

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

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered, but no adverse impacts were identified. As a result, there is no further discussion regarding these issues in this document.

- **Farmlands/Timberlands:** A portion of the project site is designated as being suitable for livestock grazing by the California Department of Conservation. Although the Department of Conservation designates much of the area surrounding the project site as suitable for livestock grazing, the areas are not currently used for grazing and such use is not required by this designation. These areas have not been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. They are also not considered by the County of San Bernardino as Farmland of Local Importance. There is no forest or timberland, or conflict with zoning of forest and timberland. According to recent County mapping, no areas within ten miles of the project site are under agricultural contracts, including Williamson Act contracts. No impact on farmlands or timberlands would occur as a result of the project.
- **Coastal Zone:** The proposed project is not within the Coastal Zone.
- **Wild and Scenic Rivers:** The proposed project is not in the vicinity of a designated Wild and Scenic River.

HUMAN ENVIRONMENT

2.1 Land Use

EXISTING AND FUTURE LAND USE

Information used in this section is based upon the April 2014 *Community Impact Assessment (CIA)*.

The proposed project site is primarily located within SR-210 State right of way, within the City of Rialto, with the east end of the project extending slightly into the City of San Bernardino. The proposed project would involve the construction of a new interchange facility, including ramps and intersection improvements, and the widening of a segment of Pepper Avenue from two lanes to four lanes, between approximately 1,300 feet south of Highland Avenue to the Highland/Pepper Avenue intersection, north of SR-210.

Each city (Rialto and San Bernardino) maintains its own sphere of influence.¹ Figures 2-1a through 2-1c show existing City of Rialto, City of San Bernardino, and San Bernardino County land uses, respectively, within the study area. For purposes of the land use and community

¹ Unincorporated San Bernardino County land is controlled by adjacent cities.

discussions, the “study area” is the area bounded by Highland Avenue on the north, Baseline Road on the south, California Street on the east and Riverside Avenue on the west. The study area is intended to encompass an area where the potential land use impacts, if any, from construction and operation of the proposed project would be reasonably foreseeable.

The area immediately south of the project site is largely undeveloped vacant land with some utilities. Immediately southwest and adjacent to the project site is an approximately 25-acre public park (Frisbie Park) with baseball/softball fields and a playground. The area southwest of the project site is characterized by predominantly high density residential with some low density residential uses and schools. Approximately 60% of existing land uses within the portion of the City of Rialto that is within the study area, are identified as high density residential, and approximately 20% as urban vacant. The remaining 20% of land uses are identified as low density residential and mineral extraction, as well as other limited land uses, typical of the surrounding areas (refer to Figures 2-1a through 2-1c).

As shown on Figure 2-1b, City of San Bernardino land uses within the study area (south and east of the project site, and west of State Street), are approximately 40% high-density single-family residential, 30% improved flood waterway, 20% urban vacant, and the remaining land uses are identified as mineral extraction, water storage facilities, manufacturing, parks and other limited land uses. The easternmost portion of the project site is bounded on both sides by Lytle Creek Wash in the City of San Bernardino.

Figure 2-1c shows the existing land uses in unincorporated San Bernardino County that are within and just beyond the study area. Highland Avenue traverses the northern limits of the project site, running in an east/west direction. On the north side of Highland Avenue, in unincorporated San Bernardino County, Vulcan Materials Company, an aggregate mining and processing operation occupies an approximately 150-acre site. This area is zoned for mineral extraction. The remaining area just north of the project site is zoned as vacant undifferentiated, and improved flood waterways. A small triangular piece of unincorporated San Bernardino is located south of the project site, between the Cities of Rialto and San Bernardino. This area is designated as urban vacant and for water storage facilities.

According to American Community Survey (ACS) estimates, approximately 939,000 persons in the County of San Bernardino are employed.² The majority of jobs within the County are related to wholesale and retail trade, manufacturing, health care and social assistance, accommodation and food service, professional and technical services, real estate, and other service industries.³ Approximately two-thirds of the working population residing in the City of Rialto travel 20 minutes or more to their places of employment and over 90% of the working population commutes for 10 minutes or greater.⁴

² 2011 American Community Survey. Table DP03.

³ U.S. Census Bureau, 2007 Economic Census.

⁴ 2006-2010 American Community Survey. Table B08303.



Figure 2-1a
Existing Study Area Land Uses – City of Rialto

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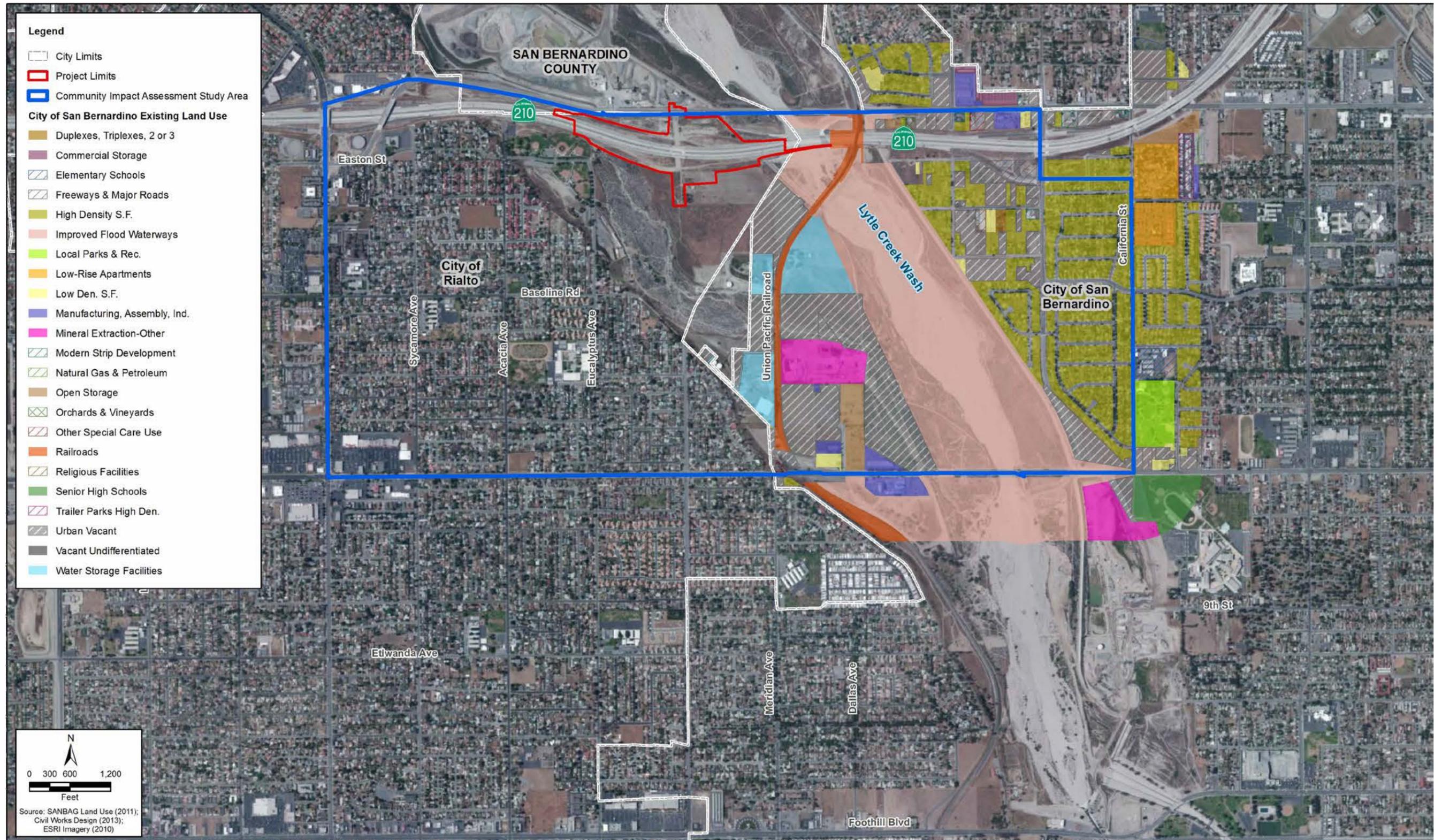


Figure 2-1b
Existing Study Area Land Uses – City of San Bernardino

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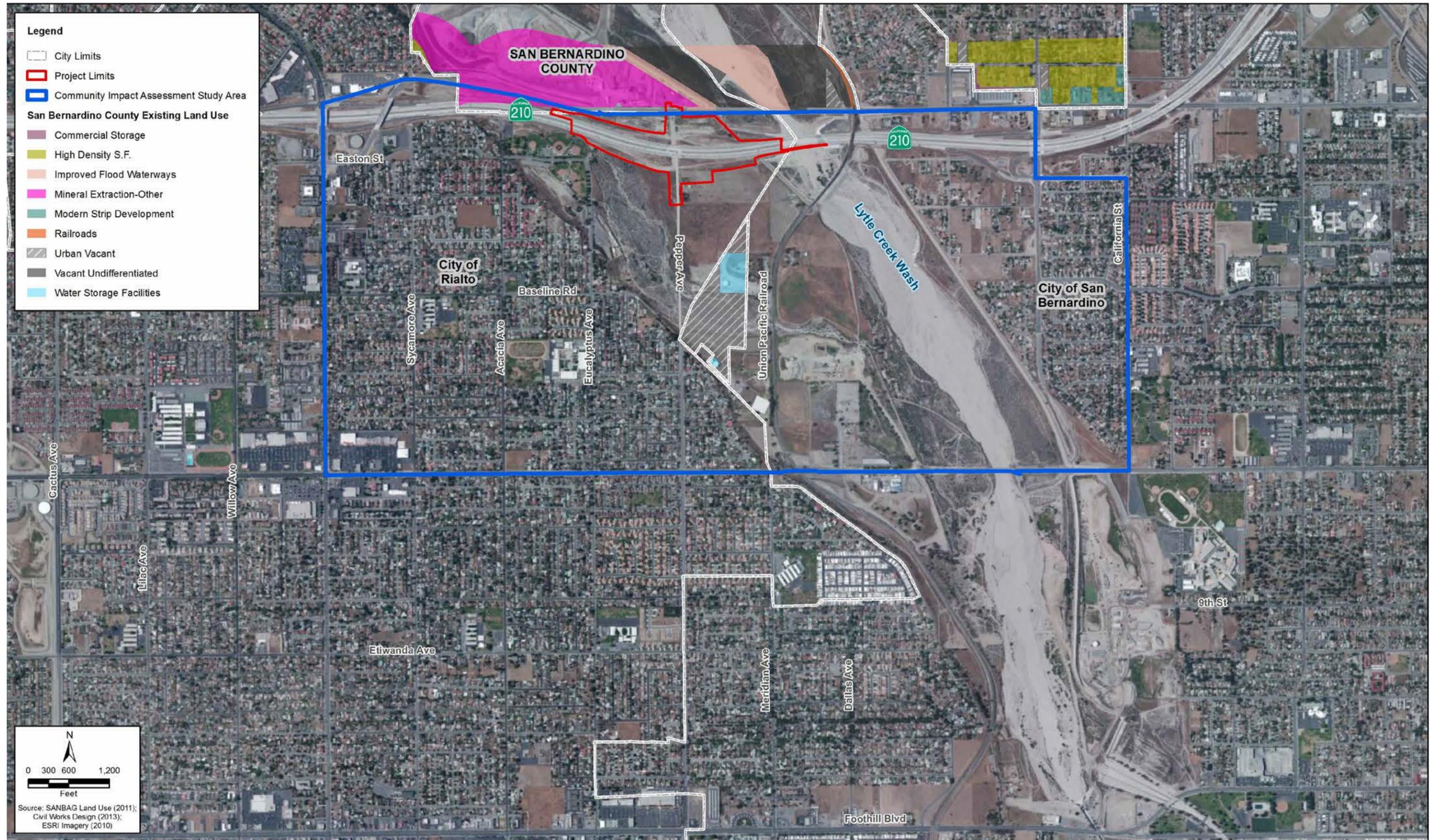


Figure 2-1c
Existing Study Area Land Uses – San Bernardino County

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According to the County of San Bernardino General Plan, trends indicate that growth will continue to occur due to the area’s position as one of the last Southern California regions to have large amounts of undeveloped land along its transportation corridors. The Cities of Rialto and San Bernardino are also expected to grow in the coming years. According to the SCAG 2014–2021 Regional Housing Needs Assessment Allocation Plan and in order to keep up with projected population growth, the City of Rialto is responsible for providing over 2,700 new housing units between 2014 and 2021, and the City of San Bernardino is responsible for providing approximately 4,400 units during the same time period. Even with a 195% decrease in median home resale prices experienced within the County between late 2006 and early 2011⁵, growth in the study area, through infill and expansion of development onto the floodplain west of Lytle Creek, is expected to occur based on projected population growth estimates.

Table 2-1 describes currently proposed projects in the study area that may be developed near the project site. Figures 2-2a through 2-2c show the locations of these projects as well as the planned land uses within the City of Rialto, City of San Bernardino, and County.

Table 2-1. Currently Proposed Projects in the Study Area

Map ID	Name	Jurisdiction	Proposed Uses	Status
1	Restaurants on northeast corner of Easton Street and Riverside Avenue	City of Rialto	Development of three restaurants approximately 1 mile west of the proposed Pepper Avenue interchange: 3,800-square-foot In-n-Out Burger 2,900-square-foot Miguel’s Junior 5,500-square-foot Wing Stop, Yogurtland, and Chipotle.	The 3,800-square-foot In-n-Out Burger has been constructed and is open for business. The 2,900-square-foot pad has not yet filed a site plan approval. The site plan for the 5,500 square-foot building has been approved. Construction is anticipated to be completed Winter of 2014.
2	Lytle Creek Ranch Specific Plan	City of Rialto (sphere of influence)	Development, as guided by the specific plan, of approximately 8,400 residential units as well as a commercial center on 2,400 acres of land. The southernmost point of the specific plan area would be approximately 2.1 miles northwest of the SR-210/Riverside Avenue interchange, but not accessible via Pepper Avenue.	A specific plan for the area was originally approved in 2010, but the approval was overturned by the courts. A revised plan is currently in the entitlement phase.
3	Pepper Avenue Widening	City of Rialto	Widening of Pepper Avenue from two to four lanes (two lanes in each direction) from Foothill Boulevard to SR-210 (RTP/FTIP ID 2002170).	Construction in progress; completion anticipated May 2014.

Source: City of Rialto Planning Department 2012 and 2014; City of Rialto Department of Public Works 2013

Future land uses in the portion of the City of Rialto that is within and adjacent to the project study area are shown on Figure 2-2a. Based on the land use map, approximately 90% of the land in this area would be zoned for residential uses. This is an approximate 30% increase compared to existing land uses shown on Figure 2-1a. A majority of this increase would occur in the area to the south of the project site that is currently zoned as urban vacant. This area would be primarily

⁵ County of San Bernardino. *Comprehensive Annual Financial Report*. 2011.

developed with residential uses. A small portion of this area, immediately south of the project site and in between Frisbie Park and Pepper Avenue, is zoned for commercial use. This is consistent with the growth and development trends reported in the San Bernardino County *General Plan* and *SCAG Regional Housing Needs Assessment*, as discussed above.

Future land uses in the portion of the City of San Bernardino that is within and adjacent to the project study area are shown on Figure 2-2b. Based on the land use map, it appears that approximately 45% of the area would be zoned for residential; 30% for publicly owned flood control; 10% for industrial light; and the remaining for other limited land uses. Small portions of existing vacant land will be filled in with residential uses in the future. Residential land uses will also extend farther beyond the project study area than what is currently shown on the existing land use map (Figure 2-1b). The area immediately to the south and east of the project site that is currently zoned as improved flood waterways, urban vacant, railroad, mineral extraction, water storage facilities, and manufacturing will be zoned primarily as publicly owned flood control with a small portion zoned industrial light. The increase of residential land uses in the area is consistent with the growth and development trends discussed above.

Future land uses in the portion of San Bernardino County that is within and adjacent to the project study area are shown on Figure 2-2c. Based on the land use map, it appears that the land currently designated for mineral extraction and a portion of the land designated as vacant undifferentiated and improved flood waterways will be zoned as open space. This designation will make up approximately 50% of the land uses within the portion of San Bernardino County within and immediately adjacent to the project study area. The remaining vacant land and improved flood waterway north of the project study area will be zoned as floodway in the future. The small triangular piece of unincorporated San Bernardino County south of the project site will be zoned as medium density (3-6). The area northeast and outside the project study area will be designated as residential and commercial. The increase of residential land uses in the area is consistent with the growth and development trends discussed above.

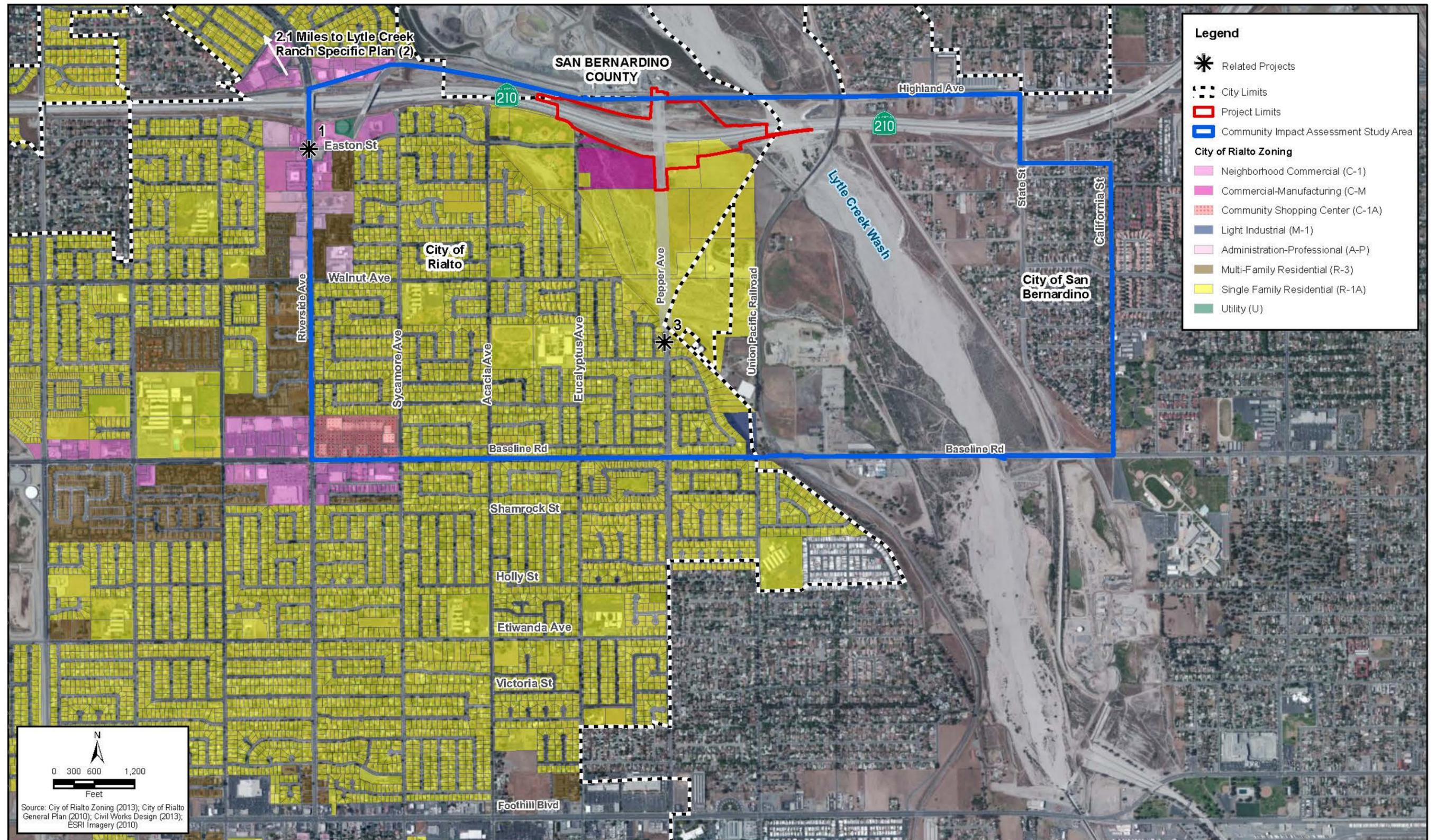


Figure 2-2a
City of Rialto Land Use Zoning and Related Projects in Study Area

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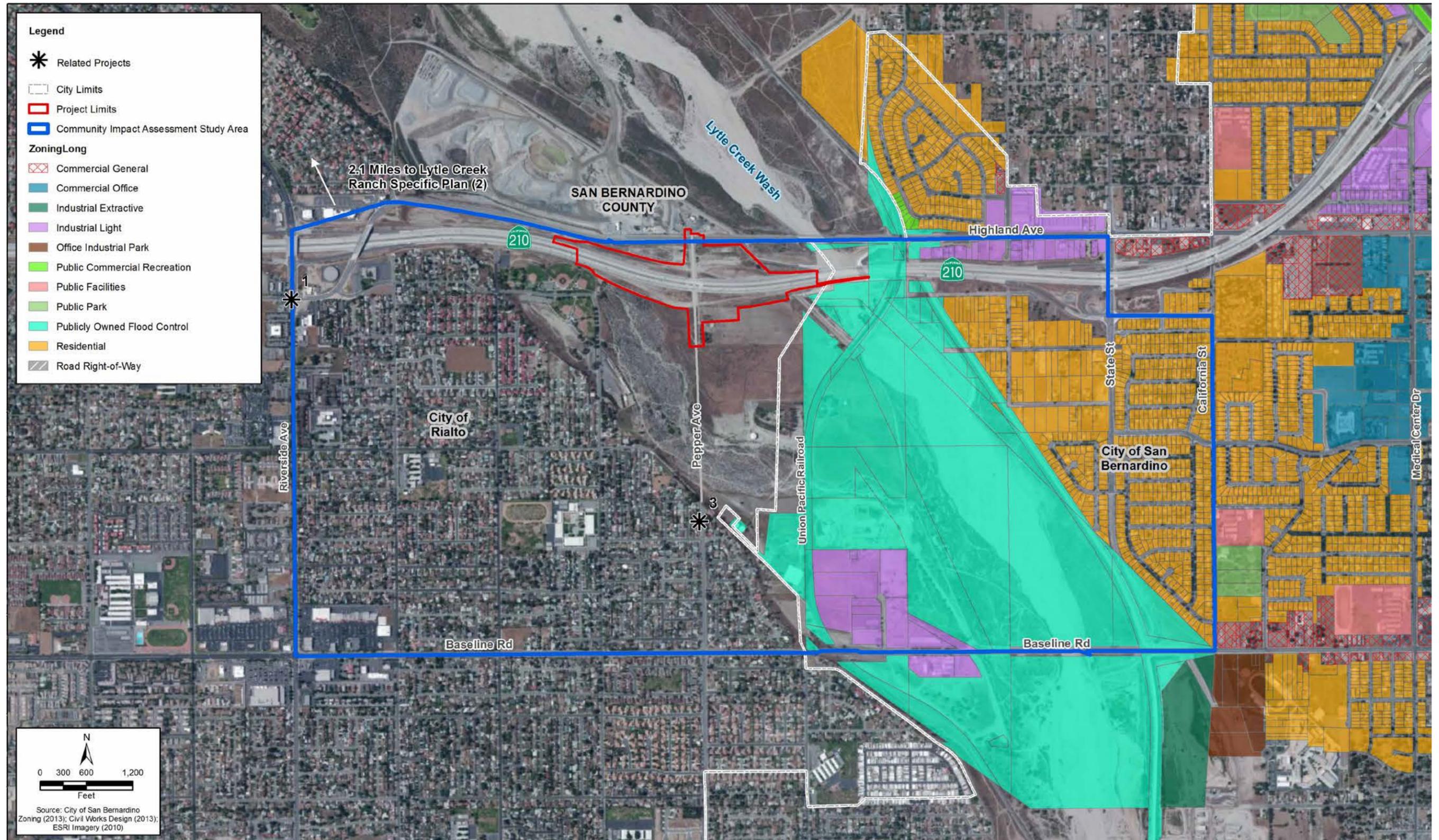


Figure 2-2b
City of San Bernardino Land Use Zoning and Related Projects in Study Area

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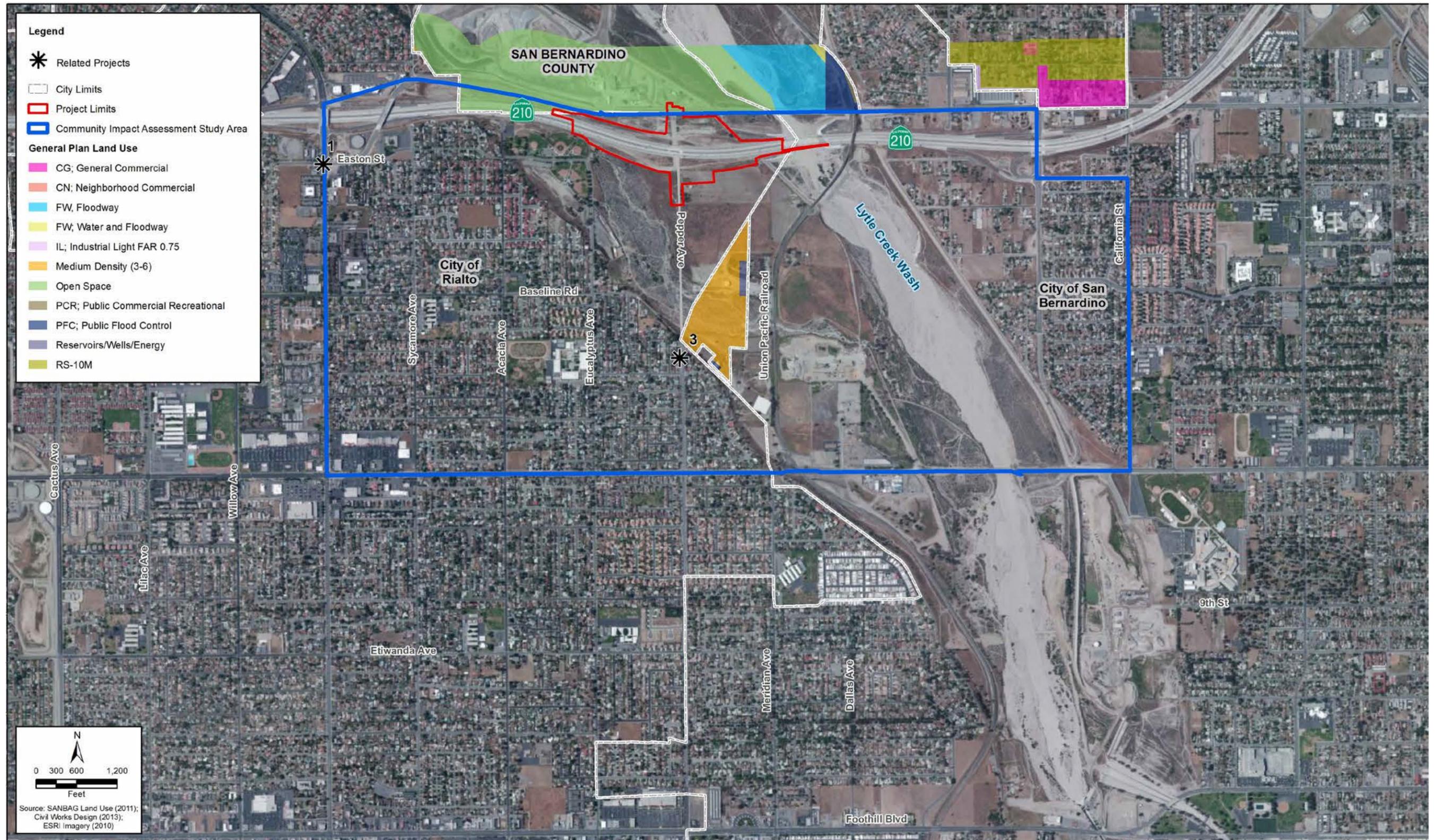


Figure 2-2c
County of San Bernardino General Plan Land Use and Related Projects in Study Area

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Alternative 1 (Build Alternative) would occur almost entirely within the existing SR-210 State right of way and would be compatible with planned and foreseeable future projects in the area, which are summarized in Table 2-1 on Page 2-9. This alternative would contribute to increased access to SR-210 from both existing and future planned uses in the area south of the project site. The new interchange would also connect to an area that, at present, is undeveloped. This area extends south from SR-210 to Shirley Bright Road and is bound on the west by Eucalyptus Road and on the east by San Bernardino city limits. A decision regarding how the area that would be developed (i.e., with residences and offices) was arrived at through a broad planning effort undertaken by the City of Rialto related to an update of the General Plan, with input from the community.

Alternative 1 (Build Alternative) would not require the acquisition of residential property, and access to and from SR-210 is not expected to appreciably affect housing prices in the study area. A substantial change in employment and income for residents in the area as a result of Alternative 1 (Build Alternative) would not be anticipated. Most workers residing in the study area are employed elsewhere, and are expected to continue to commute outside the study area for employment opportunities. Since no businesses would be displaced by the project and project operation would not create permanent jobs, there would be no decrease in employment or income in the study area as a result of implementation of the project. Construction of Alternative 1 (Build Alternative) may involve hiring local residents, but it is unlikely that this would result in an appreciable increase in income and employment.

Under Alternative 2 (No-Build Alternative), existing and planned land uses in the project area would remain, and there would be no potential for incompatible land uses to occur as a result of this alternative. Development on the vacant land immediately to the south of the interchange would still be possible. This alternative would not meet the project purpose and need to connect local and regional transportation systems and would be inconsistent with the General Plan.

CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

California Transportation Plan 2025

Adopted in April 2006, Caltrans' California Transportation Plan (CTP) 2025 aims to guide long-term strategic decisions and investments in the State's transportation system. Although the CTP does not identify SR-210 as a "Major International Trade Highway Route," it does identify the route as part of a "Major International Trade Region" in its map of priority regions and corridors in California.

The goals of the CTP are as follows:

- Goal 1: Improve mobility and accessibility
- Goal 2: Preserve the transportation system
- Goal 3: Support the economy
- Goal 4: Enhance public safety and security
- Goal 5: Reflect community values
- Goal 6: Enhance the environment

Alternative 1 (Build Alternative) would be consistent with the goals outlined in the CTP, specifically, Goal 1, which calls for increasing accessibility and mobility. This alternative would

provide residents and commercial operations additional access to SR-210, as well as to the local road network. Alternative 2 (No Build) would not be consistent with the goals outlined in the CTP.

