

2.5 CUMULATIVE IMPACTS

2.5.1 REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

2.5.2 METHODOLOGY

Cumulative impacts were identified by comparing the impacts of the proposed project and other past, current, or proposed actions in the area to establish whether, in the aggregate, they would result in cumulative environmental impacts. Both direct and indirect impacts are assessed. The cumulative effects analysis focuses on those issues and resources that would be affected by the combination of stress factors on the environment; this analysis does not include impacts to the coastal zone, wild and scenic river areas, farmland, and designated parks, recreation, and Section 4(f) resources due to the absence of such resources in the proposed project area. The analysis provided in this section considered the effects of the other projects in combination with each individual build alternative, Build Alternative 7A (Preferred Alternative) and Build Alternative 9, in assessing whether a particular environmental parameter would experience cumulative adverse impacts. Specific geographic boundaries for cumulative effects are determined for each environmental topic analyzed and may vary accordingly.

The proposed project serves the City of Brea, with SR-57 serving more regional traffic. Therefore future actions anticipated to occur include further growth within the City of Brea, as well as Orange County. The growth would require continued expansion of supporting infrastructure such as roadways (i.e., State Route 57), commercial uses, public services, and utilities. The anticipated growth is reflected in the regionally adopted growth projections and is planned for in the City and County General Plans.

The following eight steps serve as guidelines for identifying and assessing cumulative impacts and are based on the *Caltrans Standard Environmental Review – Guidance for Preparers of Cumulative Impact Analysis* (Caltrans February 2012).¹²

- Identify the resources to consider in the cumulative impact analysis by gathering input from knowledgeable individuals and reliable information sources.
- Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
- Describe the current health and historic context of each resource.
- Identify the direct and indirect impacts of the proposed project that might contribute to a cumulative impact on the identified resources.
- Identify the set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impact analysis.
- Assess the potential cumulative impacts.
- Report the results of the cumulative impacts analysis.
- Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

2.5.3 CUMULATIVE IMPACTS

The following discussion of potential cumulative impacts is presented by environmental resources area. No cumulative impact discussion is provided for coastal zone, wild and scenic river areas, farmland, or parks, recreation, and Section 4(f) resources, since there are no anticipated impacts to these resources from the Build Alternatives.

The purpose of the proposed project is to provide additional capacity and improve the overall operational performance of the interchange. The proposed project is intended to reduce the current congestion and better accommodate anticipated traffic increases, thereby minimizing delays and potential safety hazards.

2.5.3.1 Human Environment

Land Use

The cumulative study area for Land Use is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. The City of Brea General Plan (2003) was reviewed to understand the development trends, land use-related goals, and specific City policies that could affect or be affected by past, present, and future projects.

The proposed project area includes a variety of land uses including residential, commercial/office, industrial uses, and open space. According to the City of Brea General Plan, as of 2002, approximately 26 percent of land uses are designated as residential, 12 percent are designated industrial, and 5 percent are designated commercial/office within the City. As discussed in

¹² California Department of Transportation. *Guidance for Preparers of Cumulative Impact Analysis*. Online: http://www.dot.ca.gov/ser/cumulative_guidance/approach.htm.

Section 2.2.1, Land Use, the City of Brea is currently built out with a mix of various types of residential communities and commercial/industrial areas. Approximately 63 percent of the City is developed while the remaining 38 percent is designated as parks, open space, and vacant lands.

Reasonably foreseeable projects identified within the City of Brea include new development projects and transportation improvement projects. The reasonably foreseeable development projects are provided in Table 2.5-1, Cumulative Projects. Of these, the closest project recently constructed is the SR-57 Northbound Widening Project. The SR -57 Northbound Widening Project started in January 2011 and was completed in summer of 2014. The project limits extended from Orangethorpe Avenue in the City of Placentia north to the SR-57/Lambert Road interchange. The construction of the proposed project (SR-57/Lambert Road Interchange Improvement Project) is expected to begin in 2016 and be completed in 2017. Based on the completion of the SR-57 Northbound Widening Project and the anticipated start date of the SR-57/Lambert Road Interchange Improvement Project, residents in the City of Brea would have a 2-year period (2014 to 2016) during which they would not experience inconvenience as a result of the construction of these two projects. Therefore, the impacts of these two projects would not be compounded, and no construction conflicts between these two projects are anticipated.

Although areas adjacent to SR-57 are highly urbanized, the incremental effects of the proposed project must be considered within the context of other past, present, and reasonable foreseeable transportation-related changes in the area. It is probable and reasonable to assume that, although highly developed, the City of Brea would allow various forms of land use amendments that would further intensify land uses in the area. The projects evaluated in this cumulative analysis would introduce new construction activities in the area, as well as an increased level of growth and traffic into the future. It is probable that land development of various degrees would continue with or without the proposed project and other similar transportation improvements. Thus, no adverse cumulative land use impacts are anticipated.

