Southbound Interstate 605 Beverly Boulevard Interchange Improvement Project

Initial Study with Proposed Negative Declaration

Prepared by the State of California

Department of Transportation

Los Angeles County, California

District 7-LA-605 PM R14.1/R14.6

EA: 07-34140/EFIS #: 0717000189

February, 2019

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07-LA-605 PM R14.1/R14.6

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I-605 Beverly Boulevard Interchange Improvement Project

Improve the Southbound (SB) I-605 Beverly Boulevard Interchange through reconfiguration of the ramps. I-605 Postmile (PM) 14.1 through 14.6 in the city of Pico Rivera within Los Angeles County, approximately one mile south of Rose Hills Road and one mile north of Whittier Boulevard.

INITIAL STUDY

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies:

The Los Angeles County Metropolitan Transportation Authority

March 28, 2019
Date of Approval

Ronald Kosinski
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PROPOSED NEGATIVE DECLARATION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

7 -LA -605- R14.1/R14.6
EA: 34140

PROPOSED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Description

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), proposes improvements to the southbound Interstate 605 Beverly Boulevard interchange to reduce congestion, reduce weaving conflicts, improve safety, and improve freeway operations. The SR-91/ I-605 / I-405 Congestion Hot Spots Feasibility Report and Project Study Report – Project Development Support, approved July 2014, (PSR-PDS) for the I-605, I-5, and I-105 identified the southbound I-605 at Beverly Boulevard interchange as a congestion hot-spot due to the short weaving distance between the loop on and off-ramps. This results in decreased safety with a higher than average accident rate and contributes to congestion on the mainline freeway in the southbound direction. Additionally, the southbound interchange does not provide for southbound to westbound movement, and surrounding intersections sometimes experience congestion as a result of congestion on the ramp.

Determination

This proposed Negative Declaration (ND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an ND for this project. This does not mean that Caltrans' decision regarding the project is final. This ND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine 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 aesthetics, agriculture and forestry, biological resources, cultural resources, geology and soils, hydrology and water quality, land use and planning, mineral resources, transportation and traffic, and tribal cultural resources.

In addition, the proposed project would have less than significant effects to air quality, hazardous materials, noise, and utilities and service systems.

RONALD KOSINSKI
Deputy District Director
Division of Environmental Planning, District 7
California Department of Transportation

Date of Approval

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Contents

List of Figures and Tables

1 Proposed Project

1.1 Project Location

The proposed project location is the southbound (SB) on-ramps and off-ramp of Interstate 605 at Beverly Boulevard, between postmile (PM) R14.1 and R14.6 in the City of Pico Rivera within Los Angeles County.

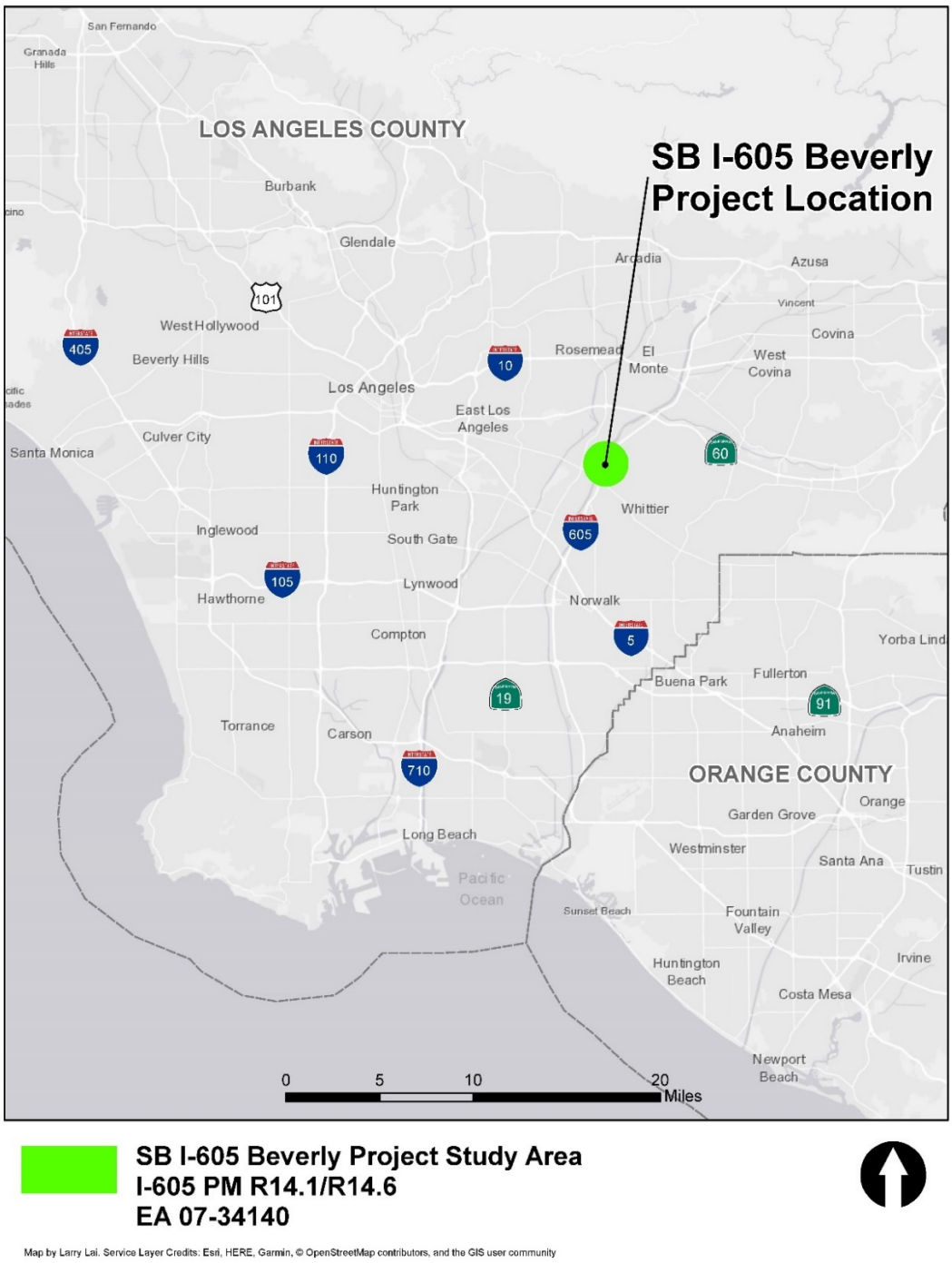

Figure 1 - Regional Map

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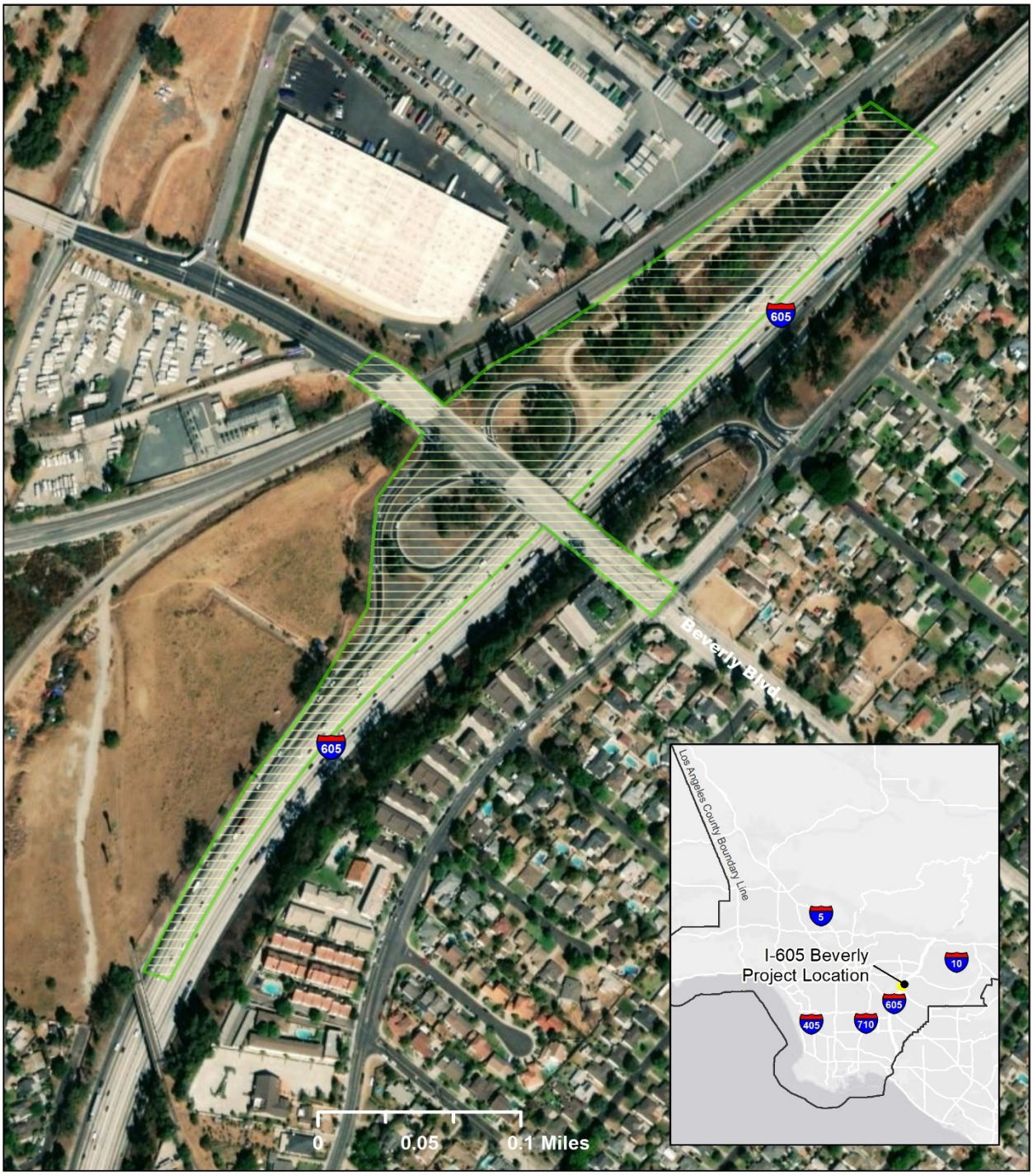

Figure 2- Project Vicinity Map

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1.2 Purpose and Need

The purpose of the Southbound Interstate 605 (I-605) Beverly Boulevard Interchange Improvement Project (project) includes the following:

- Reduce congestion;
- Reduce weaving conflicts;
- Improve safety;
- Improve freeway operations;
- Provide for all directional movements at the southbound interchange; and
- Ease congestion at intersections near the interchange.

The SR-91/ I-605 / I-405 Congestion Hot Spots Feasibility Report and Project Study Report – Project Development Support, approved July 2014, (PSR-PDS) for the I-605, I-5, and I-105 identified the southbound I-605 at Beverly Boulevard interchange as a congestion hot-spot due to the short weaving distance between the loop on and off-ramps. This results in decreased safety with a higher than average accident rate and contributes to congestion on the mainline freeway in the southbound direction. Additionally, the southbound interchange does not provide for southbound to westbound movement, and surrounding intersections sometimes experience congestion as a result of congestion on the ramp.

1.3 Project Description

The California Department of Transportation (Caltrans) in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro) and the Gateway Cities Council of Governments (GCCOG) proposes to improve the southbound I-605 Beverly Boulevard Interchange through reconfiguration of the ramps.

The project location is on the southbound I-605 PM R14.1 through R14.6 in the City of Pico Rivera within Los Angeles County. The Beverly Boulevard interchange is approximately 1.17 miles south of Rose Hills Road and 0.9 miles north of Whittier Boulevard. The current facility, in the vicinity of the interchange, consists of one high occupancy vehicle (HOV) lane and four general purpose (GP) lanes in both the north and southbound directions. The southbound Beverly off-ramp is a loop off-ramp, providing access via the collector-distributor road to eastbound Beverly Boulevard; this exit does not allow for westbound access to Beverly Boulevard. The southbound on-ramp from westbound Beverly Boulevard is a loop ramp, providing access via the collector-distributor road onto the I-605 mainline. The southbound on-ramp from eastbound Beverly Boulevard is a direct ramp providing access via the collector-distributor road onto the I-605 mainline.

1.4 Project Alternatives

1.4.1 Alternative 1 No Build

The No Build alternative maintains the current conditions of the 605 Southbound Beverly Boulevard ramps, including the short weaving distance between ramps and access to only one travel direction of Beverly Boulevard. The No Build alternative would not address the current levels of congestion identified

in the PSR-PDS for the I-605, I-5, and I-105. Similarly, the No Build alternative does not address any potential increases in congestion, resulting from population growth in the region. This approach is not consistent with the mobility goals of both the Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS) and the Pico Rivera General Plan dated October 2014.

1.4.2 Alternative 2 Diamond Configuration

Alternative 2 consists of replacing the southbound I-605 on-ramp and off-ramp with a new, diamond configuration. The diamond configuration includes a direct on-ramp and off-ramp that merge directly on to the I-605 mainline. Alternative 2 includes ramp metering on the new on-ramp as well as construction of retaining walls adjacent to the new on-ramp and off-ramp.

1.4.3 Alternative 3 "D" Ramp

Alternative 3 consists of replacing the southbound on-ramp and off-ramp with a new, modified diamond configuration, consisting of a direct off-ramp and a loop on-ramp both located on the north side of Beverly Boulevard. Alternative 3 requires construction a retaining wall adjacent to the western right of way line of the southbound off-ramp in order to avoid intrusion into Union Pacific Railroad (UPRR) right of way and a privately owned parcel; the alternative also includes a retaining wall beneath the existing overcrossing to avoid structure modifications and address elevation differences between the ramp and the ground elevation adjacent to the bridge abutment.

1.4.4 Features Common to Both Build Alternatives

The proposed project includes several project features that are common to both build alternatives. The proposed project involves removal of the southbound collector-distributor road and provides direct access to and from the I-605 mainline. Both alternatives necessitate creation of a new signalized intersection on Beverly Boulevard, providing for all movements to and from southbound I-605 and Beverly Boulevard. The proposed alignments of both alternatives limit the effectiveness of the existing maintenance access road, so the alternatives will incorporate a new maintenance vehicle pullout and access road. Improvements along Beverly Boulevard will be provided to match the width of the recently widened bridge over UPRR tracks in order to accommodate future bicycle lanes. Minor curb, gutter, and pavement work will be required on Beverly Boulevard, between the UPRR bridge and the overcrossing, to modify the street to accommodate the changes proposed for the ramps. Both build alternatives provide for inclusion of stormwater Best Management Practices (BMP) as well as landscaping and irrigation.

2 California Environmental Quality Act Evaluation

2.1 Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Caltrans staff completed a Scenic Resources Evaluation and Visual Impact Assessment (VIA) for the project in July of 2018. The project occurs within cut and fill sections west of the I-605 at Beverly Boulevard. This surrounding area is highly urbanized and roadside vegetation consists of ornamental or ruderal plants (see Figures 3, 4, and 5). This portion of I-605 is not a Designated State Scenic Highway and is not eligible for designation. Traveling southbound, there are no significant views such as mountains, valleys, or other noteworthy land features.

The VIA determined that the build alternatives would not result in adverse impacts to the visual environment. As there are no scenic vistas or other scenic resources in the project vicinity, the proposed project will have no adverse effects on scenic vistas or other scenic resources. Neither build alternative would degrade the visual characteristics of the surrounding area, nor would the build alternatives create a new source of light or glare. Therefore, there are no impacts to visual resources as a result of the proposed project.

Both build alternatives include vegetation removal and propose new landscaping that will be consistent with the *Route 605 Corridor Master Plan*. Any potential visual effects related to removal of the ornamental and ruderal vegetation would be temporary.

Figure 3 - Southbound I-605 off-ramp at Beverly Boulevard looking northeast

2.1.1 Avoidance, Minimization, and/or Mitigation Measures

The VIA concluded that the proposed build alternatives would not result in adverse impacts to the visual environment. However, the assessment makes several recommendations to maintain continuity and identity, both with the surrounding built environment as well as the forthcoming *Route 605 Corridor Master Plan,* expected completion date in May of 2019. The recommended minimization measures are included below.

VIS-1 (Minimization)	Include aesthetic treatment for retaining walls that is consistent with the *Route 605 Corridor Master Plan,* currently in development, to ensure compatibility with the surrounding built environment.
VIS-2 (Minimization)	Replace landscaping with ornamentals and consider native plants where appropriate.
VIS-3 (Minimization)	Include applicable aesthetic treatments for pavement at gore areas and ramp end points to maintain consistency with the *Route 605 Corridor Master Plan*.

Figure 4 - Existing landscaping along slope

Figure 5 - Southbound I-605 on-ramp at Beverly Boulevard looking north

2.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
II. 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:				
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

2.2.1 Forestry

There are no forestry resources present in the vicinity of the project and no impacts are anticipated.

2.2.2 Agricultural Resources

The project area is in a highly urbanized area of Los Angeles County, in the City of Pico Rivera. As shown in *Figure 6,* The parcels immediately adjacent to the project area are zoned for the following uses: General Industrial, Limited Industrial, and Industrial Planned Development.

Pico Rivera has land zoned as "Rural Residential[1]" (RR) or "Single Family Residential Estate[2]" near the Beverly Boulevard interchange. An area of RR parcels is located approximately one quarter mile northwest of the project area near the intersection of Beverly Boulevard and San Gabriel River Parkway. The City of Pico Rivera General Plan (general plan) defines RR zoning as follows: "the Rural Residential designation preserves large lot rural lifestyles, including the keeping of animals within an urban setting. Housing types range from large ranch estate homes to several detached houses on a single large lot when consistent with the maximum allowable land use intensity and permitted by the zoning ordinance."[3]

The project proposes no conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, nor does the project conflict with existing zoning for agricultural use. According to the *California Land Conservation Act of 1965: 2016 Status Report*, there is no land in the project area protected by the Williamson Act. [4] Therefore, no impacts to agricultural resources are anticipated.

[1] Pico Rivera General Plan pg. 3-7
[2] Pico Rivera Zoning Map http://www.pico-rivera.org/civica/filebank/blobdload.asp?BlobID=2692
[3] Pico Rivera General Plan pg. 3-9
[4] California Department of Conservation, *California Land Conservation Act of 1965: 2016 Status Report.* December 2016. Appendix A. Accessed 9/26/2018 at http://www.conservation.ca.gov/dlrp/lca/Pages/stats_reports.aspx

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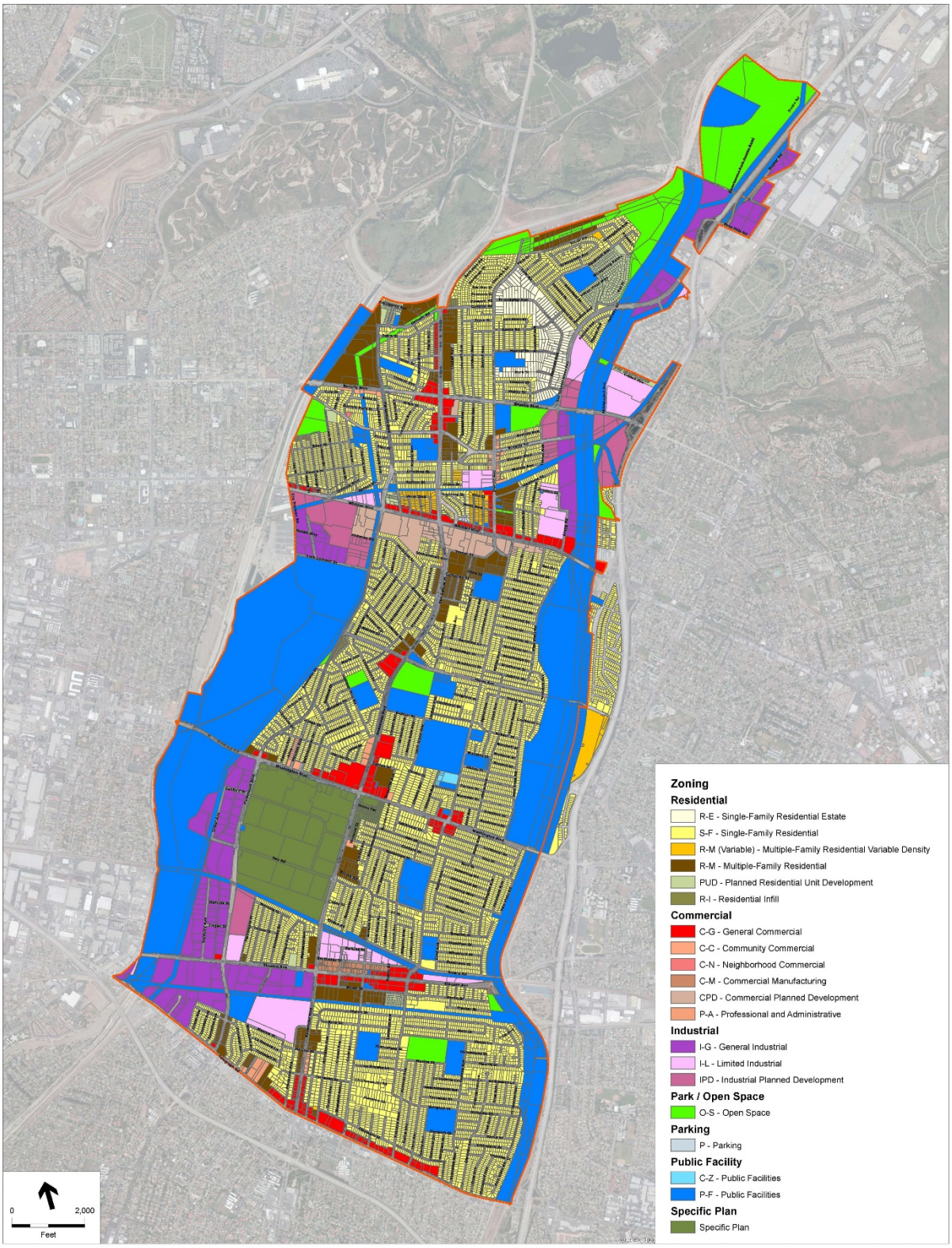

City of Pico Rivera Zoning Map
Source :http://www.pico-rivera.org/documents/Zoning%20Map%202015.pdf

Figure 6 - Zoning Map

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2.3 Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
III. 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:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Caltrans staff completed an Air Quality Report (AQR) for the I-605 at Beverly Boulevard Interchange Improvement Project in October 2018. The following discussion is derived directly from the AQR. For a more detailed analysis consult the AQR.

2.3.1 Regulatory Setting

Many statutes, regulations, plans, and policies have been adopted at the federal, state, and local levels to address air quality issues related to transportation and other sources. The proposed project is subject to air quality regulations at each of these levels. This section introduces the pollutants governed by these regulations and describes the regulation and policies that are relevant to the proposed project.

2.3.1.1 Pollutant-Specific Overview

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: CO, Pb, NO_2, O3, PM (PM2.5 and PM10), and SO2. The U.S. EPA has also identified nine priority mobile source air toxics: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter (https://www.fhwa.dot.gov /environment /air_quality/air_toxics /policy_and_ guidance/msat/). In California, sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

Criteria Pollutants

The Clean Air Act requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria air contaminants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 1 documents the current air quality standards while Table 2 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ 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 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

Table 2 – State and Federal Criteria Air Pollutant Effects and Sources		
Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	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 reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	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 toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	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 $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	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.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	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.

Table 2 – State and Federal Criteria Air Pollutant Effects and Sources (continued)		
Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Lead (Pb)	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 older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly 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. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Sulfate	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.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	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	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

2.3.2 Regulations

California Clean Air Act

The California Clean Air Act (CCAA) is the state law that governs air quality. The law and related regulations by the (ARB) set standards for the concentration of pollutants in the air. State standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. State 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.

California Environmental Quality Act (CEQA)

CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA documents address CCAA

requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

Local

The U.S. EPA has delegated responsibility to air districts to establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2015) requires compliance with all applicable air quality laws and regulations including local and air district ordinances and rules.

2.3.3 Affected Environment

Climate and Meteorology

The project site is in the SCAB that includes the following counties: Orange, Los Angeles (nondesert portions), and the urban areas of Riverside and San Bernardino. Air quality regulation in the Basin is administered by the SCAQMD.

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The SCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) because 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 mid-afternoon to late afternoon on hot summer days when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Inversion layers are significant in determining ozone (O3) formation. Ozone 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). PM10 is both directly emitted and indirectly created in the atmosphere because 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 earth's surface goes through a radiative process on clear nights when heat energy is transferred from the ground to a cooler night sky. As the earth's surface 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 (NOX) 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 NOX to form photochemical smog.

The Montebello climatological station (#045790), maintained by Western Regional Climate Center, is located near the project site and is representative of meteorological conditions near the project. The annual average maximum temperature recorded from 1961 to 1990 at this station is 79^{o}F, and the annual average minimum is 55.5^{o}F. December, January and February are typically the coldest months in this area of the Basin.

Much of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to a few scattered thunderstorms in coastal regions and slightly heavier showers in the eastern portion of the Basin along the coastal side of the mountains. The Montebello Station also monitors rainfall levels. Average monthly rainfall measured at this station from 1961 to 1990 varied from zero rainfall in July to 2.58 inches in January, with an average annual total of 14.20 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Existing Air Quality

This section summarizes existing air quality conditions near the proposed project area. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past 5 years, and discusses MSAT.

Ambient monitoring data were obtained from the Pico Rivera Monitoring Station (ARB #70185) which is located on 4144 San Gabriel River Parkway, Pico Rivera at latitude of 34.01029 and longitude of -118.06850 and Los Angeles North Main Street Monitoring Station (ARB #70087), which is located on 1630 North Main Street, Los Angeles at latitude of 34.06653 and longitude of -118.22676. The monitoring station at Pico Rivera is approximately 0.48 miles northwest of the project site and the Los Angeles North Main monitoring station is approximately 10.3 miles northwest of the project site. Figure 7 illustrates locations of these stations and the proposed project.