Southern California Association of Governments 2012–2035 Regional Transportation Plan

Southern California Association of Governments (SCAG) is the metropolitan planning organization for six counties in Southern California: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The RTP is a long-term (minimum of 20 years) vision document that outlines transportation goals, objectives, and policies for the SCAG region. The 2012–2035 RTP was found to conform and was adopted by SCAG on April 4, 2012, and FHWA and FTA made the required regional conformity determination on June 6, 2012. Amendment #1 to the 2012–2035 RTP was approved on June 6, 2013 by the SCAG Transportation Committee.

Within the SCAG 2012–2035 RTP, the proposed project (Project Number 4M1007 and project identification number 08-0002-0180) is described as follows: *“Construct new full-service interchange with diamond configuration at SR-210 and Pepper Avenue in the City of Rialto. Add WB [westbound] and EB [eastbound] accel and decel lanes and local street improvements (construct 4 lanes on Pepper Ave from Highland Ave to 160 ft south of SR-210).”*

In accordance with Section 93.114 of the U.S. Environmental Protection Agency (EPA) transportation conformity regulations, Alternative 1 (Build Alternative) is included in the Southern California Association of Governments (SCAG) 2012–2035 RTP (Project ID Number 4M1007). Because the 2012–2035 RTP model list includes the proposed project (2012–2035 RTP Project Number 4M1007 and project identification number 08-0002-0180), the proposed project’s regional conformity requirements have been satisfied.

Alternative 2 (No-Build Alternative) would not be consistent with the 2012 RTP, which includes the construction of the SR-210 Pepper Avenue New Interchange project. Updates to the 2012 RTP would be required.

Southern California Association of Governments 2013 Federal Transportation Improvement Program

SCAG’s 2013 FTIP lists transportation projects proposed over a six-year period, from fiscal year 2010–2011 to 2015–2016. The FTIP must include all transportation projects that require federal funding as well as all regionally significant transportation projects for which federal approval (by the Federal Highway Administration [FHWA] or the Federal Transit Administration [FTA]) is required, regardless of funding source. The 2013 FTIP was adopted by SCAG on September 19, 2012, and determined to conform by FHWA and FTA on December 14, 2012.

The proposed project is described as follows in the SCAG 2013 FTIP (Project Number 20110110): *“Construct new full-service interchange with diamond configuration at SR-210 and Pepper Avenue in the City of Rialto. Add WB and EB accel and decel lanes and local street improvements (construct 4 lanes on Pepper Ave from Highland Ave to 160 ft south of SR-210).”*

In accordance with Section 93.114 of the U.S. Environmental Protection Agency (EPA) transportation conformity regulations, Alternative 1 (Build Alternative) is included in the SCAG 2013 FTIP (Project Number 20110110). Because the currently approved 2013 FTIP model list

includes the proposed project (2013 FTIP Project Number 20110110), the proposed project's regional conformity requirements have been satisfied.

Alternative 2 (No-Build Alternative) would not be consistent with the 2013 FTIP, which includes the construction of the SR-210 Pepper Avenue New Interchange project. Updates to the 2013 FTIP would be required.

County of San Bernardino General Plan

The County of San Bernardino General Plan (adopted in March 2007) has jurisdiction over the unincorporated parts of the County, including those located to the north of the study area. The General Plan includes the following goals and policies pertinent to the project:

Circulation and Infrastructure

- **Goal CI 1:** The County will provide a transportation system, including public transit, which is safe, functional, and convenient; meets the public's needs; and enhances the lifestyles of County residents.
- **Goal CI 2:** The County's comprehensive transportation system will operate at regional, countywide, community, and neighborhood scales to provide connectors between communities and mobility between jobs, residences, and recreational opportunities.

Alternative 1 (Build Alternative) would contribute to the safe, functional, and convenient transportation system envisioned with Goal CI 1 and provides connections between communities and jobs, residences, and recreational opportunities as envisioned with Goal CI 2.

Alternative 2 (No-Build Alternative) would not be consistent with Goal CI 1 of the County of San Bernardino General Plan as it would not provide a connection between communities and jobs, residences, and recreational opportunities.

County of San Bernardino Non-Motorized Transportation Plan

The County of San Bernardino Non-Motorized Transportation Plan (NMTP) (adopted in March 2011) recommends infrastructure improvements and programs for the cycling and pedestrian transportation system. These improvements and programs are shaped by the Plan's goals and policies. The NMTP identifies the following goals pertinent to the project:

- **Goal 3:** Routine accommodation in transportation and land use planning - Routinely consider bicyclists and pedestrians in the planning and design of land development, roadway, transit, and other transportation facilities, as appropriate to the context of each facility and its surroundings.
- **Goal 4:** Improved bicycle and pedestrian safety - Encourage local and statewide policies and practices that improve bicycle and pedestrian safety.

Alternative 1 (Build Alternative) would increase pedestrian access by providing a 5 to 6.5-foot sidewalk on both sides of Pepper Avenue from Highland Avenue to the SR-210 eastbound (EB) ramps. Alternative 2 (No Build Alternative) would not be compatible with these goals and policies.

City of Rialto General Plan

The City of Rialto General Plan (adopted in 2010) defines goals and establishes policies to achieve the overall vision of the county. The general plan identifies the community's transportation, environmental, economic, and social goals and policies as they relate to land use and development. As such, the general plan forms the basis for local government decision-making, including decisions on proposed development.

The following list shows the most pertinent goals and policies with which the proposed project is expected to be consistent.

Infrastructure

- **Goal 3-6:** Require all developed areas within Rialto to be served adequately with essential public services and infrastructure.
 - **Policy 3-6.1:** Coordinate all development proposals with other affected public entities to ensure the provision of adequate public facilities and infrastructure services.

Expanding Rialto's Mobility

- **Goal 4-1:** Provide transportation improvements to reduce traffic congestion associated with regional and local trip increases.
 - **Policy 4-1.6:** Coordinate with the California Department of Transportation, San Bernardino Association of Governments, and neighboring jurisdictions to accommodate growing volumes of east/west traffic. This plan envisions Riverside Avenue, Base Line Road, and Foothill Boulevard becoming six-lane arterials.
 - **Policy 4-1.9:** Work with Caltrans to improve coordination of traffic signals at freeway interchanges with those on City streets.
 - **Policy 4-1.10:** Complete Pepper Avenue to connect to the SR-210 freeway and Highland Avenue.
- **Goal 4-9:** Promote walking.
 - **Policy 4-9.3:** Provide pedestrian-friendly and safety improvements, such as crosswalks and pedestrian signals, in all pedestrian activity areas.
 - **Policy 4-9.7:** Require ADA compliance on all new or modified handicap ramps.
- **Goal 4-10:** Provide a circulation system that supports Rialto's position as a logistics hub.

Goal 3-6 requires all developed areas within Rialto to be served with essential public services and infrastructure. Related Policy 3-6.1 calls for the coordination of development proposals with other affected public entities to ensure the provision of adequate public facilities and infrastructure services. Alternative 1 (Build Alternative) would be consistent with Goal 3-6 and Policy 3-6.1, as several public entities (i.e., City of Rialto, SANBAG, and Caltrans) are coordinating to develop a new interchange at SR-210/Pepper Avenue and to connect Pepper Avenue with Highland Avenue. This would provide the needed infrastructure to connect the eastern part of Rialto to the local and regional transportation network.

Alternative 1 (Build Alternative) would be consistent with Goal 4-1 of the General Plan, as it would provide an additional interchange that would redistribute local and regional traffic. Policy

4-1.10 of the City of Rialto's General Plan explicitly calls for the extension of Pepper Avenue, which would connect to SR-210 and Highland Avenue, to be completed. Alternative 1 (Build Alternative) would be consistent with that improvement.

Alternative 1 (Build Alternative) would also be consistent with Goal 4-9 and its related policies, as it would provide ADA-compliant sidewalks along Pepper Avenue, promoting a pedestrian-friendly environment. Furthermore, Alternative 1 (Build Alternative) would be consistent with Goal 4-10, as it would provide a connection between Pepper Avenue, which is identified as a Terminal Access (TA) Route, to the regional transportation network. This would support Rialto's position as a logistics hub.

Alternative 2 (No-Build Alternative) would not be consistent with Policy 4-1.10 of the City of Rialto's General Plan, which calls for the connection of Pepper Avenue to SR-210 and Highland Avenue; nor would it be consistent with Goal 4-1 of the City of Rialto General Plan, as it would not provide an additional interchange that would redistribute local and regional traffic; and thereby would not reduce related traffic congestion. This alternative would also not support Goal 3-6, or the related Policy 3-6.1, of the City of Rialto General Plan; public infrastructure connecting the eastern part of Rialto with the local and regional transportation network (i.e., new interchange at Pepper Avenue and SR-210), would not be constructed.

City of San Bernardino General Plan

The City of San Bernardino General Plan, adopted in November 2005, guides the physical development within its boundaries. Segments of the proposed EB on-ramp and westbound (WB) off-ramp would cross into the City of San Bernardino and are fully within the SR-210 State right of way. The goals and policies stated in the General Plan that are applicable to the proposed project are as follows:

Circulation Element

- **Goal 6.4:** Minimize the impact of roadways on adjacent land uses and ensure compatibility between land uses and highway facilities to the extent possible.
 - **Policy 6.4.3:** Continue to participate in forums involving the various governmental agencies such as Caltrans, SANBAG, SCAG, and the County that are intended to evaluate and propose solutions to regional transportation problems.

Although only a very small portion of the proposed project is located within the limits of the City of San Bernardino, Alternative 1 (Build Alternative) is consistent with the following General Plan land use and circulation policies:

- Policy 2.3.6 calls for circulation system improvements to be pursued that facilitate connectivity across freeway and rail corridors. The proposed project would be consistent with this policy, as it would provide a connection to SR-210.
- Policy 6.4.3 calls for the participation in forums involving various governmental agencies such as Caltrans, SANBAG, SCAG, and the County that are intended to evaluate and propose solutions to regional transportation problems. Alternative 1 (Build Alternative) would be consistent with this policy, as it intended to solve a regional transportation problem by providing a link between the regional transportation network and the Pepper Avenue TA Route. In addition, Caltrans, SANBAG, and local agencies are collaborating on the development of this project.

Alternative 2 (No Build Alternative) is not compatible with the goals and policies of the City of San Bernardino General Plan.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As discussed above, because there are no inconsistencies or conflicts with applicable plans and programs, no avoidance, minimization, or mitigation measures are required, and none are proposed.

PARKS AND RECREATIONAL FACILITIES

AFFECTED ENVIRONMENT

Information in this section is based upon the April 2014 *Community Impact Assessment*. Within the community impact study area and 0.5-mile radius of the project site, the only officially designated park and/or recreational area is Frisbie Park, a City of Rialto public park that covers approximately 25 acres and includes six baseball/softball fields, two basketball courts, and a playground. According to available baseball and softball league schedules, the park is most heavily used on weekday nights and throughout the day on weekends. A portion of Frisbie Park, approximately 500 linear feet, corresponding to the limits of the outfields of parts of two of the baseball/softball fields, is located immediately adjacent to existing state right of way, where a portion of the beginning of the EB SR-210 new off-ramp to Pepper Avenue, approximately 250 linear feet (see Figure 1-5, Sheet 1 on Page 1-19) is planned to be located based on preliminary engineering. This portion of the EB SR-210 new off-ramp to Pepper Avenue is approximately 30 feet, at the nearest point to either baseball/softball field, representing an approximate net change in distance to traffic of 40 feet.

Section 4(f) Resources

Frisbie Park is the only Section 4(f) resource located within the study area, as identified under the Department of Transportation Act of 1966, as amended, which allows for the Secretary of Transportation to approve a transportation program or project to use a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

23 Code of Federal Regulations (CFR) 774.17 defines “use” in three ways: when land from a Section 4(f) resource is permanently incorporated into a transportation facility or project (actual use); when there is a temporary occupancy of Section 4(f) resource that does not meet the five criteria of temporary use; and when there is constructive use of the Section 4(f) resource. Frisbie Park is the only Section 4(f) facility that is located directly adjacent to the proposed project.

The EB off-ramp of the proposed new interchange would be immediately adjacent to Frisbie Park; however, the proposed project would not involve the acquisition of any part of the park, temporarily or permanently, because the new ramp would be located and constructed entirely within existing state right of way in relation to this part of SR-210. Additionally, no disruption to park activities would occur during construction, and construction would not prevent access to the park. See Appendix B for complete Section 4(f) discussion.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

As discussed above, approximately 500 linear feet of Frisbie Park, corresponding to the limits of a portion of two of the baseball/softball fields, are located immediately adjacent to existing right of way, where a portion of the beginning of the EB SR-210 new off-ramp to Pepper Avenue is approximately 30 feet at the nearest point to either baseball/softball field, representing an approximate net change in distance to traffic of 40 feet. Although a portion of the new SR-210 EB off-ramp to Pepper Avenue would be immediately adjacent to a portion of the limits of Frisbie Park, the proposed project would not involve the acquisition of any part of the park, temporarily or permanently, because the new ramp would be located and constructed entirely within existing state right of way in relation to this part of SR-210. Additionally, no disruption to park activities would occur during construction, and construction would not prevent access to the park.

Frisbie Park is considered a sensitive receptor for noise and air quality. With respect to air quality, findings in the February 2014 *Air Quality Study Report* prepared for the proposed project indicate no local or regional standards for criteria pollutants would be exceeded during construction. Construction-related emissions of fugitive dust would be minimized with implementation of Caltrans' Standard Specifications and compliance with South Coast Air Quality Management District (SCAQMD) Rule 403, which is standard practice on all Caltrans projects. In addition, implementation of Alternative 1 (Build Alternative) would not result in any new or more severe exceedances of state or federal air quality standards.

The January 2014 *Noise Study Report* concluded that construction-related noise would not be considered an adverse effect because construction activities would be temporary and would comply with Caltrans' 2010 Standard Specifications and applicable noise regulations. Noise generated by construction equipment would be perceptible by park visitors as people are able to begin to detect sound level increases of 3 dB in typical noisy environments. However, Frisbie Park's primary function is as an outdoor play area used for youth sports with an existing noise environment that is dominated by traffic noise from the existing SR-210. Accordingly, the park is not reliant upon a quiet or tranquil environment in order to function.

The Noise Study Report also indicates that future noise levels generated from traffic during operation under Alternative 1 (Build Alternative) are predicted to range between 64 and 69 dBA Leq(h); this would represent an increase of up to approximately two (2) dBA Leq measured at the park in comparison to existing noise levels. In typical noisy environments, changes in noise of one (1) to two (2) dBA are generally not perceptible. Although the FHWA/Caltrans noise abatement criterion (NAC) of 67 dBA is reached for Activity Category C land use, operation of Alternative 1 (Build Alternative) would not adversely affect the intended function of the park, which is already a noisy environment.

Accordingly, Alternative 1 (Build Alternative) would not cause a constructive use of Frisbie Park because the proximity impacts would not substantially impair the protected activities, features, or attributes of the park. The Noise Abatement Decision Report for the proposed project concluded that installation of a sound barrier would not meet the FHWA/Caltrans definition of reasonable.

Alternative 1 (Build Alternative) would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.

Alternative 2 (No-Build Alternative)

Under Alternative 2 (No-Build Alternative), the proposed project would not be constructed; therefore, there would be no effects to parks or recreation facilities as a result of this alternative. Traffic-related noise would be expected to increase under this alternative by the Design Horizon Year 2036, with increases up to 2 dBA Leq at Frisbie Park. This noise increase is due primarily to the increase in traffic along mainline SR-210, and would be barely perceptible.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

To ensure that air quality emissions are minimized during construction, minimization measure **AQ-1** identified on Page 2-135 in Section 2.13 shall be implemented. To ensure that noise during construction is minimized, minimization measure **NOI-1** identified on Page 2-149 in Section 2.14, and the following minimization measure, **PRF-1**, shall be implemented.

- **PRF-1 (Minimization Measure):** To further control the generation of construction-related fugitive dust emissions, the following measures will be implemented during construction:
 - The construction contractor must comply with the Department’s Standard Specifications in Section 14-9 (2010) and/or (2014).
 - 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.
 - Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Standard Specifications Section 18.
 - Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions.
 - Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.
 - Trucks will be rinsed as they leave the right of way, as necessary, to control fugitive dust emissions.
 - Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
 - A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
 - 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 activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
- 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.
- Use tarps or other suitable enclosures on haul trucks carrying soils or other wet materials.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease particulate matter.
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.

2.2 Growth

REGULATORY SETTING

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

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

FIRST-CUT SCREENING ANALYSIS

Information used in this section is based upon April 2014 *Community Impact Assessment*.

The analysis of growth-related indirect impacts follows the first-cut screening guidelines provided in Caltrans' Guidelines for Preparers of Growth-Related Indirect Impact Analysis (2006). The first-cut screening analysis focused on addressing the four following questions:

- How, if at all, would the project change accessibility?
- How, if at all, would the project type, project location, and growth-pressure influence growth?
- Would project-related growth be "reasonably foreseeable," as defined by NEPA? Under NEPA, indirect impacts need only be evaluated if they are "reasonably foreseeable" as opposed to remote and speculative.
- If there is project-related growth, how, if at all, would that affect resources of concern?

Factors that influence land use and development in an area may include population and economic growth, desirability of certain locations, the costs and availability of developable land, physical and regulatory constraints, transportation, and the costs of sewer and water services.

Transportation agencies play a role in land use changes by providing infrastructure that can improve mobility and/or open up access to new locations. At the same time, new development generates travel to that location, and this additional travel creates the need for new transportation facilities. The relationship between transportation and land use and the degree to which one influences the other is a topic of ongoing debate.

Growth would be expected at both the regional and study-area levels. According to population projections prepared by SCAG for purposes of the RTP, the County of San Bernardino's population is anticipated to grow to 2.75 million, an increase of approximately 36% over a period of 25 years. Similar population increases are expected for the City of Rialto and the City of San

Bernardino, each of which is expected to grow by more than 25% and by 24%, respectively (see Table 2-2). The number of households in the County of San Bernardino and the City of Rialto are each expected to rise approximately 40% by 2035 and the number of households in the City of San Bernardino is expected to increase by approximately 30% (see Table 2-3).

Table 2-2: Existing and Projected Population

Area	2010 Population ¹	Projected 2035 Population ²	Projected Increase (2010 to 2035)
County of San Bernardino	2,023,452	2,750,000	35.9%
City of Rialto	99,501	125,200	25.8%
City of San Bernardino	210,100	261,400	24%

Sources:
¹U.S. Census Bureau, 2007-2011 American Community Survey, Table B01001 (2011a).
²Southern California Association of Governments, 2012 Draft RTP Forecast. Available: <http://www.scag.ca.gov/Documents/2012AdoptedGrowthForecastPDF.pdf>

Table 2-3: Existing and Projected Number of Households

Area	2008 Number of Households	Projected 2035 Number of Households	Projected increase (2008 to 2035)
County of San Bernardino	606,000	847,000	39.8%
City of Rialto	25,100	34,700	38.2%
City of San Bernardino	59,300	76,800	29.5%

Source: SCAG 2012 Draft RTP Growth Forecast

ALTERNATIVE 1 (BUILD ALTERNATIVE)

The potential for Alternative 1 (Build Alternative) to influence growth is based on the first-cut screening analysis.

- **How, if at all, would the project change accessibility?**

Alternative 1 (Build Alternative) would involve construction and operation of a tight diamond interchange and approximately 1,300 feet of Pepper Avenue, extending from Highland Avenue to the south of the EB ramps. This alternative would provide alternative access to SR-210 from areas south of the project site, as well as north of the project site.

At present, the nearest land uses are Frisbie Park, a single-family residential neighborhood to the west, and an aggregate mining and processing operation to the north, with an undeveloped floodplain area to the south and east. Approximately one half-mile south of the proposed interchange, there are additional single-family residences. Access to and from SR-210 is obtained via the Riverside Avenue or State Street/University Parkway interchanges, which are located approximately one mile to the west and east of the proposed interchange, respectively. The project would provide additional access to and from SR-210 for the aggregate mining operation and drivers along Highland Avenue. The project would increase access to and from SR-210 for residents located to the south of the undeveloped floodplain.

The proposed project would increase accessibility to the regional highway system in a manner consistent with the original plans for SR-210 Extension Project and the City of Rialto General Plan.

Alternative 2 (No-Build Alternative) would not change accessibility in the project area. It would not provide a connection to SR-210 from Pepper Avenue, and as a result, it would not increase accessibility to the regional highway system in a manner consistent with the original plans for SR-210 Extension Project and the City of Rialto General Plan.

- **How, if at all, would the project type, project location, and growth-pressure influence growth?**

Alternative 1 (Build Alternative) would involve the construction and operation of a tight diamond interchange and a roadway segment, both of which were planned for in the City of Rialto General Plan and when SR-210 was originally constructed. Alternative 1 would primarily serve those areas located to the south, which are identified as areas of planned growth in the City of Rialto General Plan and existing single-family residential neighborhoods.

To the north of the proposed interchange, there are physical features that would limit the ability to develop the area including the mining operation on the north side of Highland Avenue, Lytle Creek floodplain, and steep terrain. Areas to the north of SR-210 and west of Lytle Creek are more readily accessed by the existing Riverside Avenue interchange. Aside from the Lytle Creek Ranch Specific Plan, the phased 8,400-unit residential development approved in August 2012 which would be located on a swath of land between one mile and more than five miles from the proposed project, there is no other reasonably foreseeable future development to the north of the project.

Given the project's location above a floodplain and adjacent to known habitat areas, opportunities for development are limited. Future growth would be confined to areas that are not considered high-risk flood areas within Lytle Creek, as this area is designated as a public flood control area in the City of San Bernardino General Plan. The area to the immediate south of the proposed interchange is outside of this high-risk flood area, and is land use designated for residential and business park uses in the City of Rialto General Plan. Therefore, any growth in the study area would be limited to in-fill on those developable lands immediately south of the interchange, which is the only undeveloped land within the study area.

Alternative 2 (No-Build Alternative) would not connect SR-210 to Pepper Avenue. Growth in the study area is also expected to occur under Alternative 2 (No-Build Alternative). The City of Rialto's Pepper Avenue Extension and Gap Closure projects are integral to future development that may occur south of the location of the proposed project. Alternative 2 (No-Build Alternative) would not preclude any development plans for areas north and south of the project site; however, it would not provide direct access to the regional transportation network.

- **Would project-related growth be “reasonably foreseeable,” as defined by NEPA? Under NEPA, indirect impacts need only be evaluated if they are “reasonably foreseeable” as opposed to remote and speculative.**

Development in the vicinity of the project site is planned and is, therefore, reasonably foreseeable. The undeveloped area to the south of the project site is designated by the City of Rialto General Plan for residential and business park uses, but there are no current applications pending for the area's development. Nevertheless, the general plan designation and zoning indicates that it may be developed in the future. Future development in the area immediately to the south of the project site would use Pepper Avenue to access SR-210.

Northwest of the project site, the Lytle Creek Ranch Specific Plan, which was approved in August 2012, would guide the development of 8,400 residential units. The Lytle Creek Ranch

Specific Plan, the only major planned development north of the study area, has designated Riverside Avenue as its primary SR-210 access point. The Lytle Creek Specific Plan area would be located too far from the proposed Pepper Avenue interchange for convenient access to SR-210 for the vast majority of future Lytle Creek Ranch residents.

Although residential development is expected to grow in the area, the proposed project is not essential for this growth. Alternative 1 (Build Alternative) would support future development by providing direct access to SR-210, but it would not be considered essential for development. The newly extended Pepper Avenue and connection with Highland Avenue introduces new access to this undeveloped area located south of the interchange and north of Shirley Bright Road, opening the area to potential development. The proposed project would connect SR-210 with Pepper Avenue and provide an additional connection to Pepper Avenue. Alternative 1 (Build Alternative) would also distribute vehicle trips more efficiently, improve the local transportation network, and connect Pepper Avenue to SR-210, thereby providing improved connectivity to the regional transportation network.

Alternative 2 (No-Build Alternative) would not connect SR-210 to Pepper Avenue. Growth in the study area is also expected to occur under Alternative 2 (No-Build Alternative). The City of Rialto's Pepper Avenue Extension and Gap Closure projects are integral to future development that may occur south of the location of the proposed project. Alternative 2 (No-Build Alternative) would not preclude any development plans for areas north and south of the project site; however, it would not provide direct access to the regional transportation network.

- **If there is project-related growth, how, if at all, would that affect resources of concern?**

Alternative 1 (Build Alternative) would connect SR-210 to the recent Pepper Avenue Extension Project, which opened a previously undeveloped area south of the project site to potential development. Construction of Pepper Avenue and its connection to the state highway system is likely to result in growth. This growth, however, is planned and accounted for in the study area and would be confined to in-fill development on the vacant land to the south of the interchange. Residential and other types of development in the area would be an outcome of a broader land use planning process, including the creation of specific plans within the framework of the City of Rialto General Plan and Zoning Code. Areas to be developed near the project site would be geographically confined and contiguous with other developed areas.

Alternative 2 (No-Build Alternative) would not connect SR-210 to Pepper Avenue. Growth in the study area is also expected to occur under Alternative 2 (No-Build Alternative). The City of Rialto's Pepper Avenue Extension and Gap Closure projects are integral to future development that may occur south of the location of the proposed project. Alternative 2 (No-Build Alternative) would not preclude any development plans for areas north and south of the project site; however, it would not provide direct access to the regional transportation network.

Based on the above "First Cut Screening Analysis," no further analysis with respect to growth is required for this proposed project.

2.3 Community Impacts

COMMUNITY CHARACTER AND COHESION

REGULATORY SETTING

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

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

AFFECTED ENVIRONMENT

Information used in this section is based upon the April 2014 *Community Impact Assessment*.

The study area coincides with a total of four census tracts based on the boundaries delineated for the 2010 Census. Three of these tracts (38.01, 38.04, and 42.01) are considered for demographic analysis below. The portion of the fourth census tract that overlaps with the study area (tract 27.06) is a vacant and unpopulated area between SR-210 and Highland Avenue to the northwest of the project site and is therefore not considered for further analysis. The three census tracts represent the entire study area population and additional populated areas to the south and east, as depicted in Figure 2-3. Census tracts 38.01 and 38.04 are primarily located within the City of Rialto, with small unpopulated portions extending into the unincorporated County's jurisdiction. Census tract 42.01 is located within the City of San Bernardino.

Population

The project site is situated in the eastern portion of the City of Rialto, and a small western portion of the City of San Bernardino, within the County of San Bernardino. Demographic data is therefore provided for each of these three jurisdictions.

According to the 2007–2011 American Community Survey (ACS), the total population in the County of San Bernardino is 2,023,452. Of the total population, the largest group are persons of Hispanic or Latino origin of any race at 49%, while non-Hispanic White make up the next largest group at 34%. The remaining 18% of the population, in order by descending proportion, are Black or African American, Asian, multi-racial, Native American, Native Hawaiian/Pacific Islander, and other races. Please see Table 2-4 on Page 2-33 for information regarding the racial/ethnic make-up of the study area as well as the individual census tracts that comprise the study area.



Figure 2-3
Project Study Area Census Tracts

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Table 2-4. Existing Regional and Local Population Characteristics—Race/Ethnicity

Area	Total	Hispanic or Latino (of any race)**	%	Not Hispanic or Latino													
				White	%	Non-Hispanic Black or African American	%	Native American	%	Asian	%	Native Hawaiian/Pacific Islander	%	Other Race	%	Two or More Races	%
County of San Bernardino	2,023,452	984,022	48.6	68,5741	33.9	168,190	8.3	7,889	0.4	123,415	6.1	5,658	0.3	4,884	0.2	43,653	2.2
City of Rialto	99,501	66,878	67.2	14,175	14.2	14,196	14.3	72	0.1	2,213	2.2	117	0.1	377	0.4	1,473	1.5
City of San Bernardino	210,100	123,611	58.8	42,683	20.3	29,643	14.1	527	0.3	8,825	4.2	405	0.2	671	0.3	3,735	1.8
Study Area*	16,491	9,167	55.6	1,320	8.0	5,167	31.3	0	0.0	733	4.4	1	0.0	0	0.0	103	0.6
Census Tract 38.01	4,242	2,294	54.1	435	10.3	1,200	28.3	0	0	275	6.5	0	0	0	0	38	0.9
Census Tract 38.04	5,502	3,373	61.3	676	12.3	1,320	24	0	0	102	1.9	0	0	0	0	31	0.6
Census Tract 42.01	6,747	3,500	51.9	209	3.1	2,647	39.2	0	0	356	5.3	1	0	0	0	34	0.5

* The study area for the purposes of this chapter comprises the three census tracts that are adjacent to the proposed project (see Figure 2-3).
 Source: U.S. Census Bureau, 2007–2011 American Community Survey, Table DP05 (2013)

As shown in Table 2-4, the City of Rialto has just under 100,000 residents, with persons of Hispanic/Latino descent composing the largest ethnic group (more than two-thirds of the population). Non-Hispanic Black or African American and White make up the next largest ethnic/racial groups, with each representing approximately 14% of the City’s population. Persons of Asian, multi-racial, Native Hawaiian/Pacific Islander, Native American, and persons of other ethnicities collectively comprise approximately 4% of the population of the City.

The City of San Bernardino has 210,000 residents according to the ACS. The largest ethnic group was of Hispanic/Latino, representing 59% of the population. White makes up 20% of the population, and Black or African American persons represent 14%. The remaining 7% of the City of San Bernardino is composed of Asian, multi-racial, Native American, Native Hawaiian/Pacific Islander persons, and persons of other races, in descending order of prevalence.

Collectively, the census tracts that make up the study area have approximately 16,500 residents, the majority of whom are Hispanic/Latino (56%). Over 31% of the study area residents are Black or African American, and 8% are White. The remaining 5% of the population is Asian, multi-racial, and Native/Hawaiian/Pacific Islander. There are no Native American residents or persons of other races in the study area.

Of those residing within the County of San Bernardino, 30% of the population is under 18 years of age according to the ACS, while 9% is 65 years of age and over. Approximately one-third of Rialto’s population is under 18 years of age, while 7% is over 65 years of age. The City of San Bernardino exhibits a similar age distribution, with 33% of its population under 18 years and 8% older than 65 years. Please refer to Table 2-5, below, for information regarding age characteristics in the study area. According to the 2007–2011 ACS, approximately 31% of residents in the study area are under the age of 18 and approximately 9% are over the age of 65. These age distributions are similar to those of the City of Rialto and the City and County of San Bernardino. Census tract 38.01 varies from the rest of the study area in that it has a lower composition of those under the age of 18 than the City of Rialto and County of San Bernardino. With the exception of tract 38.01, the proportions of seniors and minors in the study area do not vary markedly from the County and respective city make-up.