The reasonably foreseeable projects in the area could result in additional traffic as well as growth within the City of Brea. All of the related projects planned for the proposed project area are consistent with land use policies and designations of the City of Brea General Plan. Cumulative impacts to land use resources as a result of implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, are not anticipated because the proposed project is consistent with existing plans and policies and would be compatible with existing land uses. Therefore, the proposed project would not contribute to a cumulative land use impact with regard to conflict with existing plans, policies, or regulations or represent a use that would conflict with surrounding land uses.

Growth

The cumulative study area for Growth is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. As discussed in Section 2.2.2, Growth, the Southern California Association of Governments (SCAG) projections (2012), show that by 2035 the City of Brea is expected to increase its population from 39,282 to 52,674; this is a 25 percent increase in households. According to the City of Brea General Plan, the City is built out with a mixture of various types of residential communities and commercial/industrial uses. Approximately 63 percent of the City is developed while the remaining 38 percent is designated as parks, open space, and vacant lands. Additional future population and employment growth within the City is anticipated to occur in the form of redevelopment.

The Build Alternatives, Build Alternative 7A (Preferred Alternative) and Build Alternative 9, would not generate long-term additional employment, income, or housing opportunities within the region. The Build Alternatives would only create additional temporary jobs during construction, with a work force anticipated to come for the surrounding area. Therefore, the proposed project would not create an adverse cumulative impact on growth within the proposed project area.

Community Impacts

The cumulative study area for Community Impacts is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. The area evaluated under community impacts covers a range of socioeconomic populations and neighborhood characteristics. SCAG data between 2000 and 2010 show that the City population grew 11 percent over a ten-year period. The City population is largely White (67 percent), with a Hispanic population of 25 percent; refer to Section 2.2.3.1, Community Character and Cohesion, for details. A larger percentage of the residents tend to rent housing units rather than own, with an average household size of three persons.

Construction of the proposed project would occur concurrently with other ongoing and planned projects in the vicinity. The community within the proposed project area (Census Tracts 15.04, 15.06, 15.06, 218.14, and 218.15) may experience impacts due to construction activities, including traffic detours, lane closures, and an increase in localized noise levels; however, such impacts would be temporary and would cease once construction is completed. As stated above, the SR-57 Northbound Widening Project is recently constructed, being completed in summer 2014 and the proposed project would commence in 2016, resulting in a two-year period of no construction. Therefore, community disruptions and displacements would be minimal and cumulative impacts would not be adverse.

In addition, the communities surrounding the proposed project are characterized as moderately cohesive, with no environmental justice populations being present in the affected area. Therefore, community disruptions and displacements under either Build Alternative 7A (Preferred Alternative) or Build Alternative 9 are expected to be minimal and would not contribute to the cumulative adverse impacts to the community.

The reasonably foreseeable projects are mostly infill projects on undeveloped properties and transportation improvement projects. There are limited displacements associated with these projects. The SR-57/Lambert Road interchange is an existing transportation facility that provides access to the City of Brea. The proposed project would not result in any permanent adverse community impacts other than displacements resulting from Build Alternative 7A (Preferred Alternative); however, Build Alternative 7A (Preferred Alternative) would result in limited commercial and residential displacements, and Build Alternative 9 would not result in acquisitions and displacements. Both Build Alternatives are would result in overall economic/employee and residential/resident benefits. For these reasons, cumulative contributions of the SR-57/Lambert Road interchange project to the cumulative community impacts are not expected to be adverse. Therefore, planned development in the proposed project vicinity, and in conjunction with the proposed project, would not result in adverse cumulative community impacts. Thus, no adverse cumulative impacts to the respective communities are anticipated.

Relocations

Build Alternative 7A (Preferred Alternative) would require one full acquisition and 14 partial acquisitions. Under Build Alternative 7A (Preferred Alternative), a partial acquisition of the Country

Woods apartment complex located in the southeast quadrant of the SR-57/Lambert Road interchange would result in the removal of two apartment buildings. As a result, approximately 17 residential units would be displaced.

Build Alternative 9 would not result in full acquisitions; however, it would result in partial acquisitions of 14 nonresidential parcels. None of these acquisitions under Build Alternative 9 would result in the displacement of businesses or residential relocations.

According to the Relocation Impact Memorandum (approved June 2012), sufficient replacement properties exist within the city and adjacent cities for relocated residents and employees. Given that adequate replacement properties have been identified, Build Alternative 7A (Preferred Alternative) would not result in adverse impacts related to community character and cohesion.

The reasonably foreseeable projects are mostly infill projects on undeveloped properties and transportation improvement projects. There are limited displacements associated with these projects. As such, the proposed project would not substantially add to relocation cumulative impacts associated with projects in the surrounding area. Cumulative impacts are not considered adverse.

Environmental Justice

Five measures were utilized to evaluate environmental justice: (1) percentage of non-White residents; (2) percentage of Hispanic residents; (3) percentage of population below poverty level; (4) median household income; and, 5) transit-dependent population in the study area. The composition of minority and low-income populations within the study area census tracts is provided in Section 2.2.3.3, Environmental Justice, Table 2.2.3-15, Environmental Justice Populations. The population is largely White (67 percent), with a Hispanic population of 25 percent; refer to Section 2.2.3.1, Community Character and Cohesion, for details. Some low-income populations are present within the area; however areas east of SR-57 are occupied by residents with a median income between \$80,000 and \$100,000. A larger percentage of the residents tend to rent housing units rather than own, with an average household size of three persons.

