wb-sr-91/](http://www.metro.net/projects/wb-sr-91/) and <http://www.dot.ca.gov/d7/env-docs/>

**WHERE YOU COME IN?** Do you have any comments about processing the project with a proposed ND and IS/EA? Do you disagree with the findings of our study as set forth in the proposed ND? Would you care to make any other comments on the project? Please submit your comments in writing no later than August 16, 2018 to Jinous Saleh, Senior Environmental Planner, Caltrans District 7, Division of Environmental Planning, 100 South Main St, Suite MS 16A, Los Angeles, CA 90012 or via e-mail to [jinous.saleh@dot.ca.gov](mailto:jinous.saleh@dot.ca.gov). We will begin accepting comments on July 18 through August 16, 2018.

**WHEN & WHERE:**

|  |   |
|--|---|
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TOO TOXIC TO TRASH

Household Hazardous Waste & Electronic Waste Roundup

Saturday, July 21, 2018  
9:00 am - 3:00 pm

Cerritos College Stadium Parking Lot C-1  
11110 Alondra Blvd.  
Norwalk

No Business Waste Accepted

For more information or an event schedule, contact:

1(888) CLEAN-LA,  
[www.CleanLA.com](http://www.CleanLA.com)  
or 1(800) 238-0172  
[www.lacsd.org](http://www.lacsd.org)

Home-generated sharps waste such as hypodermic needles, pen needles, syringes, lancets, and intravenous needles SHOULD NOT be placed in your trash. Bring them to the Roundups or visit [www.CLEANLA.com](http://www.CLEANLA.com) for alternate disposal options.

You can also take your used motor oil to more than 600 oil recycling centers in Los Angeles County. Call 1(888) CLEAN-LA for a complete listing.



**GATEWAY GUARDIAN**  
Newspaper, Inc.

**Mailing Address**

P.O. Box 4948  
Cerritos, CA 90703-4948  
[www.gatewayguardiannews.com](http://www.gatewayguardiannews.com)

Dedicated to providing a local community newspaper that serves the needs of the community and promotes goodwill throughout the Gateway region.

Our mission is to celebrate diversity, encourage critical thinking, and promote success among merchants, residents and local governments. This mission will be accomplished through the partnership of neighborhoods, businesses and professional organizations that are dedicated to integrity.

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The Gateway Guardian is grateful for the following guest writers who have submitted articles and have contributed to the success of the newspaper: Brad Beach, Edna Ethington, Dr. Bob Hughlett, Leah Nass and many more.

Ad deadline is the Friday before publication date. Camera-ready copy is accepted or custom ads may be designed by the staff.

Declared a legally adjudicated newspaper of general circulation on June 7, 2016, in the County of Los Angeles by Court Case BS-159353

**COMMUNITY calendar**



**CERRITOS:**

**Cerritos City Council Meeting**  
Thursday July 26, 7 p.m. Council Chambers

**Property Preservation Commission Meeting**  
Tuesday July 31, 7 p.m. Council Chambers

**Planning Commission**  
Wednesday August 1, 7 p.m. Council Chambers

**CERRITOS REGIONAL CHAMBER:**

**Multi-Chamber Networking Mixer**  
Wednesday, July 25th, 5pm-7pm  
The Grove at Cerritos  
11000 New Falcon Way  
Cerritos, CA 90703



**Westbound SR-91 Improvements Project**

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**STAY CONNECTED:**

213.922.4782

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**GATEWAY GUARDIAN**

**MAJOR DROP SITES:**

Pick up your copy of the paper at one of the following locations.

- |                              |                              |
|------------------------------|------------------------------|
| ABC School District Office   | Cerritos City Hall & Library |
| Artesia Library              | Cerritos Liberty Park        |
| Artesia City Hall            | Cerritos Park East           |
| Automobile Club in Cerritos  | Cerritos Senior Center       |
| Ave 3 Pizza, Subs & Catering | Cerritos Sheriff's Station   |
| Cerritos Chamber Office      | Cerritos Swim Center         |

**Keep Pets Safe This Summer**

The hot summer months can be uncomfortable and dangerous for pets. Here are some tips for keeping pets safe in the heat:

Limit exercise on hot days. Walk dogs in the early morning or late at night. Pay special attention to pets with white-colored ears (as they are more susceptible to skin cancer) and short-nosed pets, which typically have difficulty breathing. Dogs absorb and release heat through their feet, therefore, walk them on grass or use doggy boots. Bring water to keep pets from dehydrating.

Don't rely on fans, which don't cool off animals as effectively as they do people. If you don't have air-conditioning,

lay down a wet towel for your dog to lie on or simply set up a fan in front of a pan of ice.

Watch for signs of heatstroke, including heavy panting, glazed eyes, a rapid heartbeat, difficulty breathing, excessive thirst, lethargy, fever, dizziness, lack of coordination, profuse salivation, vomiting, a deep red or purple tongue, seizure and unconsciousness. If a dog is suffering from heatstroke, move it into the shade or an air-conditioned area. Apply ice packs or cold towels to its head, neck and chest or run cool (not cold) water over the pet. Give it small amounts of cool water or ice cubes to lick. Take the dog to the veterinarian.



UNIFIED SCHOOL DISTRICT

District Office:  
16700 Norwalk Blvd.  
Cerritos, CA 90703

**Next School Board Meeting:**

**August 21**  
7 p.m.

[www.abcusd.k12.ca.us/pages/ABC\\_Unified\\_School\\_District](http://www.abcusd.k12.ca.us/pages/ABC_Unified_School_District)

**Have You Seen This Cat?**



**Artesia Historical Society**



Invites You to Visit  
**Artesia Historical Museum**  
**Frampton/Dantema House**

18644 Alburty Ave.  
**Old Fire Station #30**  
18641 Corby Ave.

Open the 2nd Saturday of each month from 1-3 p.m.  
Free Admission

**562-865-3107**



**PROOF OF PUBLICATION**

(2015.5C.C.P)

**La Opinión**

915 Wilshire Blvd Ste 800, Los Angeles, CA 90017

Tel: (213)896-2260 • Fax: (213)896-2238

**STATE OF CALIFORNIA**

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of La Opinión a newspaper of general circulation, printed and published daily in the city of Los Angeles, county of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of July 28, 1969, Case Number: 950176; that the notice, of which the annexed is a printed copy, has been published in each regular and not in any supplement thereof on the following dates, to wit:

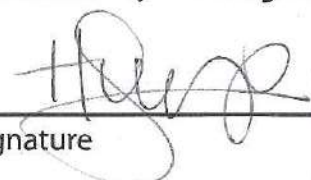
July 25

all in the year 2018

I certified (or declared) under penalty of perjury that the foregoing is true and correct.