Table 2-5. Existing Regional and Local Housing Characteristics—Age

Area	Total Population	Age (Year 2011)			
		Under 18	Percentage	65 and Over	Percentage
County of San Bernardino	2,023,452	598,000	29.6%	176,983	8.7%
City of Rialto	99,501	33,226	33.4%	6,996	7.0%
City of San Bernardino	210,100	68,205	32.5%	16,707	8.0%
Study Area*	16,491	5,171	31.4%	1,426	8.6%
Census Tract 38.01	4,242	943	22.2%	357	8.4%
Census Tract 38.04	5,502	1,867	33.9%	516	9.4%
Census Tract 42.01	6,747	2,361	35.0%	553	8.2%

* The study area for the purposes of this chapter comprises the three census tracts that are adjacent to the proposed project (see Figure 2-3).
Source: U.S. Census Bureau, 2007–2011 American Community Survey, Table B01001 (2013).

Housing

According to the 2007–2011 ACS, the total number of housing units in the County of San Bernardino was just under 700,000, of which 86% are occupied. Of the County’s occupied housing units, 64% were owner-occupied units, and 36% were rented. The City of Rialto, which represents a small proportion of the housing in the County, has a total of approximately 26,000 housing units. Of this total, almost 93% of the housing units are occupied. Housing tenure was proportionate to the County level, with owner-occupied housing units representing 64% of the housing stock and renter-occupied housing making up the remaining 36%. Within the City of San Bernardino, 91% of the more than 66,000 housing units were occupied. Unlike the County as a whole and the City of Rialto, the City of San Bernardino had roughly equal numbers of housing units that were owner-occupied and renter-occupied units. Tables 2-6 and 2-7 identify occupancy and tenure within the study area and region.

Table 2-6. Existing Regional and Local Housing Characteristics—Occupancy

Area	Total Units	Occupied Units	Percentage of Occupied Units	Vacant Units	Percentage of Vacant Units	Persons Per Household (Owner-Occupied)	Persons Per Household (Renter-Occupied)
County of San Bernardino	696,776	598,822	85.9%	97,954	14.1%	3.32	3.28
City of Rialto	26,176	24,214	92.5%	1,962	7.5%	4.12	3.99
City of San Bernardino	66,575	60,614	91.0%	5,961	9.0%	3.38	3.32
Study Area*	4,232	3,929	92.8%	303	7.2%	n/a	n/a
Census Tract 38.01	1,320	1,110	84.1%	210	15.9%	4.16	2.76
Census Tract 38.04	1,140	1,131	99.2%	9	0.8%	3.85	7.11
Census Tract 42.01	1,772	1,688	95.3%	84	4.7%	4.23	3.58

* The study area for the purposes of this chapter comprises the three census tracts that are adjacent to the proposed project (see Figure 2-3).

Source: Year 2011 Occupancy. U.S. Census Bureau, 2007–2011 American Community Survey, Table S2501 and Table DP04 (2011).

There are approximately 4,200 housing units in the study area, 93% of which are occupied according to the 2007–2011 ACS (see Table 2-6). Of the occupied housing units, approximately two-thirds are owner-occupied units, with the rest occupied by renters. Please refer to Table 2-7 for data related to tenure.

With the exception of the undeveloped Lytle Creek floodplain and the aggregate mining operation, the study area is predominantly residential in character. As shown in Tables 2-6 and 2-7, the area has low vacancy rates. Owner-occupied housing units in the study area outnumber renter-occupied dwelling units, with the communities west of Lytle Creek, in Rialto, exhibiting a larger proportion of owner-occupied housing than the area east of Lytle Creek.

Table 2-7. Existing Regional and Local Housing Characteristics—Tenure

Area	Total Units	Occupied Units	Owner Occupied-Units	Percentage of Owner-Occupied Units	Renter-Occupied Units	Percentage of Renter-Occupied Units
County of San Bernardino	696,776	598,822	384,624	64.2	214,198	35.8
City of Rialto	26,176	24,214	15,591	64.4	8,623	35.6
City of San Bernardino	66,575	60,614	31,320	51.7	2,9294	48.3
Study Area*	4,232	3,929	2,571	65.4	1,358	34.6
Census Tract 38.01	1,320	1,110	795	71.6	315	28.4
Census Tract 38.04	1,140	1,131	831	73.5	300	26.5
4,232	3,929	2,571	65.4	1,358	34.6	4,232
4,232	3,929	2,571	65.4	1,358	34.6	4,232
Census Tract 42.01	1,772	1,688	945	56.0	743	44.0

* The study area for the purposes of this chapter comprises the three census tracts that are adjacent to the proposed project (see Figure 2-4).
 Source: 2011 Tenure. U.S. Census Bureau, 2007–2011 American Community Survey, Table S2501 (2011).

Community Character and Cohesion

The project study area and local region is believed to have been inhabited since 1500 A.D. by Native American groups. Spanish missionaries settled in the San Bernardino area and colonized local native populations in the early 19th century, and were later followed by Mormon pioneers around 1850. The Southern Pacific Railroad arrived in Colton around 1875, followed by the arrival of the California Southern Railroad in San Bernardino in 1883, and the Los Angeles Pacific Electric Railway in Rialto in 1914. Rialto became an incorporated city on November 17, 1911. Since then the area has experienced continued growth, with Rialto’s population rising to 80,000 in 1994 and is currently home to just under 100,000 residents.⁶ Within the study area, more than four out of every five residential structures were built between 1950 and 1989, indicating that this was the period of most rapid development in the study area.⁷

The developed portions of the study area to the south and west of the proposed project are dedicated primarily to single-family residences. In addition, the area features several community facilities listed in Table 2-8.

The community in the eastern portion of the study area is located within the jurisdictional boundaries of the City of San Bernardino. The area is primarily residential in character; single-family homes located to the west of State Street are situated on lots larger than the more dense single-family neighborhoods found to the east of State Street. In addition to the larger lots located to the west of State Street, there are numerous vacant parcels, giving the area to the west a more rural appearance, however, the City of San Bernardino is 95.5% developed. The community facilities located in this area are listed in Table 2-8.

In addition to the residential communities to the southeast and southwest of the project site, there is an aggregate mining and processing operation run by Vulcan Materials Company located just

⁶ Rialto Historical Society. *The Story of Rialto*. 2011.

⁷ U.S. Census Bureau. 2011.

north of the study area within the Lytle Creek floodplain. Lytle Creek’s designation as a sensitive resource (floodplain) constrains future development in the areas to the north of the project site, as the area is not designated for development in the general plans of the City or County of San Bernardino or the City of Rialto. Access to and from the Vulcan site occurs along Highland Avenue.

To the west of the aggregate mining operation and approximately 0.5 mile west of the project site, there is a commercial shopping center with a Walgreens drugstore, an Alta Vista Credit Union, and small storefront restaurants. From the access point along Highland Avenue that is nearest to the proposed project, vehicles would need to travel approximately 0.9 mile in order to access SR-210. North of the shopping center, there is a single-family residential neighborhood, the vast majority of the residents access SR-210 via the existing Riverside Avenue interchange, given its closer proximity. The majority of travel within and through the study area appears to be by use of personal vehicle, as well as some public transit along Riverside Avenue, Baseline Road, and California Avenue. Other modes of travel, such as walking (pedestrian) and bicycle are not considered primary modes of transportation. Due to the lack of existing bicycle lanes and sidewalks, these modes of travel are anticipated to be limited to within local residential areas, with some trips between residential areas and convenience stores.

The majority of the study area residents are Hispanic/Latino (approximately 56%), and approximately 31% are Black or African American. Both groups are more highly concentrated in each of the study area census tracts than they are in the County overall.

Community Facilities and Services

The nearest community facility to the project site is Frisbie Park, a 25-acre public park located just west of the project site; followed by Blessed John XVIII Catholic Community Church and Crosspoint Community Church, which are both 0.5 mile from the proposed project. There are no other community facilities or emergency service providers within 0.5 mile of the proposed project. Other community facilities and emergency service providers in the study area are shown in Table 2-8 (below), in Table 2-11 on Page 2-50, and Figure 2-4 on Page 2-39.

Table 2-8. Community Facilities and Services in the Vicinity of the Project Site

Map ID	Facility	Address	Location Relative to Project Site	Distance in Miles from Proposed Project
Schools				
1	Frisbie Middle School	1442 N Eucalyptus Avenue Rialto, CA 92376	Southwest of project site	0.6
2	Morgan Elementary School	1571 N Sycamore Avenue Rialto, CA 92376	Southwest of project site	0.8
3	Bemis Elementary School	774 E Etiwanda Avenue Rialto, CA 92376	South of project site	1.3
4	Arroyo Valley High School	1881 W Baseline Street San Bernardino, CA 92411	Southeast of project site	1.4
5	Dr. Martin Luther King Jr. Middle School	1250 N Medical Center Drive San Bernardino, CA	Southeast of project site	1.6

**Table 2-8. Community Facilities and Services in the Vicinity of the Project Site
Continued**

Map ID	Facility	Address	Location Relative to Project Site	Distance in Miles from Proposed Project
Schools				
6	Rio Vista Elementary School	1451 N California Street San Bernardino, CA	Southeast of project site	1.1
7	Howard Inghram Elementary School	1695 W 19th Street San Bernardino, CA 92411	East of project site	1.3
Public Parks, Recreation Centers, and Golf Courses				
8	Frisbie Park	1901 N Acacia Avenue Rialto, CA 92376	South and west of project site	Adjacent
9	Anne Shirrells Park	1367 N California Street San Bernardino, California 92411	Southeast of project site	1.2
10	Maple Street Park	1800 W 9th Street San Bernardino, CA 92411 (approximate address)	Southeast of project site	1.8
11	El Rancho Verde Country Club	355 E Country Club Drive Rialto, California 92377	Northeast of project site	1.0
Churches/Houses of Worship				
12	Lutheran Church of the Cross	1308 N. Riverside Ave, Rialto, CA 92376	Southwest of project site	1.2
13	Bethany Presbyterian Church/Zoe Christian Fellowship-RLT (includes child care facility)	1773 N Riverside Avenue Rialto, CA, 92376	Southwest of project site	0.7
14	Blessed John XVIII Catholic Community Church	222 E Easton Street Rialto, CA 92376	West of project site	0.5
15	Crosspoint Community Church	1645 N Acacia Avenue Rialto, CA 92376	Southwest of project site	0.5
16	Church of Christ – Eleventh Street	1684 W 11th Street San Bernardino, CA 92411	Southeast of project site	1.7
17	Sixteenth Street Seventh Day Adventist Church	1601 W 16th Street San Bernardino, CA 92411	Southeast of project site	1.5
18	Kingdom Interdenominational Community Church	2171 W Lincoln Avenue San Bernardino, CA 92411	East of project site	0.6
19	Di Bi Quan Am Temple	2138 W Lincoln Avenue San Bernardino, CA 92411	East of project site	0.6
Libraries				
20	Muscoy Baker Family Learning Center	2818 Macy Street Muscoy, CA 92407	Northeast of project site	1.0
NA	Carter Branch Library	2630 N. Linden Avenue Rialto, CA 91710	Northwest of project site	2.5
NA	Rialto Branch Library	251 West 1 st Street Rialto, CA 92376	Southwest of project site	2.7
Source: ICF 2014; ESRI StreetMap North America (2010); Google Earth Pro (2/19/2014) NA = Outside mapped area; 2.5 and 2.7 miles from project site.				

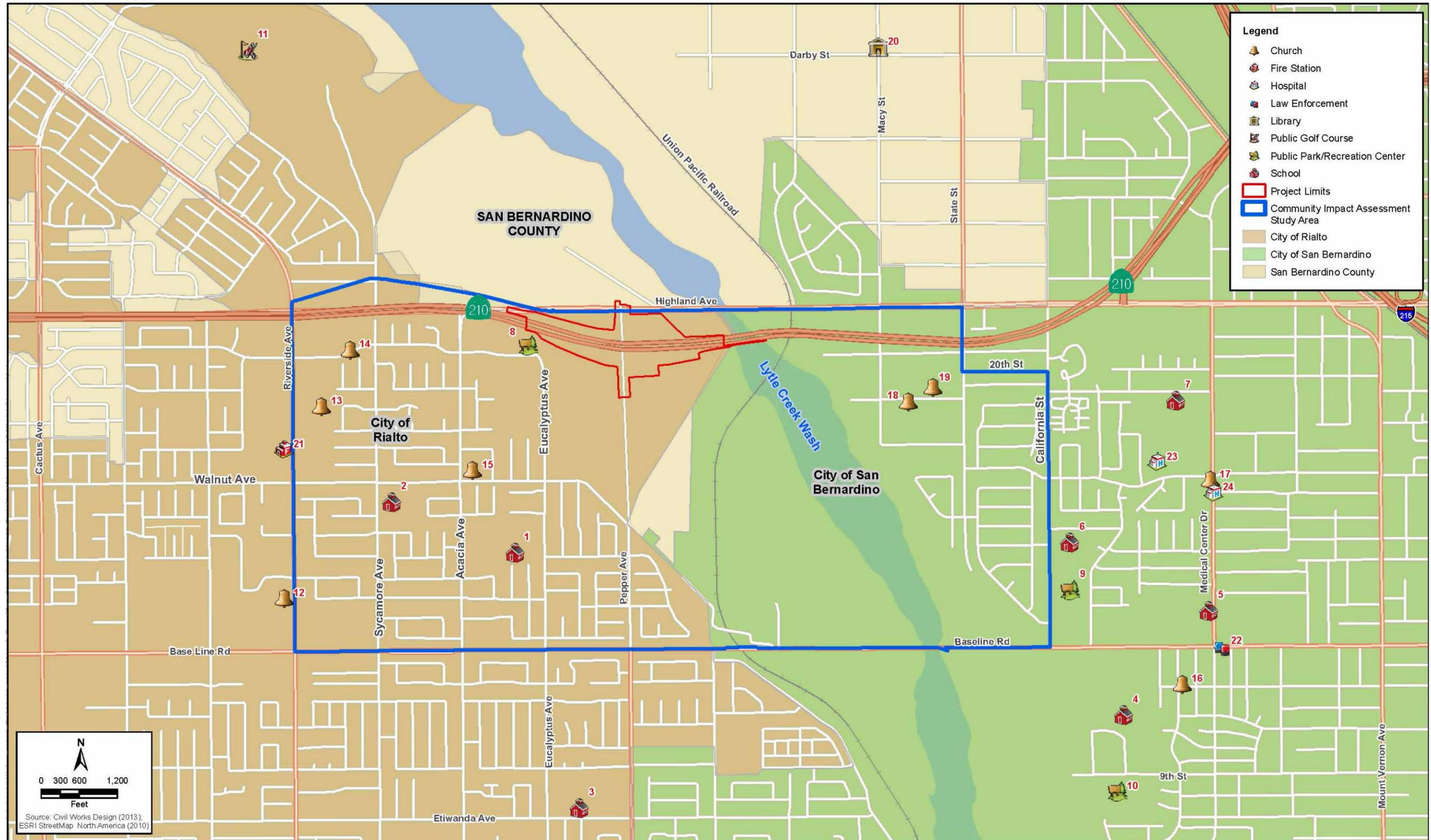


Figure 2-4
Locations of Community Facilities and Emergency Service Providers

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ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Population and Housing

Alternative 1 (Build Alternative) would not change demographics in the study area, as neither residents nor businesses would be displaced. Therefore, no direct or reasonably foreseeable indirect impacts to local demographics would occur.

Alternative 1 (Build Alternative) would occur primarily within the SR-210 right of way and would not result in the relocation of any adjacent uses or the displacement of any housing units. It would increase accessibility between SR-210 and the area south of the project site, which is currently undeveloped, except for some utility uses. This area is designated for residential development in the City of Rialto General Plan. Property values are not expected to change as a result of this alternative; however, some benefit may result from improved access to a regional transportation corridor. Alternative 1 (Build Alternative) would have no adverse effects on housing in the project area.

Community Character and Cohesion

The majority of the study area inhabitants are Hispanic/Latino (approximately 56%); approximately 31% are Black or African American. Both groups are more highly concentrated in each of the study area census tracts than they are in the County overall. Alternative 1 (Build Alternative) would occur almost entirely within the existing SR-210 right of way and would not displace any residents, businesses, or community resources. Alternative 1 (Build Alternative) would be located near a portion of the northeastern limits of the City of Rialto, in immediate proximity to Lytle Creek, which itself is a physical barrier to travel between long established residential areas and businesses located to the east and west of this substantial natural feature. This alternative would not create additional barriers, and actually instead would contribute to improved access and circulation.

Community Facilities and Services

Alternative 1 (Build Alternative) would be located primarily within the existing SR-210 right of way, and would therefore not remove access either temporarily or permanently to any community facilities. In addition, no community facilities would be displaced. The closest community facility is Frisbie Park, which is adjacent to the location of the proposed EB off-ramp from SR-210. The ramp, however, would be entirely within the SR-210 right of way and would have no adverse effect on the park. Although the EB off-ramp of the proposed interchange would be immediately adjacent to Frisbie Park, Alternative 1 (Build Alternative) would not involve the acquisition of any part of the park because the ramp is proposed entirely within the SR-210 right of way. No disruption to park activities would occur during construction, and construction would not prevent access to the park. A detailed discussion of noise and air quality impacts to Frisbie Park are included in Section 2.1 (Parks and Recreation). Once constructed, the new interchange facility and resulting changes in local traffic circulation are not anticipated to affect Frisbie Park access. Currently, access to Frisbie Park is obtained on Easton Street, via Acacia Avenue or Eucalyptus Avenue. Pepper Avenue and Highland Avenue, the immediate connecting roadways

to the proposed interchange, would not provide direct access to the park, or to Acacia Avenue or Eucalyptus Avenue; therefore, Alternative 1 (Build Alternative) would not result in changes to current routes used to access the park.

During construction, occasional/temporary impacts to local traffic circulation may occur; however, implementation of measure **TRAF-1**, which requires a Traffic Management Plan (TMP) be prepared that informs the community about project construction activities and maintains access to and from the project area during construction, is expected to satisfactorily avoid or minimize potential impacts to access to and from community facilities. Refer to Page 2-69 in Section 2.5, for minimization measure **TRAF-1**.

Alternative 1 (Build Alternative) would not result in an increase in population, and thus would not increase demand for community services. No community facilities would be acquired or displaced and therefore, there would be no new demand for community facilities and services. The proposed project would not induce growth or increase population in the study area or the greater community. Once constructed, Alternative 1 (Build Alternative) would not have an impact on existing services, with the exception that these improvements may result in improved emergency response times for emergency response vehicles.

Alternative 2 (No-Build Alternative)

Alternative 2 (No-Build Alternative) would not change demographics in the study area, as neither residents nor businesses would be displaced. Therefore, no direct or reasonably foreseeable indirect impacts to local demographics would occur. This alternative would not result in the relocation of any adjacent uses or the displacement of any housing units.

Under Alternative 2 (No-Build Alternative), community character and cohesion would not be affected. This alternative would not result in impacts to community facilities, nor would it result in an increase in demand for community services.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Minimization measure **AQ-1** on Page 2-135 in Section 2.13 will be implemented to address potential air quality impacts to the entire project area; minimization measure **NOI-1** on Page 2-149 in Section 2.14 will be implemented to address potential noise impacts to the entire project area; and minimization measure **PRF-1** on Page 2-26 in Section 2.3 will be implemented to address potential impacts to Frisbie Park.

RELOCATIONS AND REAL PROPERTY ACQUISITION

REGULATORY SETTING

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

administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code [USC] 2000d, et seq.). Please see Appendix C for a copy of the Department’s Title VI Policy Statement.

AFFECTED ENVIRONMENT

The key source of information used in this section is the April 2014 *Community Impact Assessment*.

The Resource Study Area for the evaluation of acquisitions and displacements is the study area (which is bounded by Highland Avenue to the north [beyond which are physical barriers to development]; Riverside Avenue to the west; California Street to the east; and Base Line Road to the south). The proposed project area is located within the SR-210 right of way and above the Lytle Creek alluvial floodplain. The areas located immediately north and south of SR-210 are undeveloped open space.

ENVIRONMENTAL CONSEQUENCES

Alternative 1 (Build Alternative)

Table 2-9 identifies the acquisitions that are anticipated under Alternative 1 (Build Alternative). The project would require a total of approximately 1.52 acres of permanent right of way acquisition and approximately 0.6 acre of temporary construction easements.

Table 2-9. Potential Property Acquisitions

Parcel No.	Full or Partial Acquisition	Amount (acres)	Zoning/Land Use Designation
Permanent Acquisitions			
0264-191-11	Partial	0.23	Commercial-Manufacturing (C-M)
0264-191-02 or 0264-191-04	Partial	1.29	Single Family Residential (R-1A)
Total		1.52	
Temporary Construction Easements			
0264-191-10	Partial	0.08	Commercial-Manufacturing (C-M)
0264-191-11	Partial	0.17	Commercial-Manufacturing (C-M)
0264-191-02	Partial	0.23	Single Family Residential (R-1A)
0264-191-04	Partial	0.13	Single Family Residential (R-1A)
Total		0.62 ^a	
^a Actual total Temporary Construction Easement area is 0.615 acre. Source: VA Consulting, Inc. November 12, 2013; SANBAG Land Use (2011); City of Rialto (Zoning Map, July 2013).			

The project would require a total of approximately 1.52 acres of permanent right of way acquisition, and approximately 0.62 acre of temporary construction easements, on undeveloped land. Actual acreages will be determined during the Plans, Specifications, and Estimates (PS&E) phase of the project. All land proposed for acquisition is currently undeveloped and no residential units or businesses would be displaced. Zoning and land use designations for each parcel are listed in Table 2-9.

Right of way would be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended, and property owners would receive just compensation and fair market value for their property.

Alternative 2 (No-Build Alternative)

Alternative 2 (No-Build Alternative) would not require the acquisition of right of way; therefore, there would be no impact due to relocations or real property acquisition.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization measure, which is standard practice on all Caltrans projects involving real property acquisitions, will be implemented:

- **RRPA-1:** Right of way will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended, and property owners will receive just compensation and fair market value for their property.

ENVIRONMENTAL JUSTICE

REGULATORY SETTING

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2011, this was \$22,250 for a family of four.

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

AFFECTED ENVIRONMENT

As discussed earlier, the study area is composed of the following three census tracts:

- Census Tract 38.01, City of Rialto
- Census Tract 38.04, City of Rialto
- Census Tract 42.01, City of San Bernardino

Census tracts 38.01 and 38.04 are primarily located within the City of Rialto, with small unpopulated portions extending into the unincorporated County's jurisdiction. Census tract 42.01 is located within the City of San Bernardino. Throughout the study area the dominant minority group is Hispanic/Latino individuals, comprising approximately 55.6% of the study area population which is high when compared to the county, low when compared to the City of Rialto, and similar to that of the City of San Bernardino. As a whole, the study area has a higher overall minority population (non-white) than that of either City or the County (see Table 2-4 on

Page 2-33 for race/ethnicity data). With respect to income, Census data suggests that median household income in the study area is not as high as it is for the County of San Bernardino overall (see Table 2-10, below).

The Rialto portion of the study area (Census Tracts 38.01 and 38.04) demonstrated lower proportions of Hispanic/Latino individuals as compared to the City as a whole, yet higher when compared to the County. Overall, the minority population within the Rialto portion of the study area is slightly higher than that of City, and substantially higher than that of the County.

In terms of income, the population within the Rialto portion of the study area displays lower prevalence of poverty (5.4 and 13.4%, respectively) than that of the City (16.1%) or the County (16.0%) (see Table 2-10).

The San Bernardino portion of the study area displays a substantially higher minority population than that of the City as a whole, or the County, due to the relatively high proportion of Black or African American individuals within Census tract 42.01.

In terms of income statistics, the San Bernardino portion of the study area has a high proportion of individuals below the poverty threshold when compared to the County, but comparable to that of the overall City (see Table 2-10).

The high proportion of Black or African American and Hispanic/Latino residents, coupled with indicators that suggest a relatively high level of low-income individuals, suggests that the study area contains environmental justice populations.

Table 2-10: Existing Regional and Local Income Characteristics

Area	Median Household Income (\$)	Total Population for Whom Poverty Status is Determined	Population Below Poverty Threshold	Percentage below Poverty Threshold
County of San Bernardino	55,853	1,977,432	317,059	16.0%
City of Rialto	50,452	98,699	15,892	16.1%
City of San Bernardino	40,161	205,585	58,703	28.6%
Census Tract 38.01	50,938	4,239	231	5.4%
Census Tract 38.04	64,458	5,472	732	13.4%
Census Tract 42.01	33,721	6,614	1,829	27.7%
* The study area for the purposes of this chapter comprises the three census tracts that are adjacent to the proposed project (see Figure 2-3 on Page 2-31). Source: 2010 Income Characteristics. U.S. Census Bureau, 2007–2011 American Community Survey, Table S2501 (2013).				

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Minority groups and economic indicators suggest low income populations are present within the study area; therefore, environmental justice populations are considered to be present.

Potential effects of a proposed project are typically most likely to be experienced in the area adjacent to and immediately surrounding the location of the project (i.e., for this proposed project

immediately adjacent to or in close proximity to the existing SR-210 right of way). Because of the distance of the proposed project from established neighborhoods (approximately 500 feet from the western limit of the project to the nearest neighborhood), the potential for the proposed project to impact the community is considered to be minimal. During construction, it is possible that there will be some temporary restrictions on traffic movement on Pepper through the Pepper Avenue/Highland Avenue intersection. If any full closures of portions of Highland Avenue or Pepper Avenue are determined to be necessary during construction they would be expected to be of short duration and advance notice would be provided. According to the City of Rialto Fire Department and representatives of the school districts in the Cities of Rialto and San Bernardino, Highland Avenue serves as a secondary option for vehicles traveling east or west and re-routing is possible. Traffic immediately south of the project site on Pepper Avenue may also be temporarily disrupted on occasion during construction, and again information would be provided in advance.

A range of technical studies have been completed to evaluate the potential impacts of the proposed project on the project area. The impacts identified in these technical reports related to the human environment and the measures to avoid or reduce them are summarized below.

Air Quality

As discussed in Section 2.13 (Air Quality), the short-term nature of construction-period air quality impacts would be minimized with implementation of Caltrans' Standard Specifications and compliance with South Coast Air Quality Management District (SCAQMD) Rule 403, which is standard practice on all Caltrans projects. Any potential impacts related to air quality during construction would be minimal of limited duration, and would not be experienced disproportionately with respect to population demographics. In terms of operational impacts, Alternative 1 (Build Alternative) is not expected to result in a new or more severe exceedance of either the national ambient air quality standards (NAAQS) or California ambient air quality standards (CAAQS). Relative to Alternative 2 (No-Build Alternative), Alternative 1 (Build Alternative) would be anticipated to potentially result in lower levels of mobile source air toxic (MSAT) emissions in the immediate area because vehicle miles traveled are expected to be reduced as motorists use more direct travel routes in relation to accessing the regional highway system. It was concluded that project-related MSAT emissions would not pose an adverse risk at any sensitive receptor. (Note: Frisbie Park and the residences west of the project site were the only sensitive receptors identified.)

Noise

With respect to noise, as discussed in Section 2.14, no adverse noise impacts from construction are anticipated because construction of Alternative 1 (Build Alternative) would be conducted in accordance with applicable local noise standards and Caltrans' provisions in Section 14-8.02, Noise Control, of the current Standard Specifications and Special Provisions.

Forecast traffic noise levels for Alternative 1 (Build Alternative) and Alternative 2 (No-Build Alternative) in the design year (2036) would approach or exceed the FHWA/Caltrans noise abatement criterion of 67 dBA for recreational activities at three locations within Frisbie Park. Increases in noise levels between existing and future Alternative 1 (Build Alternative) conditions at the noise sensitive receptors would range from 0 to 2 dBA. An increase of 3 or 4 dBA is considered to be barely perceptible to the human ear; while changes in noise of 1 to 2 dBA are generally not perceptible in typical noisy environments. A single noise barrier (Barrier NB-1)

was evaluated for feasibility based on achievable noise reduction and reasonable cost allowance in the March 2013 Noise Abatement Decision Report (NADR). The total cost allowance, calculated in accordance with Caltrans' Traffic Noise Analysis Protocol, is \$330,000 for a 12-foot wall and \$385,000 for a 14-foot wall. However, the current estimated cost of the 12-foot wall is \$612,000 and for a 14-foot wall is \$714,000. As a result, the walls were found to be not reasonable and noise walls are not proposed as part of the project.

Since no substantial adverse noise impacts would occur as a result of construction and operation of the proposed project, and any increase in noise would be experienced by all demographic groups similarly in the vicinity of noise sources.

Visual Quality

According to the visual analysis performed for the project (see Section 2.6, Visual Quality, for detailed information), no substantial adverse impacts related to visual quality would occur as a result of construction and operation of Alternative 1 (Build Alternative). Visual quality would remain moderate overall; no changes to significant views would occur; and Alternative 1 (Build Alternative) would not contrast significantly with the current visual character of the setting or adversely affect visual quality. In addition, all minor short-term disruptions to the visual setting resulting from excavation and construction activities would be readily addressed through the implementation of standard SANBAG/Caltrans BMPs. Since the same changes to the visual setting would be experienced by all populations within the study area irrespective of race, ethnicity, or income, there would not be a disproportionately high and adverse impact on environmental justice populations.

Water Quality

Given the limited scale of the proposed project, construction and operation is not expected to contaminate water supplies (see Section 2.9, Water Quality, for detailed information). As part of the project, BMPs would be incorporated, including the installation of new water quality control features. To the fullest extent practicable, BMPs would be designed to convey both stormwater and peak flows. Since no substantial adverse impacts related to water quality would occur as a result of construction and operation of Alternative 1 (Build Alternative). As the same minimal potential for impacts to water quality would be experienced by all populations, irrespective of race, ethnicity, or income, there would not be a disproportionately high and adverse impact on environmental justice populations.

Traffic/Transportation

The project would benefit a large and diverse population, particularly motorists, including residents and businesses. These groups could access SR-210 directly at the proposed interchange, rather than use existing interchanges that are more likely to be congested.

As discussed in Section 2.5 (Traffic/Transportation), traffic volumes would be lower, compared with Alternative 2 (No-Build Alternative), at four of the seven intersections studied for Alternative 1 (Build Alternative) during both the opening year (2016) and horizon year (2036). Two of the three intersections that would have higher traffic volumes under Alternative 1 (Build Alternative) would be constructed by the project and, therefore, would be higher by default. Volumes at the third intersection would be higher because of the increased connectedness of the

roadway network offered by the project. Therefore, Alternative 1 (Build Alternative) is expected to improve conditions for vehicular traffic. With respect to non-motorized transportation, Alternative 1 (Build Alternative) would include sidewalks on either side of the Pepper Avenue segment to accommodate pedestrian traffic. Separated bicycle facilities would not be created under Alternative 1 (Build Alternative), but cyclists would be able to travel along Pepper Avenue following the completion of construction.