The proposed project would not cause disproportionately high and adverse effects on any minority or low-income populations. Therefore, as no individual impacts would occur from the proposed project, no additional cumulative impacts would result from implementation of the proposed project.

Utilities/Emergency Services

The utilities within the proposed project area consist of water service and sewer service, fire and police protection services, and community facilities. The city currently provides these services. Therefore the cumulative study area for Utilities/Emergency Services is comprised of the City of Brea.

Construction of the proposed project would occur concurrently with other ongoing and planned projects in the vicinity. The Build Alternatives may require utility relocations in the immediate vicinity and the extended area of the proposed project. Temporary disruption to service may occur during construction but are not considered adverse. Therefore, the proposed project, when combined with other projects in construction, would result in negligible impacts because service

disruptions would be minimal and because excavation activities must coordinate with local services to minimize accidental service disruptions.

During construction of the proposed project, in conjunction with other related projects, there could be delays to emergency-response providers related to multiple construction projects occurring concurrently within the study area. Although coordination with police and fire stations is required so that alternative routes can be planned, alternative routes may increase response times during the construction period. The Build Alternatives, in conjunction with other projects in construction, would result in temporary response increases. Because each individual project would require a construction transportation management plan (TMP), and because the impacts are temporary in nature, cumulative impacts related to emergency services are not considered adverse.

Utility services and infrastructure would remain similar to existing conditions upon completion of the proposed project. The proposed project would not increase the need for domestic water services, wastewater facilities, or solid waste disposal, or contribute to a cumulative effect on such resources. Emergency response times for fire, police, and ambulance providers are anticipated to improve as a result of the proposed project; therefore, the proposed project would not contribute to cumulative impacts to emergency response services. The Build Alternatives would not combine with past, present, or reasonably foreseeable projects, therefore cumulative operational impacts would not occur as a result of the proposed project.

Traffic/Transportation/Pedestrian and Bicycle Facilities

As discussed in Section 2.2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, both Build Alternatives 7A and 9 would generally improve level of service (LOS) for intersections and roadway segments and would improve ramp queuing. The proposed project would alleviate existing congestion and is not anticipated to result in increased traffic resulting from adding vehicles to the project area. The analysis of future traffic conditions, Year 2040, is inherently a cumulative analysis because it considers traffic generated by future planned land uses and the effect of future planned transportation improvements and projected population growth. Therefore, the proposed project would not combine with the cumulative projects to result in permanent traffic and transportation impacts beyond what is projected for Year 2040.

In the immediate vicinity of the proposed project, the SR-57 Northbound Widening Project that is recently constructed, completed in summer 2014, while the proposed project is anticipated to commence in 2016; therefore, these two projects would be constructed concurrently. The proposed project would result in temporary lane closures and traffic detours during construction. The other transportation projects, as well as some development projects, may result in the need for temporary lane closures or traffic detours; however, these impacts would be minimized through the use of appropriate staging to avoid long duration closures, development of TMPs for each individual project, cooperation among the California Department of Transportation (Caltrans), City of Brea, and Orange County Transportation Authority (OCTA) staff, and implementation of signage programs. Temporary cumulative impacts associated with concurrent construction activities in the area would increase the amount of truck and construction worker traffic on area streets, thereby causing a potential deterioration in traffic service levels caused by slow-moving construction equipment. Impacts of this nature are short-term and would be proportionally minimized as each construction project is completed. In addition, the implementation of the TMPs for each individual project would minimize the impacts of construction traffic associated with the cumulative projects in the vicinity of the project study area. Cumulative impacts would not be adverse.

Visual/Aesthetics

The cumulative study area is comprised of the same landscape units and viewshed as was identified for the proposed project, as shown in Section 2.2.6, Visual/Aesthetics. The regional landscape is characterized by expansive broad open canyons/washes and rolling hills of northeastern Orange County. The proposed project area has been subject to suburban development for over 40 years. The landscape unit is generally located within a flat stretch of land at the base of the Puente and Chino Hills geographic features, which contrast with the urban forms of the City of Brea. In general, the SR-57 freeway corridor is urban in nature, and views from this corridor are generally of suburban and urban development. Existing land uses within the proposed project area are predominantly low- and medium-density residential, office, industrial, and regional commercial, as well as public uses. The most prominent natural visual feature within the proposed project area is the San Bernardino Mountains to the north.

The overall visual impacts from the proposed project would be similar to those experienced currently. However, as a result of Build Alternative 7A (Preferred Alternative), views from the Country Woods Apartment Complex would include the SR-57 northbound off-ramp and thus measures were provided to screen the apartment residences' views of the SR-57/Lambert Road interchange. Views from the El Torito Grill Restaurant would be altered with the introduction of a soundwall; however implementation of VIS-5 would reduce any impacts. Thus, visual impacts from the proposed project would not be adverse. In addition, implementation of Caltrans' recommended Standard Specifications for Construction and recommended measures would further minimize visual impacts occurring during proposed project construction.