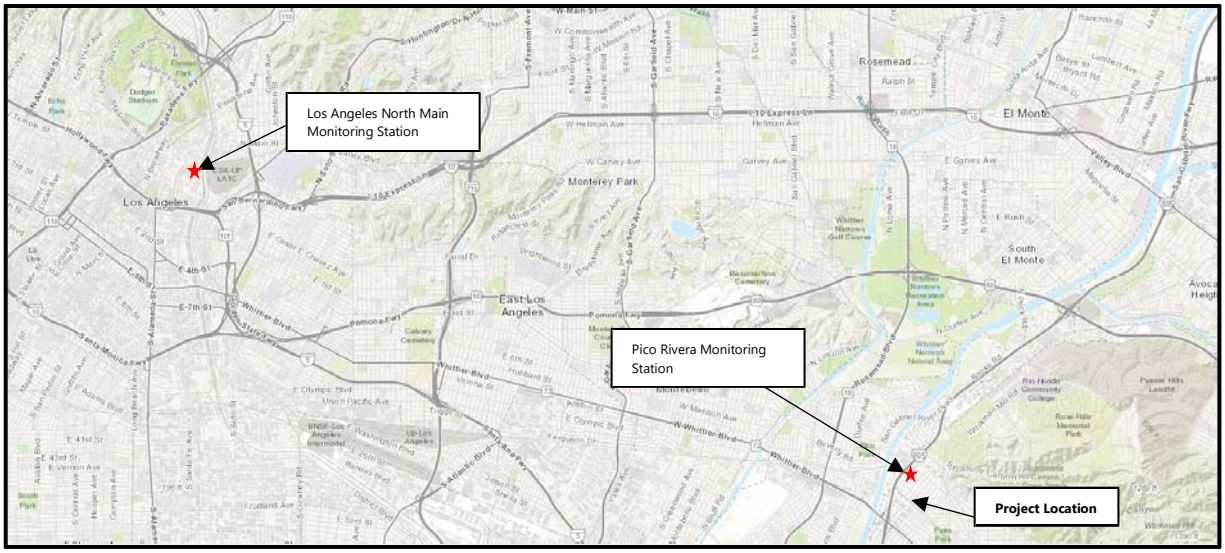

Figure 7 - Map of Air Quality Monitoring Stations Near Project

Summary of Criteria Pollutants and Attainment Status

Since the passage of CAA and subsequent amendments, the EPA has established and revised the NAAQS. The NAAQS was established for six major pollutants or criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property). The six criteria pollutants are Ozone (O3), CO, PM (PM10 and PM2.5), Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO2), and Lead (Pb). Table 3 shows each pollutant as well as the State and Federal Attainment status for all regulated pollutants.

Table 3. State and Federal Attainment Status in the SCAB

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3) (1- hour)	Nonattainment	Revoked by EPA (June 15, 2005)
Ozone (O_3) (8-hour)	Nonattainment	Extreme nonattainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment-Maintenance
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment-maintenance
Nitrogen Dioxide (NO_2)	Attainment	Attainment/Unclassified
Sulfur Dioxide (SO_2)	Attainment/Unclassified	Attainment/Unclassified
Lead (Pb)	Attainment*	Nonattainment*
Visibility-Reducing Particles	Attainment/Unclassified	N/A
Sulfates	Attainment/Unclassified	N/A
Hydrogen Sulfide	Attainment/Unclassified	N/A

Vinyl Chloride	Attainment/Unclassified	N/A

Source: http://pd.dot.ca.gov/env/air/html/areadesig/canafed_index.htm

***Los Angeles County portion.**

Table 4 lists air quality trends in data collected at Pico Rivera Station (ARB # 70185) for the past 5 years. Data from Los Angeles-Main Street Station (ARB #70087) for PM10 are also included due to the proximity of the site to the project; however, data for Pico Rivera Station are for 2013 – 2017. Based on the comparison of the traffic volumes, truck percentage, land uses, and the proximity to the freeway, the ambient concentration data measured at the Pico Rivera and Los Angeles Main Street monitoring stations are deemed representative for comparison to the proposed project.

Table 4. Air Quality Concentrations for the Past 5 Years Measured at Pico Rivera Station

Pollutant	Standard	2017	2016	2015	2014	2013
Ozone						
Max 1-hr concentration		0.118	0.111	0.107	0.121	0.101
No. days exceeded: State	0.09 ppm	0	0	0	0	0
Max 8-hr concentration		0.086	0.081	0.081	0.092	0.072
No. days exceeded: State Federal	0.070 ppm 0.070 ppm	** 9	** 6	** 11	** 7	** 1
Carbon Monoxide						
Max 1-hr concentration		2.5	2.8	2.8	3.9	3.6
No. days exceeded: State Federal	20 ppm 35 ppm	0 0	0 0	0 0	0 0	0 0
Max 8-hr concentration		2.2	1.7	1.7	2.5	2.0
No. days exceeded: State Federal	9.0 ppm 9 ppm	0 0	0 0	0 0	0 0	0 0
PM_{10} (1630 N. Main Street, Los Angeles)						
Max 24-hr concentration		64	64	73	66	57
No. days exceeded: State Federal	50 µg/m^3 150 µg/m^3	** **	* 0	13.8 0	18.7 0	21.4 0
Max annual concentration		**	25.8	27.1	30.6	29.5
No. days exceeded: State	20 µg/m^3	**	**	**	**	**
$PM_{2.5}$						
Max 24-hr concentration		49.5	46.5	52.7	35.1	29.1
No. days exceeded:	35 µg/m^3	**	6.2	9.4	*	0
Max annual concentration		12.1	11.7	11.5	12.1	11.8
No. days exceeded: State Federal	12 µg/m^3 12.0 µg/m^3	** **	** 6.2	** 9.4	** *	** 0
Nitrogen Dioxide						

Max 1-hr concentration		75.0	63.0	70.0	87.0	105.0
No. days exceeded: State	0.18 ppm	*	0	0	0	0
Federal	100 ppb	0	0	0	0	1
Max annual concentration		19	19	*	19	*
No. days exceeded: State	0.030 ppm	**	**	**	**	**
Federal	53 ppb	**	**	**	**	**
• * There was insufficient data available to determine the value.						

Sensitive Receptors

The project site is surrounded by industrial, commercial and public facilities lots; the San Gabriel River to the west; and I-605 to the south and north. Beyond the river to the west lies the Pico Park and to the east beyond I-605 lies Sycamore Park; to the west and northwest lie some industrial, residential, and commercial developments and shops. Beyond I-605 to the east and northeast lies residential and Sycamore Park and two chapels. There is an industrial land use near the project site that may result in truck traffic.

Some land uses are considered more sensitive to changes in air quality than others, depending on the demographic characteristics of occupants and users and the activities involved. Sensitive receptors include residential areas, hospitals, elder-care facilities, rehabilitation centers, elementary schools, daycare centers, and parks. Residential areas are considered sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. Sensitive receptors located near the project area include residential units, which are predominantly located east of the project site.

Sensitive receptors within 500 feet (or 150 meters) have been identified as residential areas and are documented in Table 5. Figure 8 shows the locations of sensitive receptors relative to the project site. Other potentially sensitive land uses around the project include New United Molokan Church approximately 1,700 feet to the southeast, Orange Grove Elementary School approximately 3,000 feet to the southeast, and Pico Park Community Center approximately 2,500 feet west. There are also residential areas approximately 1,300 feet northwest of the project site.

Table 5. Sensitive Receptors Within 500 Feet of Project Site		
Receptor	Description	Distance from the Project (ft)
Single Family Homes	Residential	< 500 ft

Figure 8 - Sensitive Receptors Near Project Site

Short-Term Effects – Construction Emissions

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NOx, VOCs, directly-emitted particulate matter (PM10 and PM2.5), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat. Construction activities associated with the build alternative of the proposed project would be temporary and would not require more than five years to complete; therefore, construction emissions are not considered for conformity purposes.

Table 6. Construction Emissions for Alternatives 2 & 3						
Construction Activity	ROG	PM_{10}	$PM_{2.5}$	CO	NO_x	CO_2e
Alternative 2						
Grubbing/Land Clearing	2.90	134.50	28.96	22.58	36.28	3.47
Grading/Excavation	13.45	139.80	33.67	97.75	162.13	13.12
Drainage/Utilities/Sub-Grade	9.78	137.85	32.12	81.44	103.35	8.75
Paving	3.52	2.08	1.85	38.21	35.94	3.38
Maximum daily or average daily	13.45	139.80	33.67	97.75	162.13	13.12
Project Total (tons/project)	1.27	15.57	3.68	9.98	14.53	2,418.59
Alternative 3						
Grubbing/Land Clearing	2.90	134.50	28.96	22.58	36.28	3.47
Grading/Excavation	13.45	139.80	33.67	97.75	162.13	13.12
Drainage/Utilities/Sub-Grade	9.78	137.85	32.12	81.44	103.35	8.75
Paving	3.52	2.08	1.85	38.24	36.15	3.44
Maximum daily or average daily	13.45	139.80	33.67	97.75	162.13	13.12
Project Total (tons/project)	1.27	15.57	3.68	9.98	14.53	2,421.06

Notes: Units in pounds per day (lbs/day) except CO_2 equivalents (CO_2e) in tons/day

Emissions were calculated using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 8.1.0, based on construction information provided by the project engineer. PM emissions reflect total emissions from mobile sources and fugitive dust; includes an estimated 50% reduction in fugitive emissions with compliance with Caltrans Standard Specifications. Totals may not sum due to rounding.

Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air disease and cancer. The California Department of Conservation, Division of Mines and Geology have developed a map of the state showing the general location of ultramafic rock in the state. Los Angeles County is one of the Counties identified as containing serpentinite and ultramafic rock. However, only the Catalina Island portion of Los Angeles County has been found to contain such rock; hence, it is not anticipated to be found in the project area. Therefore, no potential impacts from naturally occurring asbestos during project construction would occur. While unlikely, if naturally occurring asbestos, serpentine, or ultramafic rock is discovered during grading operations Section 93105, Title 17 of the California Code of Regulations requires notification to the AQMD by the next business day and implementation of the following measures within 24- hours:

- Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;
- The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;
- Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos; and
- Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.

Long-Term Effects – Operational Emissions

Operational emissions consider long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and all Build alternatives. The more detailed results comparing emissions analysis in the summary table below can be found in section 4.3 and Appendix B of the AQR.

Table 7. Summary of Comparative Emissions Analysis

Scenario/ Analysis Year	CO (tons/day)	PM_{10} (tons/day)	$PM_{2.5}$ (tons/day)	NOx (surrogate for NO_2) (tons/day)
Baseline (Existing Conditions) 2016	0.260647	0.001123	0.001063	0.083291
No-Build 2022	0.181668	0.000695	0.000654	0.057435
Build Alternative 2 2022	0.185838	0.000711	0.000669	0.058782
Build Alternative 3 2022	0.185118	0.000715	0.000672	0.059053
No-Build 2040	0.101712	0.000262	0.000244	0.018321
Build Alternative 2 2040	0.103507	0.000267	0.000249	0.018862
Build Alternative 3 2040	0.103903	0.000267	0.000250	0.018822

Existing land uses within the project area will remain unchanged by the project and the proposed project does not propose changes to the parking capacity within the project limits. Therefore, the proposed project would not increase the percentage of vehicles operating in cold start mode.

The I-605 freeway mainline traffic volumes show that the proposed project would not increase traffic on the freeway mainline by more than 5%. The proposed project does not generate additional traffic onto the mainline facility. The data also show that the proposed project would not increase traffic volumes at the intersections under study by more than 5% during the peak hours.

The proposed improvement would not worsen the flow or operations with the implementation of the project. The LOS for the majority will remain the same or slightly improve for the "Build" and "No Build" scenarios in 2022 and 2040.

Furthermore, the proposed project is anticipated to relieve congestion at the existing neighboring interchange, and to reduce travel time on the freeway and adjacent local streets. The proposed project would also help re-distribute the traffic from the surrounding existing local intersections.

CO Analysis

Based on the above discussions, the project is not anticipated to significantly: increase the percentage of vehicles operating in cold start mode; increase traffic volume; or worsen traffic flow. Therefore, based on the CO Protocol, the project is screened out and no further analysis, such as modeling, is required.

A comprehensive analysis of project-level CO, PM10, and PM2.5 has concluded that the proposed project is not likely to result in adverse impact on the ambient air quality in the project vicinity. Based on CO hot-spot analysis, it is unlikely that the proposed project will cause any new violations or worsen existing violations.

PM Analysis

The project site is in the SCAB that includes the following counties: Orange, Los Angeles (non-desert portions), and the urban areas of Riverside and San Bernardino which is in attainment-maintenance and nonattainment of the federal PM10 and PM2.5 standards respectively and state nonattainment for PM10 and PM2.5 standards. The final rule, requires that all projects in a PM non-attainment and maintenance area that are not exempt from the requirements to determine conformity, be reviewed by the Interagency Consultation to concur if the project is of concern for PMs. Within the Basin, the Interagency Consultation takes the form of the SCAG's Transportation Conformity Working Group (TCWG) where representatives from the FHWA, EPA, ARB, SCAQMD, and other local and state partners join and discuss transportation conformity issues. Pursuant to the requirements set forth in 40 CFR 93, the project summary was submitted for the Interagency Consultation. On June 26, 2018, the SCAG TCWG, in its monthly scheduled meeting, had discussed the project and concurred that the proposed project would not be a POAQC and would not cause or contribute to, or increase the severity of or exceedances of, or delay timely attainment of the NAAQS for PM2.5 and PM10. Therefore, conformity is demonstrated without a detailed or quantitative PM2.5 and PM10 hot-spot analysis (see Appendix

C for further details). A copy of the project summary submitted to the SCAG TCWG and their concurrence that the project is not of concern for PMs is provided in the AQR, Appendix E.

A qualitative emissions analysis is provided in Table 7 and a summary of emissions is provided to present a comparison with the appropriate baselines. It should be noted that the proposed project Alternatives are anticipated to result in an increase in future PM emissions when compared to the No-Build; but are anticipated to result in a decrease when compared to the existing baseline.

In June 26, 2018, the SCAG TCWG concurred that this project would not be a POAQC for PM2.5 and PM10. It is thus determined that this project has met the project-level conformity requirements for PM2.5 and PM10 without a detailed quantitative hot-spot analysis in accordance with the March 10, 2006 Final Rule. The activities of the proposed project are not expected to cause any new violations or worsen existing violations; and therefore, are deemed consistent with the purposes of the SIP. A qualitative emissions analysis was completed for PM2.5 and PM10 and summarized in Table 7. It should be noted that the proposed project Alternatives are anticipated to result in an increase in future PM emissions when compared to the No-Build; but are anticipated to result in a decrease when compared to the existing baseline.

NO_2 Analysis

NO_2 is among the near-road pollutants of concern. Proposed project is in attainment- unclassified area for federal and state standards. The 1-hour NO_2 concentration at Pico Rivera monitoring station ranged from 0.075 to 0.105 ppm. Monitored NO_2 concentrations did exceed the standards once from 2013 to 2017.

Cumulative/Regional/Indirect Effects

The proposed project is in the SCAB in Los Angeles County under the jurisdiction of the SCAQMD. The SCAB region is currently in nonattainment for PM2.5, PM10, and ozone. A cumulative impact analysis was conducted in the 2016 RTP/SCS. The result indicates that the 2016 RTP/SCS would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is designated nonattainment because the projected long-term emissions are in alignment with local AQMPs/SIPs as demonstrated in the conformity analysis. The result also demonstrates that when compared to existing conditions, implementation of the 2016 RTP/SCS would result in either no change or a decrease for PM2.5 and PM10. Ozone is assessed using emissions for the ozone precursors which include ROG and NOx. Since ROG and NOx emissions show a decrease from the existing conditions, the 2016 RTP/SCS would not contribute to a net increase in ozone. Long-term operational analyses are provided in the AQR, Section 4.3. Analyses demonstrated that proposed project is not anticipated to violate state and federal standards. In addition, this project is listed in the 2016 RTP/SCS and 2019 FTIP, which was found to conform to the SIP.

CEQA Analysis/Requirement

CEQA applies to most California transportation projects (certain projects are statutorily exempt) and an Initial Study (IS) is prepared for this project. CEQA requires that a range of reasonable alternatives are explored for the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

For CEQA, an air quality study should address pollutants for which California has established air quality standards (ozone, PM_{10}, $PM_{2.5}$, carbon monoxide, NO_2, SO_2, lead, visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride), as well as GHGs, MSATs, and asbestos. Like NEPA, analysis/documentation requirements for CEQA vary by pollutant, ranging from a narrative describing that the pollutant is typically not a transportation issue to an emissions analysis. If construction will last more than three years and/or will substantially impact traffic due to detours, road closures, and temporary terminations, then impacts of the resulting traffic flow changes may need to be analyzed. For CEQA analyses, analysts should compare emissions from the future year Build scenarios to emissions from the Baseline (existing conditions).

2.3.4 CEQA Checklist Evaluation

Applicable Air Quality Plan

The proposed project aims to alleviate congestion on the I-605, provide for all directional movements at the southbound interchange, and ease congestion at intersections near the interchange. As the AQR demonstrates, operational emissions improve, under both build alternatives, from the 2016 baseline (existing conditions). The project is listed in the 2016 RTP/SCS and 2019 FTIP. Therefore, the proposed project does not conflict with or obstruct implementation of the applicable air quality plan.

Air Quality Standards

Short-term Effects

During construction, short-term degradation of air quality may occur, under both Alternatives 2 and 3, due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NOx, VOCs, directly-emitted particulate matter (PM10 and PM2.5), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat. Construction activities associated with the build alternatives of the proposed project would be temporary and would not require more than five years to complete. Alternatives 2 and 3 have similar projected construction emissions based on the AQR analysis. Compliance with Caltrans Standard Specifications during construction is required and will reduce impacts related to construction emissions; for further discussion of project features that limit impacts see Section 2.3.6. Alternative 1 (No Build) does not produce short-term construction related emissions.

Long-term Effects

Existing land uses within the project area will remain unchanged by the project and the proposed project does not propose changes to the parking capacity within the project limits. Therefore, the proposed project would not increase the percentage of vehicles operating in cold start mode.

Data from the traffic analysis show that the proposed project would not increase traffic on the freeway mainline by more than 5%. The proposed project does not generate additional traffic onto the mainline facility. The data also show that the proposed project would not increase traffic volumes at the intersections under study by more than 5% during the peak hours.

The proposed improvement would not worsen the flow or operations with the implementation of the project. The LOS for the majority will remain the same or slightly improve for the "Build" and "No Build" scenarios in 2022 and 2040.

Furthermore, the proposed project is anticipated to relieve congestion at the existing neighboring interchange, and to reduce travel time on the freeway and adjacent local streets. The proposed project would also help re-distribute the traffic from the surrounding existing local intersections. Based on the above discussions, the project is not anticipated to significantly: increase the percentage of vehicles operating in cold start mode; increase traffic volume; or worsen traffic flow.

Pollutants under Non-Attainment Status

The proposed project is in Los Angeles County that is federally designated as non-attainment for both $PM_{2.5}$ and PM_{10}. In June 26, 2018, the SCAG TCWG concurred that this project would not be a POAQC for $PM_{2.5}$ and PM_{10}. It should be noted that the proposed project Alternatives are anticipated to result in an increase in future PM emissions when compared to the No Build; but are anticipated to result in a decrease when compared to the existing baseline.

Sensitive Receptors

As the AQR indicates, there are sensitive receptors within 500 feet of the project. Much of the existing land use in the project area is industrial, commercial, and residential. While the project would not yield long-term air quality affects in the surrounding area, short-term affects may occur. Air quality impacts affecting sensitive receptors may arise from emissions produced during construction. The project is required to comply with the SCAQMD Fugitive Dust Rule to minimize emissions of dust during construction. Exhaust emissions from construction equipment are another potential temporary impact on sensitive receptors. To minimize the temporary exhaust emissions from the heavy-duty trucks and construction equipment adjacent to certain sensitive receptors, certain construction activities, e.g., extended idling, material storage, and equipment maintenance, would need to be conducted in areas at least 500 feet away from those sensitive receptors. Further discussion of measures to avoid or minimize impacts during construction is located in section 2.3.6.

2.3.5 Avoidance, Minimization, and Mitigation Measures

Construction of the project would be required to comply with Caltrans' Standard Specifications. Caltrans' specifications pertaining to dust control and dust palliative requirements are a required part of construction contracts and should effectively reduce and control emission impacts during construction. These requirements include regular watering of areas disturbed by construction activities. Furthermore, the State Health and Safety Code requires the contractor to prevent visible dust from leaving the construction site.

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control will reduce any air quality impacts resulting from construction activities.

AQ-1 (Minimization)	The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2018).
AQ -2 (Minimization)	Caltrans' Standard Specifications, 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.
AQ -3 (Minimization)	Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. This measure will comply with the Stormwater Pollution Prevention Plan requirements referenced in Measure WQ-4.
AQ-4 (Minimization)	Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.
AQ -5 (Minimization)	Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions. This measure will comply with the Stormwater Pollution Prevention Plan requirements referenced in Measure WQ-4.
AQ -6 (Minimization)	Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.
AQ-7 (Minimization)	A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed

slopes as needed to minimize construction impacts to existing communities.

AQ -8 (Minimization) Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.

AQ -9 (Minimization) 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.

AQ -10 (Minimization) 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.

AQ-11 (Minimization) All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.

AQ -12 (Minimization) Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions.

AQ -13 (Minimization) 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.

AQ -14 (Minimization) Mulch will be installed, or vegetation planted as soon as practical after grading to reduce windblown PM in the area.

AQ -15 (Minimization) During construction, contractors are required to comply with the requirements of all applicable state and local regulations including, but not limited to, SCAQMD Rules 401 (Visible Emissions), 402 (Nuisance), and 403 (Fugitive Dust).

AQ-16 (Minimization) Construction of the proposed project shall comply with all applicable SCAQMD Rules. While construction equipment on site would generate some objectionable odors primarily arising from diesel exhaust, these emissions would generally be limited to the project site and would be temporary in nature. Objectionable odors should also be minimized by conducting certain construction activities in areas at least 500 feet from the sensitive receptors as feasible

2.4 Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES: Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

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?	☐	☐	☐	☒

A Caltrans District Biologist prepared a Natural Environment Study (NES) for the proposed project in June 2018. Using a field survey and standard online research methods, the District Biologist determined that the proposed project poses minimal risk of affecting biological resources within the study area. The District Biologist performed a literature review for the project area, consisting of species list generation from the following agencies: United States Fish and Wildlife Service (USFWS), California Natural Diversity Database

The Biological Study Area (BSA), as defined in the NES, includes the area west of the I-605 both north and south of the Beverly Boulevard interchange between PM R14.1-R14.6, see Figure 9. The study area is within a highly urbanized area, zoned for general industrial and light industrial, and is adjacent to an active railroad line, shipping facilities, and freight facilities. The San Gabriel River is approximately two tenths (0.2) of one mile from the proposed project site.

Figure 9 - Biological Study Area

The BSA consists of a sloping hillside descending from the I-605 mainline into a ravine. The area consists of developed, landscaped, bare, and disturbed habitat in a highly urbanized section of Los Angeles County. Existing plant life generally consists of non-native, ornamental vegetation (see figures 10 and 11). According to literature searches with United States Fish and Wildlife Service (USFWS), California Natural Diversity Database (CNDDB), USFWS Information for Planning and Coordination (IPaC), and

California Native Plant Society (CNPS), there is one threatened and endangered plant within the project quadrangle: Nevin's Barberry (*Berberis nevinni*). During the June 2018 field survey, no special status plants were observed within the BSA. In addition, habitat for these species is not present.

Figure 10 – Southbound off-ramp, north facing view showing existing vegetation and debris

There is no riparian habitat, federally protected wetland, or other sensitive natural community located within the project area.

According to USFWS, CNDDB, IPAC, and NMFS, there are seven threatened or endangered animal species that have the potential to occur within the project quadrangle: Coastal California gnatcatcher (Polioptila californica californica), Least Bell's vireo (Vireo bellii pusillus), Swainson's hawk (Buteo swainsoni), Western yellow-billed cuckoo (Coccyzus americanusoccidentalis), Bank swallow (Riparia riparia), Southwestern willow flycatcher (Empidonax traillii extimus), and Southern California steelhead trout (Oncorhynchus mykiss). However, due to the lack of suitable habitat, none of these species is expected to occur within the BSA. The presence of sensitive animal species was not noted in aerial map surveys or during field research.

Although the project area is highly urbanized without suitable habitat, there is potential for the presence of migratory birds during certain times of year. Measures BIO-1, BIO-2, and BIO-3 provide a strategy to avoid and/or minimize interactions with migratory birds.

Caltrans staff reviewed relevant city and county biological resources conservation plans to ensure consistency. The Pico Rivera General Plan lists several policies relevant to the protection of biological resources: Policy 8.6-4 Tree Preservation and 8.6-6 Native Plants[5]. Although there are no specific

[5] Pico Rivera General Plan page 8-14

measures or replacement ratios prescribed in the General Plan for tree preservation or native plants, the project, as described, would not conflict with the policies included in the Pico Rivera General Plan. Additionally, the project does not conflict with the LA County General Plan, Natural Resources Element,[6] as the proposed work does not extend into undeveloped areas.

Figure 11- Beverly Blvd. view facing south

2.4.1 Avoidance, minimization, and/or mitigation Measures

The NES concluded that the proposed build alternatives would not result in impacts to the biological environment. However, the study makes several recommendations to protect biological resources in the project area.

BIO-1 (Avoidance)	There is the potential for the presence of migratory birds within the project area. The Division of Environmental Planning recommends that vegetation removal and/or the use of loud machinery occur outside of nesting bird season, which is February 1st through September 1st.
BIO-2 (Avoidance)	Should it be necessary for vegetation removal and/or the use of loud machinery to occur during nesting bird season, the Resident Engineer (RE) shall notify the Caltrans District Biologist two weeks prior to commencement of work, so the District Biologist is able to perform a nesting bird survey.

[6] LA County General Plan Chapter 9 Accessed 10/3/18 http://planning.lacounty.gov/generalplan/generalplan

BIO-3 (Minimization)	Nesting birds are protected under the Migratory Bird Treaty Act (MBTA). In the event that nesting birds are observed in the project area, work shall cease and the RE will coordinate with the District Biologist to minimize the potential to violate the MBTA.
BIO-4 (Minimization)	The Division of Environmental Planning recommends replanting suitable native trees and vegetation that will cater to the birds and wildlife in the area.
BIO-5 (Minimization)	This project must employ all appropriate temporary construction Best Management Practices (BMPs), and these must be incorporated into the project specifications. Prior to the start of construction, all drain inlets must be protected to prevent construction materials and/or debris from entering waterways.
BIO-6 (Minimization)	No asphalt grindings shall be used within 100 feet of any water course. Water course, for this purpose, is defined as any feature, either natural or man-made, which conveys water during any time of the year. The limitation on asphalt use near waterways is restricted to compacted shoulder backing.

2.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

Caltrans district staff conducted a review of the proposed project for paleontological sensitivity based on Caltrans Paleontological Identification Reports/ Paleontological Evaluation Reports prepared for projects within the same area. Review of project plans demonstrates that the Beverly Boulevard ramps are composed of artificial fill imported to create the elevated structures. Construction of the I-605 in the early 1960s extensively modified the project area, and construction for the proposed project will take place with in the disturbed, imported sediment. Project elements, like support columns and piles, with the potential to disturb paleontological resources are generally constructed through drilling or pile driving, which offers little chance for resource recovery. Caltrans staff determined the proposed project has low potential to affect paleontological resources.

Caltrans staff conducted a review of archaeological and built environment resource sensitivity for the proposed project, using the District 7 Cultural Resources Database (CCRD), files, maps, and photographs for the project area. The proposed project requires no permanent right-of-way (ROW) acquisition or utility relocation, and work would take place within Caltrans ROW. The likely depth of ground disturbance would fall between three and ten feet. Based on the above-mentioned review and project characteristics, the proposed project has no potential to affect historic properties eligible for or listed in the National Register of Historic Places (NRHP).

2.5.1 Avoidance, minimization, and/or mitigation Measures

CUL-1 (Minimization)	If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.