Implementation of Alternative 1 (Build Alternative) would improve the connectedness of the roadway network for all users of the transportation system, regardless of income or ethnicity. Therefore, the benefits of the project would not accrue to only the highest earners but to the population generally.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above discussion and analysis, Alternative 1 (Build Alternative) and Alternative 2 (No-Build Alternative) will not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.

2.4 Utilities/Emergency Services

AFFECTED ENVIRONMENT

Utilities

Information used in this section is based upon the April 2014 *Community Impact Assessment*.

According to coordination with the various utility operators, there are several utilities in the project area. The following utilities have been identified within the project limits:

- Overhead AT&T telecommunications line, also on SCE power pole, crosses Highland Avenue at Pepper Avenue;
- Underground SCE power line runs along the west side of Pepper Avenue in a joint trench with the underground AT&T telephone line;
- Underground AT&T telephone line runs along the length of the proposed Pepper Avenue right of way in a joint trench with the underground SCE power line;
- Underground Southern California Gas Company gas line runs along the northbound side of Pepper Avenue;
- Underground Southern California Gas Company gas line runs along the west side of Highland Avenue; and
- West Valley Water District (WVWD) 16-inch diameter water line runs along the west side of Pepper Avenue.

In addition, a WVWD 12-inch diameter abandoned water line on the east side of Pepper Avenue was not located, and a 30-inch diameter water line under Pepper Avenue is also proposed by WVWD.

Emergency Services

The nearest fire station (Fire Station No. 202) to the proposed project site is located approximately one mile to the west on Riverside Avenue. The nearest police station with primary jurisdiction (City of Rialto Police Department) is more than 3.5 miles southwest of the project site. Both the California Highway Patrol and San Bernardino Police Department have facilities two miles to the east and southeast of the project site, respectively, and are capable of responding to emergencies. Other emergency service providers within the study area are shown in Table 2-11 on the following page and Figure 2-4 on page 2-39.

Table 2-11. Emergency Services in the Vicinity of the Project Site

Map ID	Facility	Address	Location Relative to Project Site	Distance in Miles from Proposed Project
Emergency Services				
21	Rialto Fire Station No. 202	1700 N Riverside Avenue Rialto, CA 92376	West of project site	0.9
22	San Bernardino Police Department Station	1584 W Baseline Street, #106 San Bernardino, CA 92411	Southeast of project site	1.7
Hospitals				
23	Ballard Rehabilitation Hospital	1760 W 16th Street San Bernardino, CA 92411	Southeast of project site	1.3
24	Community Hospital of San Bernardino	1805 N Medical Center Drive San Bernardino, CA 92411	East of project site	1.5
Sources: ESRI StreetMap North America (2010); Google Earth Pro (2/20/2014)				

In addition to City of Rialto Fire Station No. 202, San Bernardino County Fire Department serves regional fire and emergency medical service needs within unincorporated areas of the study area, and has numerous automatic and mutual aid agreements with local, state and federal jurisdictions for use and assignment of resources in the event of major emergencies.⁹ SR-210 is identified as a wildfire evacuation route for mountain communities located along SR-18, SR-330, and I-215 within San Bernardino County.¹⁰ While the project site itself is not identified as within an area of high wildfire danger, areas north of the project site are classified as a Very High Fire Hazards Severity Zone.¹¹

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Utilities

Under Alternative 1 (Build Alternative), the AT&T overhead telephone lines on the SCE power pole and the underground telephone lines would be abandoned. The underground SCE line would be relocated as the roadbed will be lower than existing ground to provide adequate vertical clearance beneath the SR-210 undercrossing bridges due to the proposed profile for Pepper Avenue. The 6-inch Southern California Gas line on the westbound side of Highland Avenue would be protected in place and no impact would occur. The existing 16-inch diameter WVWD water line is expected to be protected in place, but a fire hydrant is anticipated to require relocation. The proposed WVWD 30-inch water line below Pepper Avenue would likely require plan modification prior to construction. WVWD is currently evaluating plans to its facilities. While utility relocation(s) are anticipated, limited or no service interruptions are expected.

Final determinations of impacts to utilities and relocation requirements will be completed following completion and approval of the Final Environmental Document for this Project, during

⁹ County of San Bernardino. *2007 General Plan Program Final Environmental Impact Report*. February 2007. P. IV-78.

¹⁰ Mountain Area Safety Task Force Publication, *Mountain Area Emergency Routes*. July 15, 2003.

¹¹ City of Rialto. *City of Rialto General Plan Update Environmental Impact Report*. March 2010. Exhibit 4.7.2.

the Final Design phase. Utility companies typically do not approve such relocations until the Final Design phase of the Project, and there is the potential that relocations and resulting impacts could vary. If in conjunction with reviewing the planned approach to ultimate utility relocations, it is determined that additional environmental impacts beyond those identified in the Final Environmental Document and/or supporting Technical Studies could result, then additional environmental analysis would be performed as required and any additional measures determined to be necessary in this regard would be implemented. The current analysis is based upon engineering efforts to-date.

Emergency Services

Alternative 1 (Build Alternative) would not conflict with emergency services. Short term lane closures along Highland Avenue and shoulder closures along SR-210 would be required. In addition, the right lane on SR-210 may need to be closed during construction of the ramps. These closures would be temporary and would not result in Highland Avenue or SR-210 being entirely closed to traffic. Because emergency service providers occasionally use Highland Avenue when responding to inter-jurisdictional calls, a lane for emergency vehicles would be maintained. With the exception of the new Pepper Avenue Extension, no other roads are immediately south of the project site; therefore, full road closures are not expected to occur south of the project. Temporary, partial lane and/or shoulder closures along Pepper Avenue may be required; continuous traffic flow along Pepper Avenue is expected to be maintained throughout construction. These closures would be included in the TMP that is prepared (see measure **TRAF-1** on Page 2-69 in Section 2.5) and coordinated with a public information program during construction. The Traffic Management Plan would be prepared and coordinated with emergency services providers. Standard measure **TRAF-1** will ensure that substantial delays to emergency service providers would not occur during construction.

Following construction, emergency service providers would access the project area via the same roadway network used by other vehicles. The project site would be within one mile of Fire Station No. 202, which is a reasonable distance for the timely provision of services. The nearest police station with primary jurisdiction within the City of Rialto is more than 3.5 miles by road from the project site, but the City of San Bernardino and California Highway Patrol each have facilities located approximately two miles to the east. Upon completion of construction, emergency services would experience improved access and circulation because a new connection from SR-210 to the new Pepper Avenue would afford a more direct route for emergency responders to areas along eastern Rialto. Impacts on emergency services would not be adverse.

While areas north of the project site are classified as a Very High Fire Hazards Severity Zone, Alternative 1 (Build Alternative) would not create nor contribute to conditions that would necessitate an increase in public fire or police protection (i.e., accidents), or induce population growth in the area beyond that which has been previously planned; therefore, Alternative 1 (Build Alternative) would not cause an increase in the demand for public police or fire protection.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

No impacts to utilities and emergency services would occur under Alternative 2 (No-Build Alternative).

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Minimization measure **TRAF-1** in Section 2.5 (see Page 2-69), which is standard practice on all Caltrans projects, shall be implemented to prevent unreasonable traffic delays and short-term impacts to emergency access. The following minimization measures, which are standard practice on all Caltrans projects, would ensure that impacts related to utilities do not occur.

- **UT-1** A thorough investigation of existing utilities will be performed, as well as identification of any required future utilities, to determine the appropriate steps for protection-in-place, relocation, and utility openings as needed. Additional environmental analysis will be completed and measures implemented, to avoid or minimize impacts.
- **UT-2** Any utility relocation work determined to be necessary will include coordination with affected utility companies, to avoid any service disruptions, if at all possible, or minimize the impacts of any disruptions that cannot be avoided.

2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

REGULATORY SETTING

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

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally-assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

AFFECTED ENVIRONMENT

Information used in this section is based upon the March 2012 *State Route 210/Pepper Avenue Traffic Impact Analysis (TIA)* and the August 2013 *State Route 210/Pepper Avenue Supplemental Traffic Impact Analysis (STIA)*.

Roadway capacity is generally determined by the number of vehicles that can reasonably pass over a given section of roadway in a given period of time. The Highway Capacity Manual, prepared by the National Transportation Research Board, identifies travel speed, freedom to maneuver, and proximity to other vehicles as important factors in determining the Level of Service (LOS) on a roadway. The ability of a highway to accommodate traffic is typically measured in terms of LOS. Traffic flow is classified by LOS, ranging from LOS A (free-flow traffic with low volumes and high speeds) to LOS F (traffic volume exceeds design capacity with forced flow and substantial delays). Daily traffic volumes are used to estimate the extent to which peak hour traffic volumes equal or exceed the maximum desirable capacity of a roadway. The LOS for signalized intersections is shown in Figure 1-3 on Page 1-9, and LOS for unsignalized intersections is shown in Figure 1-4 on Page 1-10.

METHODOLOGY

The traffic study evaluated two alternatives; Alternative 1 (Build Alternative) and Alternative 2 (No-Build Alternative) scenarios. Traffic forecasts were prepared for AM and PM peak hour and Average Daily Traffic (ADT) conditions. Traffic analyses were conducted for baseline conditions (2011), opening day conditions (2016), and design horizon year conditions (2036).

The proposed project would add a new tight diamond interchange at SR-210 and Pepper Avenue. For purposes of the traffic analysis, the study area consisted of the SR-210 freeway from

Riverside Avenue to State Street/University Parkway, and included the existing ramps and intersections associated with those interchanges as well as the ramps and intersections that would be constructed in conjunction with the proposed project, defined as the widening of Pepper Avenue from south of the SR-210 freeway to Highland Avenue (approximately 1,300 feet), and the construction of eastbound (EB) and westbound (WB) freeway on-ramps from and off-ramps to Pepper Avenue, as identified in the March 2012 *Traffic Impact Analysis (TIA)*. The August 2013 *Supplemental Traffic Impact Analysis (STIA)* also accounted for traffic on Pepper Avenue based upon the completion of the City of Rialto's Pepper Avenue projects.

Turning movement counts were taken at four existing intersections on April 26, 2011 from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM. Daily (24-hour) counts were also taken on Riverside Avenue (just south of SR-210), Highland Avenue (at the approximate location of the future Pepper Avenue intersection) and on State Street (north of Highland Avenue). Ramp approach and departure volumes obtained from the counts were balanced according to methodology contained in Chapter 4 of the Federal Highway Administration's *Traffic Monitoring Guide of 2001*. The turning movement counts were adjusted to reflect the balanced ramp volumes, as well as Passenger Car Equivalents (PCE).

EXISTING CONDITIONS

In the study area, SR-210 has three EB general purpose lanes, an EB high occupancy vehicle (HOV) lane, a WB HOV lane, and three WB general purpose lanes. In 2010, SR-210 carried an average annual daily traffic (AADT) volume of 102,500 vehicles west of the Riverside Avenue interchange.

As identified in the March 2012 *TIA* and the August 2013 *STIA*, the following roadways were evaluated:

- Pepper Avenue travels north and south and terminates approximately one-half mile south of SR-210; a two-lane northern extension through the proposed Pepper Avenue interchange location is currently under construction.
- Highland Avenue is a four-lane divided roadway that travels east and west, parallel to and north of SR-210.
- Riverside Avenue is a four-lane divided roadway that runs north and south.
- State Street/University Parkway is a two-lane undivided roadway that travels north and south.

Existing Lane Geometry and Traffic Volumes

Existing roadway and study intersection geometry are shown in Figure 2-5. Year 2011 AM peak hour turning movement volumes are shown in Figure 2-6, and the Opening Year (2016) PM peak hour turning movement volumes are shown in Figure 2-7. Volumes on the freeway and ramps are presented in Table 2-12 on Page 2-58.

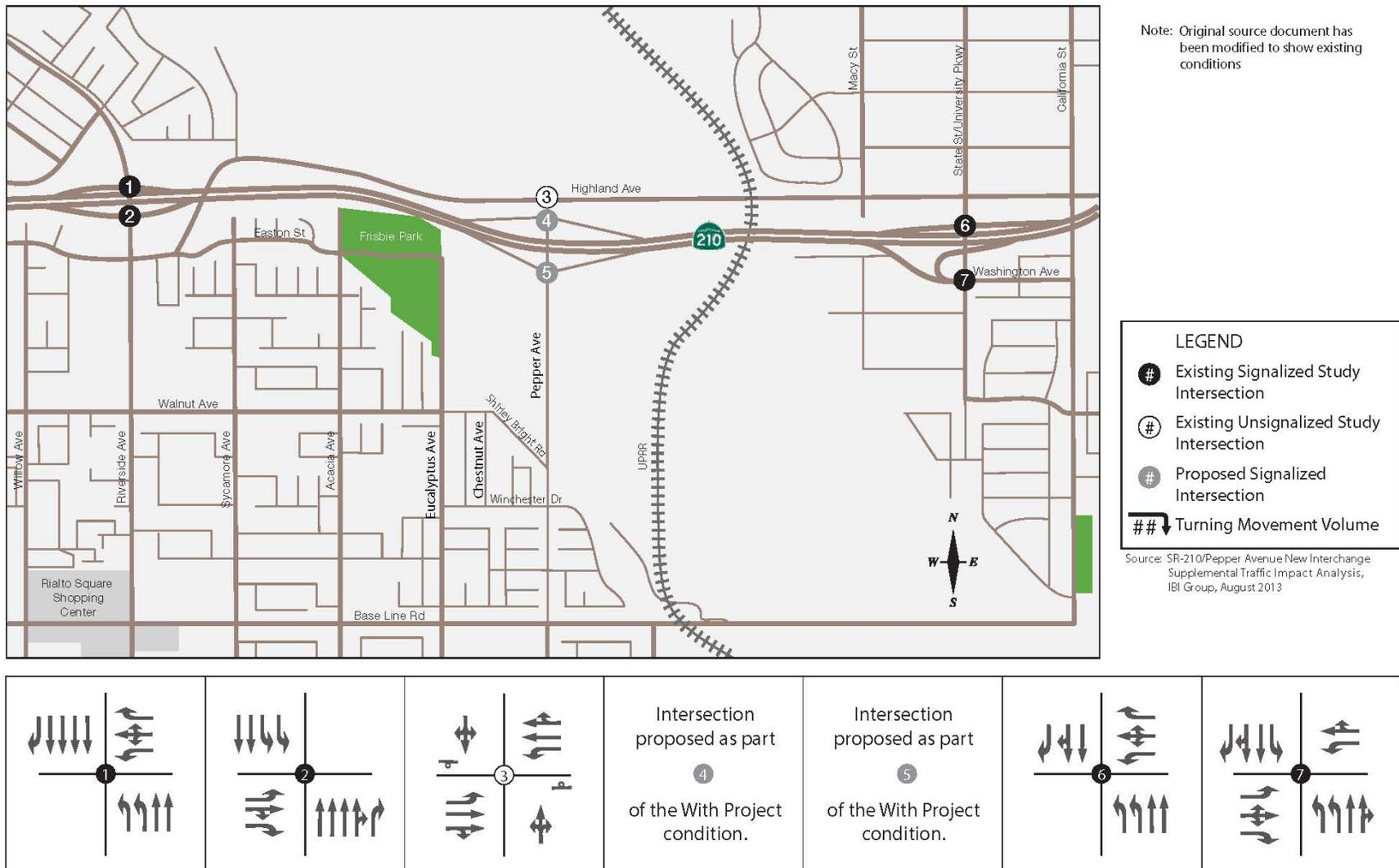
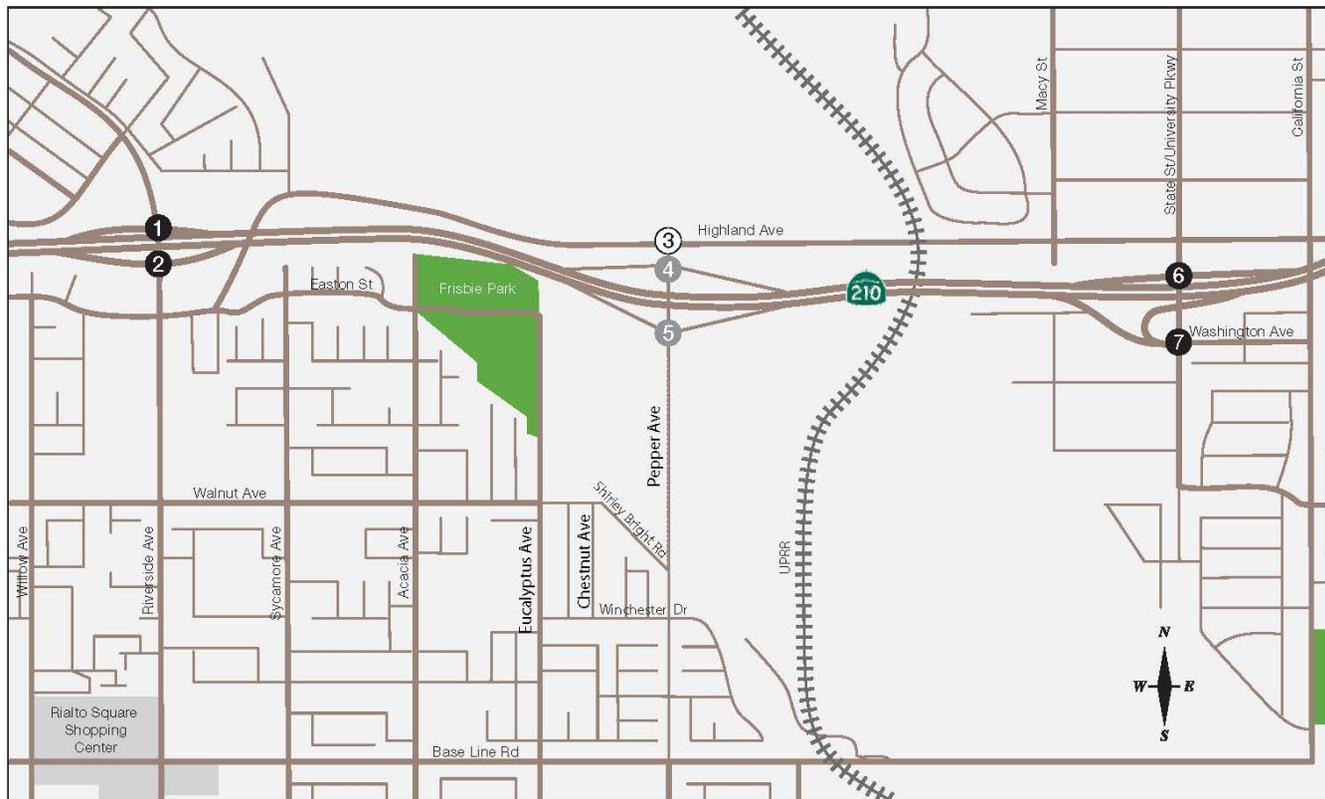
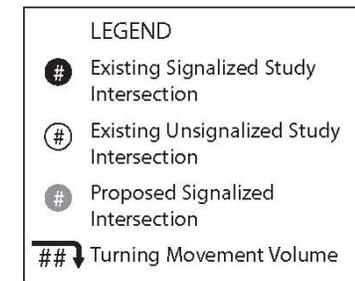


Figure 2-5
Existing (2011) Roadway and Study Area Geometry



Note: Original source document has been modified to show existing conditions. Volumes shown are passenger car equivalent (PCE) volumes. Truck percentages were obtained from the traffic counts. The following factors have been applied to each class of vehicle:

- Class 2 – 1.5
- Class 3 – 2.0
- Class 4+ – 3.0



Source: SR-210/Pepper Avenue New Interchange Supplemental Traffic Impact Analysis, IBI Group, August 2013

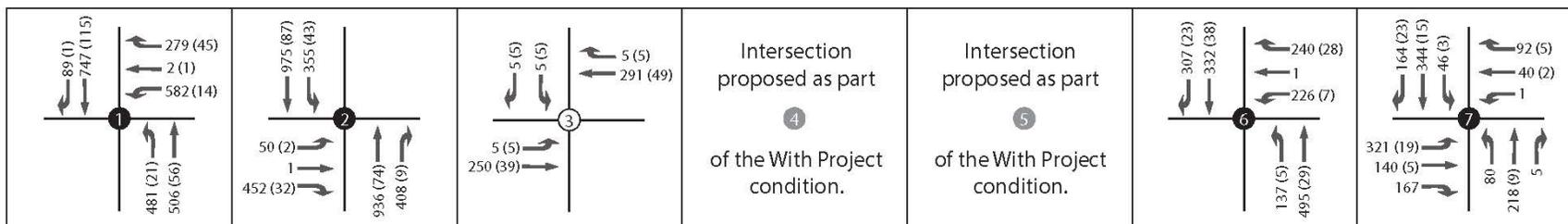


Figure 2-6
AM Peak Hour (2011) Turning Movements

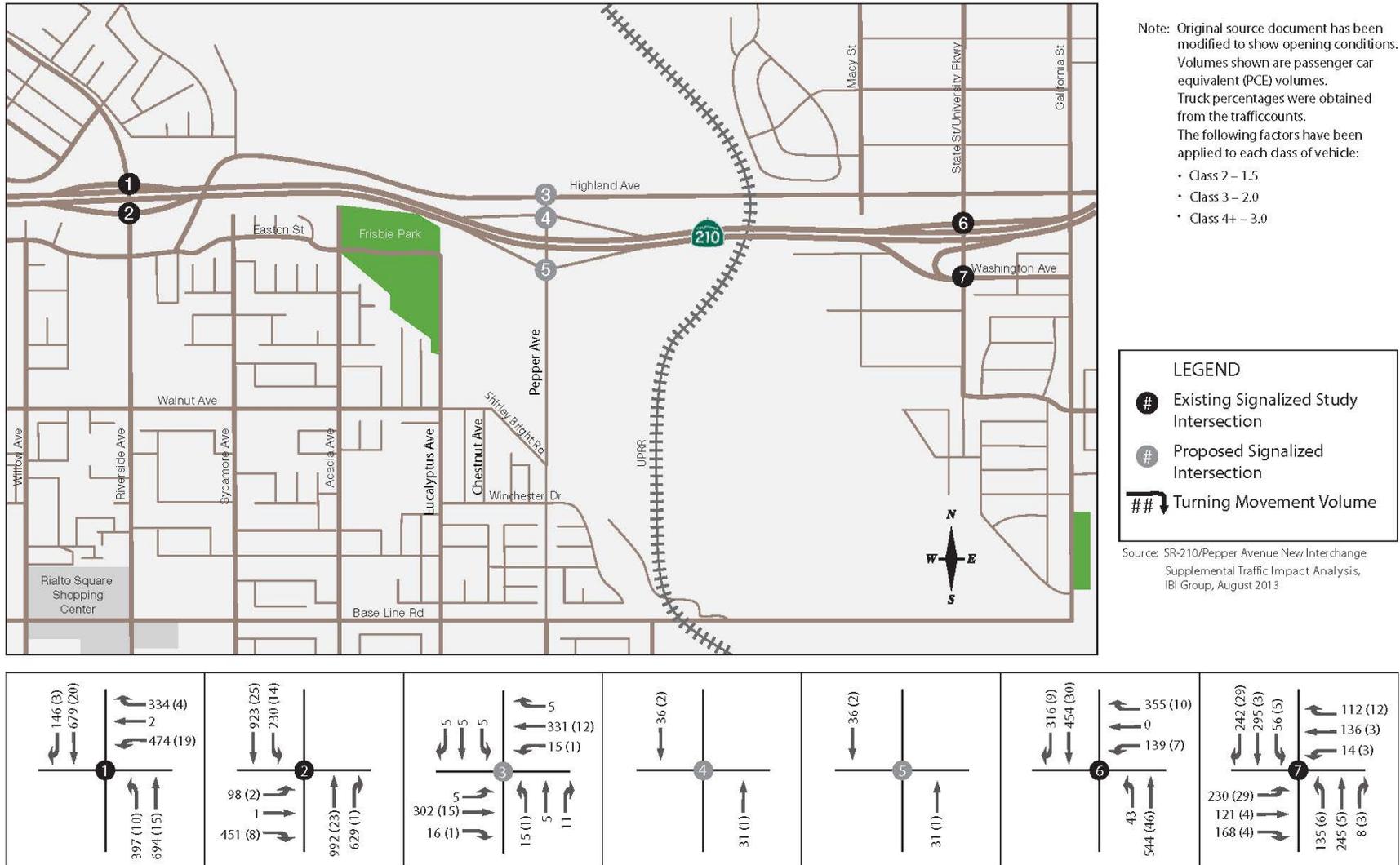


Figure 2-7
PM Peak Hour (2016) Alternative 2 (No-Build) Turning Movements

Table 2-12. Baseline Year Freeway and Ramp Volumes

Direction	Mainline East of State	Ramps		Mainline State-Pepper	Ramps		Mainline Pepper-Riverside	Ramps		Mainline West of Riverside
		Off State	On State		Off Pepper	On Pepper		Off Riverside	On Riverside	
AM Peak Hour										
Westbound	3,315	432	417	3,300	ramps currently do not exist		3,300	803	549	3,046
Eastbound	3,175	354	368	3,161			3,161	469	712	2,918
PM Peak Hour										
Westbound	3,456	333	317	3,440	ramps currently do not exist		3,440	731	467	3,176
Eastbound	4,364	267	557	4,344			4,344	512	846	4,010
Note: Volumes are in vehicles per hour Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>										

Intersection Level of Service

A summary of the AM and PM peak hour LOS analysis results for the Baseline Year (2011) conditions are included in Table 2-13. All existing study intersections currently operate at LOS B or above during both peak hour periods.

Table 2-13. Baseline Year Levels of Service

No.	Intersection	Signal	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
1	Riverside Avenue and SR-210 WB Ramps	Signalized	18.4	B	13.9	B
2	Riverside Avenue and SR-210 EB Ramps	Signalized	15.9	B	13.0	B
3	Pepper Avenue and Highland Avenue	Unsignalized	0.3 ¹	A	0.2	A
4	Pepper Avenue and SR-210 WB Ramps	Signalized	Ramps currently do not exist			
5	Pepper Avenue and SR-210 EB Ramps	Signalized				
6	State Street and SR-210 WB Ramps	Signalized	11.3	B	11.3	B
7	State Street and SR-210 EB Ramps	Signalized	18.5	B	20.6	B
¹ Intersection did not exist at the time turning movement counts were collected in 2011; baseline traffic information based on AM and PM counts at the approximate location of the future Pepper Avenue intersection with Highland Avenue. New intersection anticipated to be complete May 2014. Levels of Service (LOS) describe the operating conditions a motorist would experience while traveling on a highway or surface streets. This rating system ranges from "A" to "F" with "A" being free-flowing traffic and "F" being traffic with heavy congestion and considerable delays (see Figures 1-3 and 1-4 for an illustration of level of service). WB = Westbound EB = Eastbound Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>						

Queuing Analysis

A queuing analysis was performed of study facilities with limited storage capacity, such as freeway off-ramps, turn pockets, and approaches between closely-spaced intersections. Synchro, a special software, was used to estimate the 50th percentile and 95th percentile queue lengths (or line lengths) during AM and PM peak hours. The 95th percentile queue length is the longest queue expected on a facility under normal operating conditions. At least 95% of the time a queue shorter than the 95th percentile queue length would be expected.

The queues of the following facilities were analyzed.

- Intersection No. 1 (westbound SR-210 ramps and Riverside Avenue)
- Intersection No. 2 (eastbound SR-210 ramps and Riverside Avenue)
- Intersection No. 3 (Highland Avenue and Pepper Avenue)
- Intersection No. 4 (westbound SR-210 ramps and Pepper Avenue)
- Intersection No. 5 (eastbound SR-210 ramps and Pepper Avenue)
- Intersection No. 6 (westbound SR-210 ramps and State Street/University Avenue)
- Intersection No. 7 (eastbound SR-210 ramps and State Street/University Avenue)

All ramps have sufficient capacity to accommodate existing (2011) demand.

Ramp Analysis

The freeway ramp analysis was prepared using the HCS2010 software package. All freeway ramps currently operate at LOS A during both the AM and PM peak hour.

Freeway Mainline and HOV Lane Analysis

The freeway mainline analysis was prepared using the HCS2010 software package. SR-210 in the project area currently operates at LOS A during both the AM and PM peak hour.

Volumes on HOV lanes were evaluated consistent with Caltrans HOV Guidelines. These guidelines identify that the desirable minimum level of service is LOS C. The volumes for the Baseline Year (2011) condition on the HOV lane segments were found to meet the criteria for the minimum acceptable LOS.

Weaving Analysis

The weaving analysis for the freeway segments within the study area was performed utilizing the HCS 2010 software package. In the existing condition, the EB weave segment length between the Riverside Avenue on-ramp and the State Street off-ramp is 7,700 feet, and the WB weave segment distance between the State Street on-ramp and the Riverside off-ramp is also 7,700 feet. During peak hour operations, all segments analyzed were determined to operate at acceptable conditions (LOS A).

Traffic Parking

There are currently no designated parking areas along Pepper Avenue and Highland Avenue adjacent to the project site. On-street parking is permitted on Foothill Boulevard, Easton Street, Walnut Avenue, Riverside Avenue, and State Street (south of SR-210 interchange). On-street parking is permitted on nearly all study area roadways occurring within the City of San Bernardino. In addition to the on-street parking, non-residential land uses in the area provide off-street parking.

Bicycle and Pedestrian Facilities

There are no existing or planned bicycle facilities adjacent to the project site. According to the Circulation Chapter of the City of Rialto's 2010 General Plan, the nearest bicycle facility is a

Class III route (signed on-street route with no street striping) on Riverside Avenue, approximately one mile from the project site. Sidewalks included as part of the recently constructed Pepper Avenue Gap Closure and Extension projects provide pedestrian access between Highland Avenue and Shirley Bright Road.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Construction of Alternative 1 (Build Alternative) may require lane closures along Highland Avenue and lane and shoulder closures along SR-210. These closures would be temporary and would not result in Highland Avenue or SR-210 being entirely closed to traffic. Temporary, partial lane and/or shoulder closures along Pepper Avenue may be required. Continuous traffic flow along Pepper Avenue would be maintained throughout construction. A Traffic Management Plan (TMP) will be prepared and approved prior to construction (see measure **TRAF-1** on Page 2-69).

Lane Geometry and Traffic Volumes

Intersection lane geometry assumptions for the Opening Year (2016) and Design Horizon Year (2036) for Alternative 1 (Build Alternative) conditions are shown in Figure 2-8.

Under Alternative 1 (Build Alternative), the SR-210 ramp terminal intersections at Pepper Avenue (No. 4 and No. 5 in Figure 2-8), the SR-210 WB ramps (No. 4 in Figure 2-8), and the SR-210 EB ramps (No. 5 in Figure 2-8) are planned to be constructed and signalized as part of the proposed project. The three intersections on Pepper Avenue would be coordinated under Alternative 1 (Build Alternative).