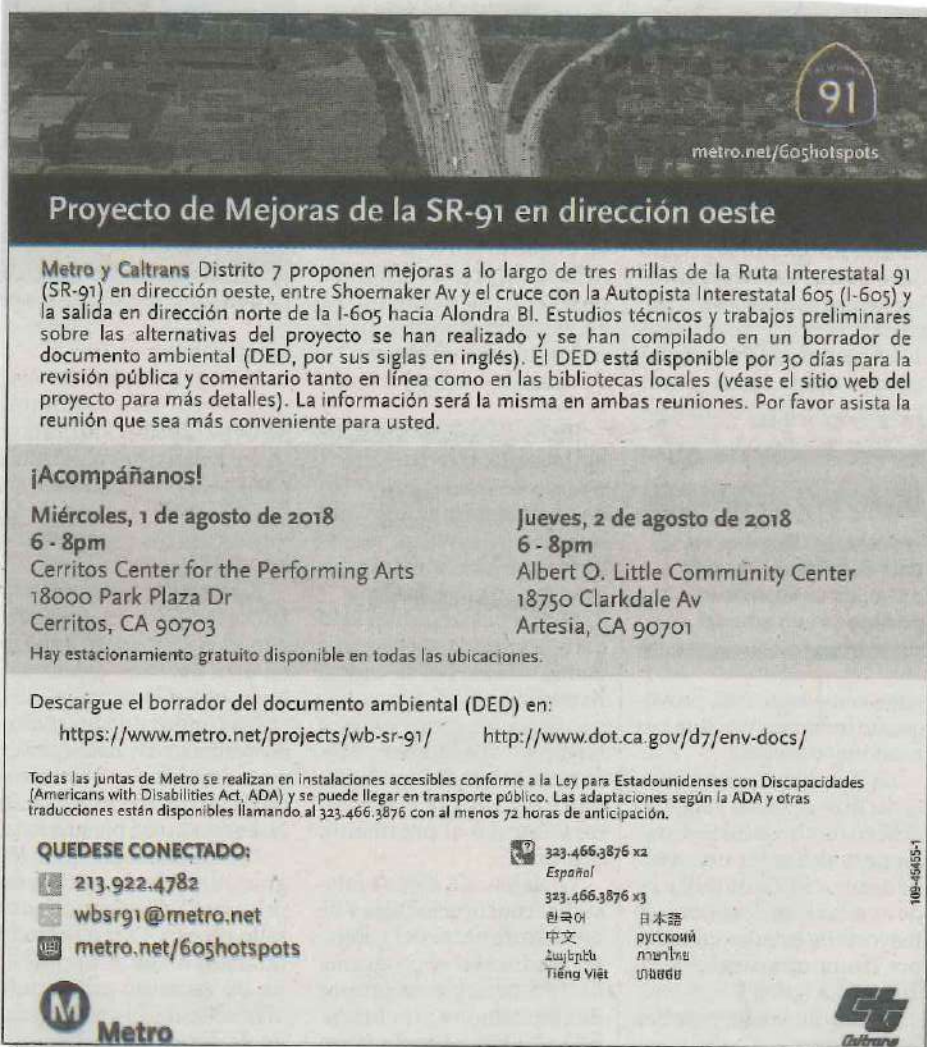
Dated at Los Angeles, California, this

25 day of July, 2018

  
Signature

This space is for the County Clerk's filing Stamp

Proof of publication:



**Proyecto de Mejoras de la SR-91 en dirección oeste**

Metro y Caltrans Distrito 7 proponen mejoras a lo largo de tres millas de la Ruta Interestatal 91 (SR-91) en dirección oeste, entre Shoemaker Av y el cruce con la Autopista Interestatal 605 (I-605) y la salida en dirección norte de la I-605 hacia Alondra Bl. Estudios técnicos y trabajos preliminares sobre las alternativas del proyecto se han realizado y se han compilado en un borrador de documento ambiental (DED, por sus siglas en inglés). El DED está disponible por 30 días para la revisión pública y comentario tanto en línea como en las bibliotecas locales (véase el sitio web del proyecto para más detalles). La información será la misma en ambas reuniones. Por favor asista la reunión que sea más conveniente para usted.

**¡Acompañanos!**

|  |   |
|--|---|
| <b>Miércoles, 1 de agosto de 2018</b><br>6 - 8pm<br>Cerritos Center for the Performing Arts<br>18000 Park Plaza Dr<br>Cerritos, CA 90703 | <b>Jueves, 2 de agosto de 2018</b><br>6 - 8pm<br>Albert O. Little Community Center<br>18750 Clarkdale Av<br>Artesia, CA 90701 |
|--|---|



Hay estacionamiento gratuito disponible en todas las ubicaciones.

Descargue el borrador del documento ambiental (DED) en:  
<https://www.metro.net/projects/wb-sr-91/>    <http://www.dot.ca.gov/d7/env-docs/>

Todas las juntas de Metro se realizan en instalaciones accesibles conforme a la Ley para Estadounidenses con Discapacidades (Americans with Disabilities Act, ADA) y se puede llegar en transporte público. Las adaptaciones según la ADA y otras traducciones están disponibles llamando al 323.466.3876 con al menos 72 horas de anticipación.

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|                         | Հայերեն    עברית    |
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From C.D.N.