2.6 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS: Would the project:				
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?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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?	☐	☐	☐	☒

Caltrans staff approved a *District Preliminary Geotechnical Report* (DPGR) on August 17, 2018, which reviewed the proposed project in the context of the physical setting, geology of the area, and the geotechnical conditions. Methods employed for this analysis include the following: site reconnaissance, seismic analysis, and geotechnical design and analysis.

A review of available literature indicates that there are no known or potentially active faults identified at the project site. The project site is not located within the Alquist-Priolo Earthquake Fault Zone.

The seismic analysis identified ground shaking resulting from an earthquake occurring along one of several major active or potentially active faults in Southern California as the principal seismic hazard that could affect the site.

Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during ground shaking and is primarily associated with loose, cohesionless soils. The project is not located within an area designated as potentially liquefiable on the California *Seismic Hazard Map.* Liquefaction-induced settlement occurs below groundwater. The DPGR anticipates the groundwater table in the area to be at a depth of 55 feet or greater. As such the analysis concludes that the potential for liquefaction occurrence at the site is low.

Seismic settlement consists of liquefaction, as discussed above, and dry dynamic settlement, which occurs above groundwater. Dry dynamic settlement occurs primarily within loose to moderately dense sandy soil due to reduction in volume as a result of an earthquake event. Test borings drilled at the project site revealed the sandy layer composition to be dense to very dense. The DPGR analysis anticipates less than one inch of seismically-induced settlement.

The potential for a seismically-induced landslide is considered low due to the absence of natural slopes at the project site. Any proposed slopes should be engineered and constructed at a gradient of 1 ½:1 (horizontal:vertical) or flatter and designed during PS&E phase.

2.6.1 Avoidance, minimization, and/or mitigation Measures

GEO-1 (Minimization) All grading should be performed in accordance with Caltrans Standard Specifications except as indicated in the Special Provisions prepared for this project. Fill placed on sloping ground should be properly keyed and benched into existing ground and placed as specified in Section 19-6 of the Caltrans Standard Specifications.

GEO-2 (Minimization) Any soils to be placed as fill, whether onsite or imported material, should be reviewed and approved by the Geotechnical Engineer of Record. All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to near-optimum moisture content, and compacted to a minimum 90 percent relative compaction per Caltrans Test Method 216. Aggregate base should also be compacted to a minimum of 95 percent relative compaction.

GEO-3 (Minimization) All temporary excavations, including utility trenches and foundation excavations, should be performed in accordance with project plans, specifications and all OSHA requirements.

GEO-4 (Minimization) Proposed embankments should be supported on competent fill or native soils. All unsuitable near-surface deposits should be excavated and removed from the proposed embankment footprint prior to fill placement. The embankment subgrade should be observed and approved by the Geotechnical Engineer of Record.

GEO-5 (Minimization) The planned retaining walls are expected to encounter fill materials and/or alluvial deposits. If undocumented artificial fill is encountered, the fill materials should be removed and recompacted. The retaining walls should be backfilled with onsite or imported non-expansive soil, and constructed with a backdrain in accordance with Caltrans standard plans and specifications.

2.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	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 of the document.			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

For a detailed discussion related to greenhouse gas emissions, please see section 2.20 Climate Change.

2.8 Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Caltrans staff approved an *Initial Site Assessment* (ISA) for the project in February 2019 to identify recognized environmental conditions (REC), historical recognized environmental conditions (HREC), and/or controlled recognized environmental conditions (CREC). The ISA employed the use of several research methods, including an environmental database search, an historical land use records review, an agency records review, and site reconnaissance.

The ISA revealed evidence of several RECs related to the project that require additional investigation:

- Potential for presence of Organochlorine pesticides (OCP) and arsenical pesticides as a result of agricultural land uses in and around the project area;
- Potential for presence of Aerially Deposited Lead (ADL) due to proximity to the I-605;
- Potential soil contamination including petroleum hydrocarbons, asbestos, volatile organic compounds, semi-volatile organic compounds, and metals due to proximity to UPRR ROW;
- Presence of stockpiles of unknown origin, potentially causing soil contamination, in the vicinity of the Beverly Boulevard off-ramp; and
- Proximity to a historic landfill, the Guirado dump.

The assessment identified other environmental concerns, not considered RECs, in the area:

- Potential presence of treated wood waste and
- The potential presence of lead and chromium in yellow and white pavement striping.

The historic high depth to groundwater in the project area is approximately 18 feet below ground surface (bgs), but the deepest anticipated depth of disturbance is 15 feet bgs. Limited soil disturbance, no deeper than 5 feet bgs, is anticipated within the temporary construction easement (TCE) and permanent maintenance easement (PME), and it is unlikely that groundwater will be encountered within the TCE and PME during construction. As a result, groundwater testing is not proposed as part of the site investigations, which will be discussed further below.

Soil disturbance is expected to occur throughout the project limits. The estimated depth of disturbance ranges from 5 feet bgs to 15 feet bgs.

Proposed Site Investigations

The ISA recommends site investigations (SI) based the study findings. The SIs will be conducted during the Plans, Specification, and Estimate (PS&E) phase of the project. Parcels in which SIs were recommended are presented in Table 8 and shown on Figure 12 (excerpted form the Initial Site Assessment Report labeled "Figure 3"), and are summarized below:

- OCPs and Pesticides – Complete investigation of soil located within the project limits to assess the presence or absence of impacts. Soil borings should extend to the maximum depth of planned soil disturbance and soil samples should be collected at select intervals. Soil samples should be analyzed for OCPs and arsenic. This includes the TCE/PME areas for Alternatives 2 and 3.
- ADL – Complete investigation of near surface soil (upper 5 feet) located adjacent to historical and existing roadways to assess the presence or absence of impacts. Unpaved soils adjacent to the existing roadway should be tested for ADL according to Caltrans ADL testing guidelines.
- UPRR ROW – Complete investigation of soil located adjacent to historical and existing UPRR ROWs to assess the presence or absence of impacts. Unpaved soils adjacent to the existing UPRR ROWs should be tested for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-VOCs (SVOCs), Title 22 Metals, and asbestos. Soil samples should be collected to the maximum lateral and vertical extent of planned excavation. This includes the TCE/PME areas for Alternatives 2 and 3.
- Soil Stockpiles – Complete investigation of soil stockpiles to assess the presence or absence of impacts. Soil samples collected from the stockpiles should be tested for TPH, VOCs, SVOCs, Title 22 Metals, polychlorinated biphenyls (PCBs), OCPs, and asbestos.
- Guirado Dump – Complete investigation of soil of project area located within the boundaries of the former Guirado Dump. Soil samples should be tested for TPH, VOCs, semi-VOCs (SVOCs), Title 22 Metals, PCBs, and asbestos. Soil samples should be collected to the maximum lateral and vertical extent of planned excavation. This includes the TCE/PME area for Alternatives 2.

Encroachment permits and/or access agreements will need to be obtained from Caltrans and UPRR to complete the above SIs. The process of obtaining the necessary permits/access agreements should be commenced as early as possible during the PS&E phase to avoid potential delays. In addition, a work plan summarizing the proposed scope of the SIs, including a sample and analysis plan and health and safety plan, will be submitted to Caltrans for review and approval prior to implementation of the SIs.

No HRECs or CRECs were identified within or adjacent to the Project limits during the preparation of this ISA.

A review of the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder database was conducted for the ISA. Oil or gas wells were not depicted within or adjacent to the proposed project limits.

TABLE 8 - ISA Findings and Recommendations				
Area ID and Figure #	**Parcel**	**Land Use**	**REC**	**Site Investigation Recommendation**
--	Project Area	Existing ROW	The project area is an existing roadway corridor and the potential for soil impacts from ADL exists.	Complete investigation of near surface soil located adjacent to existing roadways to assess the presence or absence of impacts. Unpaved soils adjacent to the existing roadways should be tested for ADL according to Caltrans ADL testing guidelines. ADL soils should be handled in accordance with the current applicable Caltrans SSP.
--	Project Area	Existing ROW	The project area was historically used as orchards and agricultural land. Organochlorine pesticides (OCPs) and arsenical pesticides may have been utilized and applied to the soil within the project limits during that time.	Complete investigation of soil located within areas to be disturbed to assess the presence or absence of impacts. Soil samples should be tested for the presence of OCPs and arsenic.
Area 1 Figure 3	Southbound (SB) I-605 Off-ramp	Existing ROW	Stockpiles of unknown origin were observed adjacent to the SB I-605 off-ramp. The stockpiles may contain contaminants of concern.	Complete investigation of soil stockpiles to assess the presence or absence of impacts. Soil samples collected from the stockpiles should be tested for the presence of total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-VOCs (SVOCs), Title 22 Metals, polychlorinated biphenyls (PCBs), OCPs, and asbestos.
Area 2 Figure 3	SB I-605 Off-ramp	Existing ROW	The SB I-605 off-ramp is located adjacent to the current UPRR ROW. Soil contaminants associated with railroad ROWs may exist.	Complete investigation of near surface soil located adjacent to the current UPRR ROW to assess the presence or absence of impacts. Soil samples should be tested for the presence of TPH, VOCs, SVOCs, Title 22 Metals, and asbestos.
Area 3 Figure 3	SB I-605 Off-ramp	Existing ROW	The majority of the southern portion of the project area, including the existing and proposed SB I-605 on-ramp, is identified within the limits of a historic landfill, the Guirado Dump. Soil contaminants associated with landfills may exist.	Complete investigation of soil located within areas to be disturbed to assess the presence or absence of impacts. Soil samples should be tested for the presence of TPH, VOCs, SVOCs, Title 22 Metals, PCBs, and OCPs.
Area 4 Figure 3	SB I-605 Off-ramp	Existing ROW	The southern terminus of the SB I-605 on-ramp is located adjacent to a former UPRR ROW. Soil contaminants associated with railroad ROWs may exist.	Complete investigation of near surface soil located adjacent to the former UPRR ROW to assess the presence or absence of impacts. Soil samples should be tested for the presence of TPH, VOCs, SVOCs, Title 22 Metals, and asbestos.

Area 5 Figure 3	Build Alternative 2 TCE/PME Area	UPRR ROW	The TCE/PME area for Build Alternative 2 was historically used as orchards and agricultural land. OCPs and arsenical pesticides may have been utilized and applied to the soil within the project limits during that time.	Complete investigation of soil located within the TCE/PME area to assess the presence or absence of impacts. Soil samples should be tested for the presence of OCPs and arsenic.
Area 5 Figure 3	Build Alternative 2 TCE/PME Area	UPRR ROW	The TCE/PME area associated with Build Alternative 2 is identified within the limits of a historic landfill, the Guirado Dump. Soil contaminants associated with landfills may exist.	Complete investigation of soil located within the TCE/PME area to assess the presence or absence of impacts. Soil samples should be tested for the presence of TPH, VOCs, SVOCs, Title 22 Metals, PCBs, and OCPs.
Area 6 Figure 3	Build Alternative 3 TCE/PME Area	UPRR ROW	The TCE/PME areas for Build Alternative 3 were historically used as orchards and agricultural land. OCPs and arsenical pesticides may have been utilized and applied to the soil within the project limits during that time.	Complete investigation of soil located within the TCE/PME areas to assess the presence or absence of impacts. Soil samples should be tested for the presence of OCPs and arsenic.
Area 6 Figure 3	Build Alternative 3 TCE/PME Area	UPRR ROW	The TCE/PME areas associated with Build Alternative 3 are located adjacent to the current UPRR ROW. Soil contaminants associated with railroad ROWs may exist.	Complete investigation of near surface soil within the TCE/PME areas to assess the presence or absence of impacts. Soil samples should be tested for the presence of TPH, VOCs, SVOCs, Title 22 Metals, and asbestos.

Notes:
REC = Recognized Environmental Condition TCE = Temporary Construction Easement
ROW = Right of Way PME = Permanent Maintenance Easement
ADL = Aerially Deposited Lead

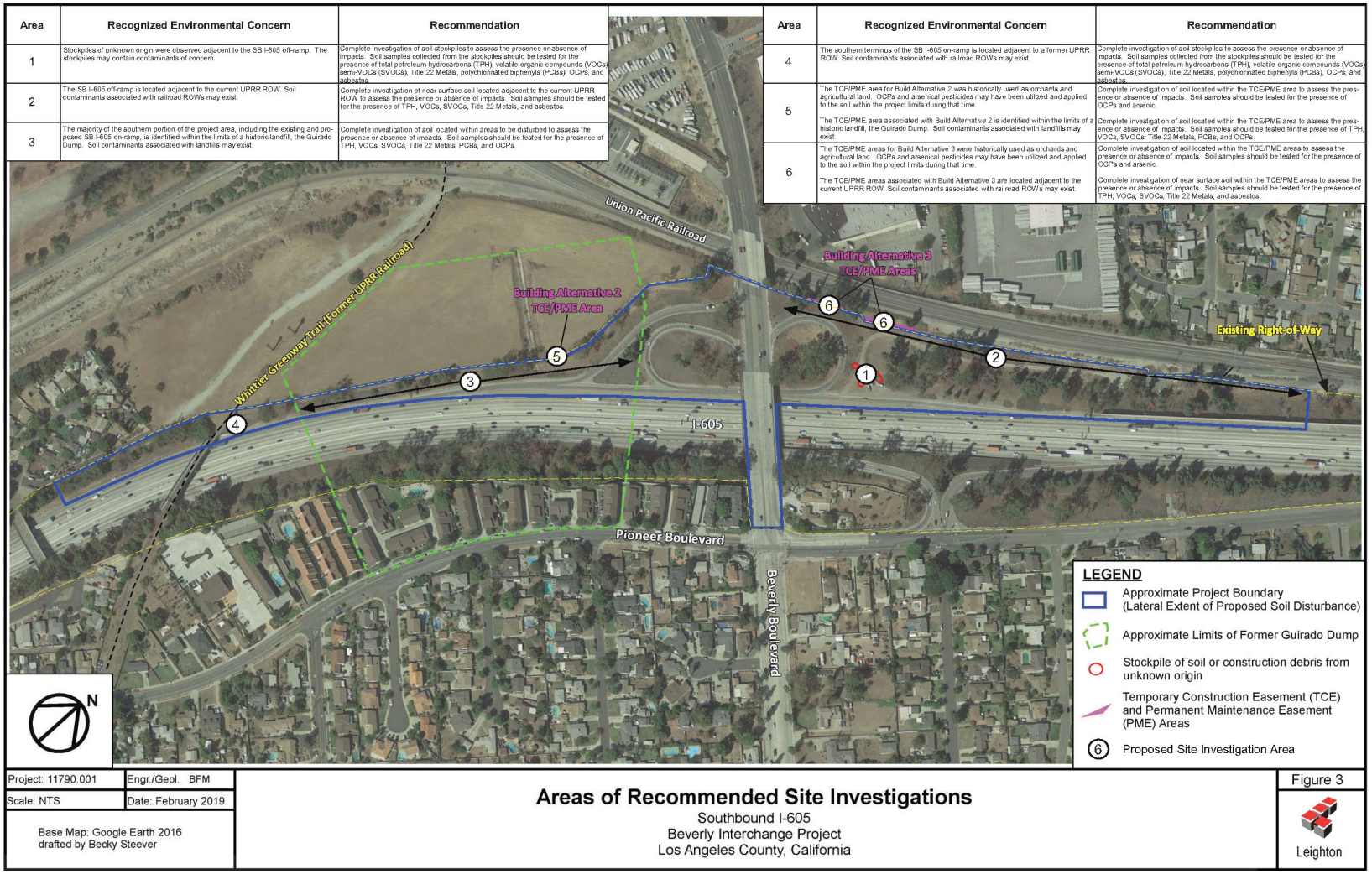

Figure 12 - Areas of Recommended Site Investigations

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2.8.1 Avoidance, Minimization, and/or Mitigation Measures

HW – 1 (Minimization)	Complete investigation of near surface soil located adjacent to existing roadways to assess the presence or absence of impacts. Unpaved soils adjacent to the existing roadways will be tested for ADL according to Caltrans ADL testing guidelines. ADL soils will be handled in accordance with the applicable 2018 Caltrans Standard Special Provision (SSP).
HW – 2 (Minimization)	If treated wood is to be removed within the proposed project limits, handling, disposal, and proper management of the treated wood waste (TWW) will be conducted in accordance with Appendix XII of the California Code of Regulations, Title 22, Division 4.5, Chapter 11 and the current applicable SSP.
HW – 3 (Minimization)	Conduct a Site Investigation (SI) during the PS&E phase to determine the presence of hazardous materials within the project area.
HW – 4 (Minimization)	Obtain encroachment permits and/or access agreements early in PS&E phase to avoid potential delays.
HW – 5 (Minimization)	Elevated concentrations of lead and chromium may be present in the striping paint used on the existing roadways within the proposed project limits. Yellow and white paint striping will be managed in accordance with Construction Program Procedure Bulletin 99-2 and the current applicable Caltrans SSPs for areas where striping will be disturbed or removed by the project.
HW – 6 (Minimization)	Prepare a Work Plan, in accordance with current applicable Caltrans standards, to support the Site Investigation during the PS&E phase.
HW – 7 (Minimization)	Prepare a Health and Safety Plan, in accordance with current applicable Caltrans standards, to support the Site Investigation during the PS&E phase.
HW – 8 (Minimization)	Upon completion of the Site Investigation, a report will be produced with the findings of the SI. The findings will be incorporated in the final design of the project.

2.9 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

Water Quality Standards and Discharge Requirements

According to the Long Form Stormwater Data Report (SWDR), the project falls within the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). The interchange is located within the Municipal Separate Storm Sewer System (MS4) system limits for the City of Pico Rivera. The project limits are within the San Gabriel River watershed, in the Lower San Gabriel Hydrologic Area and Hydrologic Sub-Area 405.15. The receiving water body, the San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam) is on the 303d list of impaired receiving bodies. Pollutants with established TMDLs for Reach 2 have been identified as lead. Pollutants on the TMDL required 303(d) list are cyanide, temperature, and water. There are no drinking water supply reservoirs or groundwater recharge facilities within or directly adjacent to the project area. The project is not discharging to an Area of Special Biological Significance (ASBS). The Los Angeles Water Quality Control Board (LAWQCB) has not identified special requirements.

No existing treatment BMPs will be removed as result of the project. The post construction treatment area (PCTA) as 2.8 acres. BMPs will be employed to treat this acreage to address Total Maximum Daily Loads (TMDLs).

Drainage

Caltrans staff approved a preliminary drainage report for the project in December 2018. Both of the proposed realignment alternatives will necessitate relocation of portions of the existing drainage systems; however, the drainage patterns will remain the same. Proposed on and off ramps will increase the impervious area slightly, and the increase will be minimized by the proposed detention basin.

Therefore, it is reasonable to assume that the related runoff peaks will also be minimal and impact to the existing drainage facilities will be negligible.

Floodplains

According to the SWDR, the proposed project is not within a floodplain. Additionally, the proposed project is a transportation project and will not place housing within a 100-year flood hazard area.

Inundation

The project is not located in an area subject or seiche, tsunami, or mudflow.

2.9.1 Avoidance Minimization and/or Mitigation Measures

WQ – 1 (Minimization)	The following methods will be utilized during construction to minimize erosion from slopes: disturbing existing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, incorporating retaining walls to reduce steepness of slopes, providing cut and fill slopes flat enough to allow re-vegetation and to limit erosion to pre-construction rates, rounding and shaping slopes to reduce concentrated flow, and collecting concentrated flows in stabilized drains.
WQ – 2 (Minimization)	Install permanent stormwater pollution controls and treatment BMPs including vegetated slopes, conveyance systems, bioswales, and a detention basin as early as practical during construction address construction stormwater impacts.
WQ – 3 (Minimization)	The construction will be scheduled to minimize soil-disturbing work during the rainy season.
WQ – 4 (Minimization)	Prepare a Stormwater Pollution Prevention Plan (SWPPP) as described in Caltrans' Standard Specification (2018) section 13-3.

2.10 Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

The proposed project would not physically divide an established community. The project is entirely within Caltrans ROW, proposes no construction of additional roads, and does not require the acquisition of property. Further, the project limits are in an area of the City of Pico Rivera that is primarily zoned for industrial purposes and includes freight facilities and a recreational vehicle storage lot.

Both build alternatives of the proposed project are consistent with the Pico Rivera General Plan, which make specific reference to areas immediately north (Sub-Area 1) and south (Sub-Area 2) of Beverly Boulevard[7]. The discussion of these sub-areas in the General Plan denotes the limited access to the vacant parcel in Sub-Area 2 and directs the City to make redevelopment of the area a priority. The area is currently bounded by Beverly Boulevard, UPRR ROW, and Caltrans ROW, making entry to the area challenging. There is one point of access from Eduardo Avenue which is in an unincorporated area at the southern portion of Sub-Area 2. Build Alternative 2 proposes a diamond configuration of ramps both north and south of Beverly Boulevard. This ramp configuration provides only a narrow area for potential access from Beverly Boulevard, east of the bridge that spans UPRR ROW. However, Alternative 2 does not preclude construction of a new access point west of the bridge that spans UPRR ROW. Build Alternative 3 offers the easiest potential access to the parcel because all proposed construction and access to and from the 605 mainline would occur north of Beverly Boulevard.

[7] Pico Rivera General Plan pg 3-74 through 3-76.

The proposed project does not conflict with any applicable habitat conservation plan or natural community conservation plan. The project area is not within a current conservation plan area.

2.11 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES: Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

There are no mineral resources present in the project vicinity. According to the Pico Rivera General Plan, exploratory wells provided no indication of the presence of oil or natural gas within the City. The General Plan also states that there are no "commercially viable sand and gravel resources" in the City.[8] Due to the lack of mineral resources present in the project vicinity, the proposed project would have no impact on mineral resources.

[8] General Plan pg 8-7

2.12 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. NOISE: Would the project result in:				
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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Caltrans staff prepared a Noise Study Report (NSR) for the project in February 2019. The NSR evaluates the entire area within the project limits. Preliminary noise abatement measures necessary for the proposed project to comply with state noise abatement regulations are also analyzed and presented in this document.

A field noise investigation was conducted to determine existing noise levels and gather information to develop and calibrate the traffic noise model that was used for predicting future noise levels. The entire area within the project limits was acoustically represented by 17 noise site locations. Existing noise levels were recorded at 9 locations and modeled at 8 locations. These locations are acoustically representative of the noise environment and land uses within the limits of the project. The existing ambient noise levels measured were between 58 and 73 decibels (dBA). Two long- term (24-hour) noise level readings were conducted to determine the noisiest hour within the project limits.

Sound level readings, traffic counts and pertinent field data such as traffic flow speed and topography of the locations were used to develop the computer traffic noise model for each analysis site. The computer traffic noise model was then used to predict future noise levels to identify traffic noise impacts and recommend abatement for the impacted area. Tables 10 and 11 below, which are excerpted from the NSR, summarize the traffic noise modeling results for alternatives 1, 2, and 3.

Noise analysis for projects under CEQA centers on whether the 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 comparing the existing noise level (or baseline environmental setting) to the predicted noise level with the project. Under CEQA, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level. Figure 13 provides general examples of various noise sources with a corresponding estimated decibel level

In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5-dBA increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

In California a noise level is considered to approach the NAC for a given activity category if it is within 1 dBA of the NAC. Table 9 below describes the activity categories. In California a substantial noise increase is considered to occur when the project's predicted worst-hour design-year noise level exceeds the existing worst hour noise level by 12 dBA or more. The use of 12 dB was established in California and is based on the concept that a 10 dB increase generally is perceived as a doubling of loudness.

Table 9 Activity Categories and Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
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.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care 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, day care 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			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The Leq(h) and L10(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
[2] Includes undeveloped lands permitted for this activity category.

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA-Leq(h) in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA-Leq(h). If the noise levels generated from freeway and non-freeway sources exceed 52 dBA-Leq(h) prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

Overall reasonableness is determined by the acoustical design goal, the cost of the abatement, and viewpoints of the benefited receptors. Caltrans acoustical design goal is that an abatement barrier must be predicted to provide at least 7 dBA of noise reduction at one or more benefited receptors.