The cumulative projects are predominantly infrastructure improvements (to existing infrastructure) and in-fill development projects that would not substantially change the character of the area. Therefore, the proposed project, when combined with cumulative projects, would not significantly alter the visual character and quality of the area and cumulative impacts would not be adverse.

Overall, the visual effect of the proposed project and other projects in the vicinity would be temporary in nature and would not have an adverse cumulative effect. The proposed project area is not within a visually sensitive setting due to the urbanized condition of the proposed project area. Implementation of the proposed project would not substantially impact views along the eligible state Scenic Highway designated portion of SR-57, and therefore, would not contribute to cumulative effects on this visual resource.

Further, cumulative effects on resources can be avoided or lessened with use of construction materials that are consistent with the general character of the area, architectural treatments, landscaping design, and property lighting techniques to direct light on-site and away from adjacent properties. Therefore, development of the Build Alternatives would not have adverse cumulative impacts on visual/aesthetic resources.

Cultural Resources

The cumulative impacts resource study area (RSA) encompasses the City of Brea. The resources of concern that could potentially be cumulatively affected by the proposed project in conjunction with other foreseeable projects include Native American resources.

According to the Historic Properties Survey Report (HPSR, 2012b) which includes the Archaeological Survey Report (ASR, 2012c), the Area of Potential Effects (APE) for cultural resources encompasses the proposed project footprint and parcels adjacent to it. One cultural

resource, Brea-Olinda Field, extends to the northern portion of the APE on SR-57 and the eastern portion of the APE on Lambert Road. A component of this field, Wildcatter's Park, has been previously recommended for inclusion in the National and California Registers. In addition, the City of Brea and its fringes are considered sensitive for Native American resources due to their proximity to Native American habitation sites in Brea Canyon and Carbon Canyon.

There are known archaeological and cultural resources in the proposed project vicinity. Therefore, construction of the proposed project, in conjunction with other related projects, could encounter undocumented important archaeological or cultural resources. In the event that human remains and/or artifacts are found during the construction of a project within the area, the site would be protected until it can be evaluated by a qualified archaeologist. Therefore, implementation of the avoidance, minimization, and/or mitigation measures by each individual project would be required for cultural resources. Given this, potential cumulative effects upon historical/archaeological resources would not be adverse.

2.5.3.2 Physical Environment

Hydrology and Floodplain

The proposed project site is located within the San Gabriel River Watershed; thus the cumulative study area is comprised of this watershed, as identified in Section 2.3.1, Hydrology and Floodplain. Impacts to the floodplain would not occur because the proposed project is located outside of the 100-year floodplain. Therefore, the proposed project would not contribute to a regional cumulative loss of floodplain acreage, nor raise the elevation of the 100-year base floodplain. Surface water/runoff for the proposed project is within the gutters of Lambert Road, which is collected by the City of Brea drainage network and connects to the Loftus Diversion Channel. Standard BMPs would be required to reduce any runoff during construction activities, thus ensuring that no impacts to the site or the surrounding area occur. The proposed project's incremental contribution to hydrology and floodplain impacts would not be considerable, adverse, or substantial.

Water Quality and Storm Water Runoff

The proposed project site is located within the San Gabriel River Watershed; thus the cumulative study area is comprised of this watershed, as identified in Section 2.3.2, Water Quality and Storm Water Runoff. The proposed project site is located within an urban municipal separate storm sewer system (MS4) National Pollutant Discharge and Elimination System (NPDES) permitted area. As stated above, surface water/runoff for the proposed project is within the gutters of Lambert Road, which is collected by the City of Brea drainage network and connects to the Loftus Diversion Channel. The proposed project does not discharge directly or indirectly to an Area of Special Biological Significance.

Water Quality

Regionally, cumulative impacts would result from the increased rate of erosion and/or siltation of exposed soils in waters downstream of the proposed project site. Eroded soils would be transported in runoff and would settle out of the water downstream, increasing siltation. While suspended, these soil particles may prevent sunlight from reaching aquatic plants, clog fish gills, or choke other organisms. Other pollutants common in soils near highways such as heavy metals, oil and grease, fertilizer, and pesticides would adhere to these soil particles and would be transported downstream with them. These absorbed pollutants would degrade water quality and

would harm aquatic life by causing algal blooms, or interfering with photosynthesis, respiration, growth, and reproduction.

The proposed project, as well as the above-listed projects, would cause siltation and water quality impacts. Although each project would be subject to standard NPDES requirements, these projects could contribute to regional, cumulative siltation and water quality impacts; however, given that SR-57 is an existing facility, combined with the limited amount of new impervious surfaces introduced with the proposed project, the contribution of the proposed project to regional cumulative water quality impacts is not expected to be substantial.

The proposed project would be required to implement appropriate design pollution prevention best management practices (BMPs) to target potential stormwater runoff pollutants during operation, consistent with the Storm Water Management Plan (SWMP). Under federal regulation, all new development projects are required to incorporate design BMPs and treatment BMPs to improve existing water quality. Therefore, the proposed project is not anticipated to contribute to long-term adverse cumulative water quality impacts.