世界日報

2013年7月25日 星期三 WEDNESDAY, JULY 25, 2013

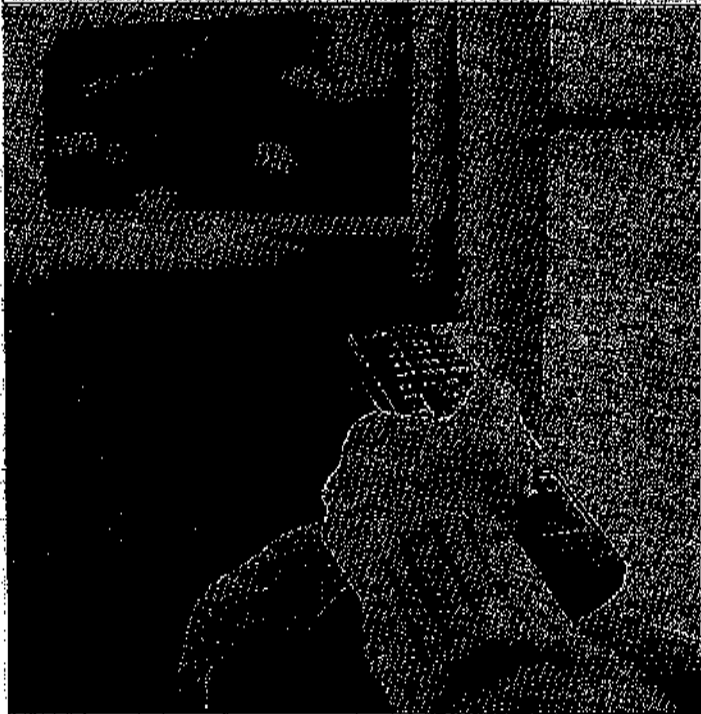
worldjournal.com

# 月固定支出

## 支出成長25% 收入未同步增加

由A.E. Wealth Management 聯合創始人羅森威爾表示，每月經常性房貸支出，有線電視是可以找到存款人個總是關注一不會考慮一年的

成本，更不可能會考慮十年後的成本。例如，他建議，把有線電視每年套餐服務降至基本頻道服務，每月就可省下100元。若把每年1200元投資於利率7%的商品，10年內就能存下1萬7398元。



每個個戶每月固定支出影響，包括房貸、有線電視和附加服務。(美聯社)

# IMF：美元高估了

世界日報與美貿易委員會指出，存在過高經常帳赤字，周二跌至以個月。第一，在指示將進一步指出，與中期基本而所語言

**WJ**

# 建材大展

2013 WJ CONSTRUCTION EXPO

### 建材買賣 經銷·代理 專業平台

展會時間:

8月31日(週五) 10am-6pm

9月1日(週六) 10am-2pm

8月31日與9月1日(週五/六) 10am-2pm  
展覽地點: 聖地牙哥展覽中心

展覽地點:

ALMANSOR COURT

700 S. Almansor St.

Alhambra, CA 91801

報名電話:

323.268.4982 ext 256

## 熱烈招商!



ASTIN ELWYN  
ELIZABETH

FROM C.D.N.

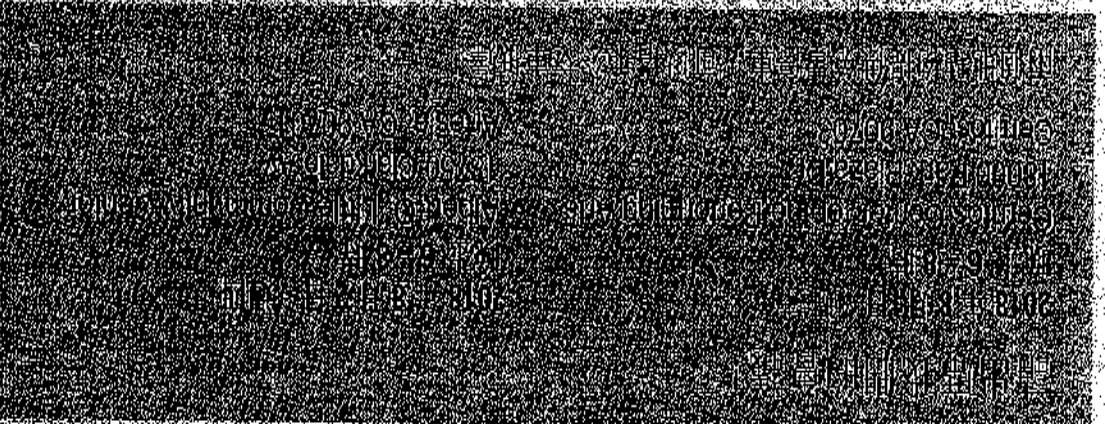
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ELIZABETH



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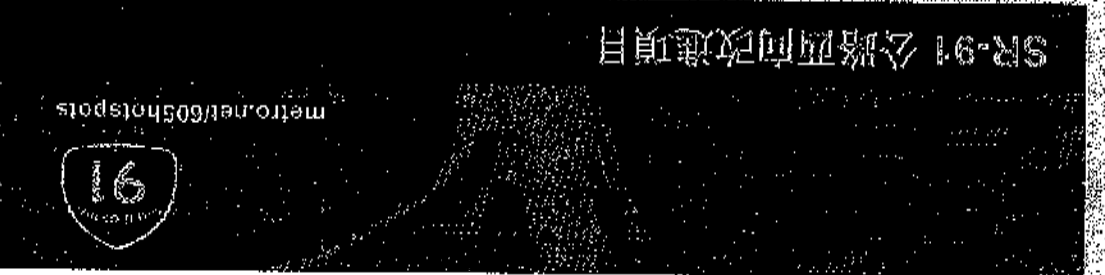
下載環境文件草案 (DEB) 格式  
<https://www.metro.net/projects/wb-sr-91/>  
<http://www.tok.ca.gov/dt/env/docs/>

所有Metro 營運的車站在遵循ADA的無障礙設施進行，並且公車可以抵達。為免提車/24小時撥打213.922.9012，可以獲取ADA便利設施和翻譯服務。



Metro 和 Caltrans District 7 提議對 SR-91 公路西向 Shoemaker Av 和 I-605/SR-91 交通路段以及 I-605 北向與 Alondra Bl 路段進行改進。已經進行初步研究和對替代性方案進行初步設計，並且無損環境文件草案 (DEB) 在網站上和當地圖書館提供免費閱覽和點讀 20 天 (含開項日期)。請詳閱 (青) 民意調查，直接到 2018 年 8 月 6 日。

這兩次會議的議程和填補材料相同，請出席對您最方便的地區會議。





Metro and Caltrans District 7 are proposing to make improvements along westbound SR-91, between Shoemaker Av and the I-605/SR-91 Interchange, and at the I-605 northbound exit to Alondra Bl.

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Agenda and presentation materials will be the same for both meetings. Please attend the community meeting that is most convenient for you.

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18000 Park Plaza Dr  
Cerritos, CA 90703

Thursday, August 2, 2018

6 - 8pm

Albert O. Little Community Center  
18750 Clarkdale Av  
Artesia, CA 90701

Both locations provide free parking and are accessible by transit.

Download the Draft Environmental Document (DED) at:

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http://www.dot.ca.gov/d7/env-docs/

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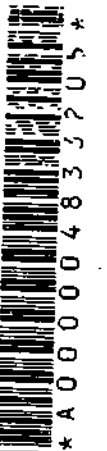
русский

தமிழ்

ไทย



# ROCKET FEVER AT COLUMBIA MEMORIAL SPACE CENTER



BY TAMMYE MCDUFF

Soar into the Columbia Memorial Space Center [CMSC] for the only urban rocket festival in Southern California.