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Table 10 Traffic Noise Measurements & Modeling Results I-605 - Alternative-2 Diamond Configuration														
Receiver	**Direction**	**Location**	**Land Use**	**Noise Abatement Category**	**Field-Measured Noise Level**	**Modeled Noise Level**	**K-Factor**	**Existing Worst-Hour Noise Level**	**Future (2040) No Build Noise Level Alternative 1**	**Noise Increase (No Build Vs. Existing)**	**Future Worst-Hour Noise Level Alternative 2**	**Impact Type**	**Noise Increase (Build Vs. Existing)**	**Noise Increase (Build Vs. No Build)**
R1	SB	10008 Eduardo Ave	R	B (67)	65.7	68.1	-2.4	69.4	69.4	0.0	69.4	A/E	0.0	0.0
R2[24]	NorthBound	5627 Pioneer Blvd			57.7	60.5	-2.8	60.5	60.5	0.0	60.5	N	0.0	0.0
MR2 (Modeled)		5627 Pioneer Blvd	CH	C (67)	-	57.6	-2.8	60.5	60.5	0.0	60.5	N	0.0	0.0
M1R2 (Modeled)		5551 Pioneer Blvd	Residential	B (67)	-	69.4	-2.8	71.4	71.4	0.0	71.5	A/E	0.1	0.1
R3		5527 Pioneer Blvd			67.4	67.7	-0.3	70.2	70.2	0.0	70.2	A/E	0.0	0.0
MR3 (Modeled)		5527 Pioneer Blvd			-	66.1	-0.3	68.9	68.9	0.0	68.9	A/E	0.0	0.0
M1R3 (Modeled)		5501 Pioneer Blvd			-	71	-0.3	73.0	73.0	0.0	73.1	A/E	0.1	0.1
R4		10205 Sherrill St			57.7	59.1	-1.4	61.4	61.4	0.0	61.4	N	0.0	0.0
R5		5439 Pioneer Blvd #12			68.4	68.7	-0.3	71.2	71.2	0.0	71.2	A/E	0.0	0.0
M1R5 (Modeled)		5573 Pioneer Blvd			-	67.5	-0.3	70.3	70.3	0.0	70.3	A/E	0.0	0.0
M2R5 (Modeled)		5459 Pioneer Blvd			-	67.3	-0.3	70.1	70.1	0.0	70.1	A/E	0.0	0.0
R6		10165 Beverly Blvd			72.8	75.4	-2.6	73.2	74.5	1.3	74.6	A/E	1.4	0.1
MR6 (Modeled)		10165 Beverly Blvd			-	63.5	-2.6	64.0	65.1	1.1	65.1	N	1.1	0.0
R7[24]		10203 Lundene Dr			60.7	62.5	-1.8	61.1	62.0	0.9	62.1	N	1.0	0.1
R8*		5042 Pioneer Blvd			68.1	70.0	-1.9	69.5	69.7	0.2	69.8	A/E	0.3	0.1
MR8 (Modeled)		5042 Pioneer Blvd			-	62.4	-1.9	63.7	64.0	0.3	64.1	N	0.4	0.1
R9	SB	3942 Croton Ave			58.6	60.3	-1.7	60.0	60.0	0.0	62.8	N	2.8	2.8

Note: All noise levels are in dBA-Leq(h)

[24] 24-Hour noise measurement site

Land Use: CH=Church, R=Residential

* Calibration purpose only. No frequent human use area identified (access to property not available)

Impact Type: N=No Impact; A/E=Approach/Exceed

SB= Southbound

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Table 11 Traffic Noise Measurements & Modeling Results I-605 - Alternative-3 Modified Diamond With SB Loop Ramp

Receiver	Direction	Location	Land Use	Noise Abatement Category	Field-Measured Noise Level	Modeled Noise Level	K - Factor	Existing Worst-Hour Noise Level	Future (2040) No Build Noise Level Alternative 1	Noise Increase (No Build Vs. Existing)	Future Worst-Hour Noise Level Alternative 3	Impact Type	Noise Increase (Build Vs. Existing)	Noise Increase (Build Vs. No Build)
R1	SB	10008 Eduardo Ave	R	B (67)	65.7	68.1	-2.4	69.4	69.4	0.0	69.4	A/E	0.0	0.0
R2[24]	NorthBound	5627 Pioneer Blvd			57.7	60.5	-2.8	60.5	60.5	0.0	60.5	N	0.0	0.0
MR2 (Modeled)		5627 Pioneer Blvd	CH	C (67)	-	57.6	-2.8	60.5	60.5	0.0	60.5	N	0.0	0.0
M1R2 (Modeled)		5551 Pioneer Blvd	Residential	B (67)	-	69.4	-2.8	71.4	71.4	0.0	71.5	A/E	0.1	0.1
R3		5527 Pioneer Blvd			67.4	67.7	-0.3	70.2	70.2	0.0	70.2	A/E	0.0	0.0
MR3 (Modeled)		5527 Pioneer Blvd			-	66.1	-0.3	68.9	68.9	0.0	68.9	A/E	0.0	0.0
M1R3 (Modeled)		5501 Pioneer Blvd			-	71	-0.3	73.0	73.0	0.0	73.1	A/E	0.1	0.1
R4		10205 Sherrill St			57.7	59.1	-1.4	61.4	61.4	0.0	61.4	N	0.0	0.0
R5		5439 Pioneer Blvd #12			68.4	68.7	-0.3	71.2	71.2	0.0	71.2	A/E	0.0	0.0
M1R5 (Modeled)		5573 Pioneer Blvd			-	67.5	-0.3	70.3	70.3	0.0	70.3	A/E	0.0	0.0
M2R5 (Modeled)		5459 Pioneer Blvd			-	67.3	-0.3	70.1	70.1	0.0	70.1	A/E	0.0	0.0
R6		10165 Beverly Blvd			72.8	75.4	-2.6	73.2	74.5	1.3	74.6	A/E	1.4	0.1
MR6 (Modeled)		10165 Beverly Blvd			-	63.5	-2.6	64.0	65.1	1.1	65.1	N	1.1	0.0
R7[24]		10203 Lundene Dr			60.7	62.5	-1.8	61.1	62.0	0.9	62.1	N	1.0	0.1
R8*		5042 Pioneer Blvd			68.1	70.0	-1.9	69.5	69.7	0.2	69.8	A/E	0.3	0.1
MR8 (Modeled)		5042 Pioneer Blvd			-	62.4	-1.9	63.7	64.0	0.3	64.1	N	0.4	0.1
R9	SB	3942 Croton Ave			58.6	60.3	-1.7	60.0	60.0	0.0	62.8	N	2.8	2.8

Note: All noise levels are in dBA-Leq(h)

[24] 24-Hour noise measurement site

Land Use: CH=Church, R=Residential

* Calibration purpose only. No frequent human use area identified (access to property not available)

Impact Type: N=No Impact; A/E=Approach/Exceed

SB= Southbound

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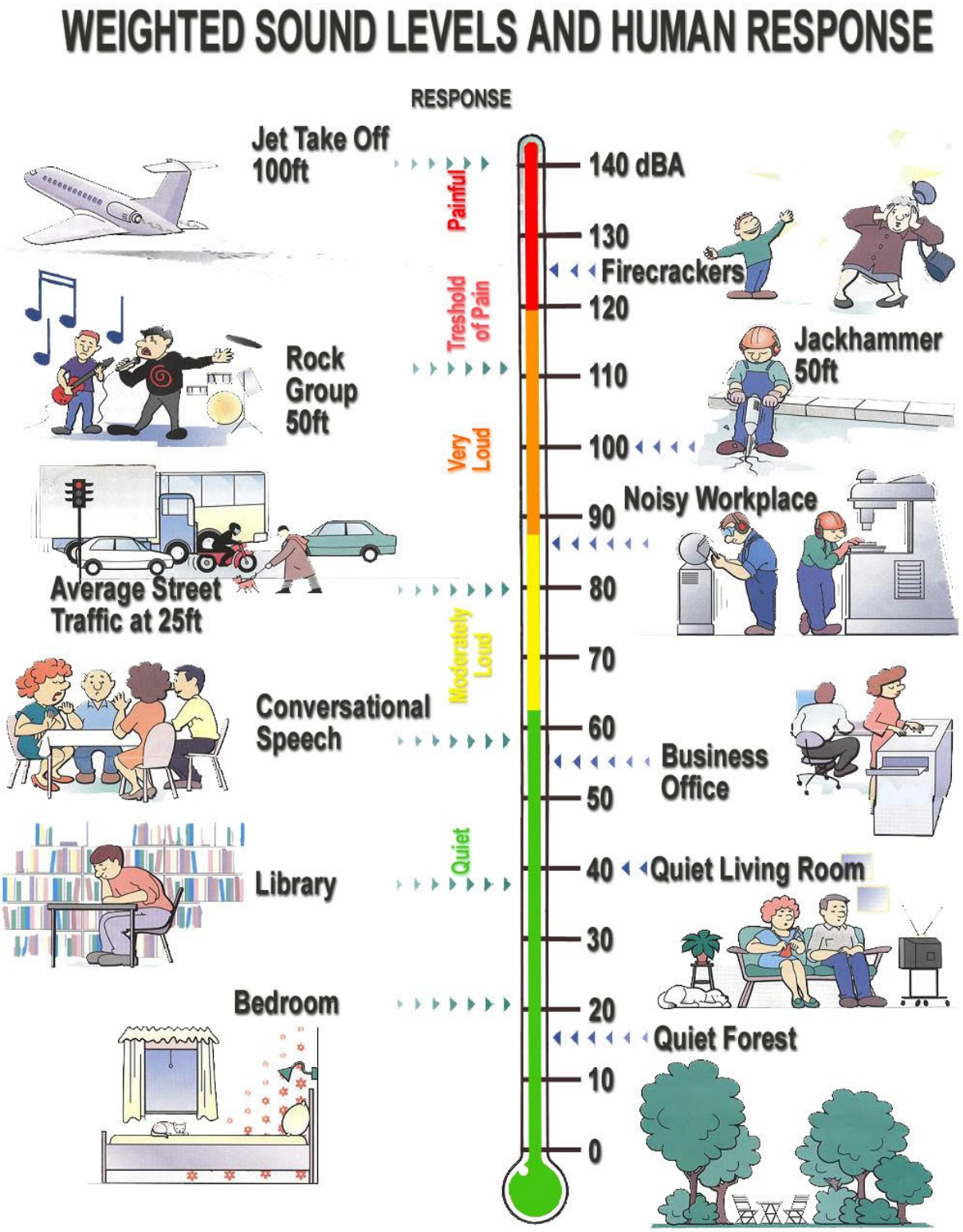

Figure 13 -Weighted Sound Levels and Human Response

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The existing land uses around the project site generally consist of general industrial and residential. There are railroad tracks immediately to the west of the project area. A field investigation identified land uses that could be subject to traffic and construction noise impacts from the proposed project. Single-family residences and multi-family residences were identified as Activity Category B while church was identified as Activity Category C land uses in the project area.

A field noise investigation was conducted to determine existing noise levels and gather information to develop and calibrate the traffic noise model that was used for predicting future noise levels. Existing noise levels were recorded at 9 locations and modeled at 8 locations, which were acoustically representative of the entire area within the limits of the project. The existing ambient noise levels measured were between 58 and 73 decibels (dBA-Leq(h)).

Future noise levels were predicted using the projected design year (2040) traffic volumes for the entire project area. Although they were slightly higher than the typical volume (2,000 vehicles per hour) that results in worst case traffic noise scenario, they were similar to the existing traffic counts with free flow speed. Therefore, projected design year volumes were used to determine the predicted worst hour that would yield the loudest noise levels and represents the worst-case scenario for the traffic noise.

Most of the noise sensitive land uses are residences along the I-605 between UP Railroad and south of Rose Hills Road interchange. Traffic noise impacts are considered to occur at receiver locations where predicted design-year noise levels are at least 12 dBA greater than existing noise levels (substantial noise increase), or where predicted design year noise levels approach (within 1) or exceed the NAC of 67 dBA. All impacted residential areas within the project limits have been considered for noise abatement. There is an impacted residential area represented by site R1, however, due to the presence of an existing soundwall, raising the height of the soundwall did not achieve the minimum required 5 dBA noise attenuation and at least 7 dBA noise reduction at one or more benefited receptors.

New United Molokan Church is located near the northwest corner of Pioneer Boulevard and Orange Grove Avenue along northbound I-605. This church is a modeled site (MR2) and noise measurement was not taken because the site was not accessible. Based on the noise analysis, no noise impacts were predicted to occur at this church for both build alternatives. Therefore, no noise abatement has been considered at this location. New United Molokan Church represents the exterior noise level for this church. Based on the analysis, the traffic noise impacts have not been predicted to occur at this church for exterior or interior under both alternatives. This site MR2 (61 dBA under both alternatives) has been used to predict the interior noise level under Activity Category D. Based on a standard insertion loss of 20 dBA, the interior worst hour noise level is 41 dBA.

2.12.1 Acoustically Feasible Sound Barriers

The following section describes the soundwall evaluation conducted to determine acoustically feasible sound barriers under each build alternative, which can be found in Chapter 7 of the Noise Study Report. Table 10 shows predicted noise levels for the soundwalls discussed and Figures 14-16 show the

soundwall locations for Alternative 2. Table 11 shows predicted noise levels for the soundwalls discussed and Figures 17-19 show the soundwall locations for Alternative 3.

Alternative 2:

Soundwall SW-201 (Option 1), analyzed on private property line/right of way line for the residential area represented by sites R3, MR3 and R5, would benefit this area (situated higher in elevation than the freeway) located between Obregon Street and Beverly Boulevard along the northbound I-605. In the TNM modeling, SW-201 was assumed to have an existing 6 feet high property wall that was raised up to 16 feet (approximately from STA 745+10 to STA 760+45) to determine its acoustical feasibility. It is predicted that by raising the existing property wall height from 6 feet to 16 feet high provides 5-8 decibel noise reduction to the impacted area.

Soundwalls SW-201A+SW-201B+SW-201C (Option 2), analyzed on the right of way for the residential area represented by sites R3, MR3, M1R3, R5, M1R5 and M2R5, would benefit this area (situated higher in elevation than the freeway) located between Obregon Street and Beverly Boulevard along the northbound I-605. These soundwalls are predicted to reduce the noise level by 5-10 dBA noise for a range of 14 feet to 16 feet in height for SW-201A and SW-201C and 20 feet in height for SW-201B.

Soundwall SW-202, analyzed on the right of way at site R6, would benefit this home (situated higher in elevation than the freeway) located at northwest corner of Beverly Boulevard and Pioneer Boulevard along the northbound I-605. This soundwall SW-202 is predicted to reduce the noise level by 9- 12 dBA noise for a range of 8 feet to 16 feet in height.

Soundwall SW-203, analyzed on the freeway edge of shoulder (mainline and transitioning onto the off-ramp to Beverly Boulevard) on the southbound I-605, would replace a section of the existing 12 feet high soundwall removed by the project (approximately from STA 770+93 to STA 776+15) due to the new off-ramp near Site R9. The north end of SW-203 would join the existing soundwall at STA 776+15 along the edge of shoulder. Although acoustically not feasible, SW-203 must be constructed to replace section of the existing soundwall removed by the project and must be at least 12 feet in height.

Figure 14 – Preliminary Soundwall Locations: Option 1

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Figure 15 – Preliminary Soundwall Locations: Option 2

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Figure 16 – Preliminary Soundwall Locations

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Alternative 3:

Soundwall SW-301 (Option 1), analyzed on private property line for the residential area represented by sites R3, MR3 and R5, would benefit this area (situated higher in elevation than the freeway) located between Obregon Street and Beverly Boulevard along the northbound I-605. In the TNM modeling, SW-201 was assumed to have an existing 6 feet high property wall that was raised up to 16 feet (approximately from STA 745+10 to STA 760+45) to determine its acoustical feasibility. It is predicted that by raising the existing property wall height from 6 feet to 16 feet high provides 5 – 8 decibel noise reduction to the impacted area.

Soundwalls SW-301A+SW-301B+SW-301C (Option 2), analyzed on the right of way for the residential area represented by sites R3, MR3, M1R3, R5, M1R5 and M2R5, would benefit this area (situated higher in elevation than the freeway) located between Obregon Street and Beverly Boulevard along the northbound I-605. These soundwalls are predicted to reduce the noise level by 5-10 dBA noise for a range of 14 feet to 16 feet in height for SW-301A and SW-301C and 20 feet in height for SW-301B.

Soundwall SW-302, analyzed on the right of way at site R6, would benefit this home (situated higher in elevation than the freeway) located at northwest corner of Beverly Boulevard and Pioneer Boulevard along the northbound I-605. This soundwall SW-302 is predicted to reduce the noise level by 9- 12 dBA noise for a range of 8 feet to 16 feet in height.

Soundwall SW-303, analyzed on the freeway edge of shoulder (mainline and transitioning onto the off-ramp to Beverly Boulevard) on the southbound I-605, would replace a section of the existing 12 feet high soundwall removed by the project (approximately from STA 770+93 to STA 776+45) due to the new off-ramp near Site R9. The north end of SW-203 would join the existing soundwall at STA 776+45 along the edge of shoulder. Although acoustically not feasible and not reasonable, SW-203 must be constructed to replace section of the existing soundwall removed by the project and must be at least 12 feet in height.

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Figure 17 – Preliminary Soundwall Locations: Option 1

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Figure 18 – Preliminary Soundwall Locations: Option 2

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Figure 19 – Preliminary Soundwall Locations

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2.12.2 Reasonableness Determinations

In addition to the feasibility of soundwalls that is discussed in the NSR, the cost reasonableness of each barrier for each respective build alternative is evaluated in the Noise Abatement Decision Report (NADR). The evaluation includes several factors including, the amount of noise attenuation in decibels, the number of benefitted receptors, and the estimated construction cost. A soundwall is considered cost reasonable when the cost per benefitted receptor does not exceed $95,000. Tables 12 and 13 show the results of this analysis for build alternatives 2 and 3 respectively.

Alternative 2

While soundwalls SW-201, SW-201A+ SW201B+ SW201C, and SW-202 are acoustically feasible, table 12 shows that none of the walls is cost reasonable since the total cost of construction exceeds the total reasonable allowance. Soundwall SW-203 in neither acoustically feasible nor cost reasonable. However, this soundwall must be reconstructed to replace the existing wall that would be removed as part of the construction of Alternative 2.

Table 12 Summary of Abatement Key Information - Alternative 2

Sound Wall No.	Sound Wall Location	Height (ft)	Approximate Length (Feet)	Noise Reduction (dBA)	Number of Benefited Receptors[1]	Total Reasonable Allowance[2]	Estimated Construction Cost	Reasonable?
SW-201	PPL	8	1500	3	0	$0	-	-
		10		5	5	$475,000	$2,118,694	No
		12		6	8	$760,000	$2,450,994	No
		14		7	11	$1,045,000	$2,802,394	No
		16		8	14	$1,330,000	$3,137,894	No
SW-201A+ SW201B+ SW-201C	R/ W	14+20+14	369+707+406	6	9	$855,000	$6,059,044	No
		16+20+16		6	10	$950,000	$6,394,644	No
SW-202	R/W	8	150	9	1	$95,000	$170,200	No
		10		10	1	$95,000	$224,239	No
		12		11	1	$95,000	$254,844	No
		14		11	1	$95,000	$286,844	No
		16		12	1	$95,000	$317,844	No
SW-203[3]	ES	8	526	2	0	$0	-	-
		10		3	0	$0	-	-
		12		3	0	$0	$850,620	No
		14		4	0	$0	$952,380	No
		16		4	0	$0	$1,040,040	No

Source: *Traffic Noise Study Report* (Caltrans 2019).

[1] Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

[2] Calculated by multiplying the number of benefited receptors by $95,000 (the dollar amount per benefited receptor/unit).

[3] Although this barrier is not acoustically feasible or reasonable, it must be constructed to replace the existing wall that would be removed to accommodate widening

dBA = A-weighted decibels | R/W = Right of Way | ES = Edge of Shoulder | PPL = Private Property Line

Alternative 3

While soundwalls SW-301, SW-301A+ SW301B+ SW301C, and SW-302 are acoustically feasible, Table 13 shows that none of the walls is cost reasonable since the total cost of construction exceeds the total reasonable allowance. Soundwall SW-303 in neither acoustically feasible nor cost reasonable. However, this soundwall must be reconstructed to replace the existing wall that would be removed as part of the construction of Alternative 3.

Table 13 Summary of Abatement Key Information - Alternative 3

Sound Wall No.	Sound Wall Location	Height (ft)	Approximate Length (Feet)	Noise Reduction (dBA)	Number of Benefited Receptors[1]	Total Reasonable Allowance[2]	Estimated Construction Cost	Reasonable?
SW-301	PPL	8	1500	3	0	$0	-	-
		10		5	5	$475,000	$2,118,694	No
		12		6	8	$760,000	$2,450,994	No
		14		7	11	$1,045,000	$2,802,394	No
		16		8	14	$1,330,000	$3,137,894	No
SW-301A+ SW301B+ SW-301C	R/ W	14+20+14	369+707+406	6	9	$855,000	$6,059,044	No
		16+20+16		6	10	$950,000	$6,394,644	No
SW-302	R/W	8	150	9	1	$95,000	$170,200	No
		10		10	1	$95,000	$224,239	No
		12		11	1	$95,000	$254,844	No
		14		11	1	$95,000	$286,844	No
		16		12	1	$95,000	$317,844	No
SW-303[3]	ES	8	556	2	0	$0	-	-
		10		3	0	$0	-	-
		12		3	0	$0	$850,620	No
		14		4	0	$0	$952,380	No
		16		4	0	$0	$1,040,040	No

Source: *Traffic Noise Study Report* (Caltrans 2019).

[1] Number of receptors/units that are attenuated by 5 dBA or more by the modeled barrier.

[2] Calculated by multiplying the number of benefited receptors by $95,000 (the dollar amount per benefited receptor/unit).

[3] Although this barrier is not acoustically feasible or reasonable, it must be constructed to replace the existing wall that would be removed to accommodate widening

dBA = A-weighted decibels | R/W = Right of Way | ES = Edge of Shoulder | PPL = Private Property Line

2.12.3 Construction Noise

During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans standard specifications, Section 7-1.01I, Sound Control Requirements. These requirements state that noise levels generated during construction shall comply with applicable local, state, and federal regulations.

Equipment involved in construction is expected to generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance. Normally, construction noise levels should not exceed 86 dBA (Lmax) at a distance of 50 feet. No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans standard specifications and would be short-term, intermittent, and dominated by local traffic noise. Implementing the following measures minimizes temporary construction noise impacts:

1. Equipment Noise Control should be applied to revising old equipment and designing new equipment to meet specified noise levels.
2. In-Use Noise Control where existing equipment is not permitted to produce noise levels in excess of specified limits.
3. Site Restrictions is an attempt to achieve noise reduction through modifying the time, place, or method of operation of a particular source.
4. Personal Training of operators and supervisors is needed to become more aware of the construction site noise problems.

2.12.4 Avoidance, Minimization, and/or Mitigation Measures

NOI-1 (Minimization)	Fit effective mufflers on all new equipment and retrofit mufflers on existing to yield immediate noise reduction at all types of road construction sites.
NOI-2 (Minimization)	Sealed and lubricated tracks for crawler mounted equipment will lessen the sound radiated from the track assembly resulting from metal to soil and metal to metal contact. Contractors, site engineers, and inspectors should ensure that the tracks are kept in excellent condition by periodic maintenance and lubrication.
NOI-3 (Minimization)	Lower exhaust pipe exit height closer to the ground to result in an off-site noise reduction.
NOI-4 (Minimization)	In–use site noise control is necessary to prevent existing equipment from producing noise levels in excess of specified limits. Equipment exceeding the limit would be required to meet compliance by repair, retrofit, or replacement. New equipment with the latest noise sensitive components and noise control devices are generally quieter than older equipment, if properly maintained and inspected regularly. They should be repaired or replaced if necessary to maintain the in-use noise limit.
NOI-5 (Minimization)	Shielding with barriers should be implemented at an early stage of a project to reduce construction equipment noise. Consider the placement of barriers carefully to reduce limitation of site access. Barrier examples include, excess land fill used as a temporary berm.

NOI-6 (Minimization)	Efficient rerouting of trucks and control of traffic activity on construction site will reduce noise due to vehicle idling, gear shifting and accelerating under load.
NOI-7 (Minimization)	Implement time scheduling of activities to minimize noise impact on exposed areas based on local activity patterns and surrounding land uses.
NOI-8 (Minimization)	Equipment location should be as far from noise sensitive land use areas as possible. The contractor should substitute quieter equipment or use quieter construction processes at or near noise sensitive areas.
NOI-9 (Minimization)	Educate contractors and their employees to be sensitive to noise impact problems and noise control methods. Implement a training program for equipment operators to instruct them in methods of operating their equipment to minimize environmental noise.

2.13 Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING: Would the project:				
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The proposed project is a reconfiguration of an existing interchange and will not induce substantial population growth either directly or indirectly. The build alternatives aim to reduce congestion and increase safety and mobility in an area experiencing high traffic volumes, operational conflicts, and reduced level of service (LOS). The proposed project would not increase capacity on the mainline of the facility or on surrounding local streets. Therefore, the project does not contribute indirectly to growth. Since the project is in response to heightened levels of facility use, rather than to facilitate increased use, there is no potential to induce growth in the project vicinity.

There is no proposed permanent ROW acquisition for this project under either build alternative. Therefore, there will be no displacement of substantial numbers of existing housing or people that will necessitate construction of housing elsewhere.

2.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES:				
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Caltrans staff conducted a review of public services within one mile of the project area and determined that the proposed project would have no impacts to public services. The City of Pico Rivera contracts with the Los Angeles County Department for fire protection services. The nearest fire station to the project area, and the only fire station within the one-mile buffer seen in *Figure 13*, is Station 40 on Durfee Ave, north of Whittier Boulevard. The project does not require relocation of any fire protective facilities. The project would not induce growth, and therefore, would not necessitate additional public facilities to serve the area. The proposed improvements to the southbound Beverly Boulevard interchange would not impede provision of fire protection services in the area. On the contrary, improved access to Beverly Boulevard in all directions and easing of congestion will likely contribute to greater efficiency in provision of services.

The City of Pico Rivera contracts with the Los Angeles County Sheriff's Department for police protection. The nearest facility is the Pico Rivera Station located near Washington Boulevard and Passons Boulevard, approximately two miles south of the project area. The project would not induce growth, and therefore, would not necessitate additional public facilities to serve the area. Although the Pico Rivera Station is outside of the study area, the proposed improvements to the southbound Beverly Boulevard

interchange would likely yield greater efficiency in provision of law enforcement services due to improved access to Beverly Boulevard in all directions and easing of congestion.

There are eight schools within the one-mile buffer seen in *Figure 20,* two of which occur within one half of the project area. The El Rancho Unified School District serves the community of Pico Rivera. The project does not require physical changes to or relocation of any school facilities. The proposed improvements to Beverly Boulevard Interchange would improve access to area schools by easing congestion and improving access to the I-605. The project would not induce growth, and therefore, would not necessitate additional school facilities to serve the area.

There are several parks within the one-mile buffer seen in *Figure 21*. The proposed project would not physically impact or diminish the quality of any existing park space. The project does not propose alterations to any park space, nor does it create obstacles to use for the surrounding community. No impacts to public services are anticipated.