Freeway and ramp peak hour volumes for the Alternative 1 (Build Alternative), Opening Year (2016) and Design Horizon Year (2036), are shown in Tables 2-14 and 2-15, respectively.

Table 2-14. Opening Year Alternative 1 (Build Alternative) Freeway and Ramp Volumes

Direction	Mainline East of State	Ramps		Mainline State-Pepper	Ramps		Mainline Pepper-Riverside	Ramps		Mainline West of Riverside
		Off State	On State		Off Pepper	On Pepper		Off Riverside	On Riverside	
AM Peak Hour										
Westbound	3,638	452	377	3,523	90	78	3,511	811	523	3,223
Eastbound	3,411	435	385	3,467	81	44	3,504	467	726	3,245
PM Peak Hour										
Westbound	4,005	379	368	3,994	186	70	3,878	750	495	3,623
Eastbound	4,591	421	478	4,534	103	40	4,597	496	864	4,229
Note: Volumes are in vehicles per hour Source: August 2013 Supplemental Traffic Impact Analysis										

Table 2-15. Design Horizon Year Alternative 1 (Build Alternative) Freeway and Ramp Volumes

Direction	Mainline East of State	Ramps		Mainline State-Pepper	Ramps		Mainline Pepper-Riverside	Ramps		Mainline West of Riverside
		Off State	On State		Off Pepper	On Pepper		Off Riverside	On Riverside	
AM Peak Hour										
Westbound	4,928	530	15	4,413	448	389	4,354	847	425	3,932
Eastbound	4,353	719	380	4,692	403	221	4,874	498	820	3,932
PM Peak Hour										
Westbound	6,200	626	387	5,961	773	441	5,629	784	565	5,410
Eastbound	5,499	317	470	5,296	513	202	5,607	362	865	5,104
Note: Volumes are in vehicles per hour Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>										

Intersection Level of Service

The opening Year (2016) AM and PM peak hour LOS results for Alternative 1 (Build Alternative) are summarized in Tables 2-16 and 2-17, respectively. Alternative 2 (No-Build Alternative) is included for comparison. Under Alternative 1 (Build Alternative), some traffic is diverted off of the Riverside Avenue and State Street/University Avenue ramps and onto the Pepper Avenue interchange, which results in improved operations on the existing facilities. All study intersections are forecast to operate at LOS C or better under Alternative 1 (Build Alternative).

Table 2-16. Opening Year LOS Results: AM Peak Hour

No.	Intersection	Signal	Alternative 1 (Build Alternative)		Alternative 2 (No-Build Alternative)		Change in Delay
			Delay (sec)	LOS	Delay (sec)	LOS	
1	Riverside Avenue and SR-210 Westbound Ramps	Signalized	17.8	B	19.5	B	-1.7
2	Riverside Avenue and SR-210 Eastbound Ramps	Signalized	16.0	B	16.1	B	-0.1
3	Pepper Avenue and Highland Avenue	Signalized	15.3	B	9.7	A	5.6
4	Pepper Avenue and SR-210 Westbound Ramps	Signalized	12.4	B	n/a		n/a
5	Pepper Avenue and SR-210 Eastbound Ramps	Signalized	9.3	A	n/a		n/a
6	State Street/University Avenue and SR-210 Westbound Ramps	Signalized	11.1	B	11.4	B	-0.3
7	State Street/University Avenue and SR-210 Eastbound Ramps	Signalized	18.6	B	18.2	B	0.4
Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>							

Table 2-17. Opening Year LOS Results: PM Peak Hour

No.	Intersection	Signal	Alternative 1 (Build Alternative)		Alternative 2 (No-Build Alternative)		Change in Delay
			Delay (sec)	LOS	Delay (sec)	LOS	
1	Riverside Avenue and SR-210 Westbound Ramps	Signalized	14.7	B	15.6	B	-0.9
2	Riverside Avenue and SR-210 Eastbound Ramps	Signalized	13.9	B	14.1	B	-0.2
3	Pepper Avenue and Highland Avenue	Signalized	14.6	B	9.6	A	5.0
4	Pepper Avenue and SR-210 Westbound Ramps	Signalized	15.8	B	n/a		n/a
5	Pepper Avenue and SR-210 Eastbound Ramps	Signalized	10.5	B	n/a		n/a
6	State Street and SR-210 Westbound Ramps	Signalized	11.2	B	11.6	B	-0.4
7	State Street and SR-210 Eastbound Ramps	Signalized	18.5	B	17.4	B	1.1

Source: August 2013 *Supplemental Traffic Impact Analysis*

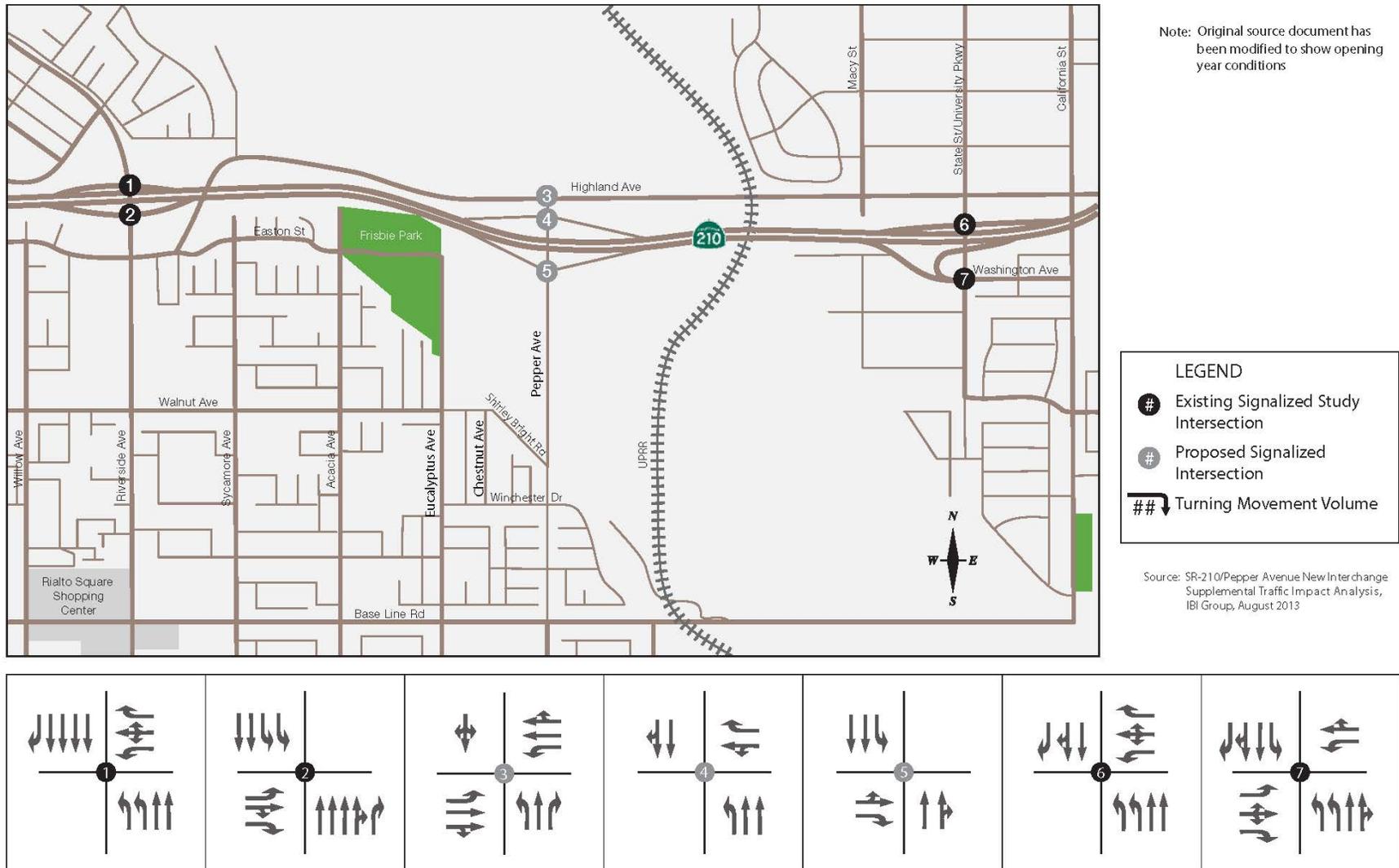


Figure 2-8
Opening Year (2016) and Horizon Year (2036) Alternative 1 (Build Alternative) Geometry

The Design Horizon Year (2036) peak hour LOS analysis results for Alternative 1 (Build Alternative) and Alternative 2 (No-Build) are summarized in Tables 2-18 and 2-19, below. All study intersections are forecast to operate at LOS C or better during all analysis scenarios.

Table 2-18. Design Horizon Year LOS Results: AM Peak Hour

No.	Intersection	Signal	Alternative 1 (Build Alternative)		Alternative 2 (No-Build Alternative)		Change in Delay
			Delay (sec)	LOS	Delay (sec)	LOS	
1	Riverside Avenue and SR-210 Westbound Ramps	Signalized	17.8	B	24.6	C	-6.8
2	Riverside Avenue and SR-210 Eastbound Ramps	Signalized	16.3	B	19.2	B	-2.9
3	Pepper Avenue and Highland Avenue	Signalized	17.9	B	9.2	A	8.7
4	Pepper Avenue and SR-210 Westbound Ramps	Signalized	15.8	B	n/a		n/a
5	Pepper Avenue and SR-210 Eastbound Ramps	Signalized	12.2	B	n/a		n/a
6	State Street/University Avenue and SR-210 Westbound Ramps	Signalized	11.6	B	13.1	B	-1.5
7	State Street/University Avenue and SR-210 Eastbound Ramps	Signalized	16.2	B	15.7	B	0.5

Source: August 2013 Supplemental Traffic Impact Analysis

Table 2-19. Design Horizon Year LOS Results: PM Peak Hour

No.	Intersection	Signal	Alternative 1 (Build Alternative)		Alternative 2 (No-Build Alternative)		Change in Delay
			Delay (sec)	LOS	Delay (sec)	LOS	
1	Riverside Avenue and SR-210 Westbound Ramps	Signalized	14.8	B	26.5	C	-11.7
2	Riverside Avenue and SR-210 Eastbound Ramps	Signalized	15.4	B	20.1	C	-4.7
3	Pepper Avenue and Highland Avenue	Signalized	19.4	B	9.1	A	10.3
4	Pepper Avenue and SR-210 Westbound Ramps	Signalized	19.29	B	n/a		n/a
5	Pepper Avenue and SR-210 Eastbound Ramps	Signalized	16.6	B	n/a		n/a
6	State Street/University Avenue and SR-210 Westbound Ramps	Signalized	14.5	B	15.7	B	-1.2
7	State Street/University Avenue and SR-210 Eastbound Ramps	Signalized	21.3	C	20.7	C	0.6

Source: August 2013 Supplemental Traffic Impact Analysis

Tables 2-18 and 2-19 also provide a comparison of the delays projected to occur at intersection ramp areas under Alternative 1 (Build Alternative) and Alternative 2 (No-Build) in the Design Horizon Year (2036). Alternative 1 (Build Alternative) is anticipated to reduce projected vehicle delays at the Riverside Avenue/SR-210 WB ramps by 27.6% during the AM peak hour, and by 44.2% during the PM peak hour, when compared to Alternative 2 (No-Build) conditions. A

reduction in vehicle delay is also anticipated at the Riverside Avenue/SR-210 EB ramps under Alternative 1 (Build Alternative), with a 15.1% reduction in delay during the AM peak hour, and 23.4% reduction in delay during the PM peak hour. Projected vehicle delays at the State Street/University Parkway and SR-210 EB ramps are anticipated to increase by 3.2% during the AM peak hour, and by 2.9% during the PM peak hour, when compared to Alternative 2 (No-Build). However, under Alternative 1 (Build Alternative), vehicle delays at the State Street/University Parkway and SR-210 WB ramps are anticipated to be reduced by 11.5% during the AM peak hour, and by 7.6% during the PM peak hour, when compared with Alternative 2 (No-Build). These reductions in vehicle delays would allow traffic to flow more efficiently, thereby improving congested conditions at these ramp intersection areas.

The Pepper Avenue and Highland Avenue intersection exhibits increase in vehicle delay under Alternative 1 (Build Alternative) and Alternative 2 (No-Build) in the Design Horizon Year (2036), with greater delays anticipated under Alternative 1 (Build Alternative). This increase in delay under Alternative 1 (Build Alternative) is attributed to the increase in traffic volumes at the new SR-210 ramp intersections with Pepper Avenue.

Queuing Analysis

The storage capacity measurements for the Opening Year (2016) and the Design Horizon Year (2036) are the same. During both peak hours, the longest queue on all existing ramps and turn pockets is forecast to be well below capacity for all movements with the exception of the northbound left turns for Intersection No. 4 (WB SR-210 off-ramp and Pepper Avenue). Based on the analysis the storage capacity for all proposed ramps at the SR-210/Pepper Avenue were reviewed to ensure that the recommended storage is provided to ensure queues do not extend into the adjacent intersections or block adjacent through lanes under worst case conditions. This was accomplished by ensuring that the actual ramp lengths were designed to conform to national, state, and local standards and were at least 100 feet long. Side-by-side left turn pockets between Intersections No. 4 and No. 5 (EB SR-210 off-ramp and Pepper Avenue) are included in the project design and would provide sufficient storage capacity through the Design Horizon Year (2036).

Ramp Analysis

The ramp analysis results for Opening Year (2016) Alternative 1 (Build Alternative) conditions indicate that all freeway ramps would operate at LOS C or better during the AM peak hour and LOS D or better during the PM peak hour. The ramp analysis results for the Design Horizon Year (2036) indicate that all freeway ramps are forecast to operate at LOS D or better during the AM peak hour and LOS E or better during the PM peak hour.

Freeway Mainline and HOV Lane Analysis

SR-210 in the project area is forecast to operate at LOS C or better during the AM peak hour and LOS D or better during the PM peak hour in the Design Horizon Year (2036).

The volumes for Alternative 1 (Build Alternative) Opening Year (2016) and Design Horizon Year (2036) conditions on the HOV lane segments were found to meet the criteria for the minimum acceptable LOS. It is anticipated that HOV access to and from Pepper Avenue

interchange would be provided through existing ingress and egress areas along SR-210; no new or additional ingress or egress locations are planned as part of this project.

Weaving Analysis

During peak hour operations, all segments analyzed for weaving along SR-210 (i.e., Riverside Avenue to Pepper Avenue; Pepper Avenue to State Street/University Avenue; State Street/University Avenue to Pepper Avenue; and Pepper Avenue to State Street/University Avenue) are expected to operate at LOS A or B under Alternative 1 (Build Alternative) for both Opening Year (2016) and Design Horizon Year (2036).

Signal Warrant Analysis

Chapter 4 of the Manual on Uniform Traffic Control Devices (MUTCD) includes criteria to determine if a traffic signal may be warranted at a stop-controlled or uncontrolled intersection. Traffic control may be needed if the criteria for one or more of the traffic signal warrants listed in the MUTCD are met. If none of the warrants are satisfied, then a traffic signal should not be installed. However, the satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic control signal. A signal should not be installed if it will seriously disrupt progressive flow or will not improve overall safety or operation of the intersection.

A peak hour signal warrant calculation for the intersections of Pepper Avenue and Highland Avenue (No. 3 in Figure 2-8), Pepper Avenue and the SR-210 WB ramps (No. 4 in Figure 2-8), and Pepper Avenue and the SR-210 EB ramps (No. 5 in Figure 2-8) was conducted as part of this analysis. Based on the analysis conducted, the intersections meet the criteria for a traffic signal warrant by year 2036 due to ambient traffic growth and forecast project trips. Traffic signals have subsequently been included as part of Alternative 1 (Build Alternative).

Traffic Parking

There is no off-street parking in the project area, nor is there street parking along Pepper Avenue. No parking is proposed as part of Alternative 1 (Build Alternative). Therefore, parking would not be removed or otherwise affected by Alternative 1 (Build Alternative).

Bicycle and Pedestrian Facilities

Because the area immediately surrounding the project site does not contain designated bicycle routes or pedestrian facilities, there would be no impact on such facilities. Alternative 1 (Build Alternative) would provide a 5-foot-wide sidewalk (sidewalks would be 6.5 feet wide under the SR-210 undercrossing) and a 6.5-foot-wide parkway on each side of Pepper Avenue, accommodating pedestrian traffic. The sidewalks and curb cuts would be compliant with ADA requirements. No impacts to pedestrian facilities would result.

Bicycle facilities would not be created as part of the project, but cyclists would be able to travel along the shoulders of Pepper Avenue following the completion of construction. No impacts on bicycle facilities would occur as a result.

Americans with Disabilities Act

Alternative 1 (Build Alternative) would be constructed in compliance with the provisions of the Americans with Disabilities Act (ADA) and would follow the design requirements outlined in Design Information Bulletin (DIB) 82-02. The sidewalks and curb cuts to be constructed on Pepper Avenue would be compliant with ADA requirements.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Lane Geometry and Traffic Volumes

The assumed roadway and intersection configurations for the Opening Year (2016) and Design Horizon Year (2036) conditions for Alternative 2 (No-Build Alternative) are shown in Figure 2-9. The Pepper Avenue extension has been part of the City of Rialto’s General Plan for 20 years; therefore, it is assumed that Pepper Avenue would be extended north and would connect with Highland Avenue by the project Opening Year of 2016. The intersection of Pepper Avenue and Highland Avenue (No. 3 in Figure 2-9) is modeled with a traffic signal included. No additional changes to the existing intersection lane geometry are assumed in the future Alternative 1 (Build Alternative) or Alternative 2 (No-Build Alternative) scenarios.

Freeway and ramp peak hour volumes for Alternative 2 (No-Build Alternative) Opening Year (2016) and Design Horizon Year (2036) are shown in Tables 2-20 and 2-21, respectively.

Table 2-20. Opening Year No-Build Freeway and Ramp Volumes

Direction	Mainline East of State	Ramps		Mainline State/ University-Riverside	Ramps		Ramps		Mainline West of Riverside
		Off State	On State		Off Pepper	On Pepper	Off Riverside	On Riverside	
AM Peak Hour									
Westbound	3,638	486	359	3,511	0	0	842	554	3,223
Eastbound	3,411	457	401	3,467	0	0	502	748	3,245
PM Peak Hour									
Westbound	4,005	477	350	3,878	0	0	787	532	3,623
Eastbound	4,591	451	508	4,534	0	0	541	846	4,229
Note: Volumes are in vehicles per hour Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>									

Table 2-21. Design Horizon Year No-Build Freeway and Ramp Volumes

Direction	Mainline East of State	Ramps		Mainline State/ University-Riverside	Ramps		Ramps		Mainline West of Riverside
		Off State	On State		Off Pepper	On Pepper	Off Riverside	On Riverside	
AM Peak Hour									
Westbound	4,928	710	136	4,354	0	0	1,003	581	3,932
Eastbound	4,353	805	466	4,692	0	0	673	813	4,552
PM Peak Hour									
Westbound	6,200	1,003	430	5,629	0	0	963	744	5,410
Eastbound	5,499	453	656	5,296	0	0	579	771	5,104
Note: Volumes are in vehicles per hour Source: August 2013 <i>Supplemental Traffic Impact Analysis</i>									

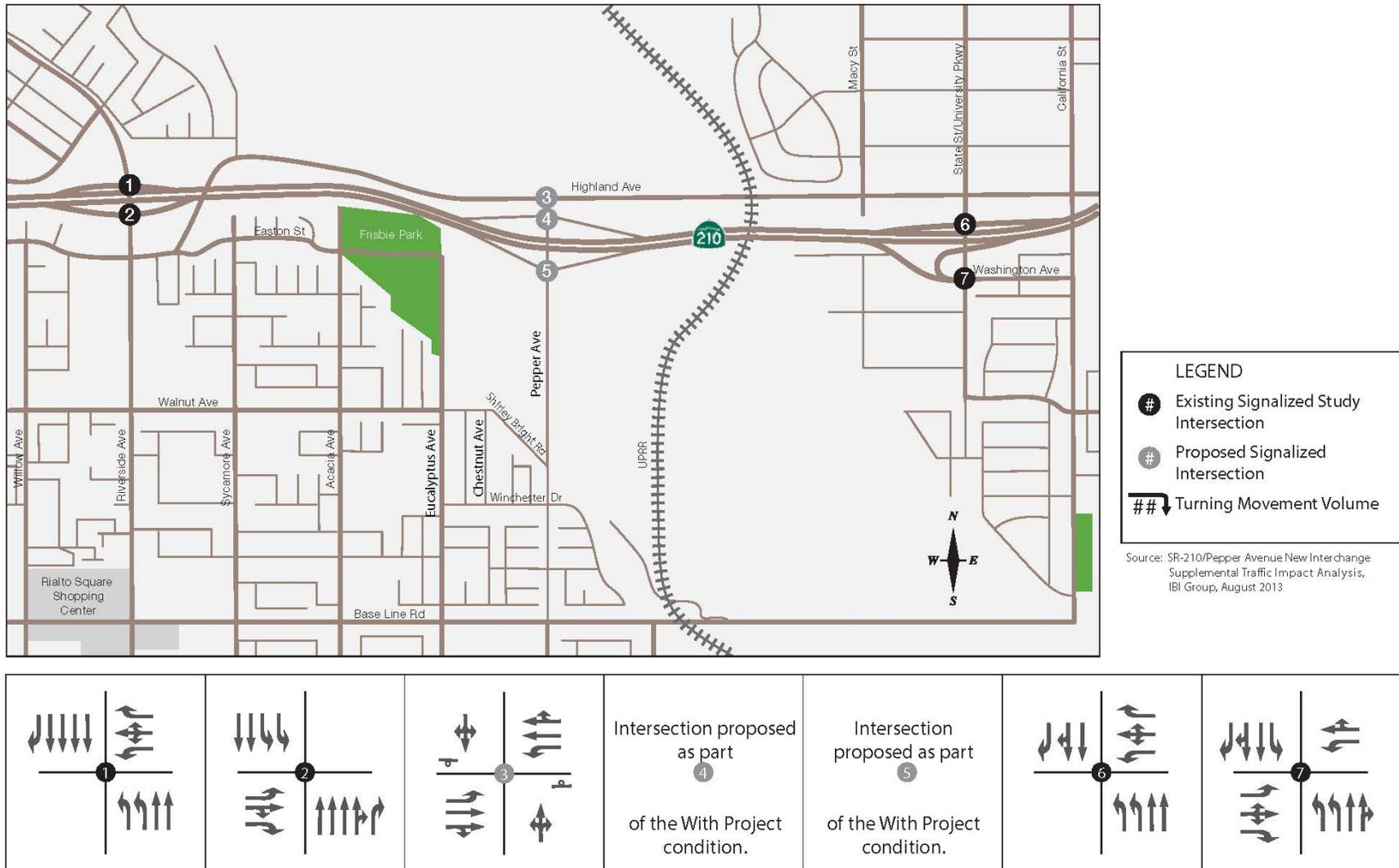


Figure 2-9
Opening Year (2016) and Horizon Year (2036) Alternative 2 (No-Build) Geometry

Intersection Level of Service

The opening Year (2016) AM peak hour LOS results for Alternative 2 (No-Build Alternative) and Alternative 1 (Build Alternative) scenarios are summarized in Table 2-15. The PM peak hour results are summarized in Table 2-16. All study intersections are forecast to operate at LOS C or better under the Alternative 2 (No-Build Alternative) scenario. The Design Horizon Year (2036) peak hour LOS analysis results for Alternative 2 (No-Build Alternative) scenario is summarized in Tables 2-17 and 2-18. All study intersections are forecast to operate at LOS C or better during all analysis scenarios.

Queuing Analysis

Under Alternative 2 (No-Build Alternative), only Intersections No. 1, No. 2, No. 6, and No. 7 (as identified in Figure 2-9) were analyzed, as Intersections No. 3, No. 4, and No. 5 (as identified in Figure 2-8) would only exist under Alternative 1 (Build Alternative). The storage capacity measurements for the Opening Year (2016) and the Design Horizon Year (2036) are the same. During both peak hours, the longest queue on all existing ramps and turn pockets is forecast to be well below capacity for all movements.

Ramp Analysis

The ramp analysis results for Opening Year (2016) Alternative 2 (No-Build Alternative) indicates that all freeway ramps would operate at LOS B or better during both peak hour time periods. The ramp analysis results for the Design Horizon Year (2036) Alternative 2 (No-Build Alternative) indicate that all freeway ramps are forecast to operate at LOS C or better during both peak time periods.

Freeway Mainline and HOV Lane Analysis

All study area freeway facilities are forecast to operate at LOS A during both peak hour time periods in the Opening Year (2016).

The volumes for Alternative 2 (No-Build Alternative) under the Opening Year (2016) and Design Horizon Year (2036) conditions on the HOV lane segments were found to meet the criteria for the minimum acceptable LOS.

Weaving Analysis

Under Alternative 2 (No-Build Alternative), all segments analyzed are expected to operate at acceptable conditions during peak hour operations for both the Opening Year (2016) and Design Horizon Year (2036).

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

A TMP (measure **TRAF-1**) will be prepared during the final design phase of the project. Implementation of the TMP will minimize impacts to traffic during construction.

- **TRAF-1 (Minimization Measure):** A traffic management plan (TMP) will be prepared and will include the detailing of any projected temporary street closures or expected traffic

delays due to construction vehicles using roadways. The TMP will also include a public awareness program that would use the Highway Advisory Radio (HAR), local media, newsletters, and flyers. The following elements will be major components of the TMP: Public Awareness Campaign, particularly related to the scheduling of work; Construction Zone Enforcement Enhancement Program (COZEEP); Utilization of Portable Changeable Message Signs (PCMSs); and Notification to be sent to the local fire station and any residents, if applicable, that may be substantially affected by any street closures (including partial and/or full closures) or traffic diversions at least two weeks in advance of the planned closure or diversion. The TMP will be provided to city and county police and fire departments with construction plans prior to commencement.

2.6 Visual/Aesthetics

REGULATORY SETTING

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

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

AFFECTED ENVIRONMENT

Information used in this section is based upon the January 2014 *State Route 210/Pepper Avenue New Interchange Project Visual Impact Assessment*.

The formula for assessing visual quality is shown below.

$$(\text{Vividness} + \text{Intactness} + \text{Unity}) \div 3 = \text{Overall Visual Quality}$$

Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns. *Intactness* is the visual integrity of the natural and man-made landscape and its freedom from encroaching elements. *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole. When combined, the factors that establish the visual quality of a view (vividness, unity, and intactness) are used to generate a numeric score, from 0 to 7, with 0 being the lowest and 7 being the highest, for each of a project’s key observation points. These scores are added and then divided by 3 to get the overall visual quality score. Views of high quality may have topographic relief, a variety of vegetation, rich colors, impressive scenery, and unique natural and/or built features (equivalent to visual quality rating numbers 5.5 through 7). Views of medium quality may have interesting but minor landforms, some variety in vegetation and color, and/or moderate scenery (equivalent to visual quality rating numbers 3.5 through 5.4). Views of low quality have uninteresting features, little variety in vegetation and color, uninteresting scenery, and/or common elements (equivalent to visual quality rating numbers 0 through 3.4).

The project area is dominated visually by the Vulcan Materials Company—a large industrial facility that extends for hundreds of feet along the north side of Highland Avenue—and by the presence of Lytle Creek Wash. Roads such as Highland Avenue and SR-210 are raised above the Wash. Other adjacent streets that border but occur outside the Wash including Eucalyptus Avenue and the terminus of Pepper Avenue sit above the adjoining Wash floor. The Wash landscape is typical for the regional context and features a stream bed which is dry during much of the year,

with sandy, gray soil. Moderately dense clusters of pale green to evergreen-colored scrub plant growth dot its terrain as well as grasses that turn a golden color during the summer and fall months.

Other nearby land uses include Frisbie Park, located south of SR-210 and west of Eucalyptus Avenue; a commercial district and multi-family development approximately one mile west of the project area; the Union Pacific Railroad (UPRR) alignment, which traverses the Wash in a generally south-to-north direction atop an elevated concrete causeway; a commercial/light industrial district along Highland Avenue, and single-family residences along Duffy Street (north of Highland Avenue) and Macy Street (south of Highland Avenue) which have west-facing mid-range views of the UPRR and far-off views (i.e., distances of approximately 0.75 mile) of the project area.

Viewers in the project viewshed include some residents who have north and east facing mid-frame and far-off views of the project area, commuting motorists on SR-210 and Highland Avenue, and recreationists and spectators at Frisbie Park baseball and softball events. Viewer groups and their respective sensitivity and view durations are summarized in Table 2-22.

Table 2-22. Viewer Sensitivity and View Duration by Viewing Group

Viewing Group	Viewer Sensitivity	View Duration
Commuting Motorists	Low	Short-term
Motorists Driving for Pleasure	Moderate	Long-term
Residents	Moderate	Long-term
Recreationists (Spectator Sports)	Moderate	Long-term

Source: *State Route 210/Pepper Avenue New Interchange Project Visual Impact Assessment*. January 2014.

KEY VIEWS

Key viewpoints have been chosen to clearly display the visual effects of the proposed project. Key views also represent the primary viewer groups that would potentially be affected by the proposed project. In addition, three of these representative views have been designated as key observation points (KOPs). These KOPs were chosen for analysis of the highway corridor's visual character and quality because they uniquely convey the visual character and quality of the viewshed at locations where components of the proposed project are proposed and/or where sensitive viewers are present. Figure 2-10 depicts the locations of the KOPs.