The launch date is set for Saturday, August 18th 10:00 am to 5:00 p.m.

The CMSC will host a variety of rocket related activities throughout the facility.

The event will also feature live entertainment and food trucks including Romolo's Italian Cuisine, My Delight Cupcakery and Kona Ice.

CMSC will be offering specialized rocket building classes for a small fee.

Make sure to come early as are limited and sell out fast activities are free of charge

Joining in the fun, CMF ing with rocket building or such as Aerojet Rocketdyn California Rocket Association, County Rocket Society, and Discount Rocketry.

For more information about the Columbia Memorial Space Center, please call 562.231.1200 or visit www.columbiaspacescience.org.

Columbia Memorial Space Center is located at 12400 Columbia Way, Downey, CA 90242.



# NORWALK HAPPENINGS

## Friday, July 27

**Family Movie Night: Black Panther**, 7:30 pm. Bring your lawn chair and blanket for a screening of "Black Panther" on a 400-ft. outdoor screen. Norwalk Park, 13000 Clarkdale Ave.

**Plants in a Glass**, 7 pm. A fun and entertaining time of planting, digging, and creating your very own succulent terrarium. An instructor will guide you step-by-step through the whole process. All seating is first come, first serve. Cost \$25. Rich Rehearsal Hall, 13200 Clarkdale Ave.

## Saturday, July 28

**Neighborhood Block Party**, 2 pm. Get to know local residents and law enforcement at an afternoon of barbecuing and community-building. Hermosillo Park, 11959 162nd St.

## Tuesday, July 31

**Creating Connections Luncheon**, 11:45 am. Network with other members of Norwalk's business community. Tam's, 11700 Rosecrans Ave.

## Wednesday, August 1

**Live in Concert: LAvation**, 7 pm. The U2 tribute band performs an amazingly accurate show, incorporating stage elements from past U2 concerts. City Hall lawn, 12700 Norwalk Blvd.

## Thursday, August 2

**Kids Beach Bus**, 9 am. Kids ages 8-17 are invited to take a bus to Redondo Beach for a day at the beach. Two pick-up locations: Norwalk Arts & Sports Complex and Social Services Center.

## Friday, August 3

**Family Movie Night: Wonder Woman**, 7:30 pm. Bring your

lawn chair and blanket for a screening of "Wonder Woman" on a 400-ft. outdoor screen. Norwalk Park, 13000 Clarkdale Ave.

## Saturday, Aug. 4

**Mural Unveiling and Block Party**, 11 am to 3 pm. Norwalk Town Square's new "Spread Your Wings" mural will be unveiled. Live music, food, crafts, an art walk contest, and more. Norwalk Town Square, 11633 The Plaza.

## Wednesday, August 8

**Business Expo**, 5-8 pm. Learn more about Norwalk's growing business community. City Hall lawn, 12700 Norwalk Blvd.

**Live in Concert: Soto Band**, 7 pm. Latin funk, R&B rhythms and highly-choreographed dance moves are signatures of a Soto Band concert. City Hall lawn, 12700 Norwalk Blvd.

**National Night Out**, 7 pm. Join friends, neighbors, Sheriff's deputies, Public Safety officers and other first responders in a stand against crime. City Hall lawn, 12700 Norwalk Blvd.

## Thursday, Aug. 9

**State of the Nation**, 11:30 am. Rep. Linda Sanchez (D) gives her annual State of the Nation address. DoubleTree Hotel, 13111 Sycamore Dr.

**Home Improvement Workshop**, 6 pm. Learn about Norwalk's Home Improvement Program, which assists low-income homeowners with household repairs. Norwalk Arts & Sports Complex, 13000 Clarkdale Ave.

## Saturday, August 11

**Aqua Carnival**, 1:30-5:30 pm. In-water and out of water games, water slides, recreational swim, crazy dive contest, and food.

Aquatic Pavilion, 12301 Sproul St.

**End of Summer Bonfire**, 2-11 pm. Mark the end of summer with a bonfire at Bolsa Chica State Beach. \$7 (includes transportation). Call (562) 929-4260 for details.

**Summer Jamz at the Park**, 4-8 pm. Vinyl Funk performs 70s funk and 60s R&B. Plus food booths and games. Gerdes Park, 14700 Gridley Rd.

## Friday, August 17

**Recreational Swim**, 7:45 pm. Get out of the heat and into the pool. The theme is "Glow in the Dark"; dress in theme and receive a treat. Aquatic Pavilion, 12301 Sproul St.

**Friday Flicks: Transformers.**, 8 pm. A free outdoor screening of 'Transformers.' City Hall lawn, 12700 Norwalk Blvd.

## Friday, August 24

**Open Mic.**, 7 pm. Calling all singers, dancers, poets, comedians and musicians. Norwalk Cultural Arts Center, 13200 Clarkdale Ave.

## Tuesday, August 28

**Red Cross Blood Drive**: 2 p.m. Donate blood to the Red Cross. Norwalk Social Services Center, 11929 Alondra Blvd.

## Friday, Oct. 12

**Ambassador Rally.**, 9 am to 3 pm. The Norwalk Chamber of Commerce hosts its ambassador rally, featuring keynote speakers, breakout sessions, networking, and more. DoubleTree Hotel, 13111 Sycamore Ave.

# Kaiser building new hospital tower

**DOWNEY** – Kaiser Permanente officially broke ground on their new hospital expansion Wednesday morning, kicking off a project that will add more than 90 new beds and updated technology to the campus once completed.

Once erected, the new tower will house 96 additional beds, as well as the best of "high-tech" and "high-touch" medicine in the form of the latest technological innovations currently in medicine.

"The hospital tower expansion gives me great pride," said Dr. Binesh Batra, Area Medical Director. "Our membership continues to climb; we have 390,000 members now, and we think in the next five years we might be going up to 445,000."

"With the 96-bed [addition], we'll be a 448-bed hospital, which will be the second largest hospital in KP Southern California."

"The most important thing is not these figures or



numbers we share with you, but who makes this magic happen: it's the people of Kaiser Permanente," Batra added. "That is what it comes down to; we all wake up in the morning, what motivates us to go touch and save lives, and that's what we do."

Downey City Council members were in attendance at the groundbreaking ceremony.

"We're happy to be here and be supportive of

Kaiser Permanente," said Mayor Sean Ashton. "This is going to be a great addition to the hospital to provide more healthcare not only for Downey residents but residents of the immediate area."