Stormwater Runoff

In combination with the development of the cumulative projects listed above, the additional storm water runoff contributed by the proposed project would have the potential to contribute to adverse cumulative storm water runoff impacts; however, standard drainage design practices to minimize scour and sedimentation, and implementation of BMPs would avoid or minimize the storm water runoff impacts for each project. Adverse cumulative water quality impacts are not anticipated.

Geology, Soils, Seismicity, Topography

The cumulative study area for Geology, Soils, Seismicity, and Topography is comprised of the surrounding area within the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. Project development in the proposed project vicinity may result in short-term increases in erosion due to grading activities. All development would be required to comply with standard engineering practices for erosion control during construction and to implement the required SWPPP to minimize potential soil erosion impacts. In addition, implementation of erosion control measures and adherence to all requirements set forth in the NPDES permit required for construction activities would reduce construction-related erosion and siltation impacts.

Increased development intensity in the surrounding area could also expose persons and property to potential impacts associated with seismic activities; however, on a project-by-project basis, construction in accordance with the standards of the California Building Code (CBC), as well as adherence to standard engineering practices, would reduce the potential for structural damage due to seismic activity, landslides, and liquefaction, and other geologic hazards, to the maximum extent feasible. Thus, no adverse cumulative impacts related to geology, soils, seismicity, or topography are anticipated.

Paleontological Resources

The cumulative impacts RSA encompasses the City of Brea. The resources of concern that could potentially be cumulatively affected by the proposed project in conjunction with other foreseeable projects include paleontological resources.

As stated in the Paleontological Resources Identification and Evaluation Report (2012d), the literature review and locality searches produced information showing that sediments dating from the Pliocene through Pleistocene Periods within the Area of Project Disturbance (APD) have the potential to contain significant non-renewable paleontological resources. Thus, it is likely that paleontological resources would be encountered during the excavation phase of construction of the proposed project within these sediments.

In the absence of avoidance and minimization measures, cumulative development could impact important paleontological resources within the underlying geological units in the area; however, potential impacts would be site-specific and evaluated on a project-by-project basis. All proposed development is required to comply with all applicable state and federal regulations concerning preservation, salvage, handling, and curation of paleontological resources. Therefore, implementation of the avoidance, minimization, and/or mitigation measures by each individual project would be required for paleontological resources. Given this, potential cumulative effects upon paleontological resources would be reduced and impacts would not be adverse.

Hazardous Wastes/Materials

The cumulative study area for Hazardous Waste/Materials is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. The Phase I Initial Site Assessment for the proposed project identifies approximately 29 listed regulatory sites within a one-mile radius of the proposed project site. Additionally, due to the nature of the use of the proposed project site and the removal of structures, aerially deposited lead, asbestos containing materials, and lead based paints potentially occur in the area.

The primary types of hazardous material-related impacts attributable to the construction of the proposed project are from the handling of contaminated soil and/or groundwater encountered during construction. Because any contaminated material encountered during the construction of the either Build Alternative, Build Alternative 7A (Preferred Alternative) or Build Alternative 9, or any of the other cumulative projects identified in the vicinity would be handled, transported, and disposed of in accordance with all applicable laws, regulations, and agency oversight, no adverse cumulative impacts are anticipated.

Air Quality

Cumulative projects include local development as well as general growth within the project area; however, as with most development, the greatest source of emissions is from vehicular traffic that can travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature. Therefore, the cumulative impact area for Air Quality is the South Coast Air Basin (SCAB).

As discussed in Section 2.3.6, Air Quality, SCAB is characterized as having a "Mediterranean" climate. The general region lies in the semi-permanent, high-pressure zone of the eastern Pacific, thus the climate is mild and tempered by cool sea breezes. Table 2.3.6-4, Attainment Status, provides the area attainment status for criteria air pollutants.

Construction and operation of cumulative projects would further degrade the local air quality, as well as the air quality of SCAB. Air quality would be temporarily degraded during construction activities that occur separately or simultaneously; however, the greatest cumulative impact on the

quality of regional air would be the incremental addition of pollutants from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. It should be noted that the proposed project is a transportation improvement, and not a direct trip generator.

With respect to emissions that may contribute to exceeding state and federal standards, a CO and particulate matter screening analysis was performed. The results of this analysis illustrate that localized levels would not violate published air quality standards, and therefore, does not present an adverse cumulative impact. Implementation of the proposed project would correct existing geometric deficiencies and mitigate projected operational deficiencies from the anticipated increase in traffic demand and congestion from the forecasted growth and development in the area. Furthermore, the Build Alternatives 7A and 9 conditions would improve traffic flow and would not create additional emissions.

Noise

The existing noise sensitive land uses within the proposed project area include single-family residences, multi-family residences, commercial, and office uses. The primary source of noise within the proposed project area is from vehicular traffic.

As the proposed project is an interchange improvement, the cumulative study area for noise analysis includes the reasonably foreseeable actions along the SR-57 corridor within the proposed project area. The cumulative resource study area for noise includes land uses in the proposed project vicinity that have single-family residences or commercial structures.