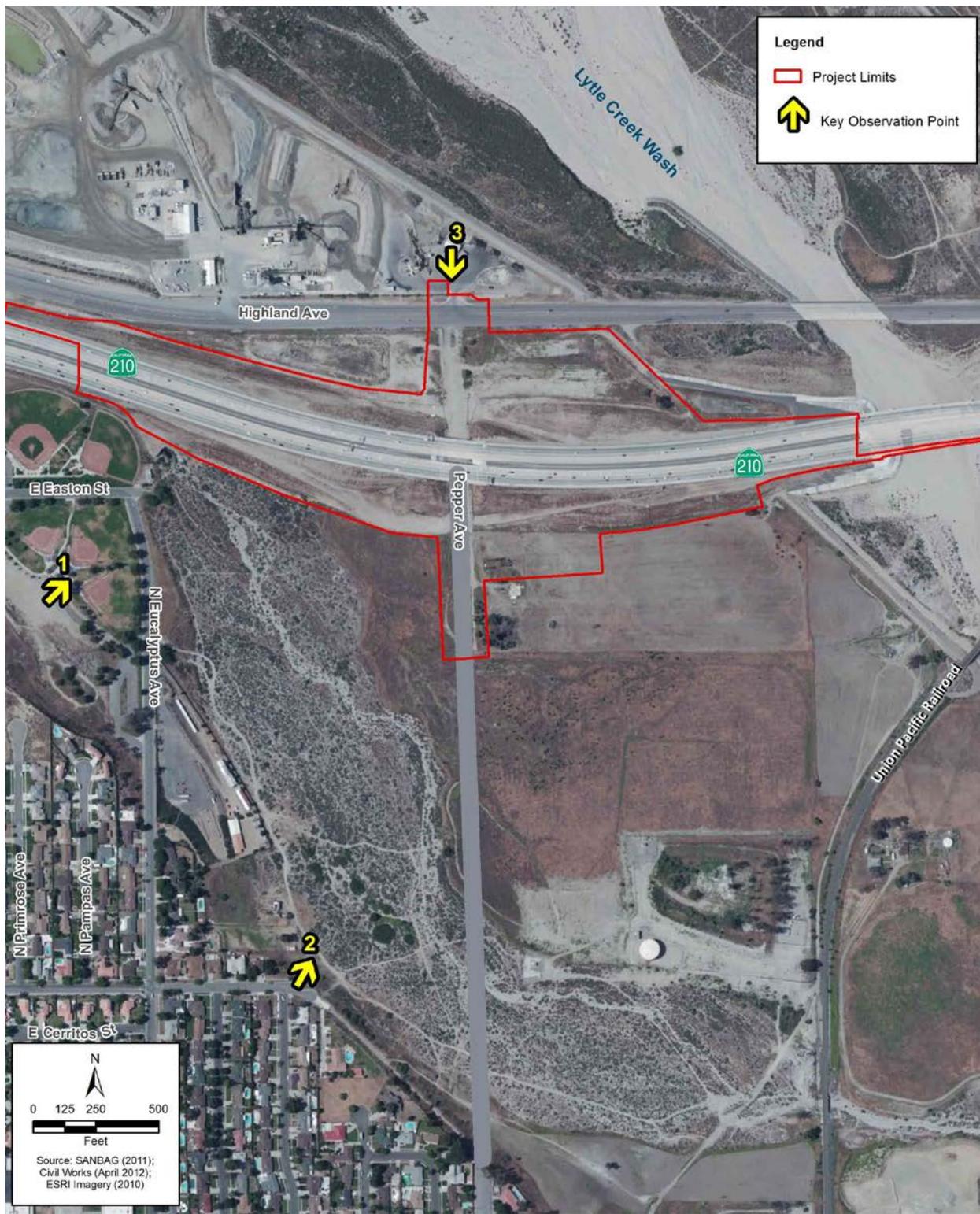


Figure 2-10
Key Observation Point Locations

KOP 1 – View looking northeast east across Eucalyptus Avenue at Frisbie Park

Figure 2-11a shows current conditions at KOP 1. Mid-frame and far-off views from this location are of Lytle Creek Wash at the base of SR-210, which appears as a strong elevated feature on the north. The terrain ranges from rolling near the freeway to appearing essentially flat. It is carpeted with sage scrub plant growth ranging in color from evergreen, gray-green, and tawny to gray. Visual resources are present in this portion of the viewshed, and views in this location possess a moderate degree of vividness from the looming presence of the San Bernardino Mountains, a backdrop element to the northeast, as well as the presence of scrub and ruderal vegetation and scattered clusters of evergreen trees. These features give the view a moderate vividness rating (visual quality rating 4).

SR-210, the UPRR causeway (located approximately 0.5 mile away), and I-215, which appears as a far-off element in east-facing views (located approximately two miles away), as well as other disparate manmade elements present in the views (e.g., debris, aggregate extracting machinery and small utilitarian industrial buildings in the Wash; freeway vehicles and traffic signage), give the views a relatively low degree of intactness and only a moderate degree of overall compositional unity (visual quality ratings 3 and 4, respectively). Seasonal views to the mountain ridgelines (when air visibility conditions permit), as a distant backdrop element, are the most important visual resource. As shown in Table 2-23, existing visual quality was rated as 3.66 (medium/moderate). The primary viewer groups consist of recreationists/park patrons at Frisbie Park who are participating in or viewing softball and baseball games. SR-210 commuting motorists comprise a numerically notable secondary group who can glimpse fleeting views of the Wash and of the proposed Pepper Avenue interchange. Residents south of Frisbie Park, along Eucalyptus Avenue would also have far-off, not very distinctive views of the project.

Table 2-23. Existing Visual Quality at Key Observation Points

Key Observation Points	Vividness	Intactness	Unity	Average (V+I+U/3)	Visual Quality Rating
KOP 1	4	3	4	3.66	Moderate
KOP 2	6	5	5	5.33	Moderate
KOP 3	2	2	2	2	Low

KOP 2 – View from Shirley Bright Road, east of Chestnut Avenue, looking northeast across Lytle Creek Wash towards the Project Site

Figure 2-11a shows current conditions at KOP 2. Foreground and mid-frame views from this location are of Lytle Creek Wash. Far-off views are framed by the dramatic backdrop of the San Bernardino and San Gabriel Mountains on the north and SR-210, which appears as a soft elevated feature at the base of the mountains. The terrain ranges from flat to slightly rolling in the foreground and mid-frame, and is carpeted with sage scrub plant growth ranging of colors from evergreen, gray-green, tawny, to gray. Visual resources are present in this portion of the viewshed, and views in this location possess a high degree of vividness due the looming presence of the San Gabriel and San Bernardino Mountains—backdrop elements to the north and northeast, respectively. The presence of scrub and ruderal vegetation, and scattered clusters of evergreen trees, is an important secondary visual resource. These features give the views at KOP 2 a high degree of vividness (visual quality rating 6).



KOP 1: Close-up Northeast View of Project from Frisbie Park
Photo taken June 2012



KOP 2: View Northeast from Shirley Bright Road, East of Chestnut Avenue
Photo taken June 2012

Figure 2-11a
KOP 1 and 2 Photographs

SR-210, UPRR causeway, and I-215 appear as minor far-off elements on the north and east and seemingly disappear into the wide expanse of the sage scrub landscape and low-scale urban development that lies farther east. The previously constructed Pepper Avenue undercrossings and the grading that accompanied it as part of prior unrelated roadway improvements can be seen from this vantage, as well as some scattered manmade elements, such as aggregate extracting machinery and small utilitarian industrial buildings. However, these elements are easily lost amidst the sweeping panoramic views across the Wash. This gives the views a moderately high degree of intactness and unity (visual quality ratings 5 and 5, respectively). Seasonal views to the mountain ridgelines (when air visibility conditions permit), as a distant backdrop element, is the most important visual resource. As indicated in Table 2-23, existing visual quality was rated as 5.33 (moderate quality). The primary viewer group consists of single-family residents at the north end of Chestnut Avenue and along East Walnut Avenue/Shirley Bright Road with north-facing views. These viewers are approximately 0.5 mile away from the project area giving such views a far-off less distinctive quality.

KOP 3 – View looking south from south side of Highland Avenue along the right of way

Figure 2-11b shows current conditions at KOP 3. Foreground and mid-frame views are south-facing (i.e., looking away from the mountains) and are of the Pepper Avenue right of way, which was already partially excavated and paved as part of the local roadway system, and sits barricaded by a temporary earth berm. SR-210, which appears as a strong elevated feature on the south, is immediately adjacent. With the exception of its fully constructed undercrossing, which permits limited views looking south across the Wash, SR-210 largely blocks south-facing views. The terrain near the freeway is rolling in the near foreground along Highland Avenue and then rises up as part of the freeway embankment. It is both paved in places or features sage scrub and other ruderal groundcover, such as grasses, and/or areas of bare gray ground. There is also scattered debris.

As in other locations around the Wash the palette of colors ranges from evergreen, gray-green, tawny, to gray. Visual resources are not present in this portion of the viewshed, and therefore, views in this location possess a low degree of vividness (visual quality rating 2).

SR-210 appears as a looming foreground element, as well as other disparate manmade elements present in the views (debris, aggregate extracting machinery, and small utilitarian industrial buildings in the wash; freeway vehicles and traffic signage). This gives the views a relatively low degree of intactness and overall compositional unity (visual quality rating 2, respectively). As indicated in Table 2-23, existing visual quality was rated as 2.0 (low). The primary viewer group consists of Highland Avenue and SR-210 commuting motorists. Freeway motorists would have only fleeting views of the Pepper Avenue interchange, however.



KOP 3: View South, Across Highland Avenue of Pepper Avenue (2012)
Photo taken June 2012

Figure 2-11b
KOP 3 Photograph

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Short-term, construction-related impacts would result from ground clearing, excavation, establishment of temporary construction staging, barricade installation, the presence of construction equipment and stockpiled materials, as well as the installation of minor structures and signage. However, because sensitive viewing groups (i.e., recreationists at Frisbie Park; residents) would have constrained, generally far-off views of these activities this minor reduction in overall visual quality during the construction process would be inconsequential.

Temporary changes to resident, motorist, and recreationist views as a result of grading and construction activities would be addressed through the implementation of standard SANBAG/Caltrans BMPs, which are designed to preserve visual quality (e.g., screening construction staging sites, protecting and restoring native vegetation). BMPs would include installing context-appropriate landscaping and any necessary related irrigation as appropriate. At a minimum, installation of native hydroseed planting would be done where the project requires the removal of the existing native scrub vegetation. Construction staging sites would also be appropriately screened in accordance with SANBAG/Caltrans BMPs. To minimize visual impacts, the new interchange shall include aesthetic design treatments and landscaping consistent with Caltrans' SR-210 Corridor Landscape Plan.

Under Alternative 1 (Build Alternative), the southern ramps of the proposed on-/off-ramps would be visible to viewers at KOP 1 and KOP 2 as far-away features within this sweeping panoramic view, as would the small southern extension, by approximately 400 feet, of the Pepper Avenue roadway. Because of its status as environmentally sensitive, the land immediately southeast and southwest of the proposed roadway cannot be used as potential staging areas for the project during the construction period, and the vegetation would be protected and restored where needed. The northern ramps of the proposed quadrant of on/off-ramps would be visible to viewers at KOP 3, as would the small revamped extension of the Pepper Avenue roadway from Highland Avenue to the freeway.

During daylight hours, the proposed on-ramp and off-ramp features at Pepper Avenue (e.g., dedicated left turn lane and a dedicated right turn lane; two lanes at the intersection tapering to one lane prior to joining and merging onto SR-210) as well as the proposed traffic signals, would read as extensions of the existing SR-210 freeway and freeway signage to viewers at all KOPs. The proposed water quality basin would also be designed and planted so that it would blend into the existing sage scrub landscape, and limited additional setting-appropriate landscaping, and any necessary related irrigation, would be installed.

During evening hours, low-glare, safety lighting at the ramp areas and stop lights at the ramp intersections, may be noticed by drivers traveling along SR-210, Pepper Avenue and Highland Avenue, and possibly by viewers within the KOPs; however, glare conditions would be avoided with standard lighting design for intersection and freeway ramp areas. Furthermore, the nearest vehicles to Frisbie Park traveling along the new SR-210 on-ramps and off-ramps at Pepper Avenue would be traveling eastbound, away from the park.

Changes in visual quality as a result of Alternative 1 (Build Alternative) are noted in Table 2-24. Viewer sensitivity ranges from low to moderate, being highest for residents and recreationists at Frisbie Park—both viewing groups having constrained, far-off views of the project. Visual quality under Alternative 1 (Build Alternative) would remain low to moderate overall. No adverse changes to key views would result, such as north-facing views of the local mountains. This is because the project features either would occur at grade or would appear as shelf-like extensions from the embankments of the SR-210 freeway.

Although the project is being proposed within the context of Lytle Creek Wash, the Pepper Avenue undercrossing is already in place and the street right of way was already cut through previously as part of the local roadway system. In addition, these features are part of a sweeping panoramic visual setting that serves to diminish them in visual terms. As such, the project would not contrast with the visual character of the setting to any significant degree. Figures 2-12 and 2-13 depict the visual changes that are anticipated as a result of Alternative 1 (Build Alternative) at KOPs 1 and 2.

Table 2-24. Visual Quality at Key Observation Points: Alternative 1 (Build Alternative)

Key Observation Points	Vividness	Intactness	Unity	Existing Average (from Table 2-26)	Average Under Proposed Conditions (V+I+U/3)	Change From Existing Conditions	Visual Quality Rating (with Project)
KOP 1	4	3	4	3.66	3.5	-0.16	Medium
KOP 2	6	5	5	5.33	5.33	0.0	Medium
KOP 3	2	2	2	2.0	2.5	+0.5	Low

Source: State Route 210/Pepper Avenue New Interchange Project Visual Impact Assessment. January 2014.

No local scenic resources such as trees, rock outcroppings or historic buildings, or vistas or corridors, are present within the project viewshed; the Caltrans Scenic Highways and Eligible Scenic Highways list identifies no scenic corridor closer than 8.5 miles from the project area. The project will result in no impacts to local scenic vistas or corridors.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no physical changes would occur that would affect the visual landscape, viewshed, and visual resources.



KOP 1: Existing View



KOP 1: Simulated View

Figure 2-12
KOP 1 Simulation – Existing and Future Alternative 1 (Build Alternative)



KOP 2: Existing View



KOP 2: Simulated View

Figure 2-13
KOP 3 Simulation – Existing and Future Alternative 1 (Build Alternative)

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Mitigation measures would not be required as the visual character and quality in the project viewshed would not be substantially altered. The following avoidance and minimization measures will be implemented to minimize impacts to visual resources:

- **VR-1:** Construction staging shall be planned to avoid environmentally sensitive areas and vegetation shall be protected and restored where needed.
- **VR-2 (Minimization Measure):** Landscaping shall be consistent with Caltrans' 210 Corridor Landscape Plan, SANBAG/Caltrans BMPs, water quality protection requirements per CWA Sections 401, 402 and 404, and USFWS requirements for the protection of SBKR. The selection of planting seed mix and pre-emergents (herbicides) will be reviewed by the Caltrans District Biologist for consistency with Caltrans requirements. Highway right of way landscaping such as trees and other vegetation that is removed will be replaced at a rate, size, and location determined by the Caltrans District Landscape Architect. New irrigation systems will be placed at the direction of the Caltrans District Landscape Architect.

2.7 Cultural Resources

REGULATORY SETTING

“Cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 Code of Federal Regulations (CFR) 800]. On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights of way.

AFFECTED ENVIRONMENT

Information used in this section is based upon the November 2013 *State Route 210/Pepper Avenue New Interchange Project Historic Property Survey Report* (HPSR) and the November 2013 *Archaeological Survey Report*.

The Area of Potential Effects (APE) for the proposed project was established in consultation with Meardey Tim, Project Manager, and Laura Chaffin, Lead Archaeological Surveyor (PQS), on December 4, 2013. The APE was established as the limits of proposed construction, including the limits of the current and proposed right of way, striping, temporary construction easements, plus a sufficient buffer to allow heavy equipment to maneuver, and staging areas. The vertical APE extends 40 feet in height above ground and 25 feet below ground for excavation and drilling.

A literature and records search was conducted on February 8, 2012. The search was conducted at the California Historical Resources Information Center (CHRIS) San Bernardino Archaeological

Information Center (SBAIC) in order to identify any previously-recorded cultural resources within or adjacent to the APE. The SBAIC maintains the State of California's official records of previously-recorded cultural resources and previously-recorded cultural resource studies for San Bernardino County. The records search included the APE and a one-mile buffer surrounding the APE. The following sources were consulted:

- Caltrans Historic Highway Bridge Inventory
- National Register of Historic Places (NRHP)
- California Register of Historical Resources (CRHR)
- California Inventory of Historic Resources
- California Historical Landmarks
- California Points of Historical Interest
- Inventory of Archaeological Determinations of Eligibility

Results of the records search indicate that approximately 90% of the proposed APE has been surveyed for cultural resources. The portion of SR-210 located within the proposed APE was surveyed three times in 1989 and the southern portion of the APE was surveyed for the City of Rialto's Pepper Street Specific Plan in 2005.¹²

A review of the above listed sources reveals that no resources listed in or potentially eligible for the NRHP or the CRHR have been identified within the APE. Previous studies have not identified any California Historical Landmarks or California Points of Historical Interest within the APE. Forty cultural resources have been recorded within a one-mile radius; none were identified within or directly adjacent to the APE.

A pedestrian field survey of the APE was conducted on May 22, 2012. Results of the field survey indicate that the APE has been heavily impacted by previous road construction activity. No prehistoric or historic archaeological sites or other cultural resources were located during the present survey.

One house foundation is located within the APE. The structure formerly present at this location is depicted on the 1988 photo revised USGS topographic map, but is not present on the 1967 edition. This indicates that this now demolished structure was built after 1967. No culturally important resources are associated with this foundation, and during the field survey, the Principal Investigator determined that this foundation was exempt from recordation and evaluation based on the guidelines in the Caltrans' Programmatic Agreement (2004).

¹² Gallup, Aaron A.; Bonnie W. Parks; Denise O'Conner; and Stephen D. Mikesell. 1989. *Historical Architectural Survey Report and Historic Resource Evaluation Report for a Proposed Highway on New Alignment*. Hammond, Stephen. 1989. *Historic Property Survey Report for the Proposed Foothill Freeway*. Dice, Michael. 2005. *Phase I Cultural Resources Survey Report for the Pepper Street Specific Plan, City of Rialto*. Prepared by Michael Brandman Associates. Sutton, Paula A. 1989. *Archaeological Survey Report for the Proposed Foothill Freeway, Los Angeles and San Bernardino Counties, CA*.

The Native American Heritage Commission (NAHC) was contacted regarding the proposed project on August 8, 2011. A Sacred Lands Data Files search and list of potentially interested Native American Groups and Individuals was requested. The NAHC responded in writing on August 12, 2011. They stated that a search of their Sacred Lands Database did not yield any sacred lands or traditional cultural properties within the APE. In addition, the NAHC provided a list of Native American contacts in San Bernardino County. A detailed discussion of Native American coordination carried out for the proposed project is included in Chapter 3.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

The HPSR for the proposed project concluded that no prehistoric or historic archaeological sites, or cultural resources of any kind, are present within the project's APE. No resources are present that would be eligible for listing on the NRHP or CRHR. As such, consultation with SHPO is not required. Under CEQA, Caltrans has determined that the project will result in a Finding of No Impact because there are no historical resources within the APE, and that there are no impacts to historic resources pursuant to CEQA Guidelines §15064.5(b)(3).

Additional cultural resources studies may be required if the project plans change. If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can evaluate the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the Caltrans District 8 Environmental Branch Chief, or his/her designee, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

No prehistoric or historic archaeological sites, or cultural resources of any kind, that qualify for consideration under Section 4(f) are present within the project's APE (Appendix B).

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no modifications to existing structures or the land would occur; therefore, no construction- or operation-related effects to historical or archaeological cultural resources would result.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization measures (measures **CR-1** and **CR-2**), which are standard practice for all Caltrans projects, shall be followed to ensure that potential effects to cultural resources or

human remains are avoided if these were to be discovered during construction. In addition, measure **CR-3** shall be implemented.

- **CR-1:** If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- **CR-2:** If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the Caltrans District 8 Environmental Branch Chief, or his/her designee, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
- **CR-3:** An Osteologically trained Archaeologist and Native American Monitor shall monitor all ground disturbing construction activities for the whole of the project area for the duration of the project. Monitors shall be notified five (5) working days prior to the commencement of work. This measure will need to be drawn up as an NSSP and approved by Caltrans Headquarters prior to the initiation of construction activities.

PHYSICAL ENVIRONMENT

2.8 Hydrology and Floodplain

REGULATORY SETTING

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

AFFECTED ENVIRONMENT

Information used in this section is based upon the October 2012 *Summary Floodplain Encroachment Report*, the October 2012 *Location Hydraulic Study*, the May 2014 *Scoping Questionnaire for Water Quality Issues*, and March 2014 *Storm Water Data Report*.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #06071C7940H, the proposed project is within areas designated as Zone X: Other Flood Areas (Zone X) and Zone A: Special Flood Hazard Areas Subject to Inundation by the 1 Percent Annual Chance Flood (Zone A). The proposed project is primarily situated within Zone X, which is defined as: Areas of 0.2 percent annual chance flood; areas of 1 percent annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1 percent annual chance flood (see Figure 2-14).

A small portion of the proposed project east of Pepper Avenue is within Zone A, which is defined as: 1 percent annual flood (100-year flood); flood that has a 1 percent chance of being equaled or exceeded in any given year; area subject to flooding by the 1 percent annual chance flood; base flood elevation is the water-surface elevation of the 1% annual chance flood.

The floodplain within the vicinity of the proposed project is part of Lytle Creek in the City of San Bernardino and unincorporated San Bernardino County. Lytle Creek is an 18-mile long

watercourse that originates in the San Gabriel Mountains and flows to the Santa Ana River. The floodplain is confined by an existing FEMA provisionally accredited levee and is located approximately 0.4 mile east of the Pepper Avenue undercrossing. There are no existing natural or beneficial floodplain values, as determined in the *Location Hydraulic Study*.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Construction of the proposed project would temporarily disturb soil surfaces during grading and excavation for the ramps and water quality basins. Major grading of the project area would not be needed as it was already performed during the SR-210 Extension Project; however, some grading would be necessary, with depths of excavation varying between approximately 1 and 10 feet. The total surface area disturbed during construction is estimated to be 18.5 acres. During construction activities, Construction Site BMPs provided in the 2003 Caltrans Stormwater Quality Handbook - Construction Site Best Management Practices (BMPs) Manual would be implemented to reduce pollutants in storm water discharges throughout construction. These BMPs, as well as the following storm water and water quality permits, which are detailed in Section 2.9 (Water Quality and Storm Water Runoff), would be required: NPDES #CAS000002; Caltrans and City MS4 Permits; Section 404 of the Clean Water Act (CWA) Nationwide Permit; Section 401 of the CWA Water Quality Certification; and a Section 1602 Streambed Alteration Agreement.

Catch basins are proposed to collect surface runoff from the project area and direct the runoff to two proposed detention/infiltration basins located east of Pepper Avenue, one each to the north and south of SR-210. The two new detention/infiltration basins would provide flood attenuation and reduce runoff rates, as well as provide for storm water pollutant removal. The proposed basins would drain into a tributary of Lytle Creek; the north basin would drain through an existing storm drain and the south basin through a proposed storm basin. The drainage from the slopes on the south side of the EB off-ramp and EB on-ramp would not be collected since it currently sheet flows onto the adjacent property. The basins are designed to not increase the runoff over the existing amount at the existing outlet for the 100-year storm. Overall, Alternative 1 (Build Alternative) would not substantially increase the amount or rate of runoff within the drainage features' watersheds. Although Alternative 1 (Build Alternative) would result in a temporary and permanent increase in paved, impermeable surfaces within the project area, 100 percent of the runoff would be managed in the two proposed detention/infiltration basins designed to infiltrate runoff and reduce peak flows during flood events. Under Alternative 1, all water entering Lytle Creek, either at present by sheet-flowing to the south into Frisbee Creek and then to Lytle Creek or through the storm drain line to the east at project completion, will be reduced during the 100-year 24-hour storm event.

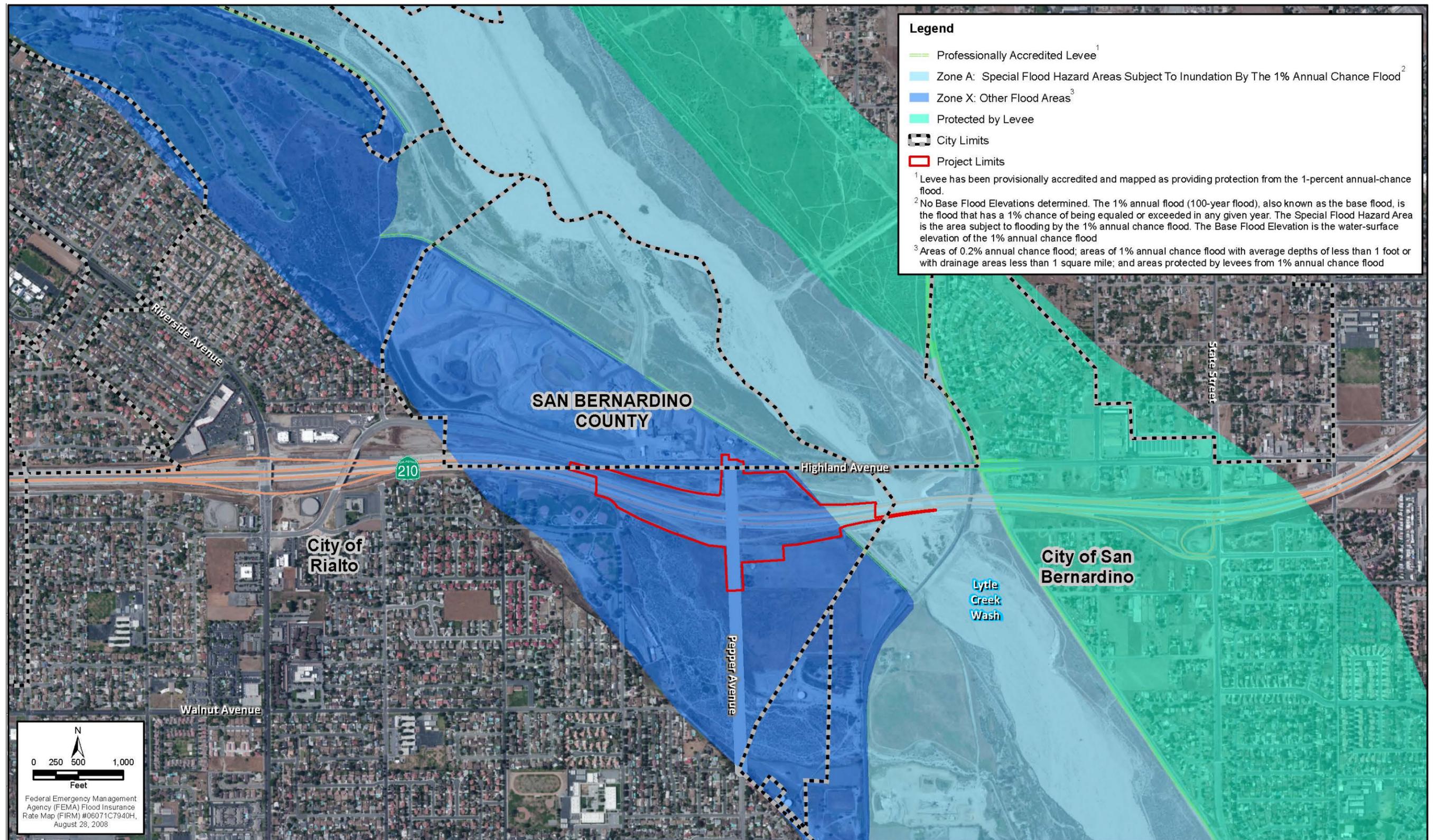


Figure 2-14
FEMA Special Flood Hazard Areas

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As indicated in the *Location Hydraulic Study* prepared for the proposed project, the Lytle Creek floodplain is confined by the existing levee. Alternative 1 (Build Alternative) would require minor construction within Zone A (100 year flood zone). However, the construction is incidental, very minor in nature, and would not have any significant adverse effect on the floodplain. All project improvements would be constructed above the elevation of the existing top-of levee. Therefore, there would be no longitudinal encroachment into the floodplain, and the proposed project would not have any impact on floodplain elevations. As noted above, there are no existing beneficial uses or natural values associated with the existing floodplain; therefore, there would be no impacts with regard to natural or floodplain beneficial uses.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no changes to the existing conditions that will be in place following the completion of the City of Rialto's Pepper Avenue Extension Project and Pepper Avenue Gap Closure project would occur, because no maintenance projects or other types of projects specifically related to the state highway system are planned in the vicinity of the proposed project; accordingly, no new effects to hydrology or floodplains would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The proposed project would not substantially increase the amount or rate of runoff, and in some cases runoff would be reduced. Nor would it result in substantial longitudinal encroachment or adversely affect floodplains or floodplain values; therefore, no measures are required.

2.9 Water Quality and Storm Water Runoff

REGULATORY SETTING

FEDERAL REQUIREMENTS: CLEAN WATER ACT

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source¹ unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic

¹ A point source is any discrete conveyance such as a pipe or a man-made ditch.

system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent² standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the “Wetlands and Other Waters” section.

STATE REQUIREMENTS: PORTER-COLOGNE WATER QUALITY CONTROL ACT

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

STATE WATER RESOURCES CONTROL BOARD AND REGIONAL WATER QUALITY CONTROL BOARDS

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the

² The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

1. The Department’s MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has three basic requirements: The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-0009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with

construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the SARWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

AFFECTED ENVIRONMENT

Information used in this section is based upon the May 2014 *Scoping Questionnaire for Water Quality Issues*, and the April 2013 *New Preliminary Materials Report*.

Regional Hydrology and Drainage

The project site is located within the Upper Santa Ana River Hydrologic Area (HA), which is within the Santa Ana River Hydrologic Unit (HU) of the Santa Ana Hydrologic Region. The climate of the Santa Ana Hydrologic Region is classified as Mediterranean, which is generally dry

in the summer with mild, wet winters.³ Climate data for the project area is available from the Fontana Kaiser Station – the nearest weather station- located southwest of the project area. According to climate records dating back to 1951, the average annual rainfall in the area is approximately 15 inches. More than 90 percent of the annual rainfall occurs between the months of November and April. The coldest month of the year is December with an average low temperature of 44.3°F, and the hottest month of the year is August with an average high temperature of 95°F.

Local Hydrology and Drainage

The receiving water body for the proposed project is Lytle Creek, a tributary to the Santa Ana River. Lytle Creek crosses SR-210 approximately 0.4 mile east from the existing Pepper Avenue undercrossing. The project site is within the Bunker Hill Hydrologic Subarea (HSA) (801.52), Colton HSA (801.44), and Sycamore HSA (801.59), which are part of the Santa Ana Regional Water Quality Control Basin (see Figure 2-15).

Surface runoff from the project site currently drains southeasterly toward Lytle Creek. An existing infiltration basin is located northwest of the interchange to treat runoff from the existing mainline west of the project. A second infiltration basin is located northeast of the project site, near the Lytle Creek Bridge, and treats existing mainline runoff from the Pepper Avenue undercrossing to Lytle Creek.

Water Quality

The SARWQCB regulates water quality standards, including water quality objectives and beneficial uses, as defined in the Water Quality Control Plan Santa Ana River Basin (8) (SARWQCB WQCP [1995, updated 2008]). Lytle Creek is identified for not attaining water quality objectives. It is included on the 2010 CWA Section 303(d) List of Impaired Water Bodies for pathogens. The SARWQCB expects to establish a TMDL for pathogens by 2019. However, Caltrans does not target pathogens as a design constituent. Currently, no TMDLs have been established.