The tower is slated to be completed by December 2020, with Kaiser hoping to be able to admit patients into the facility by March 2021.

Alex Dominguez, staff writer

Rep. Linda Sanchez will deliver her annual State of the Nation address Thursday, Aug. 9, at 11:30 a.m. at the DoubleTree Hotel in Norwalk.

Tickets are \$30-\$35 and can be purchased by calling the Norwalk Chamber of Commerce at (562) 404-0909 or email [info@norwalkchamber.com](mailto:info@norwalkchamber.com).



Protecting your family has never been easier. For less than \$3/day, you can begin to *build your legacy* with Rose Hills.



Tierra Del Sol at Rose Hills Memorial Park is a beautiful space designed to celebrate an unforgettable legacy.

Buy now and pay just **\$81.02** per month for a single space with interment rights for two.

To make this smart purchase, please contact a Rose Hills Advisor by July 31, 2018.

**(888) 818-8541**

\*This offer may not be applied to the first space purchased. Space includes two interment rights. Original certificate must be presented at the time of purchase and cannot be combined with any other promotions. One certificate. One space. One contract. Payment shown is based on property located in Tierra Del Sol priced at \$7,800 with a 1.9% interest, 10% down payment for an 84-month term with automatic payments and includes \$1,000 savings. Offer expires July 31, 2018. Offer, discounts, promotions and prices are subject to change without notice. Ask your Rose Hills Pre-Planning Advisor for details.

3888 Workman Mill Road, Whittier, CA 90601  
Rose Hills Mortuary #FD970



## Westbound SR-91 Improvements Project

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中文 русский  
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Tiếng Việt ព្រំប្រទល់





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# **Chapter 5**      **List of Preparers**

---

The following persons were primarily responsible for preparation of this Draft Initial Study/Environmental Assessment and supporting technical studies.

## **5.1 Public Agencies**

### **5.1.1 California Department of Transportation, District 7**

Ronald Kosinski, Deputy District Director. B.A. Geography, California State University, Long Beach; Masters in Urban Planning, California State Polytechnic University, Pomona. Forty-three years of environmental planning experience. Contribution: Management, including analysis, document editing, and approval.

Samer Momani, Associate Environmental Planner; Division of Environmental Planning, District 7; Master of Science, Environmental Studies, California State University, Fullerton. Ten years of experience in environmental planning. Contribution: Environmental Document Oversight.

Jinous Saleh, Branch Chief and Senior Environmental Planner. Masters of Urban and Regional Planning, University of Southern California, Los Angeles. Thirty-four years of experience (i.e., 8 years in Housing and County Community Development and 26 years of environmental planning experience with Caltrans). Contribution: Management and document editing.

### **5.1.2 Los Angeles County Metropolitan Transportation Authority**

Carlos Montez, Project Manager. B.S. in Chemistry/Natural Science, California State University, Los Angeles. Twenty years of experience in project management, environmental planning and analysis. Contribution: Project Management.

Ayda Safaei, B.A. in Communication Studies, California State University, Northridge. Community Relations Manager, Los Angeles County Metropolitan Transportation Authority. Fifteen years of experience in community engagement and external affairs.

## 5.2 Consultant Team

### 5.2.1 Michael Baker International

Steve Huff, Vice President. B.S. in Civil Engineering, California State Polytechnic University, Pomona. Experience: 34 years in civil engineering and highway design. Contribution: Quality control and quality assurance review of the Highway Geometric Design and Draft Project Report.

Eric Spangler, Senior Project Manager. B.S. in Civil Engineering, California Polytechnic State University, San Luis Obispo. Experience: 18 years in civil engineering and highway design. Contribution: Oversaw preparation of the Highway Geometric Design and Draft Project Report.

Mo Ghonim, Civil Designer. B.S. in Civil Engineering, California State Polytechnic University, Pomona. Experience: 7 years in geometric highway design, civil engineering, and traffic engineering. Contribution: Prepared the Highway Geometric Design and assisted in preparing Draft Project Report.

Da-Cheng Lee, Civil Engineer. B.S. in Civil Engineering, National Taiwan University. M.B.A. in Business, University of Arizona. M.E. in Construction Management, State University of New York at Buffalo. M.S. in Geotechnical Engineering, National Taiwan University of Science and Technology. Experience: 16 years in highway and roadway project design. Contribution: Prepared the Highway Geometric Design and prepared Draft Project Report.

Gary Warkentin, Vice President. Certificate, Traffic Engineering, University of California, Irvine. Experience: 46 years in geometric highway design. Contribution: Oversaw preparation of the Highway Geometric Design.

### 5.2.2 LSA Associates, Inc.

Rob McCann, Principal. B.A. in Geography, California State University, Fullerton. Experience: 35 years in environmental planning and analysis. Contribution: Quality control and quality assurance review of the IS/EA.

King Thomas, Associate Environmental Planner. B.A. in Social Ecology, Specialization in Environmental Health and Planning, University of California, Irvine. Experience: 28 years in environmental planning and analysis. Contribution: Quality control and quality assurance review of the IS/EA.

Janet Danker, Senior Environmental Planner. B.A. in Urban Studies, University of California, Irvine. Master in Urban and Regional Planning, University of California, Irvine. Experience: 5 years in environmental planning and analysis. Contribution: Assistant Project Manager and preparer of the Growth, Traffic and Transportation/Pedestrian and Bicycle Facilities, Cultural Resources, and Paleontology sections of the IS/EA.

David Atwater, Senior Environmental Planner. B.S. in Urban and Regional Planning with an Interdisciplinary Minor in Geographic Information Systems Applications, California State Polytechnic University, Pomona. Experience: 12 years in environmental planning and analysis. Contribution: Preparer of the Land Use, Community Impacts, Visual/Aesthetics, and Noise sections of the IS/EA.

Ron Brugger, Senior Air Quality Specialist. B.S. Mechanical Engineering, University of Wisconsin, Madison. Experience: 26 years in environmental studies, specializing in air quality analysis. Contribution: Preparer of the Air Quality Study.

Meredith Canterbury, Senior GIS Specialist. B.A. in Geography with Emphasis in Environmental Analysis, California State University, Fullerton. Experience: 10 years in the GIS field. Contribution: GIS graphics preparation and generation of technical data from GIS files for the technical reports and the IS/EA.

Jill Carpenter, Senior Biologist/Bat Specialist. B.S. in Biological Sciences, specialization in ecology. Experience: 9 years participating in a wide range of field surveys, monitoring, and environmental assessment activities. Contribution: Preparer of the Daytime Bat Habitat Suitability Assessment.