As discussed in Section 2.3.7, Noise, there are locations within the proposed project area that currently approach or exceed noise standards. Table 2.3.7-5, Predicted Traffic Noise Levels, dBA Leq, provides the existing noise levels, future No Build noise levels, and future noise levels under both Build Alternatives 7A (Preferred Alternative) and 9, with the bold numbers representing existing levels that approach or exceed the NAC. Under existing conditions, of the 130 modeled receptor locations, seven receptors approach or exceed the 67 dBA continuous equivalent sound level (Leq) for Activity Category B. The future noise levels at these seven receptors would be reduced under both Build Alternatives, as compared to existing conditions. These seven receptors would not approach or exceed the 67 dBA Leq for Activity Category B as a result of the proposed project.

Under existing conditions, of the 130 modeled receptor locations, one receptor approaches or exceeds the 72 dBA Leq NAC for Activity Category E. The proposed project would result in long-term impacts from the completed project; however, in the context of existing traffic noise, this impact would not be generally perceptible, as all levels in areas approaching or exceeding the 72 dBA Leq threshold would be within 3 dBA of existing conditions; 3 dBA is below the level perceptible to the human ear. Noise abatement would be implemented to reduce the noise level increase at this location.

The operational noise impact analysis is predicated on future projections, and those future projections assume the other projects in the vicinity to be in place and functioning as planned. No additional cumulative impacts, therefore, are expected beyond those that already might be disclosed in the impact noise analysis and for which abatement is proposed.

2.5.3.3 Biological Environment

Natural Communities

The cumulative study area for Natural Communities is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. Vegetation communities identified within the proposed project study area include Ornamental Landscaping, Disturbed or Barren, and Sage Scrub-Grassland, Cleared or Graded, Urban, and Transportation. Vegetation within the proposed project site and surrounding area provides habitat of low value for native wildlife species, as the city is largely built out.

According to the Natural Environment Study (NES) (2014b), the proposed project would result in the permanent and temporary impacts to United States Fish and Wildlife Service (USFWS) designated critical habitat for California gnatcatcher (CAGN); however, this habitat within the biological study area (BSA) is highly disturbed and is not of high quality or ecosystem value. Because of this, the proposed project, in conjunction with other projects, is not expected to result in adverse cumulative impacts to this habitat.

Implementation of the proposed project would contribute to cumulative impacts on areas adjacent to, or in the vicinity of, the study area. The proposed project's contribution to the regional loss of these resources would not be substantial, as the proposed project area is generally considered to be of low biological value to plant and wildlife species.

Wetland and Other Waters

The cumulative study area for Wetland and Other Waters is comprised of Coyote Creek and its tributary Fullerton Creek. This area could be reasonably affected by impacts resulting with the proposed project. The proposed project area includes eight drainage features within the BSA, which connect to Fullerton Creek, either directly or indirectly. The total proposed project acreage of potential USACE jurisdiction within the BSA is less than 0.01 acre.

Cumulative impacts to waters of the U.S. or wetlands would occur if the proposed project, in conjunction with other related projects, results in substantial impacts to these resources areas. The USACE, Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) would be required to issue permits for the individual projects, and the permits could be conditioned. Issuance of the respective permits and associated conditions by the jurisdictional agencies would ensure that substantial cumulative impacts would not occur.

For the proposed project, less than 0.01 acre of non-wetland waters is potentially subject to USACE jurisdiction, and 0.01 acre would be subject to California Department of Fish and Wildlife (CDFW) jurisdiction. Since the proposed project would not result in impacts to potentially jurisdictional areas, a Section 404 Permit from the USACE, a Streambed Alteration Notification to the CDFW, or a Section 401 Water Quality Certification from the RWQCB, are not expected to be required for the proposed project, and the proposed project would not contribute to cumulative impacts.

Plant Species

The cumulative study area for Plant Species is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. The BSA is mainly comprised of nonnative landscaped, ruderal, ornamental vegetation, or bare ground. Sage scrub-grassland

occurs on steep slopes adjacent to SR-57 on the northern end of the BSA. No Threatened or Endangered plants have the potential to occur within the proposed project limits. The indirect effect of the proposed project's construction on the vegetation in the immediate vicinity of the construction area would not reduce the plant population below self-sustaining levels. As no Threatened or Endangered plants have the potential to occur within the proposed project limits, no such impacts are anticipated. No impacts would occur to plant species with the proposed project, and therefore, the proposed project would not contribute to cumulative impacts on plant species.

Animal Species

The cumulative study area for Animal Species is comprised of the City of Brea and nearby Carbon and Tonner Canyons. This area could be reasonably affected by impacts resulting with the proposed project. Due to the urban nature of the proposed project site, minimal habitat for native wildlife species is provided within area. Several special-status species have been documented within the vicinity of the BSA, associated with coastal scrub habitat in nearby Carbon Canyon and Tonner Canyon and riparian habitat associated with nearby Brea Creek. Trees in the BSA have a limited potential to support nesting migratory birds/raptors; however, nesting birds are not anticipated to occur within the proposed project site. Impacts to raptor nests are protected by CDFW regulations. Additionally, direct and indirect effects on California gnatcatcher designated critical habitat are expected to occur as a result of both Build Alternatives 7A and 9.