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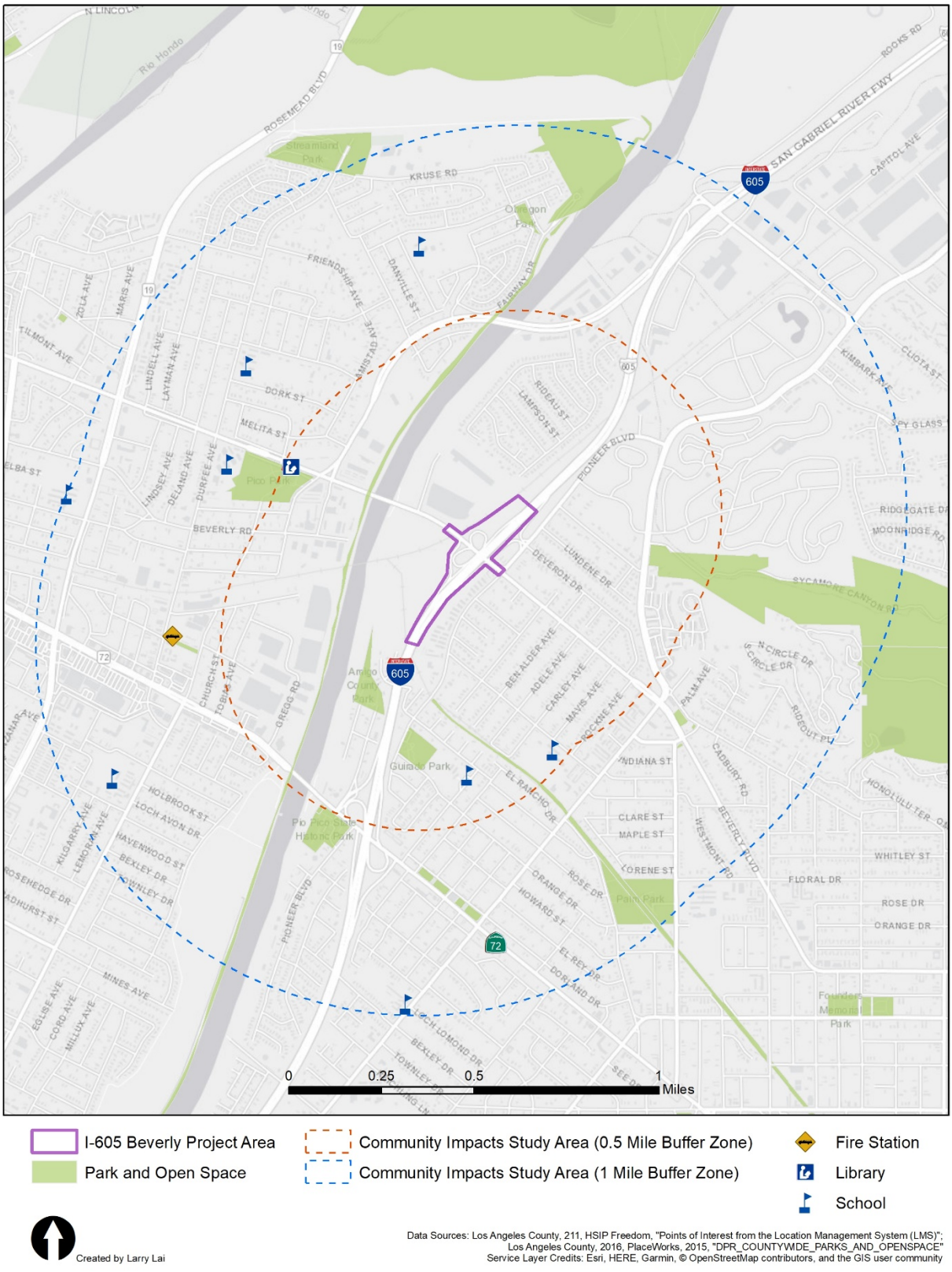

Figure 20 - Community Services Map 1

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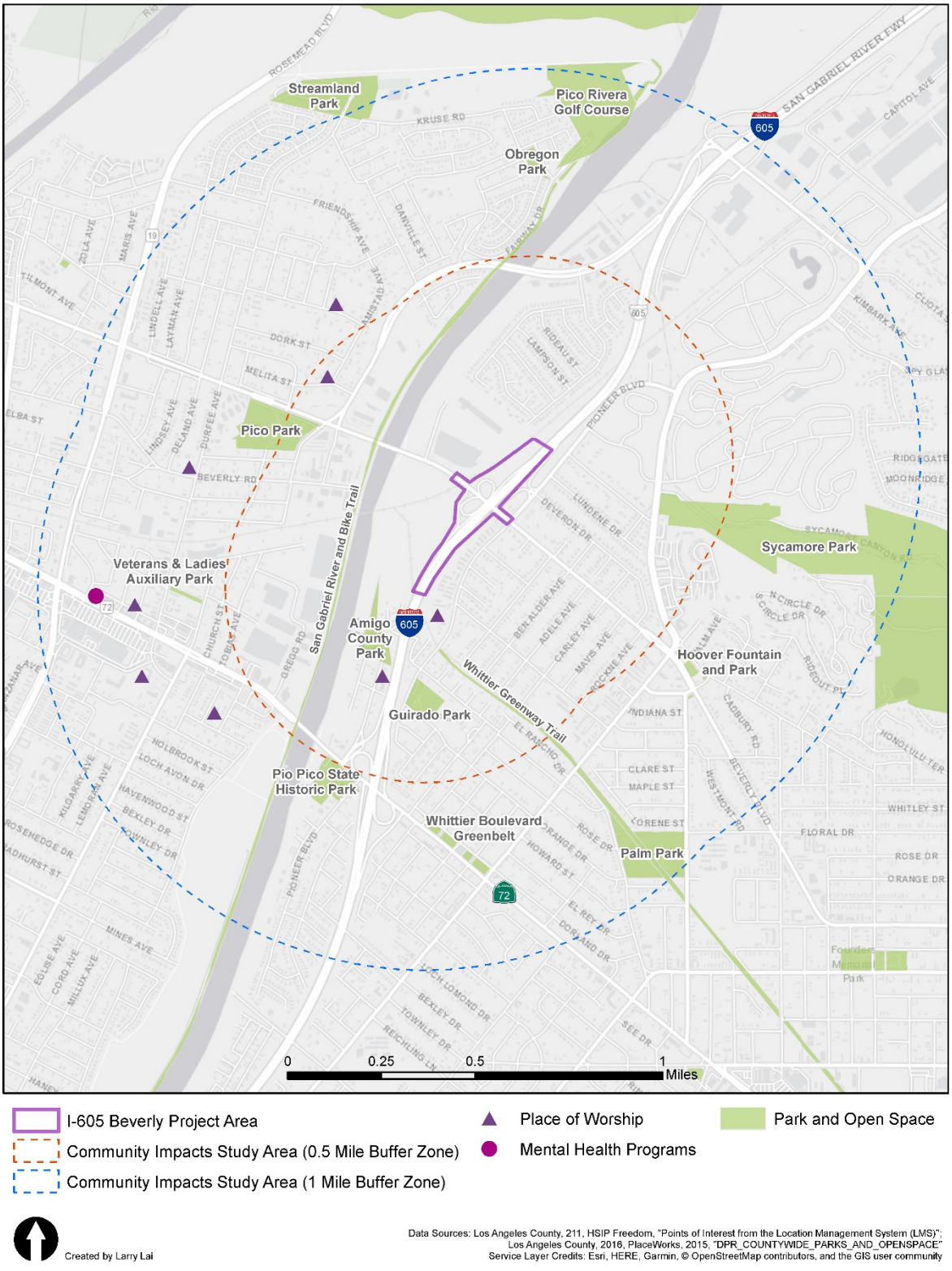

Figure 21 - Community Services Map 2

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2.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

The project will not contribute to an increase in population in the area around the project; it does not alter or impact recreational facilities. Therefore, the project would not increase the use of recreational facilities or cause physical deterioration of those facilities. No impacts are anticipated.

2.16 Transportation and Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒

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?	☐	☐	☐	☒

Caltrans staff approved a Traffic Operations Analysis Report (TOAR) for the SB I-605 Beverly Boulevard Interchange Improvement Project. The project is located in the City of Pico Rivera, just east of the Union Pacific Railroad tracks and west of Pioneer Boulevard. On I-605, it is located between Rose Hills Road interchange 1.17 miles to the north and Whittier Boulevard interchange 0.9 miles to the south.

The project is proposed to reduce congestion, reduce weaving conflicts, improve safety, improve freeway operations, provide for all movements at the southbound interchange, and ease congestion at intersections near the Beverly Boulevard ramps. Currently, in the southbound direction, a collector-distributor road provides access to/from Beverly Boulevard via a loop off-ramp, loop on-ramp, and a direct on-ramp. There is no access from southbound I-605 to westbound Beverly Boulevard.

Three alternatives are examined: Alternative 1 is the No Build Alternative, Alternative 2 would reconstruct and improve the existing southbound I-605 ramps in a diamond configuration, and Alternative 3 would reconstruct and improve the existing southbound I-605 ramps at Beverly Boulevard in a D-ramp configuration. Alternative 2 includes retaining walls adjacent to the off-ramp and adjacent to the on-ramp to avoid right of way acquisition. Alternative 3 includes a retaining wall adjacent to UPRR right-of-way and a privately-owned parcel and a retaining wall adjacent to the on-ramp to avoid right of way acquisition as well as a retaining wall beneath the existing overcrossing. Project common features include removal of the southbound I-605 collector-distributor road from the mainline and new ramps that will merge and diverge directly from the mainline. A new signalized intersection will be created on Beverly Boulevard at the ramp intersection providing access to any direction. Improvements along Beverly Boulevard will be provided to match the width over UPRR tracks to accommodate future bicycle lanes. Minor curb, gutter, and pavement work will be required on Beverly Boulevard, between the UPRR bridge and the overcrossing, to modify the street to accommodate the changes proposed for the ramps. Figures 22, 23, and 24 show the proposed design of each alternative.

Bicycle Facilities

The rail bridge over the UPRR tracks was recently widened and allows for future striping of Class II bicycle lanes along Beverly Boulevard. Improvements along Beverly Boulevard as part of the proposed project will be provided to match the width of the rail bridge in order to accommodate future bicycle lanes implemented by the City of Pico Rivera.

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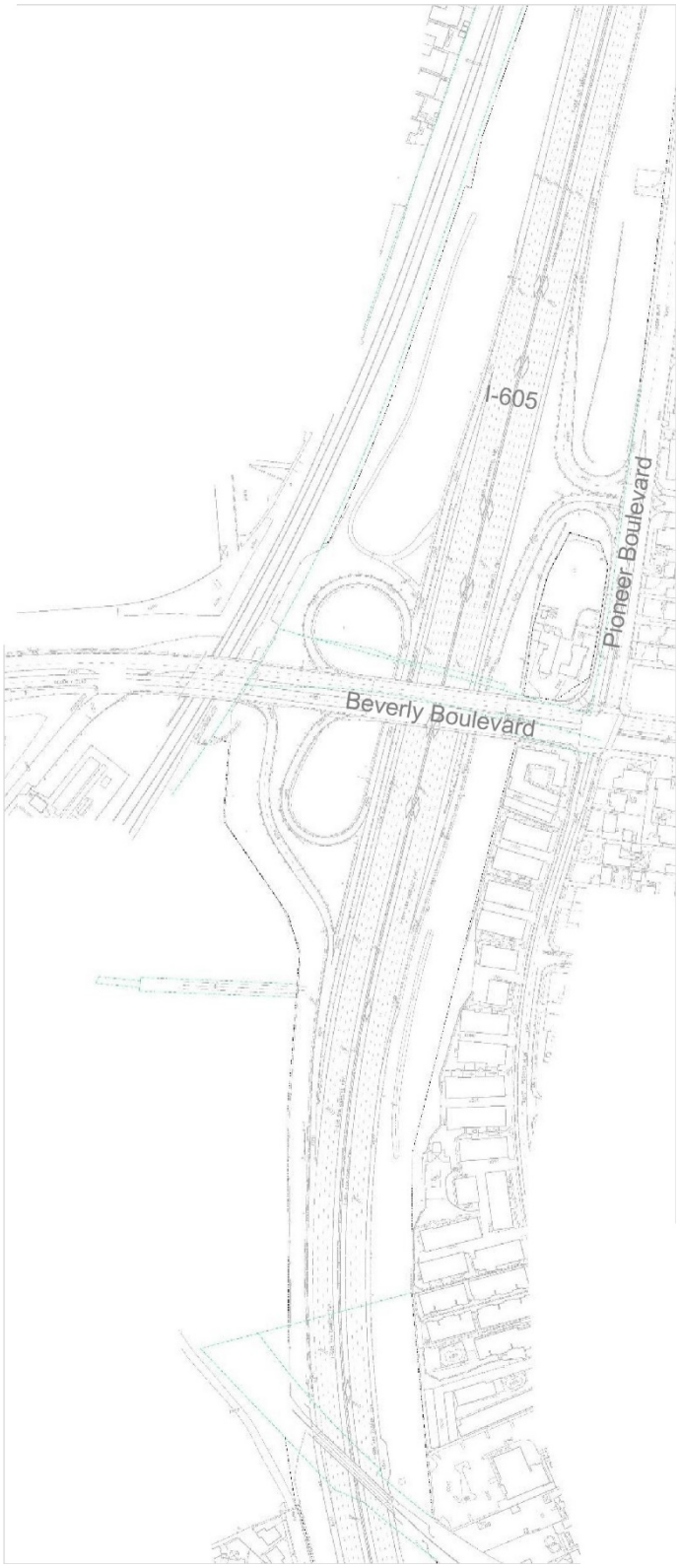

Figure 22 - Alternative 1, No Build

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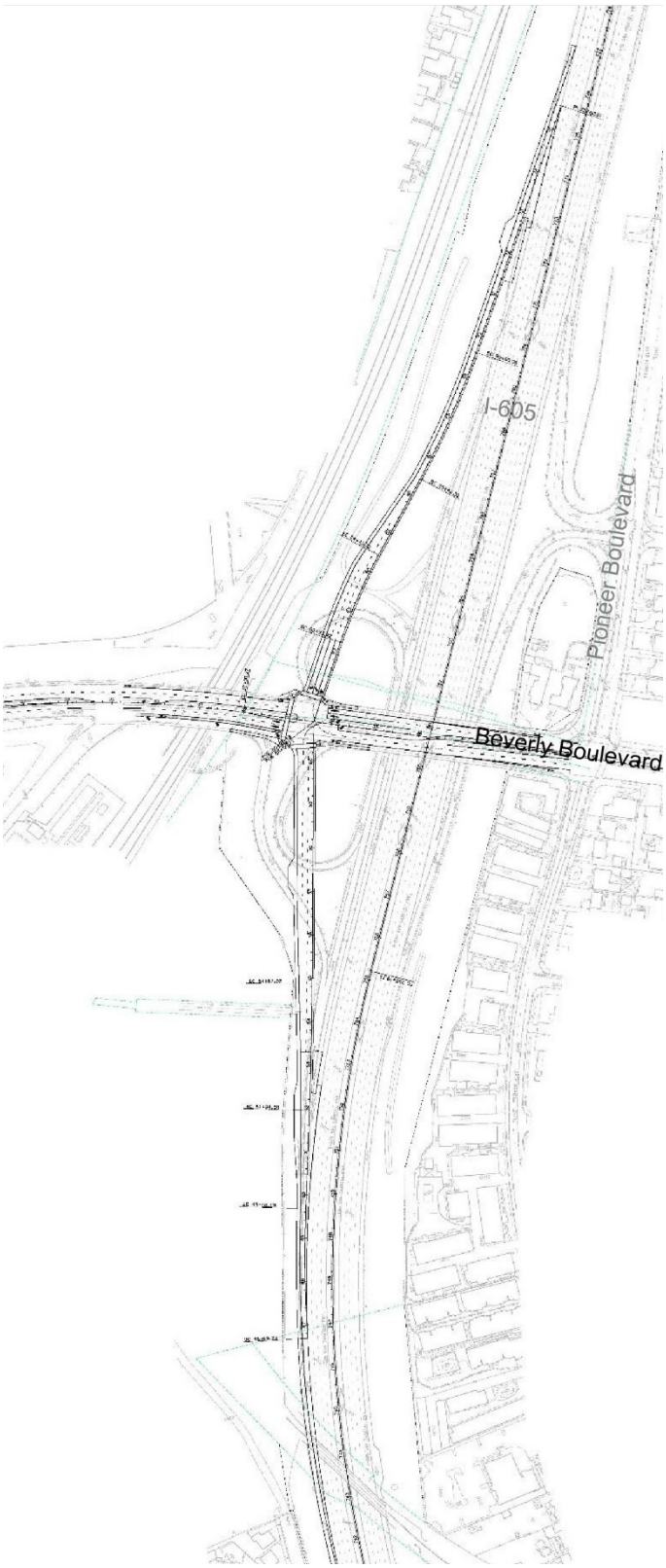

Figure 23 - Alternative 2, Diamond Configuration

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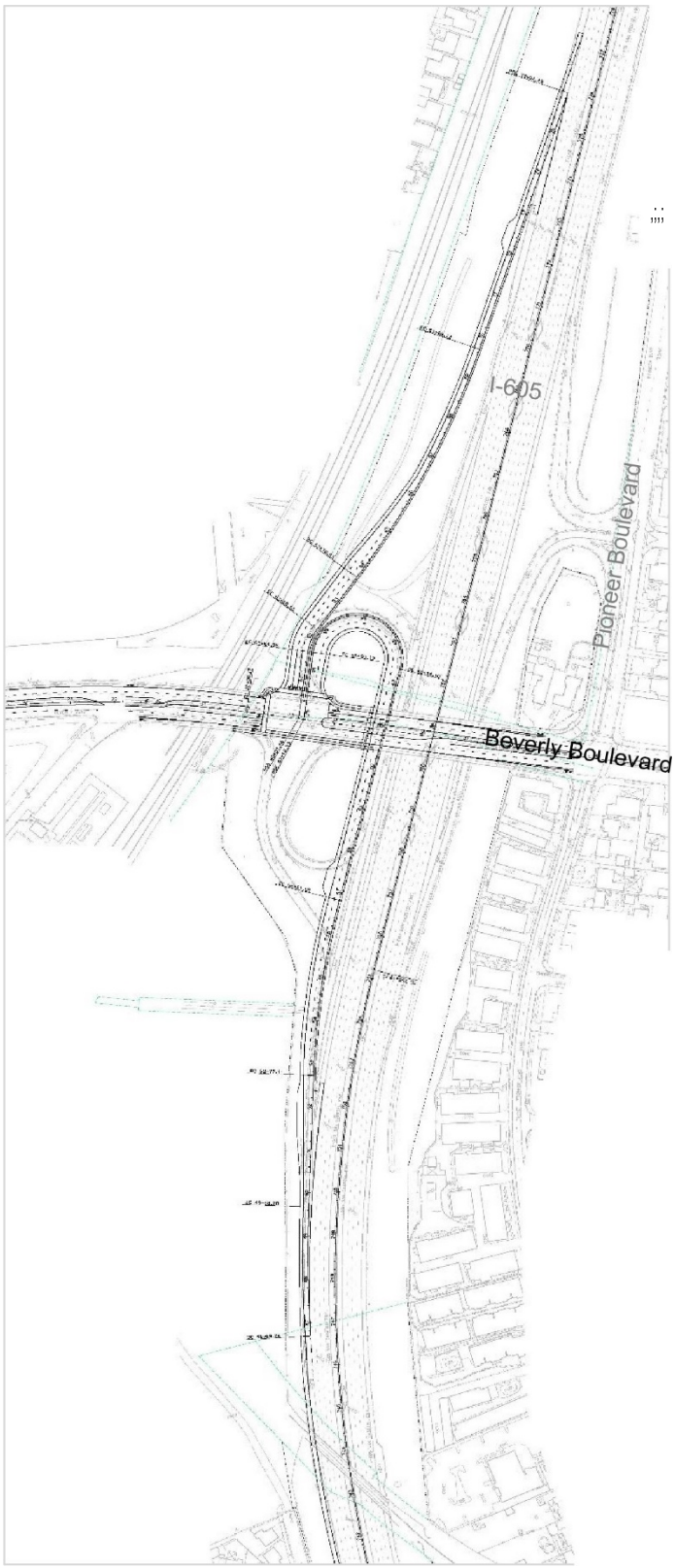

Figure 24 - Alternative 3, "D" Ramp

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Existing Conditions

Existing (2016) Intersection Level of Service

Existing AM and PM peak hour traffic volumes at the study intersections are illustrated below in Table 14. A level of service analysis was conducted to evaluate existing traffic conditions in the study area. Detailed level of service calculation worksheets are included in Appendix C of the TOAR.

All intersections are operating at LOS D or better, except the following intersections: Pioneer Boulevard and I-605 NB ramps (AM peak hour), San Gabriel River Parkway and Rose Hills Road (AM peak hour), Pioneer Boulevard and Whittier Boulevard (AM and PM peak hours)

Table 14 - Existing (2016) Intersection LOS			**AM Peak Hour**		**PM Peak Hour**	
ID	**Intersection**	**Control Type**	**Delay**	**LOS**	**Delay**	**LOS**
1	Pioneer Boulevard and I-605 NB ramps	3-Way Stop*	70.9	**F**	11.4	B
2	Pioneer Boulevard and Beverly Boulevard	Signal	24.4	C	29.6	C
3	I-605 SB ramp and Beverly Boulevard	Free	–	–	–	–
4	Abbeywood Avenue and Beverly Boulevard	Signal	11.7	B	16.5	B
5	San Gabriel River Parkway and Beverly Boulevard	Signal	36.7	D	53.6	D
6	San Gabriel River Parkway & I-605 SB On-Ramp	1-Way Stop	11.1	B	10.0	B
7	San Gabriel River Parkway & Sports Arena Drive/Rose Hills Road	All-Way Stop	37.1	**E**	18.2	C
8	I-605 NB On-Ramp & Rose Hills Road	Signal	21.3	C	16.7	B
9	Shepherd Street & I-605 NB Off-Ramp	All-Way Stop	12.7	B	9.0	A
10	I-605 SB Off-Ramp/Esperanza Avenue & Whittier Boulevard	Signal	15.0	B	16.5	B
11	Pioneer Boulevard & Whittier Boulevard	1-Way Stop	>100.0	**F**	>100.0	**F**
12	Lockheed Avenue & Whittier Boulevard	Signal	19.0	B	12.0	B

Notes: *Synchro version 10 does not support the analysis of this 3-way stop controlled intersection using HCM 6 or HCM 2010 methodology. HCM 2000 unsignalized analysis was used to estimate delay.

BOLD indicates unsatisfactory level of service

Delay—Average control delay in seconds.

Existing (2016) Intersection Queuing Analysis

A queuing analysis was conducted to determine the queue lengths at the freeway ramp intersections under Existing (2016) Conditions. The results of the queuing analysis are summarized in Table 15. Detailed queuing reports are included in Appendix D of the TOAR.

As can be seen from Table 15, the 95th percentile queue lengths of one turning movement (Pioneer Boulevard and Beverly Boulevard northbound left turn "NBL") is estimated to exceed the maximum available storage length during the AM or PM peak hour. Detailed queuing reports are included in Appendix B of the TOAR. The following movement is shown to have queuing issues:

- Pioneer Boulevard and Beverly Boulevard, northbound left—AM and PM peak hours.

Table 15 Existing (2016) Intersection Queuing Analysis

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2. Pioneer Boulevard and Beverly Boulevard												
Storage Length	100	500		285	435	435	300	1,000		110	1,000	325
95th percentile Queue—AM	160	122		82	36	0	#293	196		29	504	251
95th percentile Queue—PM	136	85		104	61	0	289	#902		40	285	50

Notes: All storage length and queues are in feet.
Shaded—95th percentile queue length exceeds available storage space.
95th percentile volume exceeds capacity, queue may be longer

Existing (2016) Freeway Mainline Segment Level of Service

The results of the Existing (2016) conditions basic freeway segment analysis are shown in Table 16. The freeway mainline LOS calculation sheets are included in Appendix E.

As shown, based on the HCM analysis, all basic freeway segments are shown to operate at LOS D or better in both directions with the exception of the segment between Pioneer Boulevard n/o Beverly on-ramp and Shepherd Street/Rose Hills Road off-ramp which operates at LOS E during the AM peak hour.

Table 16 Existing (2016) Freeway Mainline Segment Level of Service

		AM Peak Hour			PM Peak Hour		
		Volume	Density	LOS	Volume	Density	LOS
I-605 Southbound							
Between San Gabriel River Parkway On- Ramp and EB Beverly Boulevard Off-Ramp	4	5,414	26.8	D	4,381	21.6	C
Between EB Beverly Boulevard Off-Ramp and EB/WB Beverly Boulevard On-Ramp	4	5,089	25.3	C	4,078	20.2	C
Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	4	5,670	28.0	D	4,486	21.9	C
I-605 Northbound							
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	4	6,735	34.0	D	6,166	30.0	D
Between Pioneer Boulevard n/o Beverly Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	4	6,222	30.7	D	5,720	27.7	D
Between Pioneer Boulevard n/o Beverly On-Ramp and Shepherd Street/Rose Hills Road Off-Ramp	4	7,050	35.5	E	6,159	30.1	D

Notes: Density is reported in number of passenger car per mile per lane

Note that the HCM techniques described in the HCM chapter on basic freeway segments are most appropriately applied where severe congestion does not exist or conditions where the travel demand is less than the available capacity. Other analysis procedures, including microsimulation modeling, are used in highly congested conditions to assess route operations.

Existing (2016) Freeway Ramp Merge and Diverge Segment Level of Service

The results of the Existing (2016) conditions merge and diverge segment analysis are shown in Table 17. The freeway ramp LOS calculation sheets are included in the TOAR, Appendix E. Based on the HCM analysis, all freeway merge and diverge segments are shown to operate at LOS D or better in both directions.

Table 17 Existing (2016) Freeway Ramp Merge and Diverge Segment Level of Service							
		AM Peak Hour			PM Peak Hour		
		Volume	Density	LOS	Volume	Density	LOS
I-605 Southbound							
EB Beverly Boulevard Off-Ramp	Diverge	300	27.9	C	502	24.2	C
Beverly Boulevard On-Ramp	Merge	581	24.8	C	408	19.6	B
I-605 Northbound							
Beverly Boulevard Off-Ramp	Diverge	513	33.8	D	446	31.0	D

Notes: Density is reported in number of passenger car per mile per lane.

Existing (2016) Freeway Managed Lane Level of Service

Under Existing (2016) conditions, there is one HOV lane in each direction of the I-605. The results of the Existing (2016) conditions freeway managed-lane analysis are presented in Table 18. As shown, all the managed-lane segments in study area are operating at satisfactory LOS. Note that, as with the HCM analysis of the basic freeway segments, the HCM analysis for HOV lanes can also be misleading where there is significant congestion. Caltrans publishes a "California High Occupancy Lane Degradation Report" which reports the performance of the HOV lane network in California as required by U.S. Code Title 23 section 166. Based on the most recent Caltrans HOV lane degradation report, this section of I-605 is considered to be degraded.

Table 18 Existing (2016) Freeway Managed-Lane Level of Service									
	AM Peak Hour				PM Peak Hour			
	Volume	V/C	Density	LOS	Volume	V/C	Density	LOS
I-605 Southbound								
Between San Gabriel River Parkway On-Ramp and EB Beverly Boulevard Off-Ramp	1,193	0.72	22.9	C	1,155	0.76	20.9	C
Between EB Beverly Boulevard Off- Ramp and EB/WB Beverly Boulevard On-Ramp	1,218	0.73	23.6	C	956	0.63	16.7	B
Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	1,218	0.73	23.6	C	956	0.63	16.7	B
I-605 Northbound								
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	1,260	0.83	23.3	C	1,500	0.99	29.5	D

Between Pioneer Boulevard n/o Beverly1 Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	1,260	0.83	23.3	C	1,500	0.99	29.5	D
Between Pioneer Boulevard n/o Beverly1 On-Ramp and Shepherd Street/Rose Hills Road Off-Ramp	1,234	0.81	26.1	D	1,467	0.97	28.5	D

Notes: Density is reported in number of passenger car per mile per lane.

Existing (2016) Ramp Metering Analysis

Existing-year ramp metering analysis results at 605 Beverly Boulevard on-ramps are summarized in Table 19. As shown, under existing conditions the estimated ramp meter queues at all study on-ramps are longer than the available storage lengths.

Table 19 Existing (2016) Ramp Metering Analysis

			Lanes		Volume			Queue (in feet)		Adequate Storage	
Metered Ramp	**Peak Hour**	**Available Storage Length (feet)**	**GP**	**HOV**	**Total**	**GP (85%)**	**HOV (15%)**	**GP**	**HOV**	**GP**	**HOV**
I-605 Southbound											
WB Beverly to I-605 SB Loop On-Ramp	AM	340	1	0	280	280	0	568	0	No	--
	PM				100	100	0	203	0	Yes	--
EB Beverly to I-605 SB On-Ramp	AM	380	1	1	301	256	45	519	92	No	Yes
	PM				308	262	46	531	94	No	Yes
I-605 Northbound											
Pioneer/Beverly On-Ramp	AM	330	2	0	802	802	0	814	0	No	--
	PM				406	406	0	412	0	No	--

Note: Shaded—Ramp Meter queue length exceeds available storage space.

Opening Year 2022 Conditions

Opening Year (2022) Intersection Level of Service

Opening Year (2022) AM and PM peak hour study intersection traffic volumes are illustrated in Table 20 for all alternatives. A level of service analysis using the previously described methodologies was conducted to evaluate Opening Year traffic conditions in the study area. Detailed level of service calculation worksheets are included in Appendix C of the TOAR.