Charity Girard-Sanders, Environmental Planner. B.A. in Psychology, Minor in Chemistry, Gallaudet University, Washington, D.C. Master of Urban Planning, City University of New York, Hunter College. Experience: 5 years in environmental planning and analysis. Contribution: Preparer of the Utilities/Emergency Services section of the IS/EA.



Christina Hirt, Environmental Planner. B.A. in Environmental Studies, University of San Diego. Experience: 3 years in environmental planning and analysis. Contribution: Preparer of the Geology/Soils/Seismic/Topography section of the IS/EA.

Beverly Inloes, Associate and Senior Technical Editor/Word Processor. Experience: 49 years editing and formatting scientific/technical documentation. Contribution: Technical editing, word processing, and formatting.

Amanda Johnson, Senior Environmental Planner. B.A. in Geography, California State University, Long Beach. Experience: 17 years in environmental planning and analysis. Contribution: Preparer of the Wetlands and Other Waters, Plant Species, Animal Species, Invasive Species, and Cumulative Impacts sections of the IS/EA.

Daniel Kaufman, Noise Analyst. B.A. in Environmental Studies, University of California, Santa Barbara. Experience: 2 years in environmental studies, specializing in noise analysis. Contribution: Preparer of *Noise Study Report*.

Patrick Kallas Assistant Environmental Planner. B.S. in Environmental Management and Protection, Minor in Water Science, California Polytechnic State University, San Luis Obispo. Experience: 1 year conducting research and preparing technical sections of environmental documents. Contribution: Preparer of Chapter 4 and Chapter 6 of the IS/EA.

Maebeth Lopez, Senior Greenhouse Gas/Climate Change Specialist. B.S. in Environmental Toxicology, University of California, Davis. Experience: 11 years in greenhouse gas/climate change analysis. Contribution: Preparer of the Climate Change section in Chapter 3 of the IS/EA.

Jason Lui, Senior Noise Specialist. B.A. in Environmental Analysis and Design, University of California, Irvine. M.S. in Environmental Studies, California State University, Fullerton. Experience: 11 years in environmental studies, specializing in noise and air quality analysis. Contribution: Preparer of the *Noise Study Report*.

Erin Martinelli, Senior Biologist. B.A. in Environmental Studies, University of California, Santa Barbara. M.S. in Environmental Studies, California State University, Fullerton. Experience: 14 years in biological analysis. Contribution: Preparer of the NES (MI).

Rod McLean, Associate Archaeologist. B.A. in Anthropology/Archaeology, University of California, Los Angeles. M.A. in Anthropology/Archaeology, California State University, Fullerton. Experience: 32 years in the archaeological field. Contribution: Preparer of the *Archaeological Survey Report*.

Allison Morrow, Senior Environmental Planner. B.A. in Environmental Analysis and Design, University of California, Irvine. M.B.A., California State University, Long Beach. Experience: 10 years preparing CEQA/NEPA technical studies and environmental documents. Contribution: Preparer of the Water Quality section of the IS/EA and CEQA Checklist in Chapter 3.

Akshay Newgi, Air Quality Specialist. B.S. in Civil Engineering, University of Mumbai, India. M.S. in Environmental Engineering, Old Dominion University. Experience: 5 years in environmental studies, specializing in air quality analysis. Contribution: Preparer of the Air Quality section of the IS/EA.

Sarah Rieboldt, Paleontologist. B.A. in Biology, University of Colorado, Boulder, magna cum laude. Ph.D. in Paleontology, University of California, Berkeley. Experience: 15 years in the paleontology and geology fields. Contribution: Preparer of the *Paleontological Identification Report and Paleontological Evaluation Report*.

Joe Simmons, Editor. B.A. in Communications, California State University, Fullerton. Experience: 10 years as an editor. Contribution: Editing the IS/EA for grammar and consistency.

Ivan Strudwick, Associate/Archaeologist. B.A., Anthropology, California State University, Long Beach. M.A. in Anthropology with specialization in Archaeology, California State University, Long Beach, magna cum laude. Experience: 34 years in the archaeology field. Contribution: Preparer of the *Archaeological Survey Report*.

### 5.2.3 GPA Consulting

Laura Comstock, Associate Environmental Planner. Master of Urban and Regional Planning, University of Hawaii at Manoa. Experience: 5 years in environmental planning and permitting. Contribution: Author of the Section 4(f) and *Community Impact Assessment* reports; technical editor of the Cumulative Impacts Analysis.

Alen Estrada-Rodas, Environmental Planner. B.A. in Urban Studies and Planning, California State University, Northridge. Master of Urban Planning, California State University, Northridge. Experience: 8 months in environmental planning and analysis. Contribution: Preparer of the *Community Impact Assessment*.

Nicole Greenfield, Environmental Planner. B.A. in Integrative Biology, University of California, Berkeley. Experience: 1.5 years in environmental planning and analysis. Contribution: Preparer of the *Cumulative Impact Assessment*.

Jeanne Ogar, Senior Environmental Planner. M.S. in Environmental Science and Management, University of California, Santa Barbara. Experience: 10 years in environmental planning and permitting. Contribution: Preparer of the *Community Impact Assessment* and *Energy Technical Report* and review of the *Draft Relocation Impact Report*.

Laura O'Neill, Senior Architectural Historian. B.A. in Political Science, Lehigh University. Master of Architecture, California State Polytechnic University, Pomona. Experience: 12 years in historic preservation and architectural history. Contribution: Project manager and preparer for the *Historical Resources Evaluation Report* and *Historic Properties Survey Report*.

Sylvia Vega, Principal Environmental Planner. B.S. in Natural Resources Management, California State University, San Luis Obispo. Experience: 34 years in environmental planning and analysis. Contribution: Quality control and quality assurance review of the *Community Impact Assessment*, Cumulative Impact Analysis, and Section 4(f).

#### **5.2.4 Cambridge Systematics**

Gary Hamrick, Principal. M.A. in Transportation Planning, UCLA, 34 years of experience in transportation planning and analysis. Contribution: Managed development of traffic analysis, travel demand modeling, traffic microsimulation and completion of Traffic Operations Analysis Report (TOAR).

Alice Chu, Transportation Analyst. B.S. in Computer Science, University of California, San Diego. M.S. in Transportation Engineering, University of Texas at Austin. Two years of experience in transportation operations analysis. Contribution: Traffic analysis and co-author of draft and final Traffic Operations Analysis Report (TOAR).