Cumulative impacts to additional species may occur if implementation of the proposed project occurs concurrently with other projects in the immediate vicinity. Indirect noise impacts from concurrent multiple projects may discourage breeding of nesting raptors in the area. Implementation of measures to minimize harm is proposed to minimize and avoid adverse direct, indirect, and cumulative biological impacts. With implementation of these measures, impacts would not be adverse.

Threatened and Endangered Species

The cumulative study area for Threatened and Endangered Species is comprised of the City of Brea and the critical habitat limits of the CAGN. This area could be reasonably affected by impacts resulting with the proposed project. The BSA is in an urbanized area that no longer contains substantial wildlife habitat. The BSA does not contain suitable habitat to support any of the special-interest plant species; however, The BSA supports suitable habitat for a variety of special-status wildlife species. Critical habitat for the CAGN is located in the northern portion of the proposed project site. While the sage scrub-grassland within the BSA contains essentially grassland in proximity to sage scrub habitats north and east of the BSA, the close proximity of this habitat to SR-57, a noisy, heavily-traveled transportation corridor, is expected to preclude CAGN from successfully using this habitat for dispersal, foraging, or nesting.

Because focused surveys were not conducted for CAGN due to personnel safety, timing, and costs, all sage scrub-grassland vegetation is assumed occupied by CAGN within the project boundaries. Direct and indirect impacts on CAGN designated critical habitat are expected to occur as a result of the proposed project. Because of the low quality habitat and the small amount of permanent impacts within CAGN-designated critical habitat, less than 0.5 acre, proposed project impacts are not considered adverse. With the implementation of avoidance, minimization, and/or mitigation measures, impacts would not be adverse.

Other projects within the proposed project area would be evaluated on a project-by-project basis to determine the presence of threatened or endangered species, the presence of critical habitat, and the appropriate measures required to reduce such effects. As proposed project impacts would not be adverse, the proposed project, in conjunction with past, present and reasonably foreseeable projects, would not result in a cumulative effect on threatened or endangered species.

Invasive Species

The cumulative study area for Invasive Species is comprised of the City of Brea. This area could be reasonably affected by impacts resulting with the proposed project. Exotic plant species exist within the nonnative plant communities throughout the BSA, within patches of native plant communities, and in areas that have been disturbed by human uses. A total of 14 exotic plants occurring on the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory were identified in the BSA.

Protective measures implemented on a project-by-project basis would ensure that no invasive species are introduced or spread within the region. With implementation of guidance consistent with E.O. 13112, the landscaping and erosion control included in the proposed project would avoid the use of species listed as noxious weeds. Therefore, the proposed project, in conjunction with the cumulative projects, would not have a substantial cumulative effect.

2.5.4 PROJECTS CONTRIBUTING TO CUMULATIVE IMPACTS

Table 2.5-1, Cumulative Projects, identifies the major cumulative projects in the City of Brea. For the consideration of impacts, the City of Brea General Plan (2003) was used for land development analysis and the Orange County Transit Authority (OCTA) Long Range Regional Transportation Plan (LRTP) and RTP were used for transportation projects.

Reasonably foreseeable projects identified within the City of Brea, include new development projects and transportation improvement projects. The projects are in varied degrees of planning, design, and construction. The scope of such projects may change during the planning phase; consequently, their environmental impacts may be altered. Each of the projects listed would require separate consultation with resource agencies for project impacts, as appropriate. Projects that are speculative in nature were not included in this cumulative analysis.

2.5.5 MEASURES TO MINIMIZE HARM

Specific measures to minimize harm are identified in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA) for each environmental concern analyzed. These measures address project-specific and cumulative short-term and permanent impacts.