According to the WQCP, the beneficial uses for Lytle Creek and HSAs are: Municipal and Domestic Supply (MUN); Agricultural Supply (AGR); Industrial Services Supply (IND); Industrial Process Supply (PROC); Hydropower Generation (POW); Rare, Threatened, and Endangered Species (RARE); Water Contact Recreation (REC 1); Non-contact Water Recreation (REC 2); Wildlife Habitat (WILD); Cold Freshwater Habitat (COLD); and Groundwater Recharge (GWR). The portion of Lytle Creek within the project area does not support water contact or non-water contact recreation⁴.

³ 1995 Water Quality Control Plan for the Santa Ana River Basin (Region 8), updated February 2008. Accessed: <<[<<www.waterboards.ca.gov/rwqcb8/water_issues/programs/basin_plan/>>](http://www.waterboards.ca.gov/rwqcb8/water_issues/programs/basin_plan/)>>.

⁴ The REC 1 and REC 2 beneficial use of designations assigned to surface waterbodies in this Region [Santa Ana Region] should not be construed as encouraging recreational activities. In some cases, such as Lake Mathews and certain reaches of the Santa Ana River, access to the waterbodies is prohibited because of potentially hazardous conditions and/or because of the need to protect other uses, such as municipal supply or sensitive wildlife habitat. Where REC 1 or REC 2 is indicated as a beneficial use in Table 3-1 [in Chapter 3 of the Santa Ana Region Basin Plan], the designations are intended to indicate that the uses exist or that the water quality of the waterbody could support recreational uses.

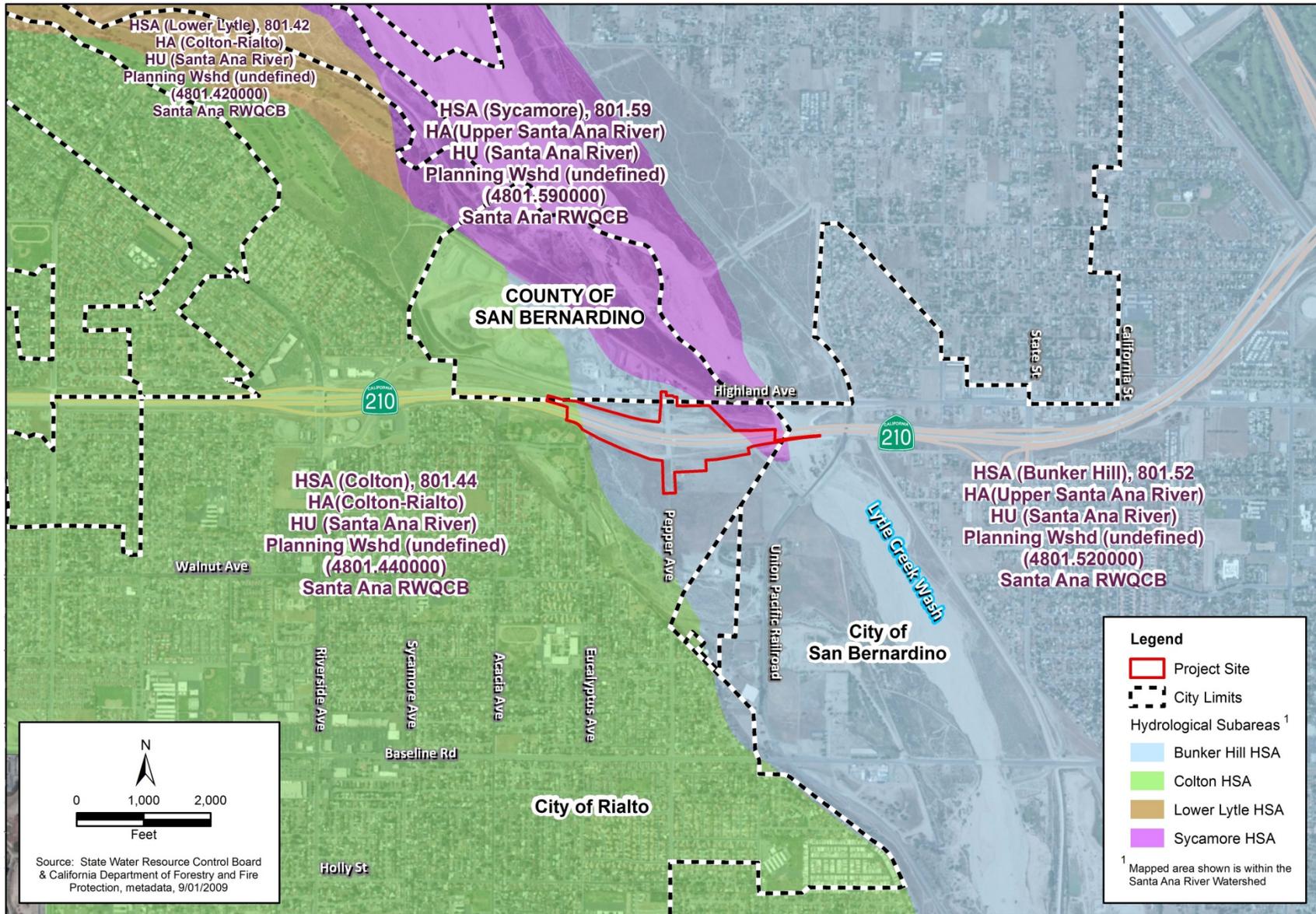


Figure 2-15
Santa Ana River Watershed and Hydrologic Subareas Map

Groundwater

The proposed project is located within the Upper Santa Ana Valley Groundwater basin situated on the margin between the Rialto-Colton and Bunker Hill Sub basins (see Figure 2-16). The Rialto-Colton Sub basin is bounded on the north by the San Gabriel Mountains, the San Jacinto fault on the east, the Box Spring Mountains on the south, and the Rialto-Colton fault on the west. The Bunker Hill Sub basin is bounded on the north by the San Andreas fault, the northwest by the Glen Helen fault, and the southwest by the San Jacinto fault. The San Jacinto fault zone acts as a barrier to groundwater flow between the Rialto-Colton and Bunker Hill Sub basins. In some areas, particularly south of the site near the Santa Ana River, the San Jacinto Fault displaces groundwater by up to 50 feet. Recharge in the sub basins occurs from the infiltration runoff of the San Gabriel and San Bernardino Mountains, the Santa Ana River, Mill Creek, and Lytle Creek.

Existing elevations along Pepper Avenue, between the southern project limit (station 35+00) and Highland Avenue (station 48+36), range between 1,286 and 1,297 feet above mean sea level (MSL). Existing elevations along SR-210 freeway, between Lytle Creek Bridge (station 539+00) and the western project limit (station 497+00), range between 1,282 and 1,336 feet MSL. In March 2000, test borings were taken during a bridge foundation investigation. No groundwater was encountered to the maximum depth of the borings, which extended down to at least 35 feet below Pepper Avenue grades.

The closest groundwater monitoring well is located within 1.5 miles of the project area. The Department of Water Resources (DWR) database of groundwater elevations identifies groundwater elevation at approximately 124 feet from the surface at the closest monitoring well. Based on the groundwater depth data for the closest monitoring wells, it is expected that the permanent groundwater table at the project site is greater than 100 feet below ground surface (bgs). Locally higher groundwater will be present within and adjacent to the washes during flood periods.

The westernmost portion of the proposed project is located approximately 1,200 feet (0.227 mile) from the eastern limits of the Rialto-Colton Groundwater Sub basin (see Figure 2-16), which has been studied for the presence of perchlorate. Perchlorate was first detected in several water supply wells in the Rialto-Colton Basin in 1997. It should be noted that elevated levels of halogenated organic chemicals, including tetrachloroethylene (also known as perchloroethylene PCE and trichloroethylene TCE) were found on the project site. However, the pattern of contamination indicates that a release or releases occurred in northwest San Bernardino and contaminants migrated more than five miles toward the Santa Ana River to the southeast. The groundwater flows in a southeast direction, away from the project site. In addition, the project site is approximately 1.5 miles from the nearest portion of the eastern limit of the Maximum Perchlorate Concentrations.⁵ Therefore, based on the distance and direction of groundwater flow, the project site is not contaminated by the perchlorate release(s) that occurred in northwest San Bernardino.

⁵ <http://www.ci.rialto.ca.us/plume-map.pdf>

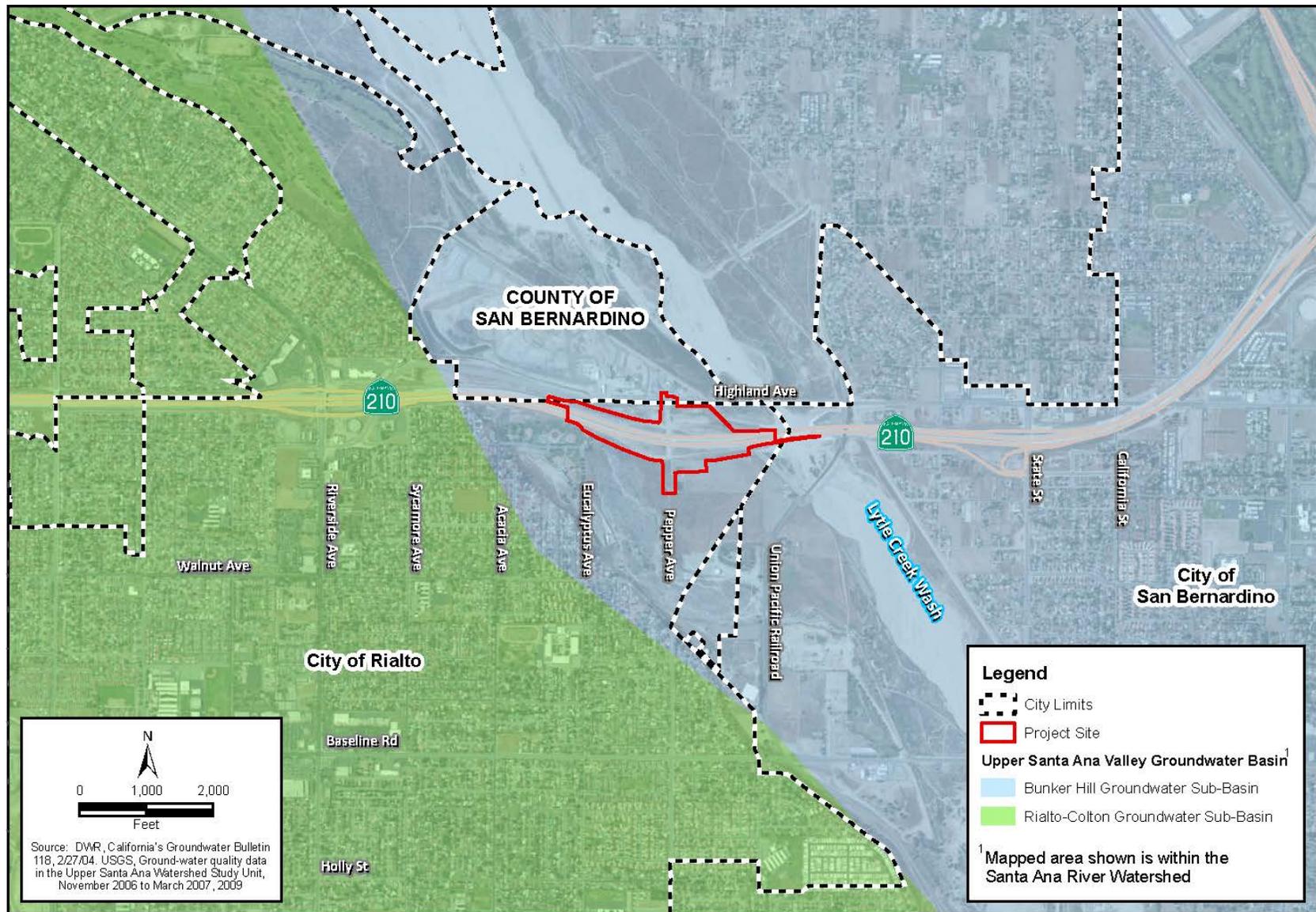


Figure 2-16
Groundwater Basin Map

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Construction-related activities have the potential to affect water quality. The estimated total disturbed soil area is approximately 18.5 acres. Soils within the project study area are classified as having good permeability and thus have a lower potential for runoff. Exposed soils associated with grading and excavating activities could increase the potential for erosion and increased sediment loadings on downstream water bodies during construction. In addition, surface water runoff could also result in the discharge of construction-related pollutants, such as petroleum, solvents, and cement into local surface waters.

Construction Site BMPs are to be applied during construction activities to reduce the pollutants in storm water discharges throughout construction. These Construction Site BMPs provide both temporary erosion and sediment control, as well as control for potential pollutants other than sediment. The following categories of BMPs will be used, as appropriate, for controlling potential pollutants on construction sites: Soil Stabilization Practices; Sediment Control Practices; Tracking Control Practices; Wind Erosion Control; Non-Storm Water Controls; and Waste Management and Material Pollution Controls.

A Notice of Intent (NOI) will be filed with the SARWQCB 30 days prior to the start of construction for coverage under the state-wide NPDES permit for construction-related discharges (Caltrans Construction General Permit, NPDES No. CAS000002). The contractor will prepare a SWPPP that sets forth the BMPs that will be implemented on site. Implementation of the SWPPP within the project site is monitored through site inspections by the SARWQCB. Upon completion of all work and the satisfactory stabilization of all disturbed soil area, a Notice of Termination must be sent to the SARWQCB.

Alternative 1 (Build Alternative) would permanently increase the area of paved, impermeable surfaces in the project site by approximately 6 acres. This increase in impervious area would result in increased pollutant build up and wash-off; a greater volume and rate of storm water runoff that could cause or contribute to erosion and off-site pollutant transport. Pavement of pervious areas would also decrease on-site absorption and percolation of pollutants that are deposited on surfaces, rendering them more available to transport in storm water runoff.

Alternative 1 (Build Alternative) would be required to implement post-construction storm water quality BMPs under Caltrans and City MS4 Permits. Project areas located within State right of way will be compliant with Caltrans MS4 Permit (NPDES CAS000003). Project areas located outside of State right of way will be compliant with City of Rialto MS4 Permit (NPDES No. CAS618036 / Order No. R8-2010-0036) for the post-construction BMP requirement.

In addition to the construction of on-and off-ramps, the construction of two new detention/infiltration basins to treat project runoff under Alternative 1 (Build Alternative) are also proposed. One basin, located in the northeast quadrant of the interchange, would treat the northern portion of Pepper Avenue and the WB ramps. The second basin, located in the southeast quadrant of the interchange, would treat the southern portion of Pepper Avenue and the EB ramps. (Refer to Figure 1-5, Map Sheets 1 and 2 on Pages 1-19 and 1-21.) Catch basins have been proposed to collect surface runoff from the project and direct the runoff to the proposed

detention/infiltration basins. These BMPs would provide some detention and reduce runoff rates, as well as provide for storm water pollutant removal. Treatment for Pepper Avenue within City right of way and south of EB ramps will be performed by the City's Contech Stormfilter system further south in the City right of way. The City's Contech Stormfilter system will handle approximately 3.3 cubic feet per second and will tie into a culvert discharging into Little Lytle Creek. Although Alternative 1 (Build Alternative) would result in a temporary and permanent increase in paved, impermeable surfaces within the project area, 100 percent of the runoff would be managed in the two proposed detention/infiltration basins designed to infiltrate runoff and reduce peak flows during flood events. Therefore, Alternative 1 (Build Alternative) would not result in adverse effects on storm water runoff and infiltration properties.

Alternative 1 (Build Alternative) has a low potential to cause adverse water quality problems to surface waters or groundwater in the area. Lytle Creek is approximately 0.4 mile away from the Pepper Avenue undercrossing and the proposed water quality basins would treat storm water flows before they discharge into the creek. In addition, runoff would be minimized by the implementation of BMPs required by Caltrans' and the City of Rialto's respective MS4 Permits and Construction General Permit.

Alternative 1 (Build Alternative) would directly impact a total of 0.003 acre of non-wetland waters of the U.S. (WoUS) and waters of the State (WoS). The total impact to the California Department of Fish and Wildlife (CDFW) unvegetated streambed would be 0.005 acre. During construction, there is a potential for increased risk of indirect impacts to adjacent jurisdictional waters, and avoidance and minimization measures **BIO-5** through **BIO-11** identified on Pages 2-157 and 2-158 in Section 2.15 of this Environmental Document, address these potential indirect effects. There is also a potential for long-term indirect effects to jurisdictional waters due to litter and debris from passing motorists, but this would not change from existing conditions. Project-related impacts on waters of the U.S. would require permitting under Section 404 of the CWA, likely in the form of a non-notifying Nationwide Permit, since impacts to waters of the U.S. are less than 0.10 acre. No wetlands are proposed to be impacted. The fill of waters of the U.S. would trigger the need for a Section 401 Water Quality Certification, issued by the RWQCB. Acquisition of these permits would provide compliance with the CWA (Section 401 and 404).

A Section 1602 Streambed Alteration Agreement would be required for proposed project impacts of 0.005 acre to CDFW unvegetated streambed.

Section 402 is triggered when there is a point source pollutant that would be discharged into waters of the U.S. from industrial/construction and municipal separate storm sewer systems (MS4s). Best Management Practices and mitigation measures proposed for the project would ensure that there are no pollutants discharged into waters of the U.S., thus the proposed project is in compliance with Section 402 and the permit is not required.

The majority of project site runoff would be routed through storm water quality BMPs, which would also provide some detention of the additional flow, and BMPs would be implemented to protect drainage facility outlets from high velocity discharges that could cause or contribute to erosion.

Alternative 1 (Build Alternative) would only create a total of approximately 6 new acres of impervious surface within the Upper Santa Ana Valley Groundwater Basin. Based on the depth of the permanent groundwater table, groundwater is not expected to be encountered and dewatering is not anticipated during construction of Alternative 1. Alternative 1 would not directly use groundwater resources (there would be no new groundwater wells associated with Alternative 1) such that the direction of flow or level of groundwater would be affected. No impacts to groundwater are anticipated.

The transportation and cleanup of hazardous materials is strictly regulated by the U.S. EPA, the California and Federal Occupational Health and Safety Administrations, and a number of other federal, state, and local agencies. However, accidental releases of hazardous materials can occur as a result of spills from vehicles. Although the proposed project would result in new direct access to and from the regional highway system, most of the traffic consists of passenger vehicles, therefore the likelihood of spills would remain minimal. No impacts are anticipated.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Alternative 2 (No-Build Alternative) would not contribute to water quality or storm water impacts.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Earthwork in the project area will be performed in accordance with the most current edition of the Caltrans' Standard Specifications and Storm Water Quality Handbook, with consideration of the requirements of applicable government agencies. See also avoidance and minimization measures **BIO-5**, **BIO-6**, **BIO-8**, **BIO-10**, and **BIO-11** on Pages 2-157 and 2-158 in Section 2.15. Implementation of the following minimization measures would further ensure that adverse impacts under NEPA and significant impacts under CEQA related to water quality would not occur.

- **WR-1:** Construction Site BMPs shall be implemented during construction for controlling potential pollutants on construction sites. The following BMP categories shall be considered and implemented, where feasible: Soil Stabilization Practices; Sediment Control Practices; Tracking Control Practices; Wind Erosion Control; Non-Storm Water Controls; and Waste Management and Material Pollution Controls.

2.10 Geology/Soils/Seismicity/Topography

REGULATORY SETTING

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department’s Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

AFFECTED ENVIRONMENT

Information used in this section is based upon the June 2012 *Initial Site Assessment* and June 2012 *Preliminary Materials Data Report*.

The proposed project is located in an area of San Bernardino County that lies within the Peninsular Range Geomorphic Province of California; a series of northwest trending mountain ranges and valleys subparallel to major north-south trending right-lateral transform faults.

As shown in Figure 2-17, the project site traverses the San Jacinto fault zone. The San Jacinto fault zone is a highly active, discontinuous set of right lateral strike slip faults and has been the source of several historical fault ruptures associated with magnitude six to seven earthquakes. A maximum credible earthquake (MCE) is the largest earthquake a fault is believed capable of generating. The San Jacinto Fault has the capability of generating an MCE measuring 7.5 on the Richter Scale. The fault zone extends more than 150 miles northwesterly from the Imperial segment near the Gulf of California to the mountains north of San Bernardino and is considered part of the greater San Andreas Fault System. Due to its location within the San Jacinto fault zone, the proposed project is identified on the Alquist-Priolo Earthquake Fault Zoning Map as being within an Earthquake Fault Zone. An Earthquake Fault Zone is an area in which there is a fault rupture hazard. In addition to fault rupture, the principal geological hazard to the project site is ground shaking due to earthquakes.

The natural topography of the area gently slopes towards the south to southeast. Existing elevations along Pepper Avenue, between the southern project limit (station 35+00) and Highland Avenue (station 48+36), range between 1,286 and 1,297 feet above MSL. Existing elevations along SR-210 freeway, between Lytle Creek Bridge (station 539+00) and the western project limit (station 497+00), range between 1,282 and 1,336 feet MSL. Landslides are not a major concern because the topography in the site region is subdued.

Major drainages in this region include Lytle Creek and the Santa Ana River. Lytle Creek runs roughly from the northwest to the southeast to the east of the project area. The Santa Ana River is located approximately 5 miles to the southeast of the project site; regional flows are generally from the northeast to the southwest. Groundwater was not encountered in exploratory borings drilled in 2000 during bridge foundation investigations for SR-210. The borings extended to a maximum depth of elevation 1,256 feet above MSL, which is at least 35 feet below Pepper Avenue grades. Based on data from nearby groundwater monitoring wells, it is expected that the groundwater level at the project area is greater than 100 feet below ground surface. Locally higher groundwater will be present within and adjacent to the washes during flood periods.

The project site is located on a broad alluvial fan deposited by both the Lytle Creek and Santa Ana River alluvial systems. Sediments mapped in the project area consist mostly of very young wash deposits of late Holocene age deposited by the Lytle Creek Wash; these deposits are predominantly sands and gravels with sparse to abundant pebble and boulder clasts. Outside the channel, the surficial soils consist of young alluvial valley deposits of Holocene and late Pleistocene age; these deposits are predominantly sands and gravels with variable silt content and sparse to abundant pebble- to boulder-sized clasts. Clasts are pieces of pre-existing rocks and minerals that can adhere together to form larger rocks. The SR-210 Freeway with future graded areas for the on-ramps and off-ramps was constructed on engineered fill. Underlying the surficial deposits are older, more dense, Pleistocene alluvial fan deposits. Soil conditions below the grade of Pepper Avenue consist of locally loose but mostly medium dense sands and silty sands with variable gravel content to a depth of approximately 15 to 20 feet, becoming generally dense to very dense below that depth. The dominant soil type within the project area is sand, loamy sand, and sandy loam. These soil types have low shrink-swell potential and are therefore not considered to have expansive properties.

The project area is identified as having moderate susceptibility to liquefaction.⁶ Liquefaction is a destructive secondary effect of strong seismic shaking. It occurs primarily in saturated, loose, fine-to medium-grained soils in areas where the groundwater table is within approximately 50 feet of the surface. The project is generally located in an area where there is young (Holocene Age: less than 10,000 years old), unconsolidated, fine-grained, sediment and where there has been historic artesian well activity.

Strong seismic ground shaking can cause the settlement of soils under certain conditions. Settlement usually occurs in soils that are geologically young (Holocene Age), unconsolidated, and of low density. During shaking, soils grains become tightly compacted and fail. The City of Rialto is underlain by soils that are generally dry and loose and susceptible to settlement; however, areas that have been graded under modern grading codes are generally not susceptible to settlement, unless there is a major change in use.⁷

⁶ City of Rialto General Plan (Update July 2010)

⁷ City of Rialto General Plan *Draft Environmental Impact Report Volume I*.

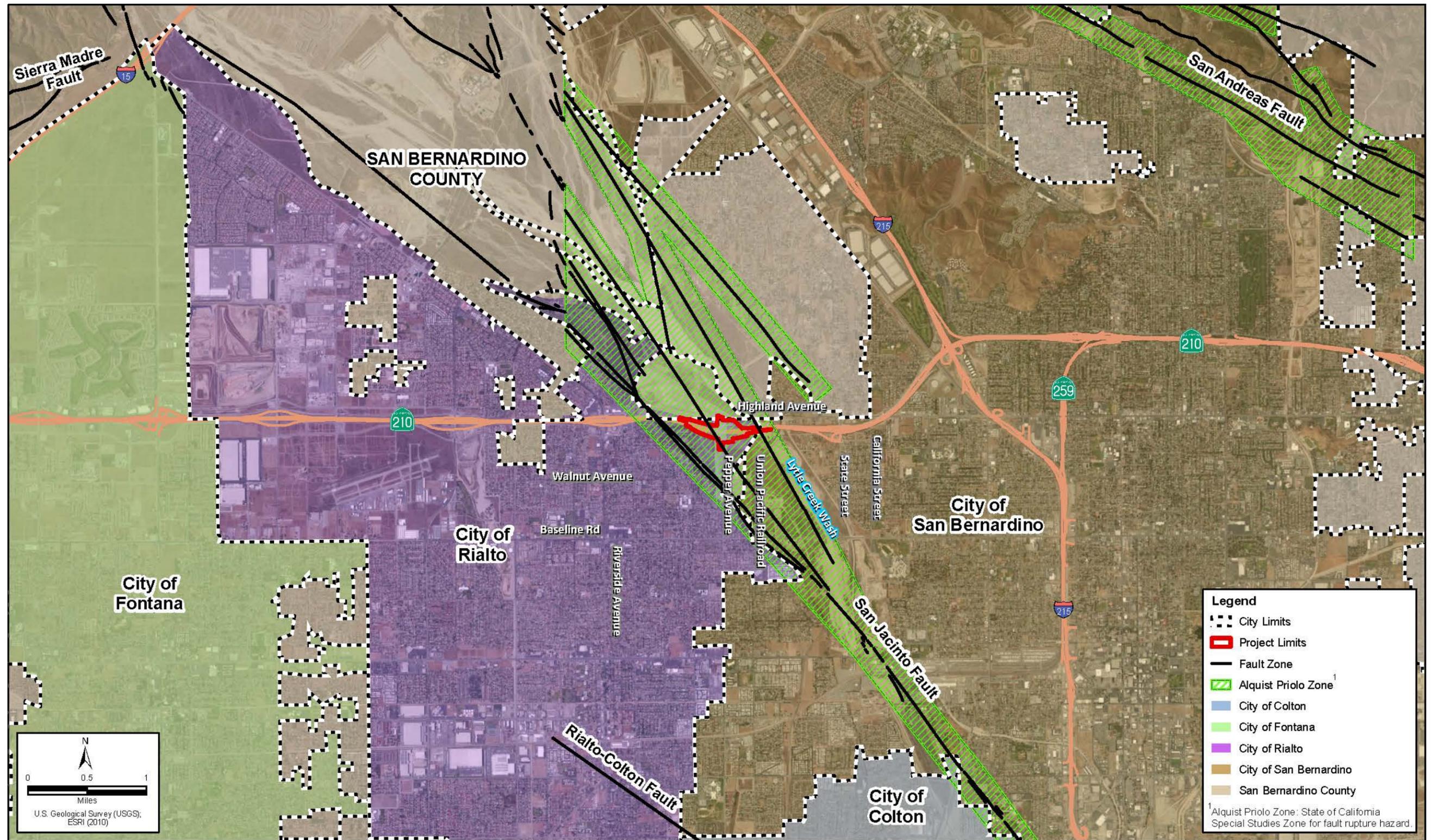


Figure 2-17
Fault Zone Map

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Ground subsidence is the gradual settling or sinking of the ground surface with little or no horizontal movement, and is typically induced by human activities such as the extraction of oil, gas, or groundwater. Subsidence has not been reported in Rialto; however, should it occur, it would be due to groundwater extraction.⁸ The project area is also not located in an area with steep slopes susceptible to rock falls. Nor is it located along the coast or near a large water body where there is a risk of a tsunami or seiche.

According to the City of Rialto General Plan, the project area is classified as MRZ-2: “An area where geologic data indicate that significant PCC-Grade aggregate resources are present.” The State Mining and Geology Board have also designated the general area of the project as a Mineral Resource Zone. While mining activities occur immediately to the north of Highland Avenue and the project area, the project site and a majority of the project area adjacent to SR-210 has been designated by the State as “...lost to land uses incompatible with mining since 1987.”⁹

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Development of the roadway would cause groundbreaking and vegetation removal during construction, resulting in a disturbed soil area (DSA) of approximately 18.5 acres. Excavation within the DSA would vary in depth from approximately one to ten feet. As a result, soil could be exposed to rain and wind, potentially causing accelerated erosion and deposition from the project site. Federal and state jurisdictions require that an approved SWPPP be prepared for projects that involve greater than one acre of disturbance. A SWPPP specifies BMPs that would prevent construction pollutants from contacting storm water with the intent of keeping all products of erosion from moving off site into receiving waters. Earthwork in the project area would be performed in accordance with the most current edition of the Caltrans’ Standard Specifications and/or the requirements of applicable government agencies.

Fill slopes associated with the project, as shown in Figure 1-5 on Page 1-19, would be graded and compacted in accordance with Caltrans’ standard specifications to ensure avoidance of unstable earth surfaces. Compliance with the most current Caltrans’ procedures regarding seismic design, which is standard practice on all Caltrans projects, is anticipated to prevent any adverse effects related to seismic ground shaking. Seismic design would also meet County requirements for near-source design parameters under the Uniform Building Code (UBC). The project site is located within an Earthquake Fault Zone; therefore, the potential for strong ground motion and surface rupture at the site is considered substantial. The proposed project could expose construction workers and the travelling public to potential impacts associated with seismic ground shaking.

The project area is also susceptible to seismically-induced and non-seismically-induced ground failures such as liquefaction, settlement, and subsidence. The potential for liquefaction is

⁸ City of Rialto General Plan Draft Environmental Impact Report Volume I.

⁹ City of Rialto General Plan (Update July 2010)

considered moderate and could result in adverse impacts. The project area is also susceptible to settlement; however, because the project site contains imported fill that was graded during the SR-210 Extension Project, impacts are not anticipated to be substantial. Alternative 1 (Build Alternative) would not require dewatering in the project area; therefore, the risk of subsidence at the project site is not considered to be substantial.

Alternative 1 (Build Alternative) would not expose construction workers or the traveling public to risks involving expansive soils, landslides, rockfalls, tsunamis, or seiches. There are no natural landmarks or landforms in the vicinity of the project that are protected under the National Natural Landmarks Program; therefore, the proposed project would not impact natural landmarks or landforms.