#### **5.2.5 WKE, Inc.**

Joseph Carbajal, B.A. in Civil Engineering, University of California, Irvine, P.E. (C) 81202. 10 years of experience in roadway, drainage, and utility design and analysis. Contribution: Utility Relocation and Impacts Report, Project Cost Estimate, Pavement Life Cycle Cost Analysis.

Tyler Lim, B.A. in Civil Engineering, California State University, Long Beach. 3 years of experience in roadway and utility design. Contribution: Utility Relocation and Impacts Report, Project Cost Estimate, Pavement Life Cycle Cost Analysis.

#### **5.2.6 Sanberg**

Dale Schneeberger, Managing Professional Geologist (P.G.). M.S. in Geology, California State University, Long Beach. 29 years of experience in environmental assessment and analysis. Contribution: Principal author for the ISA.

Ray Rothwell, GIS Manager/Environmental Scientist. B.A. in Environmental Studies, California State University, San Francisco. 8 years of experience in environmental analysis and data management. Contribution: Data management and evaluation, and preparation of GIS-based maps and figures for the IS/EA.



Taylor Ambriz, Staff Environmental Scientist. B.S. in Environmental Science & Biological Science, BIOLA University, La Mirada, California. 1 year of experience in environmental studies. Contribution: Summary and tabulation of environmental database and internal QA of information for the IS/EA.

# Chapter 6      Distribution List

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The Draft Initial Study/Environmental Assessment (IS/EA) and/or Notice of Availability (NOA) was distributed to federal, State, regional, and local agencies and elected officials, as well as Native American representatives, utility providers, and other interested parties listed on the following pages. In addition to the list provided below, all property owners/occupants within a 500-foot radius of the Westbound State Route 91 (SR-91) Improvement Project and interested public members on the Westbound SR-91 Improvement Project public mailing list were mailed a postcard informing them of the availability of the IS/EA.

## 6.1    Federal Agencies

United States Environmental  
Protection Agency, Region IX  
Federal Activities Office, CMD-2  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Federal Highway Administration  
1200 New Jersey Avenue, SE  
Washington, D.C. 20590

Federal Transit Administration,  
Region IX  
201 Mission Street, Suite 1650  
San Francisco, CA 94105-1839

Office of Environmental Policy and  
Compliance  
Department of the Interior  
Main Interior Building, MS 2462  
1849 C Street, NW  
Washington, D.C. 20240

Carlsbad Fish and Wildlife Office  
2177 Salk Avenue, Suite 250  
Carlsbad, California 92008

United States Army Corps of  
Engineers  
Los Angeles District  
Attention: CESPL-CO-R  
911 Wilshire Boulevard, Suite 1101  
P.O. Box 532711  
Los Angeles, CA 90053-2325

Regional Director  
Federal Emergency Management  
Agency  
1111 Broadway, Suite 1200  
Oakland, CA 94607-4052

## 6.2    State Agencies

California Department of Fish  
and Wildlife  
Ed Pert, Regional Manager  
3883 Ruffin Road  
San Diego, CA 92123

California Transportation  
Commission  
Commission Chair  
1120 N Street  
Room 2221 (MS-52)  
Sacramento, CA 95814

Native American Heritage  
Commission  
Cynthia Gomez, Executive  
Secretary  
1550 Harbor Boulevard, Suite 100  
West Sacramento, CA 95691

California Highway Patrol  
411 North Central Avenue  
Glendale, CA 91203

California Air Resources Board  
Mary D. Nichols, Chair  
1001 I Street  
Sacramento, CA 95814

California Department of  
Conservation  
David Bunn, Director  
801 K Street, MS 24-01  
Sacramento, CA 95814

State Office of Historic Preservation  
Julianne Polanco, Preservation  
Officer  
1725 23rd Street, Suite 100  
Sacramento, CA 95816

State Water Resources Control  
Board  
Felicia Marcus, Board Chair  
1001 I Street  
Sacramento, CA 95814

State Clearinghouse  
Ken Alex, Director  
1400 Tenth Street  
Sacramento, CA 95814

California Natural Resources  
Agency  
John Laird, California Secretary for  
Natural Resources  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

California Department of Toxic  
Substances Control  
Barbara Lee, Director  
1001 I Street  
Sacramento, CA 95814-2828

Governor's Office of Emergency  
Services  
Mark Ghilarducci, Director  
3650 Schriever Avenue  
Mather, CA 95655-4203

California Public Utilities  
Commission  
Michael Picker, President  
505 Van Ness Avenue  
San Francisco, CA 94102

California Department of Water  
Resources  
Grant Davis, Director  
1416 9th Street, Room 1115-1  
Sacramento, CA 95814

California Native Plant Society  
2707 K Street, Suite 1  
Sacramento, CA 95816-5113

California Wildlife Federation  
1012 J Street  
Sacramento, CA 95814

### 6.3 Regional/County Agencies

Los Angeles County Clerk  
2400 Imperial Highway  
Norwalk, CA 90650

Southern California Association of  
Governments Media & Public  
Affairs  
Jeff Liu, Manager  
900 Wilshire Boulevard, Suite 1700  
Los Angeles, CA 90017

Los Angeles Regional Water  
Quality Control Board – Region 4  
Irma Muñoz, Chair  
320 West 4th Street, Suite 200  
Los Angeles, CA 90013

Metropolitan Water District of  
Southern California  
Randy A. Record, Chairman  
1121 L Street, Suite 900  
Sacramento, CA 95814

Los Angeles County Metropolitan  
Transportation Authority  
Phillip A. Washington, Chief  
Executive Officer  
One Gateway Plaza  
Los Angeles, CA 90012-2952

South Coast Air Quality  
Management District  
Dr. William A. Burke, Chairman  
21865 Copley Drive  
Diamond Bar, CA 91765

Los Angeles County Sheriff's  
Department  
Sheriff Jim McDonnell  
211 West Temple Street  
Los Angeles, CA 90012

Los Angeles Department of Water  
and Power  
David H. Wright, General Manager  
111 North Hope Street, #1221  
Los Angeles, CA 90012

Los Angeles County Department of  
Public Works  
James Yang, Manager  
900 South Fremont  
Alhambra, CA 91803

Los Angeles County Fire  
Department  
Environmental Review Unit  
12605 Osborne Street  
Pacoima, CA 91331-2129

Gateway Cities Council of  
Governments  
Nancy Pfeffer  
Executive Director  
16401 Paramount Boulevard  
Paramount, CA 90723