As shown in Table 16, for Alternative 1 all locations are represented as operating at LOS D or better, with the following exceptions:

- Pioneer Boulevard and I-605 NB ramps (AM peak hour)
- San Gabriel River Parkway and Rose Hills Road (AM peak hour)
- Pioneer Boulevard and Whittier Boulevard (AM and PM peak hours)

As shown in Table 16, for Alternative 2 the new southbound ramp intersection is forecast to operate at LOS B/C and all other locations are represented as operating at LOS D or better, with the following exception:

- Pioneer Boulevard and I-605 NB ramps (AM peak hour)
- Pioneer Boulevard and Whittier Boulevard (AM and PM peak hours)

As shown in Table 16, for Alternative 3 the new southbound ramp intersection is forecast to operate well and all other locations are represented as operating at LOS D or better, with the following exception:

- Pioneer Boulevard and I-605 NB ramps (AM peak hour)
- Pioneer Boulevard and Whittier Boulevard (AM and PM peak hours)

Alternative 2 in the opening year, when compared with existing conditions, shows intersection level of service (LOS) improve or stay the same at all evaluated intersections, with the exception of Lockheed Avenue and Whittier Boulevard during AM peak hour, which shows a decline from LOS B to C. Alternative 3 in the opening year, when compared with existing conditions, shows intersection LOS improve or stay the same at all evaluated intersections, with the exception of Lockheed Avenue and Whittier Boulevard during AM peak hour, which shows a decline from LOS B to C.

Table 20 – Opening Year (2022) Intersection Level of Service			Alternative 1				Alternative 2				Alternative 3			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Pioneer Blvd and I-605 NB ramps	3-Way Stop*	70.5	**F**	11.5	B	70.5	F	11.5	B	70.5	F	11.5	B
2	Pioneer Blvd and Beverly Blvd	Signal	24.3	C	29.7	C	25.2	C	22.6	C	26.8	C	22.6	C
3	I-605 SB ramp and Beverly Blvd	Free	–	–	–	–	12.3	B	27.3	C	29.6	C	13.8	B
4	Abbeywood Ave and Beverly Blvd	Signal	11.7	B	16.4	B	12.7	B	16.1	B	12.7	B	16.0	B
5	San Gabriel River Parkway and Beverly Blvd	Signal	37.7	D	54.1	D	39.7	D	54.0	D	39.7	D	54.0	D
6	San Gabriel River Parkway & I-605 SB On-Ramp	1-Way Stop	11.1	B	10.0	B	10.7	B	9.7	A	10.7	B	9.7	A
7	San Gabriel River Parkway & Sports Arena Drive/Rose Hills Road	All-Way Stop	38.5	E	18.3	C	26.9	D	16.4	C	26.9	D	16.4	C
8	I-605 NB On-Ramp & Rose Hills Road	Signal	21.8	C	16.7	B	21.8	C	16.7	B	21.8	C	16.7	B

9	Shepherd Street & I-605 NB Off-Ramp	All-Way Stop	13.3	B	9.0	A	13.5	B	9.0	A	13.5	B	9.0	A
10	I-605 SB Off-Ramp/Esperanza Ave & Whittier Blvd	Signal	14.9	B	16.3	B	14.9	B	15.1	B	14.9	B	15.1	B
11	Pioneer Blvd & Whittier Blvd	1-Way Stop	**>100.0**	**F**	**>100.0**	**F**	**>100.0**	**F**	**>100.0**	**F**	**>100.0**	**F**	**>100.0**	**F**
12	Lockheed Ave & Whittier Blvd	Signal	20.4	C	12.9	B	20.4	C	12.9	B	20.4	C	12.9	B

Opening Year (2022) Intersection Queuing Analysis

Alternative 1 – No Build

A queuing analysis was conducted to determine the queue lengths at the freeway ramp intersections under Opening Year (2022) Alternative 1 (No Build) conditions. The 95th percentile queue lengths of several turning movements are forecast to exceed the maximum available storage length during the AM or PM peak hour. Detailed queuing reports are included in Appendix B of the TOAR. The following movements were shown to have queuing issues:

- Pioneer Boulevard and Beverly Boulevard.
    - Northbound left—AM and PM peak hours.

Alternative 2- Diamond Interchange

A queuing analysis was conducted to determine the queue lengths at the freeway ramp intersections under Opening Year (2022) Alternative 2 conditions. Detailed queuing reports are included in Appendix D. The 95th percentile queue lengths of several turning movements are forecast to exceed the maximum available storage length during the AM or PM peak hour. Detailed queuing reports are included in Appendix B of the TOAR. The following movements were shown to have queuing issues:

- Pioneer Boulevard and Beverly Boulevard.
    - Northbound left—AM and PM peak hours.
    - Eastbound through—PM peak hour.

Alternative 3 – D Ramp Interchange

A queuing analysis was conducted to determine the queue lengths at the freeway ramp intersections under Opening Year (2022) Alternative 3 conditions. Detailed queuing reports are included in Appendix D. The 95th percentile queue lengths of several turning movements are forecast to exceed the maximum available storage length during the AM or PM peak hour. Detailed queuing reports are included in Appendix B of the TOAR. The following movements were shown to have queuing issues:

- Pioneer Boulevard and Beverly Boulevard.
    - Northbound left—AM and PM peak hours.
    - Eastbound through—PM peak hour.
- I-605 SB Ramps and Beverly Boulevard
    - Eastbound left—AM peak hour.
    - Westbound through—AM peak hour.
    - Westbound right – AM and PM peak hours.

Opening Year (2022) Freeway Mainline Segment Analysis

The results of the Opening Year (2022) basic freeway segment analysis for Alternatives 1, 2, and 3 are shown in Table 21. The freeway mainline LOS calculation sheets are included in Appendix E of the TOAR. As shown, based on the HCM analysis, all basic freeway segments under Alternative 1 are shown to operate at LOS D or better in both directions based on the results of the HCM analysis with the exception of between westbound Whittier Boulevard on-ramp and Pioneer Boulevard n/o Beverly Boulevard off-ramp and between Pioneer Boulevard n/o Beverly on-ramp and Shepherd Street/Rose Hills Road off-ramp which are shown to operate at LOS E during the AM peak hour in the northbound direction.

As shown, based on the HCM analysis, all basic freeway segments under Alternative 2 are shown to operate at LOS D or better in both directions based on the results of the HCM analysis with the exception of between westbound Whittier Boulevard on-ramp and Pioneer Boulevard n/o Beverly Boulevard off-ramp and between Pioneer Boulevard n/o Beverly on-ramp and Shepherd Street/Rose Hills Road off-ramp which are shown to operate at LOS E during the AM peak hour in the northbound direction.

As shown, based on the HCM analysis, all basic freeway segments under Alternative 3 are shown to operate at LOS D or better in both directions based on the results of the HCM analysis with the exception of between westbound Whittier Boulevard on-ramp and Pioneer Boulevard n/o Beverly Boulevard off-ramp and between Pioneer Boulevard n/o Beverly on-ramp and Shepherd Street/Rose Hills Road off-ramp which are shown to operate at LOS E during the AM peak hour in the northbound direction.

Table 21 Opening Year (2022) Freeway Mainline Segment LOS

		Alternative 1		Alternative 2		Alternative 3	
Freeway Mainline Segment	Lanes	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS
I-605 Southbound							
Between San Gabriel River Parkway On-Ramp and EB Beverly Boulevard Off-Ramp	4	D	C	D	C	D	C
Between EB Beverly Boulevard Off-Ramp and EB/WB Beverly Boulevard On-Ramp	4	D	C	D	C	D	C
Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	4	D	C	D	C	D	C
I-605 Northbound							
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	4	E	D	E	D	E	D
Between Pioneer Boulevard n/o Beverly Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	4	D	D	D	D	D	D
Between Pioneer Boulevard n/o Beverly On-Ramp and Shepherd Street/ Rose Hills Road Off-Ramp	4	E	D	E	D	E	D

Opening Year (2022) Freeway Ramp Merge and Diverge Analysis

The results of the Opening Year (2022) freeway ramp merge and diverge segment LOS for Alternatives 1, 2, and 3 are shown in Table 22. The freeway ramp LOS calculation sheets are included in Appendix E of the TOAR. Based on the HCM analysis for Alternative 1, all freeway merge and diverge segments are shown to operate at LOS D or better with the exception of the northbound off-ramp diverge which is shown to operate at LOS E during the AM peak hour. Based on the HCM analysis for Alternative 2, all freeway merge and diverge segments are shown to operate at LOS D or better with the exception of the northbound off-ramp diverge which is shown to operate at LOS E during the AM peak hour. Based on the HCM analysis for Alternative 3, all freeway merge and diverge segments are shown to operate at LOS D or better with the exception of the northbound off-ramp diverge which is shown to operate at LOS E during the AM peak hour.

Table 22 Opening Year (2022) Freeway Ramp Merge and Diverge Segment Level of Service

		Alternative 1		Alternative 2		Alternative 3	
Freeway Ramp Segment	Type	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS
I-605 Southbound							
EB Beverly Boulevard Off-Ramp	Diverge	D	C	D	D	D	D
Beverly Boulevard On-Ramp	Merge	C	C	C	C	C	C
I-605 Northbound							
Beverly Boulevard Off-Ramp	Diverge	E	D	E	D	E	D
Beverly Boulevard On-Ramp	Merge	D	C	D	C	D	C

Opening Year (2022) Freeway Managed-Lanes

Table 23 summarizes the Freeway managed-lane analysis for the three alternatives. In the Opening Year, there will be one HOV lane in each direction on I-605. The results of the Opening Year (2022) Alternative 1 (No Build) conditions freeway managed-lane analysis show all the managed-lane segments in the study area are projected to operate at satisfactory LOS (LOS D or better) with the exception of all three northbound segments which are forecast to operate at LOS F during the PM peak hour.

The results of the Opening Year (2022) Build Alternative 2 conditions freeway managed-lane segment analysis show all the managed-lane segments in the study area are projected to operate at satisfactory LOS with the exception of all three northbound segments which are forecast to operate at LOS F during the PM peak hour.

The results of the Opening Year (2022) Build Alternative 3 conditions freeway managed-lane segment analysis show all the managed-lane segments in the study area are projected to operate at satisfactory LOS with the exception of all three northbound segments which are forecast to operate at LOS F during the PM peak hour.

Table 23 Opening Year (2022) Freeway Managed-Lane Level of Service							
		Alternative 1		Alternative 2		Alternative 3	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Freeway HOV Segment	Lanes	LOS	LOS	LOS	LOS	LOS	LOS
I-605 Southbound							
Between San Gabriel River Parkway On-Ramp and EB Beverly Boulevard Off-Ramp	1	C	C	C	C	C	C
Between EB Beverly Boulevard Off-Ramp and EB/WB Beverly Boulevard On-Ramp	1	C	B	C	B	C	B
Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	1	C	B	C	B	C	B
I-605 Northbound							
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	1	D	F	D	F	D	F
Between Pioneer Boulevard n/o Beverly Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	1	C	F	C	F	C	F
Between Pioneer Boulevard n/o Beverly On-Ramp and Shepherd Street/Rose Hills Road Off-Ramp	1	D	F	D	F	D	F

Opening Year (2022) Ramp Metering

Opening Year 2022 ramp metering results at I-605 Beverly Boulevard on-ramps for all alternatives are summarized in Table 24. As shown for Alternative 1, the ramp meter queues at all study on-ramps are longer than the available storage lengths. This is expected to result in vehicle queue spillover onto Beverly Boulevard. As shown for Alternative 2, the ramp meter queue at southbound I-605 on-ramp is projected to be less than the available storage lengths, thus no spillover from the storage area is expected. The northbound I-605 on-ramp metering queue is projected to be longer than the available storage length. However, note that the northbound portion of the interchange is not a part of this project and the queuing analysis for northbound movements are proved for information only. As shown for Alternative 3, the ramp meter queue at southbound I-605 on-ramp is projected to be less than the available storage lengths, thus no spillover from the storage area is expected. The northbound I-605 on-ramp metering queue is projected to be longer than the available storage length.

Table 24 Opening Year (2022) Ramp Metering Analysis

Metered Ramp	Peak Hour	Alternative 1				Alternative 2				Alternative 3			
		Lanes		Adequate Storage		Lanes		Adequate Storage		Lanes		Adequate Storage	
		GP	HOV	GP	HOV	GP	HOV	GP	HOV	GP	HOV	GP	HOV
I-605 Southbound													
WB Beverly to I-605 SB Loop On-Ramp	AM	1	0	No	--								
	PM			Yes	--								
EB Beverly to I-605 SB On-Ramp	AM	1	1	No	Yes								
	PM			No	Yes								
Beverly to I-605 SB On-Ramp	AM	--	--	--	--	2	0	Yes	--	1	1	Yes	Yes
	PM	--	--	--	--			Yes	--			Yes	Yes
I-605 Northbound													
Pioneer/Beverly On-Ramp	AM	2	0	No	--	2	0	No	--	2	0	No	--
	PM			No	--			No	--			No	--

Note: Shaded—Ramp Meter queue length exceeds available storage space

Horizon Year 2040 Traffic Conditions

For horizon year 2040, it was assumed that I-605 Corridor Improvement Project (CIP) will be completed. The following intersections in the vicinity of this interchange are being studied and may be recommended for changes as part of I-605 CIP:

- Pioneer Boulevard and I 605 NB ramps
- Pioneer Boulevard and Beverly Boulevard
- San Gabriel River Parkway & I-605 SB on-ramp
- San Gabriel River Parkway & Sports Arena Drive/Rose Hills Road
- I-605 NB on-ramp & Rose Hills Road
- I-605 NB on-ramp & Rose Hills Road
- Shepherd Street & I-605 NB off-ramp
- I-605 SB off-ramp/Esperanza Avenue & Whittier Boulevard
- Pioneer Boulevard & Whittier Boulevard
- Lockheed Avenue & Whittier Boulevard

Intersection lane configuration changes were included in all future alternatives. The intersection lane configuration for the intersections listed above was obtained from the I-605 project.

Horizon Year (2040) Intersection Level of Service

A level of service analysis using the previously described methodologies was conducted to evaluate Horizon Year traffic conditions in the study area under alternatives 1, 2, and 3. The results of the intersection level of service analysis are summarized in Table 25. Detailed levels of service calculation worksheets are included in Appendix C of the TOAR.

Alternative 2 in the horizon year, when compared with existing conditions, shows intersection LOS improve or stay the same at all evaluated intersections, with the exception of the NB I-605 on-ramp at Rose Hills Road during PM peak hour, which shows a decline from LOS B to C. Alternative 3 in the horizon year, when compared with existing conditions, shows intersection LOS improve or stay the same at all evaluated intersections, with the exception of the NB I-605 on-ramp at Rose Hills Road during PM peak hour, which shows a decline from LOS B to C. Alternative 2 in the opening year, when compared with no build conditions in the opening year, shows intersection LOS improve or stay the same at all evaluated intersections. Alternative 3 in the opening year, when compared with no build conditions in the opening year, shows intersection LOS improve or stay the same at all evaluated intersections. Alternative 2 in the horizon year, when compared with no build conditions in the horizon year, shows intersection LOS improve or stay the same at all evaluated intersections. Alternative 3 in the horizon year, when compared with no build conditions in the horizon year, shows intersection LOS improve or stay the same at all evaluated intersections.

Table 25 Horizon Year 2040 Intersection Level of Service								
			Alternative 1		Alternative 2		Alternative 3	
ID			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
1	Pioneer Blvd and I-605 NB ramps	Signal	B	B	B	B	B	B
2	Pioneer Blvd and Beverly Blvd	Signal	C	C	B	C	B	C
3	I-605 SB ramp and Beverly Blvd	Free	--	--	B	C	D	B
4	Abbeywood Ave and Beverly Blvd	Signal	B	B	B	B	B	B
5	San Gabriel River Parkway and Beverly Blvd	Signal	D	D	D	D	D	D
6	San Gabriel River Parkway & I-605 SB On-Ramp	--						
7	San Gabriel River Parkway & Sports Arena Drive/Rose Hills Road	All-Way Stop	B	B	B	B	B	B
8	I-605 NB On-Ramp & Rose Hills Road	Signal	C	C	C	C	C	C
9	Shepherd Street & I-605 NB Off-Ramp	All-Way Stop	A	A	A	A	A	A
10	I-605 SB Off-Ramp/Esperanza Ave & Whittier Blvd	Signal	B	B	B	B	B	B
11	Pioneer Blvd & Whittier Blvd	1-Way Stop	**F**	**F**	**F**	**F**	**F**	**F**
12	Lockheed Ave & Whittier Blvd	Signal	B	B	B	B	B	B
Notes: BOLD indicates unsatisfactory level of service								

Horizon Year (2040) Intersection Queuing Analysis

A queuing analysis was conducted to determine the queue lengths at the freeway ramp intersections for the Horizon Year (2040) under the three alternatives. Several turning movements are forecast to exceed the maximum available storage length during the AM or PM peak hour. Detailed queuing reports are included in Appendix B of the TOAR. The following movements were shown to have queuing issues:

Alternative 1 (No Build)

- Pioneer Boulevard and Beverly Boulevard.
  - Northbound Left—AM and PM peak hours.

Alternative 2 – Diamond Interchange

- Pioneer Boulevard and Beverly Boulevard.
  - Northbound Left—AM and PM peak hours.

Alternative 3 – D Ramp Interchange

- Pioneer Boulevard and Beverly Boulevard.
- Northbound left—AM and PM peak hours.
- I-605 southbound ramps and Beverly Boulevard
- Eastbound left—AM peak hour.
- Westbound through—AM peak hour.
- Westbound right – AM and PM peak hours.

Horizon Year (2040) Freeway Mainline Analysis

A summary of the results of the Horizon Year (2040) basic freeway segment analysis are shown in Table 26 for the three alternatives. The freeway mainline LOS calculation sheets are included in Appendix E of the TOAR. As shown, based on the HCM analysis, all basic freeway segments are shown to operate at LOS D or better in both directions during the PM peak hour. However, all segments are forecast to operate at LOS E during the AM peak hour.

Table 26 Horizon Year 2040 Mainline Segment LOS

		Alternative 1		Alternative 2		Alternative 3	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Freeway Mainline Segment	Lanes	LOS	LOS	LOS	LOS	LOS	LOS
I-605 Southbound							
Between San Gabriel River Parkway On-Ramp and EB Beverly Boulevard Off-Ramp	5	E	D	E	D	E	D
Between EB Beverly Boulevard Off-Ramp and EB/WB Beverly Boulevard On-Ramp	5	E	D	E	D	E	D

Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	5	E	D	E	D	E	D
I-605 Northbound							
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	5	E	D	E	D	E	D
Between Pioneer Boulevard n/o Beverly Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	5	E	D	E	D	E	D
Between Pioneer Boulevard n/o Beverly On-Ramp and Shepherd Street/ Rose Hills Road Off-Ramp	5	E	D	E	D	E	D

Horizon Year (2040) Freeway Ramp Merge and Diverge Analysis

The results of the Horizon Year (2040) merge and diverge segment analysis for the three alternatives is shown in Table 27. The freeway ramp LOS calculation sheets are included in Appendix E of the TOAR. Based on the HCM analysis, all freeway merge and diverge segments are shown to operate at LOS D or better in both directions with the exception of the northbound and southbound Beverly Boulevard off-ramp diverges which are forecast to operate at LOS E during the AM peak hour.

Table 27 Horizon Year (2022) Freeway Ramp Merge and Diverge Segment Level of Service

		Alternative 1		Alternative 2		Alternative 3	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Freeway Ramp Segment	Type	LOS	LOS	LOS	LOS	LOS	LOS
I-605 Southbound							
EB Beverly Boulevard Off-Ramp	Diverge	E	D	E	D	E	D
Beverly Boulevard On-Ramp	Merge	D	C	D	C	D	C
I-605 Northbound							
Beverly Boulevard Off-Ramp	Diverge	E	D	E	D	E	D
Beverly Boulevard On-Ramp	Merge	D	C	D	C	D	C

Horizon Year (2040) Managed-Lane Analysis

The results of the Horizon Year (2040) freeway managed-lane segment analysis for the three alternatives are summarized in Table 28. As shown, all the managed-lane segments in the study area are projected to operate at satisfactory LOS.

Table 28 Horizon Year (2040) Freeway Managed-Lane Level of Service							
		Alternative 1		Alternative 2		Alternative 3	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Freeway HOV Segment	Lanes	LOS	LOS	LOS	LOS	LOS	LOS
I-605 Southbound							
Between San Gabriel River Parkway On-Ramp and EB Beverly Boulevard Off-Ramp	2	C	C	C	C	C	C
Between EB Beverly Boulevard Off-Ramp and EB/WB Beverly Boulevard On-Ramp	2	C	B	C	B	C	B
Between EB/WB Beverly Boulevard On-Ramp and Whittier Boulevard Off-Ramp	2	C	B	C	B	C	B
I-605 Northbound							
Between WB Whittier Boulevard On-Ramp and Pioneer Boulevard n/o Beverly Boulevard Off-Ramp	2	C	C	C	C	C	C
Between Pioneer Boulevard n/o Beverly Boulevard Off-Ramp and Pioneer Boulevard n/o Beverly On-Ramp	2	C	C	C	C	C	C
Between Pioneer Boulevard n/o Beverly On-Ramp and Shepherd Street/Rose Hills Road Off-Ramp	2	C	C	C	C	C	C

Horizon Year (2040) Ramp Metering Analysis

Horizon Year 2040 ramp metering results at I-605 Beverly Boulevard on-ramps are summarized in Table 29 for each alternative. Under Alternative 1 the ramp meter queues at all study on-ramps are longer than the available storage lengths. This is expected to result in vehicle queue spillover onto Beverly Boulevard. Under both Alternative 2 and Alternative 3, the ramp meter queue at the southbound I-605 on-ramp is projected to be less than the available storage lengths, thus no spillover from the storage area is expected. The northbound I-605 on-ramp metering queue is projected to be longer than the available storage length.

Table 29 Horizon Year (2040) Ramp Metering Analysis

Metered Ramp	Peak Hour	Alternative 1 Lanes GP	Alternative 1 Lanes HOV	Alternative 1 Adequate Storage GP	Alternative 1 Adequate Storage HOV	Alternative 2 Lanes GP	Alternative 2 Lanes HOV	Alternative 2 Adequate Storage GP	Alternative 2 Adequate Storage HOV	Alternative 3 Lanes GP	Alternative 3 Lanes HOV	Alternative 3 Adequate Storage GP	Alternative 3 Adequate Storage HOV
I-605 Southbound													
WB Beverly to I-605 SB Loop on-ramp	AM	1	0	No	--								
	PM			Yes	--								
EB Beverly to I-605 SB on-ramp	AM	1	1	No	Yes								
	PM			No	Yes								
Beverly to I-605 SB on-ramp	AM	--	--	--	--	2	0	Yes	--	1	1	Yes	Yes
	PM	--	--	--	--			Yes	--			Yes	Yes
I-605 Northbound													
Pioneer/Beverly on-ramp	AM	2	0	No	--	2	0	No	--	2	0	No	--
	PM			No	--			No	--			No	--

Note: Shaded—Ramp Meter queue length exceeds available storage space

Safety

Traffic Accident Surveillance and Analysis System (TASAS) accident data were obtained from Caltrans for the I-605/Beverly Boulevard ramps and I-605 mainline in the project area. TASAS data were reviewed for a three-year period from July 2012 to June 2015. The data were converted into collisions per million vehicle miles traveled and compared to statewide statistics for similar facilities.

A total of 341 collisions were reported to occur on the I-605 mainline in the study area between July 2012 and June 2015. These included two fatal collisions and 88 fatal injury collisions. Regarding type of collisions, 69 percent of the collisions were rear-end, 15 percent involved hitting an object, and 13 percent were sideswipe.

A total number of 26 collisions were reported to occur on the northbound and southbound I-605/Beverly Boulevard on/off ramps. These included one fatal and nine fatal injury collisions. The following ramps experienced collision rates higher than the statewide average for the similar facilities:

- I-605 SB Beverly Boulevard On-Ramp: At this location there were two collisions in three years and both of them involved hitting an object.
- I-605 SB Beverly Boulevard Loop On-Ramp: At this location there were 10 collisions, including one fatal collision. Regarding type of collision, 40 percent involved hitting an object, 30 percent involved rear-end and 20 percent involved sideswipe.

The crash characteristics are consistent with noted transportation deficiencies in the project corridor, particularly on southbound on-ramps. The proposed build alternatives are expected to improve operations at the on-ramps, which could potentially improve safety conditions on this segment.

Comparison of alternatives

The evaluation of the intersection LOS comparison between Opening Year (2022) alternatives during AM and PM peak hour, respectively reveals that there is not much difference between alternatives. Both build alternatives have less delay than Alternative 1 (No Build) during AM and PM peak hours at the following intersections:

- San Gabriel River Parkway & I-605 SB On-Ramp
- San Gabriel River Parkway & Sports Arena Drive/Rose Hills Road
- I-605 SB Off-Ramp/Esperanza Avenue & Whittier Boulevard

During AM peak hour, the intersection at the southbound I-605 ramp and Beverly Boulevard operates better under Alternative 2 (LOS B) than Alternative 3 (LOS C). During PM peak hour, intersection of southbound I-605 ramps and Beverly Boulevard operates better under Alternative 3 (LOS B) than Alternative 2 (LOS C).

For the Horizon Year (2040), in terms of freeway operations, both build alternatives would operate similarly. All I-605 southbound and northbound freeway mainline segments are projected to operate at E and D, during AM and PM peak hours, respectively. Both northbound and southbound I-605 off-ramp segments to Beverly Boulevard are projected to operate at LOS E during the AM peak hour. Under both alternatives, the managed lanes on I-605 southbound are projected to operate at satisfactory LOS D or better.

Overall, the build alternatives fulfill the Need and Purpose of this project in terms of traffic access and traffic operations, by providing access from southbound I-605 to westbound Beverly Boulevard. Under both build alternatives, the intersection at southbound I-605 and Beverly Boulevard operates with satisfactory level of service. However, Alternative 3 (D-Ramp) is projected to have queuing issues at this intersection. Alternative 2 (Tight Diamond) does not have queuing issues at this intersection. In addition, due to the reconfiguration and improvements at the interchange, the study indicates there would be minor improvements in traffic operations at the adjacent interchanges, primarily for the movements from southbound to westbound.

Interchange Control Evaluation

The purpose of the ICE is to objectively screen and evaluate intersection control and access management strategies at the primary study intersection of Beverly Boulevard and the southbound I-605 ramps. These strategies include stop, signalization, and yield controlled roundabouts. As these are three very different types of control strategies, there are differences in the overall intersection footprint and lane geometry needs. Traffic signal alternatives and a roundabout alternative were developed to establish an intersection configuration allowing operations to perform at target levels of service (LOS) C during both AM and PM peak periods per Caltrans *Guide for the Preparation of Traffic Impact Studies*.

The ICE makes clear that an intersection signal control is the only feasible option in the context of the project. With a potential 2-lane roundabout, the intersection would operate at LOS F during the PM peak hour and would require more than two lanes. Signal control is considered to be the only viable and practical intersection control solution at this location that meets the project's Purpose and Need. Since the Step One ICE initial screening criteria found that the roundabout control strategy is infeasible at this location, it is dropped from further consideration and it will not be advanced to Step Two for a more detailed engineering or operational analysis.