Table 2.5-1 Cumulative Projects

COMPLETED		IN CONSTRUCTION		FUTURE PROJECTS	
CIP	Development	CIP	Development	CIP	Development
PN 7197 - Imperial Highway Smart Street Project Segment "D"	Brea/Elm Mixed Use Development 501, 503, 509 515 S. Brea Blvd; 30 units: 3 single family, 19 townhomes, 8 duplexes	PN 7449 - Carbon Canyon Reservoir Slope Paving	Blackstone Development <i>Residential development, Approx. 800 acres, 701 single family, 94 apartments</i>	PN 7251 – SR-57 / Lambert Interchange	128 Olinda Drive 4 single family homes 3,194 s.f. to 3,562 s.f. per unit
PN 7210 - Safe Routes to School 2010 <i>Upgraded existing pedestrian signal heads to "countdown" type throughout the city, installed speed feedback signs on State College and Associated, and upgraded a pedestrian detection system at Associated/Sleepy Hollow</i>	Birch Elementary School 3145 E. Birch St; 16 regular classrooms, 3 kindergarten classrooms, an office and library/media center building, lunch shelter area and fields, play areas and parking lots, 4 temporary classrooms	PN 7204 - Birch St. Median Landscape Phase 2	La Floresta <i>Commercial and residential development</i> La Floresta Village Site Bordered by Imperial, Rose and Valencia; 119 acres; 1,110 residential units, 156,800 s.f. mixed-use commercial, 53.27 acres adult recreational center Birch Hills Site at current Birch Hills Golf Course, 91.3 acres, 75.60 acres open space, community facility, 247 high density residential dwellings	PN 7276 - Lambert @ Puente Intersection Improvements	Central Park Village <i>Mixed use development</i> 3 commercial buildings totaling 31,000 s.f.; 3-story medical office building is 45,000 square feet, 96 single-family attached townhomes with attached two-car garages and 444 rental multi-family apartments surrounding two parking structures and located above the one-story retail units along West Central Ave
PN 7213 - Traffic Signal at Birch/Voyager <i>Installed a traffic signal at the intersection</i>	Stone Valley Townhomes 124 Orange, 22 units	PN 7248 - Traffic Signal System Master Computer Upgrade <i>Development and implementation of new timing patterns on Birch</i>	Summerwind by Trumark Homes 1000 Site Dr, 5.49 net acres, 57 single family detached residential units	PN 7277 - Central/Brea Intersection Widening	Madrona <i>Residential development</i> 6700 Carbon Canyon Rd, 163 units
PN 7279 - Elm Street Resurfacing & Water Improvements	--	PN 7450 - Berry Street Pump Station <i>Installation of new water engines for pump station</i>	--	PN 7278 - Imperial/Berry Intersection Widening	--
PN 7282 - Residential Streets Rehab 2010/2011 <i>Resurfaced pavement in the Cinnamon Ridge neighborhood</i>	--	PN 7862 - Birch St. Median Landscape Phase 1	--	PN 7283 - Residential Streets Rehab 2011/2012 <i>Resurfacing pavement and replacing water mains in the Country Hills Estate neighborhood</i>	--

Table 2.5-1 Cumulative Projects (Continued)

COMPLETED		IN CONSTRUCTION		FUTURE PROJECTS	
CIP	Development	CIP	Development	CIP	Development
PN 7289 - Puente Ave. Rehab	SR-57 Northbound Widening Project <i>Widens Northbound SR-57: Orangethorpe Avenue to Lambert Road (Placentia and Brea) and Katella Avenue to Lincoln Avenue (Anaheim)</i>			PN 7295 - Elm Street Widening	
PN 729 - Alley Rehab Project Phases 1 & 2 <i>Alley north of Birch between Randolph and Poplar, alley north of Birch and east of Flower, and alley south of Birch and east of Redwood</i>	--	--	--	PN 7297 - Lambert Road Rehab Phase 1	--
PN 7292 - Country Road Townhomes Curb Ramps	--	--	--	PN 7452 - Glenbrook Tract Water Main Project	--
PN 7294 - State College Blvd. Rehab	--	--	--	PN 7617 - Sewer Main Relining	--
PN 7296 - Midbury Tract Rehab	--	--	--	PN 7618 - Sewer Upgrade Phase 4 <i>Replacing existing sewer main and adding new sewer main along Brea Creek Channel from Lambert to Eastwood</i>	--
PN 7301 - Laurel School Alley <i>Rehabilitated the alley adjacent to the east side of Laurel School from Imperial to Birch</i>	--	--	--	PN 7619 - Master Plan Sewer Upgrade Phase 5 <i>Replacing existing sewer mains on Cherry from Peach to Alder and on Alder from Cherry to Laurel</i>	--

Table 2.5-1 Cumulative Projects (Continued)

COMPLETED		IN CONSTRUCTION		FUTURE PROJECTS	
CIP	Development	CIP	Development	CIP	Development
PN 7429 - Brea Plaza Water Main Replacements	--	--	--	PN 7899 - Brea War Memorial <i>Installing memorial at the Brea Civic and Cultural Center</i>	--
PN 7456 - Guitar Center Water Improvements	--	--	--	PN 7903 - Super Block I Parking Structure	--
PN 7463 - Birch Street Water Main Replacement	--	--	--	PN 7905 - Eastside Community Facility <i>Providing a community facility on the east side of town</i>	--
PN 7839 - City Hall Park Bandstand <i>Rehabilitated existing City Hall Park gazebo</i>	--	--	--	PN 7906 - City Yard Paving <i>Repairing existing pavement and constructing new pavement west of the existing gas pump</i>	--
PN 7873 - Tracks at Brea Phase 1 <i>Created a bike path along the Brea Canyon Flood Control Channel</i>	--	--	--	Bristol /State College Bus Rapid Transit Corridor <i>Identified in the 2035 LRTP by OCTA</i>	--
PN 7886 - City Entry Signs <i>Installed entry signs at State College/Elm and Lambert/Pioneer</i>	--	--	--	HOV Interchange at SR-57/Cerritos Avenue	--
PN 7904 - Solar Energy & Efficiency Projects	--	--	--	SR-57 Northbound Truck Climbing Lane <i>Provides for one truck climbing lane in the northbound direction from Lambert Road north to the Los Angeles County Line. Identified in the 2035 LRTP by OCTA</i>	--

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