Los Angeles County Department of  
Regional Planning  
Richard Bruckner, Director of  
Planning  
320 West Temple Street, 13th Floor  
Los Angeles, CA 90012

## 6.4 Local Agencies

Los Angeles County Fire  
Department Station 30  
19030 Pioneer Boulevard  
Cerritos, CA 90703

City of Cerritos  
Public Works Department  
18125 Bloomfield Avenue  
Cerritos, CA 90703

Cerritos Sheriff Station  
18135 Bloomfield Avenue  
Cerritos, CA 90703

City of Artesia  
Public Works Department  
18747 Clarkdale Avenue  
Artesia, CA 90701

City of Norwalk Public Services  
Department Administrative Offices  
12650 East Imperial Highway  
Norwalk, CA 90650

Jim Parker, City of Norwalk Interim  
City Manager  
12700 Norwalk Boulevard, Room 3  
Norwalk, CA 90650

Art Gallucci, City of Cerritos City  
Manager  
18125 Bloomfield Avenue  
Cerritos, CA 90703

William Rawlings, City of Artesia  
City Manager  
18747 Clarkdale Avenue  
Artesia, CA 90701

## 6.5 Elected Officials/Federal

The Honorable Dianne Feinstein  
United State Senator  
11111 Santa Monica Boulevard,  
Suite 915  
Los Angeles, CA 90025

The Honorable Linda Sanchez  
United States Congress 38th  
District  
12440 East Imperial Highway,  
Suite 140  
Norwalk, CA 90650

## 6.6 Elected Officials/State

The Honorable Ian Calderon  
State Assembly 57th District  
13181 Crossroads Parkway,  
Suite 160  
City of Industry, CA 91746-3497

The Honorable Cristina Garcia  
State Assembly 58th District  
8255 Firestone Boulevard,  
Suite 203  
Downey, CA 90241

## 6.7 Elected Officials/County

The Honorable Janice Hahn  
Board of Supervisors, 4th District  
Norwalk Field Office  
12720 Norwalk Boulevard,  
Room 704  
Norwalk, CA 90650

## 6.8 Elected Officials/Norwalk

The Honorable Luigi Vernola,  
Mayor  
12700 Norwalk Boulevard  
Norwalk, CA 90650

The Honorable Leonard Shryock,  
Vice Mayor  
12700 Norwalk Boulevard  
Norwalk, CA 90650

The Honorable Tony Ayala,  
Councilmember  
12700 Norwalk Boulevard  
Norwalk, CA 90650



The Honorable Jennifer Perez,  
Councilmember  
12700 Norwalk Boulevard  
Norwalk, CA 90650

The Honorable Margarita L. Rios,  
Councilmember  
12700 Norwalk Boulevard  
Norwalk, CA 90650

## 6.9 Elected Officials/Artesia

The Honorable Sally Flowers,  
Mayor  
18747 Clarkdale Avenue  
Artesia, CA 90701

The Honorable Tony Lima, Mayor  
Pro Tem  
18747 Clarkdale Avenue  
Artesia, CA 90701

The Honorable Miguel Canales,  
Councilmember  
18747 Clarkdale Avenue  
Artesia, CA 90701

The Honorable Victor Manalo,  
Councilmember  
18747 Clarkdale Avenue  
Artesia, CA 90701

The Honorable Ali Sajjad Taj,  
Councilmember  
18747 Clarkdale Avenue  
Artesia, CA 90701

Okina Dor, Planning Director  
18747 Clarkdale Avenue  
Artesia, CA 90701

## 6.10 City Officials/Cerritos

The Honorable Grace Hu, Mayor  
18125 Bloomfield Avenue  
Cerritos, CA 90703

The Honorable Mark E. Pulido,  
Mayor Pro Tem  
18125 Bloomfield Avenue  
Cerritos, CA 90703

The Honorable Jim Edwards,  
Councilmember  
18125 Bloomfield Avenue  
Cerritos, CA 90703

The Honorable Naresh Solanki,  
Councilmember  
18125 Bloomfield Avenue  
Cerritos, CA 90703

## 6.11 Native American Tribal Representatives

Gabrieleño Band of Mission Indians  
– Kizh Nation  
Andrew Salas, Chairperson  
P.O. Box 393  
Covina, CA 91723

Gabrielino/Tongva San Gabriel  
Band of Mission Indians  
Anthony Morales, Chairperson  
P.O. Box 693  
San Gabriel, CA 91778

Gabrielino/Tongva Nation  
Sandonne Goad, Chairperson  
106 ½ Judge John Aiso Street #231  
Los Angeles, CA 90012

Gabrielino Tongva Indians of  
California Tribal Council  
Robert Dorame, Chairperson  
P.O. Box 490  
Bellflower, CA 90707

Juaneno Band of Mission Indians  
Acjachemen Nation – Belardes  
Joyce Perry, Tribal Manager  
4955 Paseo Segovia  
Irvine, CA 92603

Juaneno Band of Mission Indians  
Acjachemen Nation – Belardes  
Matias Belardes, Chairperson  
32161 Avenida Los Amigos  
San Juan Capistrano, CA 92675

## 6.12 Libraries/Schools

Cerritos Library  
18025 Bloomfield Avenue  
Cerritos, CA 90703

Artesia Library  
18801 Elaine Avenue  
Artesia, CA 90701

La Palma Branch Library  
7842 Walker Street  
La Palma, CA 90623

Alondra Library  
11949 Alondra Boulevard  
Norwalk, CA 90650

Buena Park Library District  
7150 La Palma Avenue  
Buena Park, CA 90620

Robert Kay  
Manager & Facilities  
ABC Unified School District  
16700 Norwalk Blvd  
Cerritos, CA 90703

James Poper  
Director of Maintenance,  
Operations, Transportation &  
Facilities  
ABC Unified School District  
16700 Norwalk Blvd  
Cerritos, CA 90703

Mary Sieu  
District Superintendent  
ABC Unified School District  
16700 Norwalk Blvd  
Cerritos, CA 90703

Sophie Tse  
District Board Member  
ABC Unified School District  
16810 Harvest Ave  
Cerritos, CA 90703

Leticia Mendoza  
Vice President of the Board  
ABC Unified School District  
16700 Norwalk Blvd  
Cerritos, CA 90703

### 6.13 Utility Providers

Time Warner Cable  
14328-14338 Lakewood Blvd  
Bellflower, CA 90706

Southern California Edison  
1325 S Grand Avenue  
Santa Ana, CA 92705

City of Cerritos Water and Power  
PO Box 3130  
Cerritos, CA 90703

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