Additionally, the I-605 Corridor Improvement Project published the "*I-605/SR-60 Intersection Control Evaluation (ICE) Step 1 Report*" (March 12, 2018). Existing intersection configuration and existing intersection control devices were presented along with ADT volume, collision data, as well as geometric parameter and site data to facilitate the evaluation of various intersection control strategies including 1-way stop, all-way stop, signal, and roundabout. The effort included conceptual design and analysis and an assessment was made to screen out several intersections, working with the local jurisdictions. It was agreed that a roundabout design would not be feasible at various locations due to various constraints and therefore, would be dropped from further consideration. The southbound Beverly Boulevard ramps

were not carried forward for further consideration as a roundabout due to high volumes and poor operations. The findings of that effort match the detailed Step 1 ICE study conducted for the SB I-605 Beverly Boulevard IC PAED Intersection Control Evaluation (ICE). Furthermore, the I-605 CIP team reported several meetings were held with City of Pico Rivera Staff in which the City representatives indicated that they did not favor roundabouts at the southbound ramp location.

2.17 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVII. 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:				
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	☐	☐	☐	☒
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.	☐	☐	☐	☒

The proposed project falls within Caltrans ROW. There are no resources present that are eligible for the California Register of Historical Resources or in a local register of historical resources. No culturally significant resources have been identified within the project area. No impacts are anticipated.

2.18 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

There are several known existing utilities within the project area and utility relocations will be required for Alternatives 2 and 3. Table 30 provides a list of all known existing utilities within the project vicinity and the names of their corresponding owners. Preliminary mapping which depicts existing utilities is included in figures 25 (U-1), 26 (U-2), and 27 (U-3).

TABLE 30 - Known Existing Utilities and Owners

Utility Provider	Description of Facility	Project Effects	Location
California Domestic Water	48” Water	None	Pioneer Blvd
Caltrans	Irrigation	Replace	Pioneer Blvd
Central Basin MWD	30" Reclaimed Water in 36" Casing	Extend 36” Casing	Gore area SB off ramp
Charter	Telephone Underground	None	Pioneer Blvd
Chevron	4” Oil (Abandoned)	None	SB off ramp and into UPRR right-of-way
Crimson Pipeline	4” Oil (Abandoned)	Abandon in Place	Beverly Blvd OC
Frontier	Telecom Overhead	None	UPRR right-of-way
Los Angeles County DPW	8" Sewer	None	Pioneer Blvd
San Gabriel Valley Water	38" Water Line	None	Pioneer Blvd
So Cal Edison	12 kv Overhead	None	Gore area SB off ramp
	12 kV Underground	Protect in Place	Beverly Blvd OC
So Cal Gas	2" gas line	None	Pioneer Blvd
	4" Gas Line in 12" casing	Extend 12” Casing	Gore area SB off ramp
Verizon	Underground Telecom	Adjust manhole to grade	Beverly Blvd to UPRR right-of-way
City of Whittier	30” Water Line	Extend Casing	Gore area SB off ramp

The existing utilities mapping was developed from information provided by the utility owners. A list of the potential utility owners within the project limits was created using the DigAlert online database. Electronic and hard-copy letters were sent to each of the potential utility owners which requested information on facilities that each owner may have in the project vicinity. Most owners provided atlas maps and/or as-builts, and some owners did not have any facilities within the project area. After the

information provided by the utility owners was placed in the project plans, the DigAlert service was contacted and requested to mark the utility locations on the job site. The plans were checked against the DigAlert markings and revisions were made as necessary.

The project does not increase generation of wastewater for treatment. No new water or wastewater facilities or expansion of existing facilities will occur as part of the project. Therefore, no impacts to wastewater or water facilities are anticipated.

Stormwater BMPs will be constructed for the proposed project to treat the post construction treatment area (PCTA) which was calculated as 2.8 acres in the SWDR. BMPs will be employed to treat this acreage to address Total Maximum Daily Loads (TMDLs), including indicator bacteria and lead. The proposed stormwater BMPs are not anticipated to have impacts in the project area.

Existing Caltrans irrigation facilities will be impacted by the project. Irrigation systems to service landscaping in the project area will be provided. However, the proposed landscaping prioritizes native or drought tolerant plants which will use minimal amounts of water. Anticipated impacts are less than significant.

Long-term solid waste disposal is not necessary given the nature of the project. Disposal of waste materials generated during construction will comply with Caltrans Standard Specifications. No impacts are anticipated.

2.18.1 Avoidance, minimization, and/or mitigation Measures

UTI-1 (Minimization)	A plan for proposed improvements will be discussed with the utility owners and a relocation strategy will be evaluated as design refinements are made during PS&E phase.

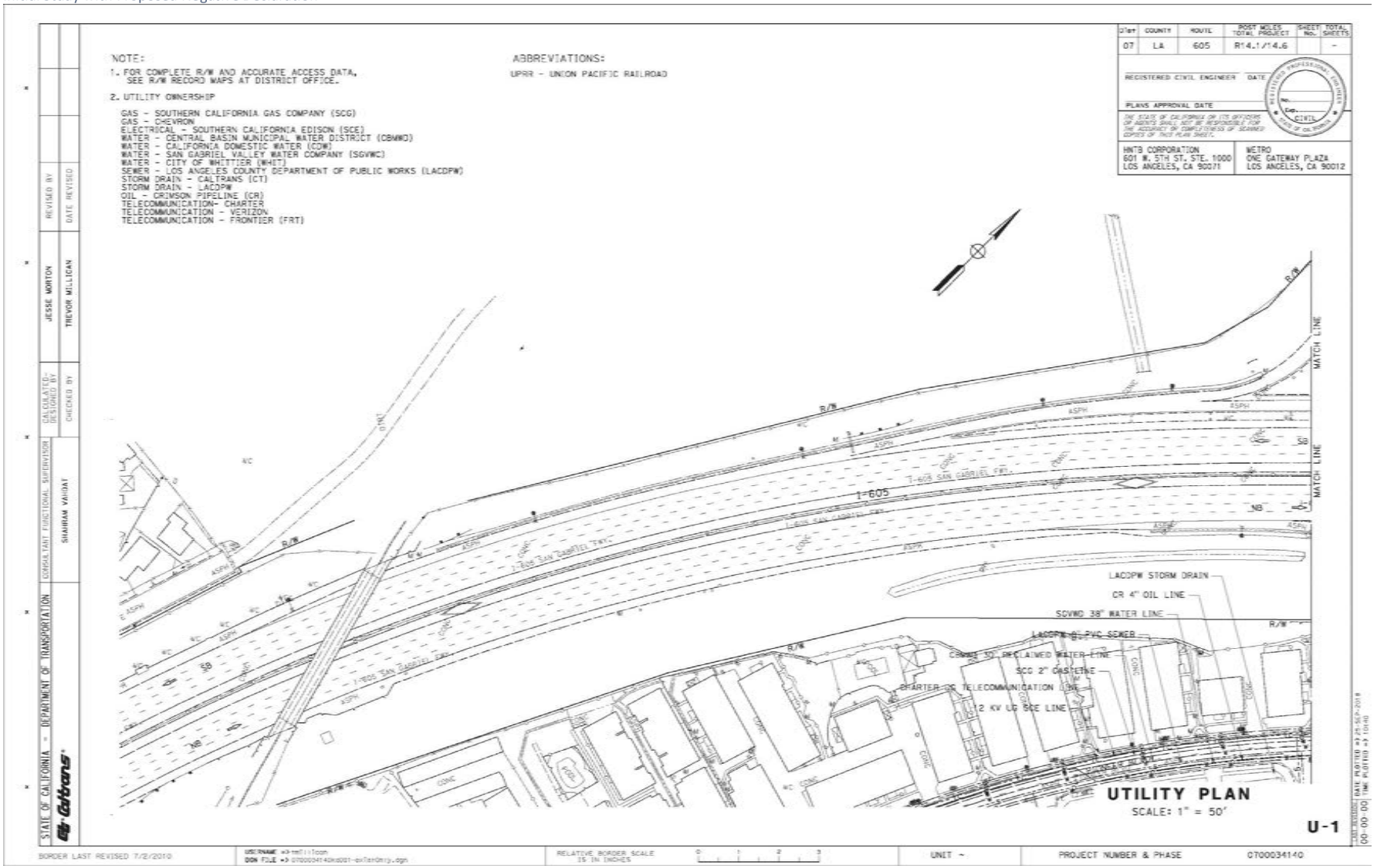
NOTE:
1. FOR COMPLETE R/W AND ACCURATE ACCESS DATA, SEE R/W RECORD MAPS AT DISTRICT OFFICE.
2. UTILITY OWNERSHIP
GAS - SOUTHERN CALIFORNIA GAS COMPANY (SCG)
GAS - CHEVRON
ELECTRICAL - SOUTHERN CALIFORNIA EDISON (SCE)
WATER - CENTRAL BASIN MUNICIPAL WATER DISTRICT (CBMWD)
WATER - CALIFORNIA DOMESTIC WATER (CDW)
WATER - SAN GABRIEL VALLEY WATER COMPANY (SGVWC)
WATER - CITY OF WHITTIER (WHIT)
SEWER - LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS (LACDPW)
STORM DRAIN - CALTRANS (CT)
STORM DRAIN - LACDPW
OIL - CRIMSON PIPELINE (CR)
TELECOMMUNICATION- CHARTER
TELECOMMUNICATION - VERIZON
TELECOMMUNICATION - FRONTIER (FRT)
ABBREVIATIONS:
UPRR - UNION PACIFIC RAILROAD
Dist
07
COUNTY
LA
ROUTE
605
POST MILES TOTAL PROJECT
R14.1/14.6
SHEET No.
TOTAL SHEETS
REGISTERED CIVIL ENGINEER
DATE
PLANS APPROVAL DATE
HNTB CORPORATION
601 W. 5TH ST, STE. 1000
LOS ANGELES, CA 90071
METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012
I-605
I-605 SAN GABRIEL FWY.
MATCH LINE
MATCH LINE
LACDPW STORM DRAIN
CR 4" OIL LINE
SGVMD 38" WATER LINE
LACDPW 8" PVC SEWER
CDWD 30" RECLAIMED WATER LINE
SCG 2" GAS LINE
CHARTER TELECOMMUNICATION LINE
12 KV UP SCE LINE
UTILITY PLAN
SCALE: 1" = 50'
U-1
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
SHAHRAM VAHDAT
CALCULATED/DESIGNED BY
CHECKED BY
JESSE MORTON
TREVOR MILLIGAN
REVISED BY
DATE REVISED
BORDER LAST REVISED 7/2/2010
RELATIVE BORDER SCALE IS IN INCHES
UNIT -
PROJECT NUMBER & PHASE
0700034140

Figure 25 – U-1

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FRT OH TELECOMMUNICATION LINE
VERIZON UG TELECOMMUNICATION LINE
CHEVRON 4" ABANDONED GAS LINE
UPRR
R/W
MATCH LINE
CR 4" OIL LINE
12 KV UG SCE LINE
VERIZON UG TELECOMMUNICATION LINE
I-605
SB
NB
I-605 SAN GABRIEL Fwy.
BEVERLY BLVD
LACOPW STORM DRAIN
SCE LINE
WHIT 10" WATER LINE
SGVMD 38" WATER LINE
LACOPW 8" PVC SEWER
SCE VAULT
CBMWD 30" RECLAIMED WATER LINE
SCG 2" GAS LINE
CHARTER UG TELECOMMUNICATION LINE
12 KV UG SCE LINE
JOINT OVERHEAD SCE 12 KV CHARTER TELECOMMUNICATION
PIONEER BLVD
SCG 3" GAS LINE
UTILITY PLAN
SCALE: 1" = 50'
U-2
DIST
07
COUNTY
LA
ROUTE
605
POST MILES TOTAL PROJECT
R14.1/14.6
SHEET No.
TOTAL SHEETS
REGISTERED CIVIL ENGINEER
DATE
PLANS APPROVAL DATE
HNTB CORPORATION
601 W. 5TH ST. STE. 1000
LOS ANGELES, CA 90071
METRO
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
SHAHRAM VAHDAT
CALCULATED/DESIGNED BY
CHECKED BY
JESSE MORTON
TREVOR MILLIGAN
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BORDER LAST REVISED 7/2/2010
RELATIVE BORDER SCALE IS IN INCHES
UNIT -
PROJECT NUMBER & PHASE
0700034140

Figure 26 – U-2

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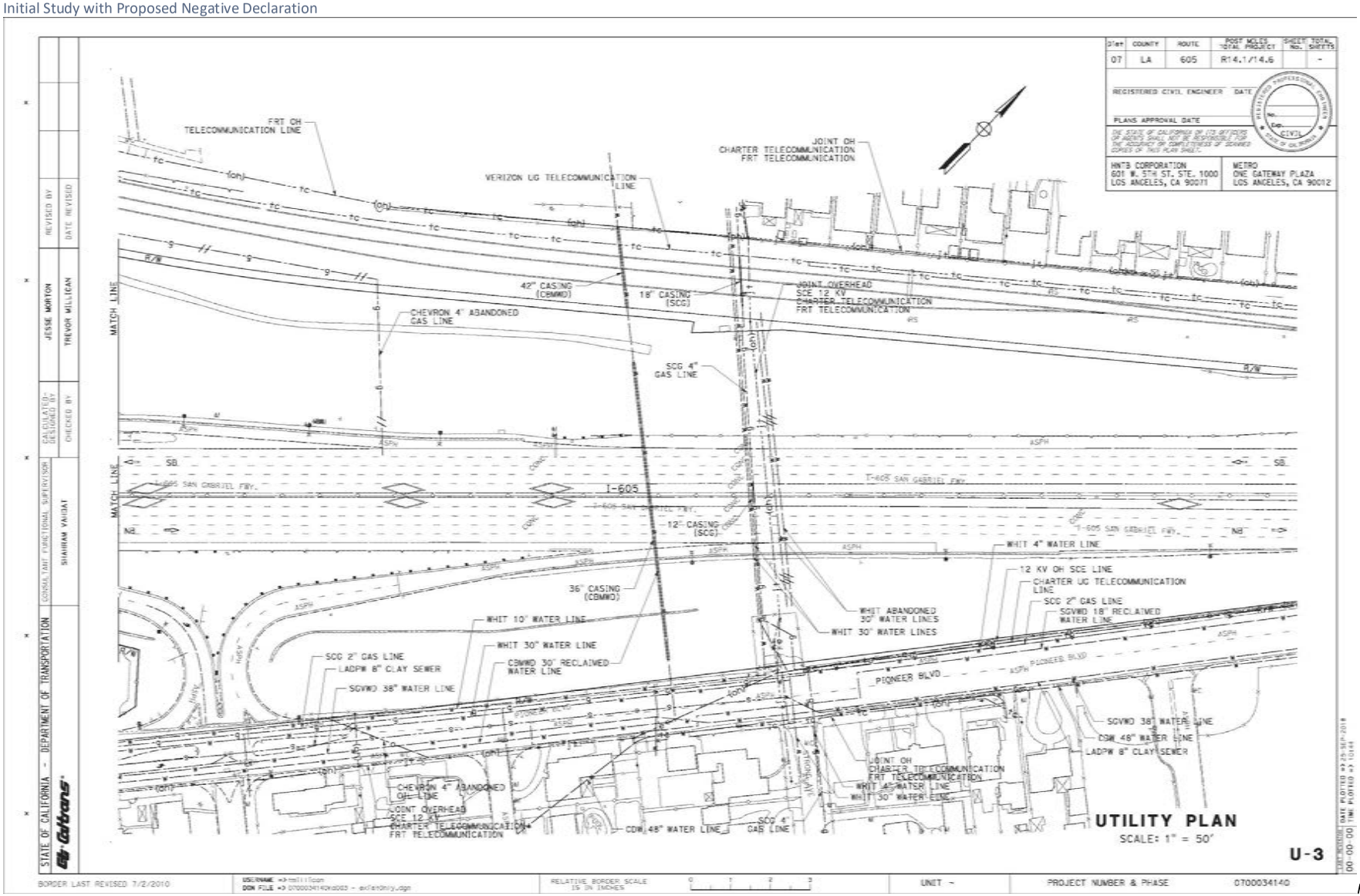
UTILITY PLAN
SCALE: 1" = 50'
U-3
I-605
PIONEER BLVD
FRT OH TELECOMMUNICATION LINE
VERIZON UG TELECOMMUNICATION LINE
JOINT OH CHARTER TELECOMMUNICATION FRT TELECOMMUNICATION
42" CASING (CBMWD)
18" CASING (SCG)
CHEVRON 4" ABANDONED GAS LINE
SCG 4" GAS LINE
12" CASING (SCG)
36" CASING (CBMWD)
WHIT 4" WATER LINE
12 KV OH SCE LINE
CHARTER UG TELECOMMUNICATION LINE
SCG 2" GAS LINE
SGVWD 18" RECLAIMED WATER LINE
WHIT ABANDONED 30" WATER LINES
WHIT 30" WATER LINES
WHIT 10" WATER LINE
CBMWD 30" RECLAIMED WATER LINE
LADPW 8" CLAY SEWER
SGVWD 38" WATER LINE
CDW 48" WATER LINE
JOINT OH CHARTER TELECOMMUNICATION FRT TELECOMMUNICATION
CHEVRON 4" ABANDONED OIL LINE
JOINT OVERHEAD SCE 12 KV CHARTER TELECOMMUNICATION FRT TELECOMMUNICATION
HNTB CORPORATION 601 W. 5TH ST. STE. 1000 LOS ANGELES, CA 90071
METRO ONE GATEWAY PLAZA LOS ANGELES, CA 90012
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Figure 27 – U-3

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2.19 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
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?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

As discussed previously, the proposed project would not degrade the quality of the environment. There is no suitable habitat for plant or wildlife species within the project area. The project does not eliminate important examples of California history or prehistory. Therefore, there are no impacts under these criteria.

The proposed project would not result in significant cumulatively considerable impacts. As discussed throughout Chapter 2, the proposed project does not have significant impacts. While the project does have the potential for less than significant impacts, in some of the analyzed resource areas including, air quality, noise, and utilities, the planned avoidance and minimization measures described in Chapter 2

would lessen the effects of the proposed project. When examined in the context of the proposed I-605 Corridor Project, currently in development, the Beverly Interchange project would not cause significant cumulatively considerable impacts to the previously mentioned resources with adherence to the prescribed avoidance, minimization, and mitigation measures. Measures describe would limit both temporary and permanent effects. Therefore, the project does not contribute to cumulatively considerable impacts.

The project will not result in environmental effects that will cause substantial adverse effects on human beings. As discussed throughout Chapter 2, the project would result in less than significant impacts to some of the evaluated resources, but avoidance and minimization measures aid in limiting those impacts.

2.20 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_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), 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.[9] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[10] The dominant GHG emitted is CO_2, 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 (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

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.

[9] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014
[10] https://www.arb.ca.gov/cc/inventory/data/data.htm

The National Environmental Policy Act (NEPA) (42 United States Code [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.

The Federal Highway Administration (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.[11] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability."[12] 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 the 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) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of 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

[11] https://www.fhwa.dot.gov/environment/sustainability/resilience/
[12] https://www.sustainablehighways.dot.gov/overview.aspx

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.

U.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, U.S. 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.

U.S. 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[13] 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 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 EPA to reopen the review and reconsider the mileage target.[14]

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_2 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 Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck

[13] https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy
[14] 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

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 executive order (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 Assembly Bill 32 in 2006 and SB 32 in 2016.

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 California Environmental Quality Act (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) 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) 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 ($MMTCO_2e$). 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, 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.

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.

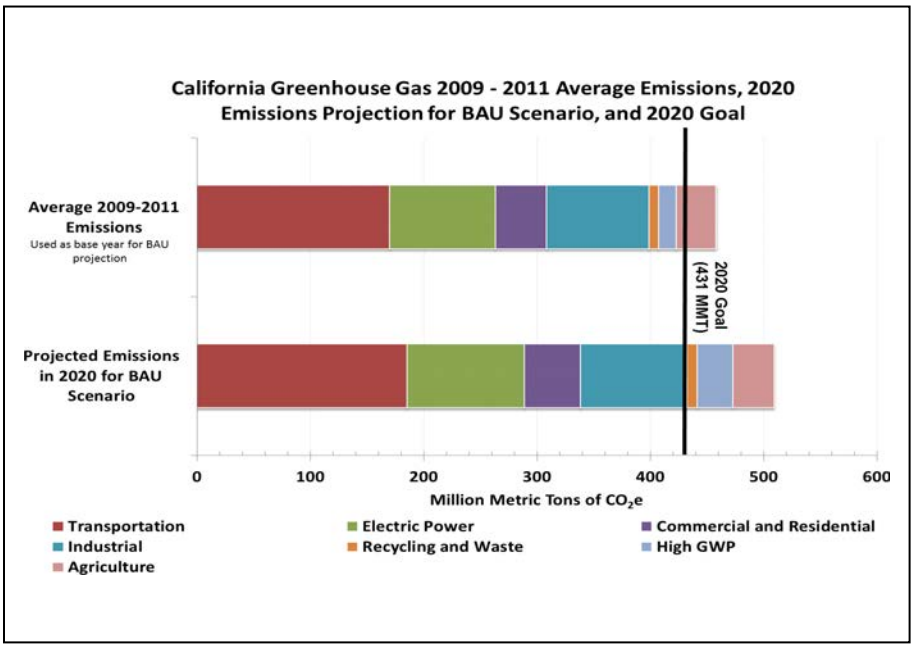
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California.[15] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC 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 28 represent 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 MMTCO2e.[16] The 2018 edition of the GHG emissions inventory found total California emissions of 429 $MMTCO_2e$ for 2016.

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 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

[15] 2017 Edition of the GHG Emission Inventory (June 2017): https://www.arb.ca.gov/cc/inventory/data/data.htm
[16] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

FIGURE 28 2020 BUSINESS AS USUAL (BAU) EMISSIONS PROJECTION 2014 EDITION



Project Analysis

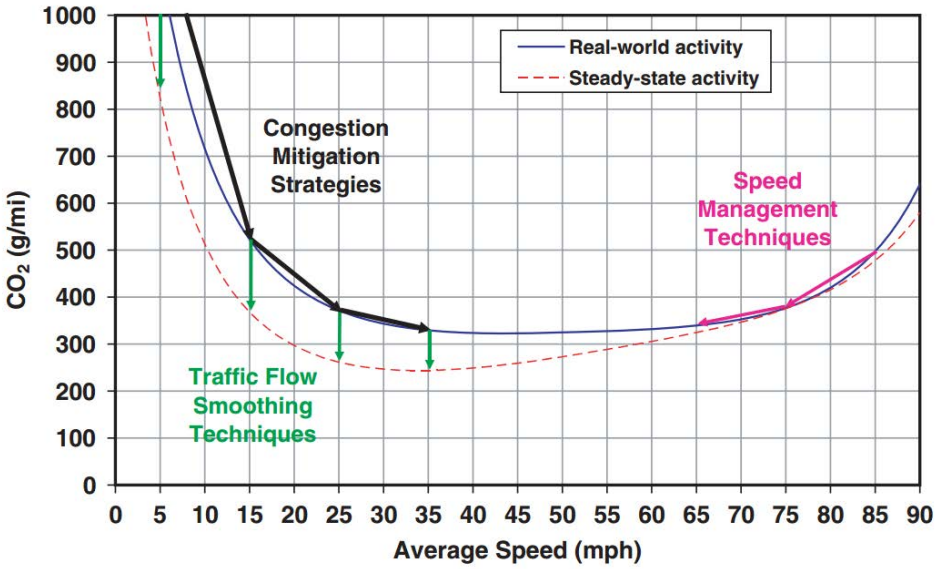
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[17] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (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.

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.

[17] 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 South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Operational Emissions

FIGURE 29 POSSIBLE USE OF TRAFFIC OPERATION STRATEGIES IN REDUCING ON-ROAD CO_2 EMISSIONS



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside, May 2010 (https://www.researchgate.net/publication/46438207)

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_2 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 29 above). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

The SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) includes the proposed project. The RTP/SCS includes a strategy to achieve GHG reduction goals set out in SB 375. For highway projects, this strategy includes maximization of the current system through improved efficiency. The proposed project seeks to improve mobility by reducing congestion, reducing weaving conflicts, and improving safety and freeway operations. The purpose and need of the project is consistent with strategy (1) improving transportation system and operational efficiencies.

The Traffic Operations Analysis Report (TOAR), evaluates different aspects of traffic for the proposed project in the opening year (2022) and horizon year (2040). The TOAR also defines existing conditions

for 2016 as a basis for comparison. The following discussion describes how the build alternatives compare to the existing conditions, and how the build alternatives compare with the no build conditions in the opening and horizon years.

Alternatives 2 and 3 in the opening year, when compared with existing conditions, show intersection level of service (LOS) improve or stay the same at all evaluated intersections, with the exception of Lockheed Avenue and Whittier Boulevard during AM peak hour, which shows a decline from LOS B to C.

Alternatives 2 and 3 in the horizon year, when compared with existing conditions, show intersection LOS improve or stay the same at all evaluated intersections, with the exception of the NB I-605 on-ramp at Rose Hills Road during PM peak hour, which shows a decline from LOS B to C.

Alternatives 2 and 3 in the opening year, when compared with no build conditions in the opening year, show intersection LOS improve or stay the same at all evaluated intersections. Alternative 2 and 3 in the horizon year, when compared with no build conditions in the horizon year, show intersection LOS improve or stay the same at all evaluated intersections.

Additionally, the peak hour ramp-metered queue length for the southbound Beverly Boulevard on-ramp, for build alternatives 2 and 3 in the opening year, provides adequate storage. The peak hour ramp-metered queue length for the southbound Beverly Boulevard on-ramp, for build alternative 2 and 3 in the horizon year, provides adequate storage. The existing year does not provide adequate storage during the AM and PM peak hour. Build alternatives 2 and 3 in the opening year provide adequate storage while the No Build alternative in the opening year does not provide adequate storage. Build alternatives 2 and 3 in the horizon year provide adequate storage while the No Build alternative in the horizon year does not provide adequate storage. The TOAR study also indicates there would be minor improvements in traffic operations at adjacent interchanges.

The RTP/SCS focuses on ensuring that the existing transportation system operates at maximum efficiency.[18] The proposed project is consistent with this approach as it improves efficiency of the southbound interchange by reconfiguring the ramps.

As discussed in Section 1.2 Purpose and Need, the SR-91/ I-605 / I-405 Congestion Hot Spots Feasibility Report and Project Study Report – Project Development Support (PSR-PDS) for the I-605, I-5, and I-105 identified the southbound I-605 at Beverly Boulevard interchange as a congestion hot-spot due to the short weaving distance between the loop on and off-ramps. No transit alternatives were identified for the project as the need for the project stems from the design of the existing interchange itself.

Quantitative Analysis

Long-term operational GHG emissions associated with the Project would be associated with the operation of motor vehicles along area roadways. Motor vehicle operational emissions were quantified for existing, opening year 2022, and design year 2040 conditions, based on data obtained from the traffic analysis prepared for this project (Cambridge Systematics. Inc. 2018). As stated in the AQR, the estimated

[18] Southern CA Association of Governments. 2016 RTP/SCS, page 84.

annual operational mobile-source GHG emissions for the Project study area are summarized in Table 31. More detailed results estimating the annual operational mobile-source GHG emissions for the Project study are in the AQR, Appendix D.

Table 31 Modeled Annual Operational CO_{2e} Emissions and Vehicle Miles Traveled

Alternative	CO_{2e} Emissions (Metric Tons/Year)	Annual Vehicle Miles Traveled[1]
Existing/Baseline 2016	25,323.0	57,426,071
Open to Traffic 2022		
No Build	24,756.5	62,840,964
Build Alternative 2	25,313.2	64,129,171
Build Alternative 3	25,433.0	64,405,348
20-Year Horizon/Design-Year 2040		
No Build	24,427.1	86,270,397
Build Alternative 2	24,867.6	87,566,196
Build Alternative 3	24,943.5	87,855,421

CO_{2e} = carbon dioxide equivalent
Source: EMFAC2014
[1] Annual VMT values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008).

Table 31 shows the CO_{2e} emissions for the existing year of 2016 as 25,323 metric tons (mt) per year as compared to the design year of 2040, which shows a decrease for Alternative 1 (No Build) (24,427.1 mt/year), Alternative 2 (24,867.6 mt/year), and Alternative 3 (24,943.5 mt/year). Build Alternatives 2 and 3 show higher CO_{2e} emissions than Alternative 1, 87,566,196 and 87,855,421 respectively, in the design year, which is likely due to increases in annual VMT projected in the SCAG 2016 RTP/SCS. The project, however, will relieve some congestion at neighboring interchanges and reduce travel time on the mainline and adjacent streets, helping to reduce emissions that would otherwise result from travel delays.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO2 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[19], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO2 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 emissions by

[19] 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

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 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 greenhouse gas 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 CO2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2016,"[20] 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% from model year 2004 to 2015, attributed to new technology that improved fuel economy while keeping vehicle weight relatively constant. Table 32 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.

[20] https://www.epa.gov/fueleconomy/light-duty-automotive-technology-carbon-dioxide-emissions-and-fuel-economy-trends-1975-1

Table 32. 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
Sources: EPA and NHTSA 2010, 2012. https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and									

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."[21]

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, 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.

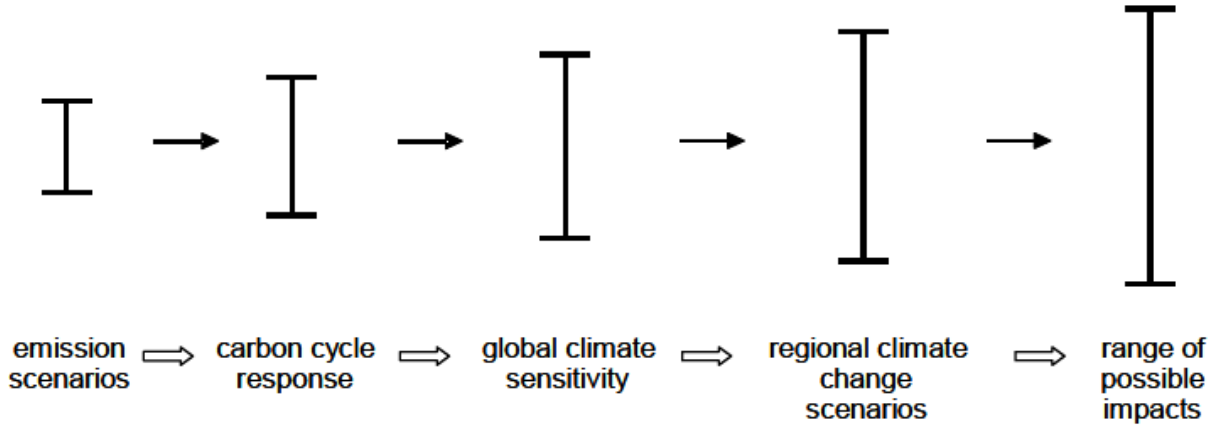
Limitations and Uncertainties with Impact Assessment

Figure 30 illustrates how the range of uncertainties in assessing greenhouse gas 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 [30]). As indicated in Figure [30], 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.[22]

[21] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf
[22] http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-21

Figure 30 Cascade of Uncertainty in Climate Change Simulations



Source: National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012). Page 5-22.

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_2 emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas 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 greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO_2 from 2000 to 2030, which represents an increase of between 25 and 90%.[23]

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_2 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.

[23] Intergovernmental Panel on Climate Change (IPCC). February 2007. *Climate Change 2007: The Physical Science Basis: Summary for Policy Makers*.
https://www.ipcc.ch/publications_and_data/ar4/wg1/en/spm.html

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.

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.

Construction emissions were estimated for the project alternatives using detailed equipment inventories and project construction scheduling information provided by Caltrans Design unit combined with emissions factors from the EMFAC2014 and Sacramento Metropolitan Air Quality Management District's (SMAQMD's) Road Construction Model. Construction-related GHG emissions for the build alternatives are presented in Table 33. The anticipated duration of construction is 12 months. Under Alternative 2, the total estimated CO_2e emissions are 2,418.59 tons for the 12-month construction project. Under Alternative 3, the total estimated CO_2e emissions are 2,421.06 tons for the 12-month construction project. The emissions presented are based on the best information available at the time of calculations. The emissions represent the peak daily construction emissions that would be generated by the Build Alternatives.

Table 33. Construction Greenhouse Gas Emissions for SB I-605 Beverly Interchange Improvement

Construction Activity	CO_2 (lbs/day)	CH_4 (lbs/day)	N_20 (lbs/day)	CO_2e (lbs/day)
Alternative 2				
Grubbing/Land Clearing	6,788.69	1.4	0.39	6,938.66
Grading/Excavation	25,756.6	6.18	1.07	26,230.39
Drainage/Utilities/Sub-Grade	17,257.8	3.21	0.52	17,492.41
Paving	6,657.94	1.66	0.21	6,761.7
Maximum daily or average daily	25,756.6	6.18	1.07	26,230.39
Project Total (tons/construction project)	2,378.7	0.53	0.09	2,418.59
Alternative 3				
Grubbing/Land Clearing	6,788.69	1.4	0.39	6,938.66
Grading/Excavation	25,756.6	6.18	1.07	26,230.39
Drainage/Utilities/Sub-Grade	17,257.8	3.21	0.52	17,492.41
Paving	6,777.1	1.66	0.23	6,886.45
Maximum daily or average daily	25,756.6	6.18	1.07	26,230.39
Project Total (tons/ construction project)	2,381.06	0.53	0.09	2,421.06
Notes: Source AQR Appendix A				

Units shown in in pounds/day except Project Total CO_2e in tons/construction project

Emissions were calculated using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 8.1.0, based on construction information provided by the project engineer. PM emissions reflect total emissions from mobile sources and fugitive dust; includes an estimated 50% reduction in fugitive emissions with compliance with Caltrans Standard Specifications. Totals may not sum due to rounding.

Implementation of the following measures, found in section 2.3.5 Air Quality Avoidance, Minimization, and/or Mitigation Measures section will reduce GHG emissions resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related GHG emissions, these reductions cannot be quantified at this time.

AQ-1 (Minimization)	The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2015).
AQ -2 (Minimization)	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.
AQ -6 (Minimization)	Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.
AQ -13 (Minimization)	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.

CEQA Conclusion

As discussed above, No Build and Build Alternative emissions estimates reflect a reduction in GHGs in design year 2040, compared to the 2016 existing/baseline condition, even as VMT increases substantially over the time period. Future build emissions, however, are higher than no-build emissions in 2040. Nonetheless, there are also limitations with EMFAC and with assessing what a given CO_2 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

The term greenhouse gas (GHG) is used to describe atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature,

precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of interest include CO2, CH4, N2O, and fluorinated gases.

GHGs differ in how much heat each trap in the atmosphere (global warming potential, or GWP). CO2 is the most important GHG, so amounts of other gases are expressed relative to CO2, using a metric called "carbon dioxide equivalent" (CO2e). The global warming potential of CO2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO2. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH4 as 25 and the GWP of N2O as 298, over a 100-year time horizon. Generally, estimates of all GHGs are summed to obtain total emissions for a project or given period, usually expressed in metric tons (MTCO2e), or million metric tons (MMTCO2e).

As evidence has mounted for the relationship of climate changes to rising GHGs, federal and state governments have established numerous policies and goals targeted to improving energy efficiency and fuel economy and reducing GHG emissions. Nationally, electricity generation is the largest source of GHG emissions, followed by transportation. In California, however, transportation is the largest contributor to GHGs.

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined an 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 are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our 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*.

FIGURE 31 THE GOVERNOR'S CLIMATE CHANGE PILLARS: 2030 GREENHOUSE GAS REDUCTION GOALS

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 of vehicle miles traveled. 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.

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 *Caltrans Activities to Address Climate Change* (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.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project:

Reduces severity of construction related GHGs	The avoidance and minimization measures AQ-1, AQ-2, AQ-6, and AQ-13 will reduce short-term construction related GHGs.
Improves traffic flow and limits idling	The proposed project would reduce weaving conflicts at the Beverly Boulevard exit and include ramp metering, which can facilitate traffic flow.

Supports multi-modal transportation	Project design includes appropriate width for class II bicycle lanes, which would allow for a continuation of the bicycle lane east of the interchange.

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[24], 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 federal Department of Transportation issued *U.S. DOT 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."[25]

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[26] 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

[24] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
[25] https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm
[26] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

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.[27]

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 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)[28] 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; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and 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* (Dec 2009),[29] 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

[27] https://www.fhwa.dot.gov/environment/sustainability/resilience/
[28] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.
[29] http://www.climatechange.ca.gov/adaptation/strategy/index.html

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."[30]

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 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.

[30] http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

3 CEQA Checklist

CEQA Environmental Checklist

07-LA-605	14.1/14.6	07-34140
Dist.-Co.-Rte.	P.M/P.M.	E.A.

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 indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. 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.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. 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:				

	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

III. 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:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

IV. BIOLOGICAL RESOURCES: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

VI. GEOLOGY AND SOILS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

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 of the document.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

XI. MINERAL RESOURCES: Would the project:

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

XII. NOISE: Would the project result in:

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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVII. 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:				
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	☐	☐	☐	☒
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.	☐	☐	☐	☒
XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
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?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

4 Coordination and Consultation

Meetings with the City of Pico Rivera

SB I-605 Beverly Boulevard Interchange Improvement Project Meeting with the City of Pico Rivera

Tuesday, September 26, 2017

In Attendance:

- James Enriquez City of Pico Rivera – Director of Public Works / City Engineer
- Jose Loera City of Pico Rivera – Assistant City Engineer
- Michael Garcia City of Pico Rivera – Economic Development Manager
- Yvette Kirrin Gateway Cities (by phone)
- Lucy Olmos Metro – Project Manager
- Gary Hamrick Cambridge Systematics – Project Traffic Forecasting and Operations Analysis
- Marie Marston Civil Works Engineers – Project Manager

Later in Meeting:

- René Bobadilla City of Pico Rivera – City Manager
- Ben Cardenas City of Pico Rivera – Assistant City Manager

The purpose of this meeting was to discuss any City concerns and obtain any particular data, particularly developments which may need to be included in the traffic study for the project development. The meeting began with introductions and a brief project overview.

The City of Pico Rivera representatives discussed the history of a vacant parcel located adjacent to the proposed project area. The city representatives noted the parcel has been marketed for over 30 years. The parcel, zoned as planned industrial, is not available for residential development due to limited access for fire department response. The city stated that there has been interest in several other types of projects on the site. The city expressed a preference for a loop on-ramp configuration because a stub across from the ramp intersection could provide access to the site.

Representatives from the project team noted potential challenges to site access given FHWA and Caltrans policies.

The project team discussed the traffic analysis for the proposed project and requested feedback from the city. The city provided some feedback and requested consideration of a second build alternative for the proposed project.

I-605/SR 60 PA&ED - City of Pico Rivera 2nd Coordination Meeting

Wednesday, February 14, 2018

In Attendance:

- Rene Bobadilla (Pico Rivera City Manager)
- James Enriquez (Pico Rivera Director of Public Works)
- Benjamin Cardenas (Assistant City Manager)
- Carlos Montez (Metro)
- Diego Cadena (WKE)
- Michael Hynes (WKE)

The meeting was held as coordination for the I-605 CIP project as a whole, but the southbound Beverly Blvd. interchange was a topic of discussion. The following discussion points relate specifically to the Beverly project:

- Presentation of the current southbound interchange design.
- The city requested the I-605 team review the partial cover leaf in the north west quadrant of the interchange (Action 1-2). The city noted that the early action project is starting to review this configuration, which would provide easier access to the vacant parcel to the southwest of the interchange.
- Metro noted the inclusion of the City design (partial clover leaf) as an alternative considered in the Beverly Blvd interchange early action project environmental document.
- The city also noted the abandoned UP bridge over I-605 may need to be replaced in kind given it is privately owned.

5 List of Preparers

The following Caltrans staff contributed to the preparation of this document:

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Los Angeles County Metropolitan Transportation Authority

Lucy Olmos Delgadillo, Project Manager

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Consultants

Civil Works Engineers, Inc.

Cambridge Systematics, Inc.

Leighton Consulting, Inc.

6 Distribution List

Locations Where Initial Study is Available for Review	
Caltrans District 7 – Environmental Documents Website http://www.dot.ca.gov/d7/env-docs/	
Caltrans District 7	100 S. Main Street Los Angeles, CA 90012
Pico Rivera Library	9001 Mines Ave Pico Rivera, CA 90660
Whittier Central Library	7344 Washington Ave Whittier, CA 90602
Mailing List	
Elected Officials	
State	
CA Senator Bob Archuleta District 32	17315 Studebaker Road, Suite 332 Cerritos, CA 90703
CA State Assemblymember Cristina Garcia District 58	8255 Firestone Blvd., Suite 203 Downey, CA 90241
County	
LA County Supervisor Hilda Solis District 1	3400 Aerojet Ave., Ste. 240 El Monte, CA 91731
Council of Governments	
Gateway Cities COG	16401 Paramount Boulevard Paramount, CA 90723
City of Pico Rivera	
Mayor Brent A. Tercero	6615 Passons Blvd. Pico Rivera, CA 90660
Mayor Pro Tem Gustavo V. Camacho	6615 Passons Blvd. Pico Rivera, CA 90660
Councilmember Raul Elias	6615 Passons Blvd. Pico Rivera, CA 90660
Councilmember Gregory Salcido	6615 Passons Blvd. Pico Rivera, CA 90660
City of Whittier	
Mayor Joe Vinatieri	13230 Penn Street Whittier, CA 90602
Mayor Pro Tem Josué Alvarado	13230 Penn Street Whittier, CA 90602
Councilmember Fernando Dutra	13230 Penn Street Whittier, CA 90602
Councilmember Henry Bouchot	13230 Penn Street

	Whittier, CA 90602
Councilmember Cathy Warner	13230 Penn Street Whittier, CA 90602
Governmental Agencies	
Responsible Agencies	
Los Angeles County Metropolitan Transportation Authority	One Gateway Plaza Los Angeles, CA 90012-2952
Trustee Agencies	
California Regional Water Quality Control Board, Los Angeles Region	320 West Fourth Street, Suite 200 Los Angeles, CA 90013
California Transportation Commission	1120 N Street, Room 2221, MS-52 Sacramento, CA 95814
Governor's Office of Planning and Research State Clearinghouse	P.O. Box 3044 Sacramento, CA 95812-3044
Regional	
South Coast Air Quality Management District	21865 Copley Drive Diamond Bar, CA 91765
Southern California Association of Governments	818 West 7th Street, 12th Floor Los Angeles, CA 90017
County	
County of Los Angeles Department of Public Works	900 S. Fremont Avenue Alhambra, CA 91803
County of Los Angeles Department of Regional Planning	320 West Temple Street, 13th Floor Los Angeles, California 90012
County of Los Angeles Fire Department Environmental Review Unit	12605 Osborne Street Pacoima, CA 91331-2129
Los Angeles County Sheriff's Department Pico Rivera Station	6631 Passons Blvd. Pico Rivera, CA 90660
City	
City of Pico Rivera Office of the City Manager	6615 Passons Blvd. Pico Rivera, CA 90660
City of Pico Rivera Department of Public Works	6615 Passons Blvd. Pico Rivera, CA 90660
City of Pico Rivera Planning Department	6615 Passons Boulevard Pico Rivera, CA 90660
City of Whittier City Manager Jeff Collier	13230 Penn Street Whittier, CA 90602
City of Whittier Director of Public Works David Schickling	13230 Penn Street Whittier, CA 90602
City of Whittier	13230 Penn Street

Planning and Services Division Conal McNamara, Director	Whittier, CA 90602

7 Acronyms

2016 RTP/SCS	2016 Regional Transportation Plan/ Sustainable Communities Strategy
AQR	Air Quality Report
BGS	Below Ground Surface
BMP	Best Management Practices
BSA	Biological Study Area
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CREC	Controlled Recognized Environmental Conditions
DPRG	District Preliminary Geotechnical Report
GP	General Purpose
HOV	High Occupancy Vehicle
HREC	Historical Recognized Environmental Conditions
ICE	Interchange Control Evaluation
IPaC	USFWS Information for Planning and Coordination
ISA	Initial Site Assessment
LOS	Level of Service
MBTA	Migratory Birds Treaty Act
NRHP	National Register of Historic Places
NES	Natural Environment Study
PCTA	Post Construction Treatment Area
PSR-PDS	Project Study Report-Project Development Support
RCP	Reinforced concrete pipe
RE	Resident Engineer
REC	Recognized Environmental Conditions
RR	Rural Residential
SCAG	Southern California Association of Governments
SD	Storm drain
TOAR	Traffic Operations Analysis Report
TMDL	Total Maximum Daily Load
UPRR	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service

Appendix A - Title VI

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN JR., Governor

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Making Conservation a California Way of Life

April 2018

NON-DISCRIMINATION
POLICY STATEMENT

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To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title VI@dot.ca.gov, or visit the website www.dot.ca.gov.

LAURIE BERMAN
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability."

Appendix B – Environmental Commitments Record

Environmental Commitments Record		
Aesthetics		
ID	Commitment Description	Implementation Period
VIS-1 (Minimization)	Include aesthetic treatment for retaining walls that is consistent with the *Route 605 Corridor Master Plan,* currently in development, to ensure compatibility with the surrounding built environment.	Final Design
VIS-2 (Minimization)	Replace landscaping with ornamentals and consider native plants where appropriate.	Construction
VIS-3 (Minimization)	Include applicable aesthetic treatments for pavement at gore areas and ramp end points to maintain consistency with the *Route 605 Corridor Master Plan*.	Final Design
Air Quality		
ID	Commitment Description	Implementation Period
AQ-1 (Minimization)	The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2015).	Construction
AQ -2 (Minimization)	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.	Construction
AQ -3 (Minimization)	Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. This measure will comply with the Stormwater Pollution Prevention Plan requirements referenced in Measure WQ-4.	Construction
AQ-4 (Minimization)	Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.	Construction
AQ -5 (Minimization)	Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions. This measure will comply with the Stormwater Pollution Prevention Plan requirements referenced in Measure WQ-4.	Construction
AQ -6 (Minimization)	Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.	Construction

AQ-7 (Minimization)	A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities.	Construction
AQ -8 (Minimization)	Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.	Construction
AQ -9 (Minimization)	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.	Construction
AQ -10 (Minimization)	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.	Construction
AQ-11 (Minimization)	All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.	Construction
AQ -12 (Minimization)	Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions.	Construction
AQ -13 (Minimization)	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.	Construction
AQ -14 (Minimization)	Mulch will be installed, or vegetation planted as soon as practical after grading to reduce windblown PM in the area.	Construction
AQ -15 (Minimization)	During construction, contractors are required to comply with the requirements of all applicable state and local regulations including, but not limited to, SCAQMD Rules 401 (Visible Emissions), 402 (Nuisance), and 403 (Fugitive Dust).	Construction
AQ-16 (Minimization)	Construction of the proposed project shall comply with all applicable SCAQMD Rules. While construction equipment on site would generate some objectionable	Construction

	odors primarily arising from diesel exhaust, these emissions would generally be limited to the project site and would be temporary in nature. Objectionable odors should also be minimized by conducting certain construction activities in areas at least 500 feet from the sensitive receptors as feasible	
Biology		
ID	Commitment Description	Implementation Period
BIO-1 (Avoidance)	There is the potential for the presence of migratory birds within the project area. The Division of Environmental Planning recommends that vegetation removal and/or the use of loud machinery occur outside of nesting bird season, which is February 1st through September 1st.	Construction
BIO-2 (Avoidance)	Should it be necessary for vegetation removal and/or the use of loud machinery to occur during nesting bird season, the Resident Engineer (RE) shall notify the Caltrans District Biologist two weeks prior to commencement of work, so the District Biologist is able to perform a nesting bird survey.	Construction
BIO-3 (Minimization)	Nesting birds are protected under the Migratory Bird Treaty Act (MBTA). In the event that nesting birds are observed in the project area, work shall cease and the RE will coordinate with the District Biologist to minimize the potential to violate the MBTA.	Construction
BIO-4 (Minimization)	The Division of Environmental Planning recommends replanting suitable native trees and vegetation that will cater to the birds and wildlife in the area.	Final Design/ Construction
BIO-5 (Minimization)	This project must employ all appropriate temporary construction Best Management Practices (BMPs), and these must be incorporated into the project specifications. Prior to the start of construction, all drain inlets must be protected to prevent construction materials and/or debris from entering waterways.	Construction
BIO-6 (Minimization)	No asphalt grindings shall be used within 100 feet of any water course. Water course, for this purpose, is defined as any feature, either natural or man-made, which conveys water during any time of the year. The limitation on asphalt use near waterways is restricted to compacted shoulder backing.	Construction
Cultural Resources		

ID	Commitment Description	Implementation Period
CUL-1 (Minimization)	If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.	Construction
Geology and Soils		
ID	Commitment Description	Implementation Period
GEO-1 (Minimization)	All grading should be performed in accordance with Caltrans Standard Specifications except as indicated in the Special Provisions prepared for this project. Fill placed on sloping ground should be properly keyed and benched into existing ground and placed as specified in Section 19-6 of the Caltrans Standard Specifications.	Construction
GEO-2 (Minimization)	Any soils to be placed as fill, whether onsite or imported material, should be reviewed and approved by the Geotechnical Engineer of Record. All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to near-optimum moisture content, and compacted to a minimum 90 percent relative compaction per Caltrans Test Method 216. Aggregate base should also be compacted to a minimum of 95 percent relative compaction.	Construction
GEO-4 (Minimization)	Proposed embankments should be supported on competent fill or native soils. All unsuitable near-surface deposits should be excavated and removed from the proposed embankment footprint prior to fill placement. The embankment subgrade should be observed and approved by the Geotechnical Engineer of Record.	Construction
GEO-5 (Minimization)	The planned retaining walls are expected to encounter fill materials and/or alluvial deposits. If undocumented artificial fill is encountered, the fill materials should be removed and recompacted. The retaining walls should be backfilled with onsite or imported non-expansive soil and constructed with a backdrain in accordance with Caltrans standard plans and specifications.	Construction
Hazardous Waste		
ID	Commitment Description	Implementation Period
HW - 1	Complete investigation of near surface soil located adjacent to existing roadways to assess the presence or absence of impacts. Unpaved soils adjacent to the existing roadways should be tested for ADL according to Caltrans ADL testing guidelines. ADL soils should be	Final Design Phase/ Construction

	handled in accordance with the current applicable Caltrans Standard Special Provision (SSP).	
HW – 2	If treated wood is to be removed within the proposed project limits, handling, disposal, and proper management of the treated wood waste (TWW) should be conducted in accordance with Appendix XII of the California Code of Regulations, Title 22, Division 4.5, Chapter 11 and the current applicable SSP.	Construction
HW – 3	Conduct Site Investigations during PS&E phase to determine the presence of hazardous materials within the project area.	Final Design
HW – 4	Obtain encroachment permits and/or access agreements early in PS&E phase to avoid potential delays to Site Investigations.	Final Design
HW – 5	Elevated concentrations of lead and chromium may be present in the striping paint used on the existing roadways within the proposed project limits. Yellow and white paint striping should be managed in accordance with Construction Program Procedure Bulletin 99-2 and the current applicable Caltrans SSPs for areas where striping will be disturbed or removed by the project.	Construction
Hydrology and Water Quality		
ID	Commitment Description	Implementation Period
WQ – 1 (Minimization)	The following methods will be utilized during construction to minimize erosion from slopes: disturbing existing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, incorporating retaining walls to reduce steepness of slopes, providing cut and fill slopes flat enough to allow re-vegetation and to limit erosion to pre-construction rates, rounding and shaping slopes to reduce concentrated flow, and collecting concentrated flows in stabilized drains.	Construction
WQ – 2 (Minimization)	Install permanent stormwater pollution controls and treatment BMPs including vegetated slopes, conveyance systems, bioswales, and a detention basin as early as practical during construction address construction stormwater impacts.	Construction
WQ – 3 (Minimization)	The construction will be scheduled to minimize soil-disturbing work during the rainy season.	Construction

WQ – 4 (Minimization)	Prepare a Stormwater Pollution Prevention Plan (SWPPP) as described in Caltrans' Standard Specification (2018) section 13-3.	Final Design
Noise		
ID	Commitment Description	Implementation Period
NOI-1 (Minimization)	Fit effective mufflers on all new equipment and retrofit mufflers on existing to yield immediate noise reduction at of road construction sites.	Construction
NOI-2 (Minimization)	Sealed and lubricated tracks for crawler mounted equipment will lessen the sound radiated from the track assembly resulting from metal to soil and metal to metal contact. Contractors, site engineers, and inspectors should ensure that the tracks are kept in excellent condition by periodic maintenance and lubrication.	Construction
NOI-3 (Minimization)	Lower exhaust pipe exit height closer to the ground to result in an off-site noise reduction.	Construction
NOI-4 (Minimization)	In–use site noise control is necessary to prevent existing equipment from producing noise levels in excess of specified limits. Equipment exceeding the limit would be required to meet compliance by repair, retrofit, or replacement. New equipment with the latest noise sensitive components and noise control devices are generally quieter than older equipment, if properly maintained and inspected regularly. They should be repaired or replaced if necessary to maintain the in-use noise limit.	Construction
NOI-5 (Minimization)	Shielding with barriers should be implemented at an early stage of a project to reduce construction equipment noise. Consider the placement of barriers carefully to reduce limitation of site access. Barrier examples include, excess land fill used as a temporary berm.	Pre-Construction-Construction
NOI-6 (Minimization)	Efficient rerouting of trucks and control of traffic activity on construction site will reduce noise due to vehicle idling, gear shifting and accelerating under load.	Construction
NOI-7 (Minimization)	Implement time scheduling of activities to minimize noise impact on exposed areas based on local activity patterns and surrounding land uses.	Construction
NOI-8 (Minimization)	Equipment location should be as far from noise sensitive land use areas as possible. The contractor	Construction

	should substitute quieter equipment or use quieter construction processes at or near noise sensitive areas.	
NOI-9 (Minimization)	Educate contractors and their employees to be sensitive to noise impact problems and noise control methods. Implement a training program for equipment operators to instruct them in methods of operating their equipment to minimize environmental noise.	Pre-Construction/ Construction
Utilities		
ID	Commitment Description	Implementation Period
UTI-1 (Minimization)	A plan for proposed improvements will be discussed with the utility owners and a relocation strategy will be evaluated as design refinements are made during PS&E phase.	Final Design