The project area is located in an area classified as MRZ-2: “An area where geologic data indicate that significant PCC-Grade aggregate resources are present.” However, the project site and a majority of the project area adjacent to SR-210 has been designated by the State as “...lost to land uses incompatible with mining since 1987.”¹⁰ (see Figure 2-1a on Page 2-3). Mining activities do not occur within the project site; therefore, Alternative 1 (Build Alternative) would not impact accessibility or availability of a known mineral resource that would be of value to the region and/or residents of the state. A mining facility exists immediately north of Highland Avenue and the project site. Mining operations at the facility would not be directly affected by Alternative 1 (Build Alternative). The facility would likely benefit from the proposed project, as Alternative 1 (Build Alternative) would provide improved access to SR-210 by trucks that transport materials from the mining operation.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no effects involving geology, soils, seismicity, or topography would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Minimization measure **WR-1** on Page 2-102 in Section 2.9 would be implemented to minimize soil erosion.

¹⁰ City of Rialto General Plan (Update July 2010)

2.11 Paleontology

REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

AFFECTED ENVIRONMENT

A vertebrate paleontology records search was conducted by the Natural History Museum of Los Angeles County on August 23, 2011, and a fossil locality search was conducted by a senior museum scientist at the University of California Riverside (UCR) Department of Earth Sciences on August 29, 2011, under the direction of James R. Allen, who meets the Caltrans qualifications as a Principal paleontologist.

The literature and records searches yielded no fossil localities within or immediately adjacent to the proposed project site.

A windshield survey of the project alignment was conducted. No paleontological resources were observed during this survey. The project area is adjacent to the active flood channel of the combined Lytle and Cajon Creeks and adjacent to coarse alluvial valley, fanlomerate, and alluvial fan deposits of Mid Pleistocene - Late Holocene age. The area has been highly disturbed by road construction, gravel mining, and fluvial erosion and flooding. That, plus the coarseness of the geologic deposits makes it unlikely that any fossil material will be found during excavations for the proposed project. Based on the results of the literature and record searches, as well as the windshield survey, it was determined that further study was not needed and the preparation of a Paleontological Identification Report/Paleontological Evaluation Report (PIR/PER) was not necessary.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Due to the coarseness of geologic deposits, as well as the highly disturbed nature of the project area, it is highly unlikely that paleontological resources would be uncovered. Alternative 1 (Build Alternative) would not result in impacts to paleontological resources.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no effects to paleontological resources would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No measures are required.

2.12 Hazardous Waste/Materials

REGULATORY SETTING

Hazardous materials, including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as “Superfund,” is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

AFFECTED ENVIRONMENT

Information used in this section is based upon the June 2012 *Initial Site Assessment (ISA)* and July 2012 *Report of Aerially-Deposited Lead Investigation*.

An ISA was prepared for the proposed project to identify recognized and potential recognized environmental conditions (RECs) within and adjacent to the project site. As part of the ISA, a regulatory records search through Environmental Data Resources (EDR) was conducted to determine if the project area or nearby properties are listed as having a past or present record of actual or potential environmental impact and could represent an environmental concern. No potential recognized environmental conditions to the project area were found during the EDR search (see Table 2-25).

Table 2-25. Summary of EDR Properties Listed within 0.25 mile of Project Site

Business Name	Address	Environmental Database Lists	Comments
Vulcan Materials Cal Mat Div	2400 W. Highland Avenue	RCRA SQG, HAZNET	Small quantity generator of potentially hazardous materials. No violations were reported; therefore, not a REC.
Fire Stations	3348 E. Highland Avenue	CA FID UST	Active fire station located about 0.125 mile northwest of the project area with no violations reported. Property is not a REC.
Calportland Co.	2400 W. Highland Avenue	WDS, NPDES, CA FID UST, SWEEPS, UST	The property has no violations and no spills. Located 0.125 mile from project. Not a REC.
Calmat Co.	2400 W. Highland Avenue	UST	No releases or violations are reported. Located 0.125 mile from project. Not a REC.
San Bernardino	2400 W. Highland Avenue	NPDES, HIST UST	No name for site. There are 3 historical USTs reported at the property. The tanks were not reported leaking. Not a REC.
Vulcan Materials West Division #2,	2400 W. Highland Avenue	AST	The property is improperly located on the EDR map. The property is 0.125 mile northeast of the project. Not a REC.
Calmat Co.	San Bernardino County	MINES	The property is a mining facility with 61 violations, however there have been no reported spills, and the property is located 0.125 mile from the project. Not a REC.
Harris Transfer Inc.	San Bernardino County	MINES	Reported to have 48 violations; no spills. Located 0.125 mile from project. Not a REC.
Vulcan Materials	2350 W. Highland Avenue	RCRA-SQG, FINDS, San Bern. Co. Permit, HAZNET	The property is Vulcan Materials. No violations were reported. Small quantity generator of Tetrachloroethylene. Property is improperly located on the EDR map. The property is actually located 0.125 mile northeast of the project. Not a REC.
Industrial Asphalt	2340 Highland Avenue	LUST, HAZNET, HIST UST, UST, Cortese, CA FID, SWEEPS UST	Leaking underground storage tank (LUST) leak impacting soil discovered in 1990 is closed. The property is 0.125 mile east of project. Unlikely that the soil contamination could have plumed to the project; therefore this property does not represent a REC.
<p>Note: Several businesses share the same address as Vulcan Materials (2400 W. Highland), as they are either subsidiaries of Vulcan Materials, or they operate on the Vulcan Materials property. Source: <i>State Route 210/Pepper Avenue New Interchange Project Initial Site Assessment</i>, June 2012</p>			

State Water Resource Control Board files were reviewed for properties within 0.5 mile of the proposed project. Four sites containing leaking underground storage tanks (LUSTs) were reported, of which, all cases have been closed. None of the sites represent a REC to the project due to their distance from the project area.

Files were also requested and reviewed from the San Bernardino County Fire Department, Department of Toxic Substances Control EnviroStor, and State of California Department of Conservation Oil and Gas Well websites. No additional properties of concern were found.

Site Reconnaissance

A site reconnaissance was conducted on May 21, 2012, to assess and photograph present site conditions. The following were observed within the proposed project area:

- A pile of unidentified soil with remains of construction materials, approximately 20-by-30-feet in size and up to two feet high, located south of the proposed eastbound shoulder, approximately 100 feet south of Highland Avenue. No surface staining or potential RECs were observed. As of December 17, 2013, this pile no longer exists at the site and is no longer a concern.
- Three transformers were observed. A pad mounted transformer was observed along the proposed westbound shoulder, and two transformers were observed within 50 feet of the other transformer, between Pepper Avenue and the proposed SR-210 westbound on-ramp. Electrical transformers manufactured prior to 1980 may contain polychlorinated biphenyls (PCBs) used as coolants and lubricants. The pad mounted transformer along the proposed westbound shoulder would be relocated a few feet to the west as it is in conflict with proposed improvements on Pepper Avenue. It is not anticipated that the other two transformers would require removal. Regardless of their purpose, since the transformers are less than eight years old, it is assumed that they do not contain PCBs, and therefore do not represent an REC.
- A pile of dumped household trash and construction debris such as plywood, a hot tub, and other miscellaneous household trash items was observed under the Pepper Avenue undercrossing. The construction debris piles under the Pepper Avenue undercrossing and along the eastbound shoulder need to be disposed of prior to construction, as part of the Caltrans regular maintenance program. As of December 17, 2013, this pile no longer exists at the site and is no longer a concern.
- An oil stain covering an approximately 15-by 10-foot area was observed near the trash pile, under the Pepper Avenue undercrossing, representing a REC. It appears that the staining is surficial and can be removed by scarifying the upper 0.5 foot of soil. As of December 17, 2013, this staining no longer exists at the site and is no longer a concern.

Aerially-Deposited Lead

The existing SR-210 Freeway was constructed after 2005; therefore, the proposed on- and off-ramps are unlikely to contain traces of aerially-deposited lead (ADL), and testing was not performed. However, an ADL investigation, focusing on the area where Pepper Avenue will intersect with Highland Avenue, was performed due to the historical use of leaded fuels by roadway traffic.

A total of 24 samples were collected from eight project boring locations. The samples were collected at depths of 0 to 0.5 feet, 1.0 to 2.0 feet, and 2.0 to 3.0 feet. All samples were analyzed for total lead and pH. Total lead concentrations ranged from non-detectable levels to 132 milligrams per kilogram (mg/Kg) and 32 mg/Kg, recorded only in one sample. Soil below one foot at this location has not been impacted with lead. Lead concentrations in the rest of the samples did not exceed 14.9 mg/Kg. This soil has since been removed.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

According to the ISA, there are no known or suspected hazardous material sources, such as underground fuel storage tanks, located within the project area. Based on a review of properties within the site vicinity and data made available during this assessment, there is a relatively low potential that contaminants from off-site properties have migrated to the subject site and adversely affected the underlying soil and/or groundwater.

Soil at one boring location (boring HA-12-001), which is just to the west of the proposed Pepper Avenue centerline adjacent to the south side of Highland Avenue, was identified as being impacted with lead and considered California Hazardous Waste. However, as of December 17, 2013, this soil no longer exists at the site and is no longer a concern.

Following construction of Alternative 1 (Build Alternative), operations are not expected to result in the creation of any new health hazards or expose people to potential new health hazards since Alternative 1 (Build Alternative) involves the development of an interchange, and the storage of toxic materials or chemicals is not a proposed component of the proposed project. Some vehicles using the interchange may contain materials deemed hazardous; however, the hazards associated with vehicular transport of hazardous waste are regulated under existing programs and would not be affected by Alternative 1 (Build Alternative).

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), the project site would not be disturbed and no effects involving hazardous materials would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of the following avoidance and minimization measures during the construction period would ensure that impacts affecting hazards and hazardous materials would be avoided and/or minimized.

- **HAZ-1:** The following Department Waste Management and Materials Pollution Control BMPs from the *Caltrans Construction Site Best Management Practice Field Manual and Troubleshooting Guide (2003)* shall be implemented:
 - **HAZ-1a: Material Delivery and Storage.** Materials associated with construction activities shall be delivered and stored using practices that prevent these materials from polluting receiving waters. Typical materials include PCC components, petroleum

products, pesticides, herbicides, fertilizers, detergents, plasters, acids, lime, glues, adhesives, paints, and solvents.

- **HAZ-1b: Material Use.** Materials associated with construction activities shall be used in accordance with practices that prevent them from polluting receiving waters.
- **HAZ-2:** A Site Safety Plan, which addresses the management of potential health and safety hazards to workers and the public, shall be prepared and implemented prior to initiation of the proposed construction activities. The instructions, guidelines, and requirements for handling hazardous materials to ensure employee safety as provided in Chapter 16, “Hazardous Materials Communication Program,” of the Department’s Safety Manual will be followed.
- **HAZ-3:** Wastes and petroleum products used during construction shall be collected, transported, and removed from the project site in accordance with the Resource Conservation and Recovery Act regulations, and Department requirements.
 - **HAZ-3a: Spill Prevention and Control.** Spill prevention and prompt appropriate spill response reduces the potential for polluting receiving waters with spilled contaminants.¹¹
 - **HAZ-3b: Solid Waste Management.** Solid construction wastes shall be collected, stored, and disposed of using practices that minimize contact with storm water.¹³
 - **HAZ-3c: Hazardous Waste Management.** Hazardous wastes shall be collected, stored, and disposed of using practices that prevent contact with storm water. The following types of wastes are considered hazardous: petroleum products, concrete curing compounds, palliatives, septic wastes, paints, stains, wood preservatives, asphalt products, pesticides, acids, solvents, and roofing tar. There may be additional wastes on the project that are considered hazardous. It is also possible that non-hazardous waste could come into contact with these hazardous wastes, such that they become contaminated and are therefore considered hazardous waste.¹³
 - **HAZ-3d:** All hazardous waste shall be stored, transported, and disposed as required in Title 22, California Code of Regulations (CCR), Division 4.5 and 49 CFR 261-263, and Section 7-109 Solid Waste Disposal and Recycling Reporting Department Construction Manual.

¹¹ Caltrans, 2003. *Construction Site Best Management Practice Field Manual and Troubleshooting Guide*. January.

2.13 Air Quality

REGULATORY SETTING

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (CARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller—(PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}), and sulfur dioxide (SO₂). In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this type of environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

CONFORMITY

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and in some areas (although not in California) sulfur dioxide (SO₂). California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans

(RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP) and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a “hot-spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter (PM₁₀ or PM_{2.5}). A region is “nonattainment” if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called “maintenance” areas. “Hot-spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the “hot-spot” related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Air Quality Report*.

Topography and Climate

The project site is located within the South Coast Air Basin (SCAB), an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the SCAB, which is a coastal plain with connecting broad valleys and low hills.

The greatest air pollution effects occur throughout the SCAB from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the SCAB vary with location, season,

and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the SCAB and adjacent desert.

Climate data for the project area is available from the Fontana Kaiser Station – the nearest weather station- located southwest of the project area. According to climate records dating back to 1951, the average annual rainfall in the area is approximately 15 inches. More than 90 percent of the annual rainfall occurs between the months of November and April. The coldest month of the year is December with an average low temperature of 44.3°F, and the hottest month of the year is August with an average high temperature of 95°F.

Wind patterns in the project vicinity display a unidirectional flow, with winds arising primarily from the west at an average speed of 7.8 miles per hour.

Existing Air Quality

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants (see Table 2-26) and the monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The nearest air quality monitoring station in the vicinity of the project area is the Fontana-Arrow Highway monitoring station, which is approximately eight miles west-southwest from the project area (see Figure 2-18). The Fontana-Arrow Highway monitoring station monitors for ozone, CO, NO₂, PM₁₀, and PM_{2.5}.

Air quality monitoring data from the Fontana-Arrow Highway monitoring station is summarized in Table 2-27. These data represent air quality monitoring results for the last three years (2010–2012) from which complete data are available.



Figure 2-18
Fontana-Arrow Highway Monitoring Site Location

Table 2-26. Ambient Air Quality Standards Applicable in California and the Attainment Status of the South Coast Air Basin

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of the South Coast Air Basin	
			California	National	California	National	California	National	California	National
Ozone	O ₃	1 hour	0.09	NA	180	NA	If exceeded	NA	Extreme nonattainment	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is greater than the standard	Nonattainment	Extreme nonattainment
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment/maintenance
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment/maintenance
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA	Attainment	NA
Nitrogen dioxide	NO ₂	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Attainment/unclassified
		1 hour	0.18	0.100	339	188	If exceeded	If the 3-year average of the 98 th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Nonattainment	Attainment/unclassified
Sulfur dioxide	SO ₂	24 hours	0.04	NA	105	NA	If exceeded	NA	Attainment	NA
		3 hours	NA	NA	NA	NA	NA	NA	Attainment	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of the South Coast Air Basin	
			California	National	California	National	California	National	California	National
		1 hour	0.25	0.075	655	196	If exceeded	If the 3-year average of the 99 th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Attainment	Attainment/unclassified
Hydrogen sulfide	H ₂ S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA	Unclassified	NA
Vinyl chloride	C ₂ H ₃ Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA	No information available	NA
Inhalable particulate matter	PM ₁₀	Annual arithmetic mean	NA	NA	20	NA	If exceeded	NA	Nonattainment	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Serious nonattainment
	PM _{2.5}	Annual arithmetic mean	NA	NA	12	15.0	If exceeded	If the 3-year average of the weighted annual mean from single or multiple community-oriented monitors exceeds the standard	Nonattainment	Nonattainment
		24 hours	NA	NA	NA	35	NA	If less than 98% of the daily concentrations, averaged over 3 years, is equal to or less than the standard	NA	Nonattainment
Sulfate particles	SO ₄	24 hours	NA	NA	25	NA	If equaled or exceeded	NA	Attainment	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of the South Coast Air Basin	
			California	National	California	National	California	National	California	National
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year	NA	NA
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA	Nonattainment	NA
		Rolling 3-month average	NA	NA	NA	0.15	NA	Averaged over a rolling 3-month period	Nonattainment (Los Angeles County only)	Nonattainment (Los Angeles County only)
<p>Notes: National standards shown are the primary (public health) standards. All equivalent units are based on 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. NA = not applicable. Sources: California Air Resources Board 2010; California Air Resources Board 2013; U.S. Environmental Protection Agency 2010</p>										

Table 2-27. Ambient Air Quality Monitoring Data Measured at the Fontana-Arrow Highway Monitoring Station

Pollutant Standards		2010	2011	2012
1-Hour Ozone				
	Maximum 1-hour concentration (ppm)	0.143	0.144	0.142
Number of days standard exceeded ^a				
	CAAQS 1-hour (> 0.09 ppm)	28	39	60
8-Hour Ozone				
	National maximum 8-hour concentration (ppm)	0.100	0.124	0.110
	National second-highest 8-hour concentration (ppm)	0.097	0.110	0.108
	State maximum 8-hour concentration (ppm)	0.101	0.124	0.110
	State second-highest 8-hour concentration (ppm)	0.098	0.106	0.106
Number of days standard exceeded ^a				
	NAAQS 8-hour (> 0.075 ppm)	33	39	62
	CAAQS 8-hour (> 0.070 ppm)	52	53	86
Carbon Monoxide (CO)				
	National ^b maximum 8-hour concentration (ppm)	1.44	1.15	1.76
	California ^c maximum 8-hour concentration (ppm)	1.44	1.16	1.76
	Maximum 1-hour concentration (ppm)	2.7	1.6	2.0
Number of days standard exceeded ^a				
	NAAQS 8-hour (≥ 9 ppm)	0	0	0
	CAAQS 8-hour (≥ 9.0 ppm)	0	0	0
	NAAQS 1-hour (≥ 35 ppm)	0	0	0
	CAAQS 1-hour (≥ 20 ppm)	0	0	0
Particulate Matter (PM₁₀)^d				
	National ^b maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	62.0	84.0	67.0
	National ^b second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	59.0	57.0	65.0
	State ^c maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	59.0	80.0	65.0
	State ^c second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	57.0	55.0	62.0
	State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e		30.5	32.9
Number of days standard exceeded ^a				
	NAAQS 24-hour (> 150 $\mu\text{g}/\text{m}^3$) ^f	0	0	0
	CAAQS 24-hour (> 50 $\mu\text{g}/\text{m}^3$) ^f	6	4	5
Particulate Matter (PM_{2.5})				
	National ^b maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	42.6	60.1	39.9
	National ^b second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	36.2	45.7	36.0
	State ^c maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	42.6	60.1	39.9
	State ^c second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	36.2	45.7	36.0
	National annual designation value ($\mu\text{g}/\text{m}^3$)	13.8	12.9	12.4
	National annual average concentration ($\mu\text{g}/\text{m}^3$)	11.9	12.5	12.8

Table 2-27. Ambient Air Quality Monitoring Data Measured at the Fontana-Arrow Highway Monitoring Station Continued

Pollutant Standards		2010	2011	2012
	State annual designation value ($\mu\text{g}/\text{m}^3$)	14	14	--
	State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	--	--	--
Number of days standard exceeded ^a				
	NAAQS 24-hour ($> 35 \mu\text{g}/\text{m}^3$)	2	2	3
Notes: CAAQS = California Ambient Air Quality Standards. NAAQS = National Ambient Air Quality Standards. – = insufficient data available to determine the value.				
^a An exceedance is not necessarily a violation. ^b National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods. ^c State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers. ^d Measurements usually are collected every 6 days. ^e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria. ^f Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.				
Sources: California Air Resources Board 2012				

As shown in Table 2-27, the Fontana-Arrow Highway monitoring station has experienced violations of the state 1-hour ozone standard, federal and state 8-hour ozone standards, federal and state PM₁₀ standards, and federal and state PM_{2.5} standards multiple times during each of the previous three (3) years.

EPA has classified the SCAB as an extreme nonattainment area for the federal 8-hour ozone standard. For both the 1-hour and 8-hour federal CO standard, EPA has classified the SCAB as an attainment/maintenance area. EPA has classified the SCAB as a serious nonattainment area for the federal PM₁₀ standard and a nonattainment area for the federal PM_{2.5} standard. CARB has classified the SCAB as an extreme nonattainment area for the state 1-hour ozone standard and a nonattainment area for the state 8-hour ozone standard. For the state CO standard, CARB has classified the SCAB as an attainment area. CARB has classified the SCAB as a nonattainment area for the state PM₁₀ and PM_{2.5} standards. The SCAB's attainment status for each of these pollutants relative to the NAAQS and CAAQS is summarized in Table 2-26.

Air Quality Sensitive Receptor Locations

Sensitive and very sensitive land uses, based on Air Resources Board (ARB) Land Use Guidance, related legislation, and consideration of the level of activity and number of persons present, include:

- Schools (very sensitive)
- Hospitals (very sensitive)
- Child care facilities (very sensitive)
- High-density residential development, especially if occupied by populations subject to Environmental Justice considerations (very sensitive)
- Active recreational areas and playgrounds (sensitive)

- Other health care facilities (sensitive)
- Other residential areas (sensitive)
- Passive recreational areas and open space (sensitivity not clear)

Sensitive receptors located within a 0.25-mile radius of the project area were studied (see Figure 2-19). The area immediately surrounding the project site consists of open space; with an aggregate mining use located approximately 300 feet north of the project site. Sensitive receptors located within the general project vicinity include Frisbie Park that is located immediately adjacent and west of the project site, and residential uses that are located approximately 1,200 feet southwest of the project site (see Figure 2-19).



Figure 2-19
Air Quality Sensitive Receptor Locations

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ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Implementation of Alternative 1 (Build Alternative) would result in the construction of widened road and a new interchange. Construction is anticipated to begin in 2015 with a duration of approximately 12 months. Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utility/subgrade construction, paving, and the commuting patterns of construction workers. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

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 are also anticipated and would include CO, NO_x, ROG, directly emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants (aka: MSATs), such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and ROG in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, modifying existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and ROG. Sources of fugitive dust would include disturbed soils at the construction site and the trucks that carry uncovered loads of soil. Unless properly controlled, vehicles leaving the site deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed greater distances from the construction site.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, ROG and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 ppm of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and

other standards as on-road diesel fuel; therefore, SO₂-related issues due to diesel exhaust would be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases.

Construction-period criteria pollutant emissions were estimated using the Sacramento Metropolitan Air Quality Management District’s (SMAQMD) Road Construction Emissions Model, version 7.1.4 (2013). While the model was developed for Sacramento-area conditions in terms of fleet emission factors, silt loading, and other modeling assumptions, it is considered adequate by the San Joaquin Valley Air Pollution Control District for estimating road construction emissions under its indirect source regulations and SCAQMD in its CEQA guidance. As such, it is used for that purpose in this project analysis. A summary of emissions estimates is provided in Table 2-28. The implementation of the exhaust and fugitive dust emission control measures identified in this section would avoid and/or minimize any impacts on air quality.

Table 2-28. Estimate of Criteria Pollutant Emissions during Construction (pounds per day)

Construction Phase	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Grubbing and Clearing	3	14	23	45	10
Grading/Excavation	17	86	196	53	17
Drainage/Utilities/Sub-Grade	12	57	123	50	15
Paving	3	15	22	1	1
Daily Maximum Regional Emissions	17	86	196	53	17
SCAQMD Regional Emissions Daily Significance Threshold	75	550	100	150	55
Daily Maximum Localized Emissions ^a	N/A	76	189	53	17
SCAQMD Localized Emissions Daily Significance Threshold ^b	N/A	4,142	378	65	17

Source: Caltrans 2013
^a ROG emissions have no SCAQMD localized emissions threshold.
^b SCAQMD SRA 34, 5-acre site disturbance area, 100-meter receptor distance.

Construction activities for this proposed project will not last for more than five years at one general location, so construction-level emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Regional Conformity

The proposed project is listed in Amendment #1 to the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy financially constrained Regional Transportation Plan (Project ID 4M1007) which was found to conform and adopted by SCAG on April 4, 2012, and FHWA and FTA made a regional conformity determination on June 6, 2012. The project is also included in SCAG’s financially constrained 2013 Federal Transportation Improvement Program, including Amendments 1-16, on page 12 of 17 (Project ID 20110110). The SCAG Federal Transportation Improvement Program was determined to conform by FHWA and FTA on December 14, 2012. The design concept and scope of the proposed project is consistent with the project description in the 2012–2035 RTP and the 2013 FTIP, and the open to traffic assumptions of SCAG’s regional emissions analysis.

Project-level Conformity

Carbon Monoxide

The proposed project is located in an attainment/maintenance area for the federal CO standard (Table 2-26). Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on the CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). The CO Protocol details a qualitative step-by-step procedure to determine whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO.

The CO Protocol includes two flowcharts that illustrate when a detailed CO analysis is required to be prepared. The first flowchart is utilized to ascertain the CO modeling requirements for new projects. On the basis of the answers to the first flowchart, a second flowchart is utilized to determine the level of local CO effect analysis required for the project.

As shown in Table 2-27, the maximum background CO concentration in the project area has a range of 1.15 ppm to 1.76 ppm for the 8-hour averaging period during the past few years. These values compare with the 8-hour average maximum background concentration of 7.8 ppm (2005) used for the 2003 AQMP attainment demonstration. Based on the results of the CO Protocol analysis performed for the project, CO modeling is not required. Based on CO Protocol Analysis Methodology, project implementation would not result in CO concentrations that exceed the 1-hour or 8-hour ambient air quality standards, therefore, Alternative 1 (Build Alternative) is not expected to result in a new or more severe exceedance of either the NAAQS or CAAQS.

Project Level Conformity for Particulate Matter

While most projects create particulate emissions during construction, construction activities lasting less than five years are considered temporary impacts under the EPA transportation conformity rule and are exempt. It is expected that this project would be completed in less than two years. As such, hot-spot review is limited to operational impacts.

EPA released a guidance document titled *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas* in November 2013. A project-level PM_{2.5} and PM₁₀ conformity review based on this most-recent EPA guidance is provided on the following page.

EPA specifies in 40 CFR 93.123(b)(1) that only “projects of air quality concern” are required to undergo a PM_{2.5} and PM₁₀ hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM_{2.5} SIP as a localized air quality concern. A discussion of the proposed project compared to projects of air quality concern, as defined by 40 CFR 93.123(b)(1), is provided below:

1. **New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.** The project proposes to install a new freeway interchange on SR-210 at Pepper Avenue. This is not a new highway project, nor is it expanding an existing highway beyond its current reach. Pepper Avenue was planned as an interchange when the SR-210 freeway was originally built, and right of way was reserved for the interchange at that time. Additionally, the Pepper Avenue interchange is already shown as a future interchange in the City of Rialto’s General Plan.
2. **Projects affecting intersections that are at level-of-service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.** The proposed project would improve the operational efficiency of adjacent SR-210 interchange locations immediately west and east of the proposed Pepper Avenue interchange location; thus, developing the capacity necessary to maintain a desirable LOS at adjacent interchange locations. There would be no meaningful degradation in LOS along any roadway segment or at any intersection location related to proposed project improvements.
3. **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.** The proposed project has no bus or rail terminal component, nor would it alter travel patterns to/from any existing bus or rail terminal.
4. **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.** The proposed project would not expand any bus terminal, rail terminal, or related transfer point that would increase the number of diesel vehicles congregating at any single location.
5. **Projects in or affecting locations, areas, or categories of sites that are identified in the PM_{2.5}- or PM₁₀-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.** The project site is not in or affecting an area or location identified in any PM₁₀ or PM_{2.5} implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

The discussion provided above indicates that the proposed project would not be considered a Project of Air Quality Concern, as defined by 40 CFR 93.123(b)(1). Therefore, PM_{2.5} and PM₁₀ hot-spot evaluations are not required. It is unlikely that the proposed project would generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for PM_{2.5} or PM₁₀. On September 24, 2013, the SCAG Transportation Conformity Working Group (TCWG), concurred with the determination that the project is not considered a Project of Air Quality Concern (POAQC). A copy of TCWG’s determination in this regard is included in Chapter 3 (Comments and Coordination) on page 3-10. With this determination, Clean Air Act, 40 CFR Part 93.116 requirements are met without any explicit hot-spot analysis, as the proposed project would not cause or contribute to any new localized CO, PM₁₀, and/or PM_{2.5} violations, increase the frequency or severity of any existing CO, PM₁₀, and/or PM_{2.5} violations, or delay

timely attainment of any NAAQS or any required interim emission reductions or other milestones in CO, PM₁₀, and PM_{2.5} nonattainment and maintenance areas. Therefore, the proposed project is screened from further analysis.

Naturally Occurring Asbestos (NOA)

NOA is a fibrous material found in certain types of rock formations. It is the result of natural geologic processes and commonly found near earthquake faults in California. Some rock types known to produce asbestos fibers are varieties of chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Although NOA is common in certain counties of California, it is not likely to be found in the vicinity of SR-210 and Pepper Avenue in San Bernardino County.¹³

Lead

Lead is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Automobiles were once a major source of airborne lead because, prior to being phased out, lead was used as a gasoline additive to increase the octane rating. However, in recent years, ambient concentrations of lead have dropped dramatically.

The state lead standard is 1.5 µg/m³ over a 30-day average; the federal lead standards are 1.5 µg/m³ averaged over a calendar quarter and 0.15 µg/m³ as a rolling 3-month average. The San Bernardino County portion of the SCAB is designated as attainment with respect to lead.

Due to historical use of leaded fuels by roadway traffic, testing for ADL was conducted in the area where Pepper Avenue will intersect Highland Avenue. The results of the ADL testing is discussed in detail on Page 2-112 in Section 2.12 (Hazardous Waste/Materials).

Mobile-Source Air Toxics (MSAT)

MSAT emissions were evaluated using a combination of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2012) and preliminary California-specific guidance from Caltrans. At this time, the California-specific guidance is identical to the FHWA's guidance, excluding California-specific criteria for performing qualitative and quantitative analysis.¹⁴ The California-specific criteria are found in CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Land Use Handbook).¹⁵ FHWA's interim guidance uses a tiered approach regarding how MSATs

¹³ U.S. Geological Survey. 2011. *U.S. Geological Survey Open-File Report 2011-1188, California Geological Survey Map Sheet 59: Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*.

¹⁴ Brady, M. 2010. Mike Brady, Air quality/conformity coordinator, California Department of Transportation. DOTP-ORIP. Sacramento, CA. Email to Shannon Hill of ICF International on January 6, 2010.

¹⁵ California Air Resources Board (CARB). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Table 1-1. April. Sacramento, CA.

should be addressed in NEPA documents for highway projects.¹⁶ Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1. No analysis for exempt projects or projects with no potential for meaningful MSAT effects
2. Qualitative analysis for projects with low potential MSAT effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

Applicable Project MSAT Category Assessment. Average daily traffic (ADT) data from the project 2013 Supplemental Traffic Impact Analysis has been reviewed for the SR-210 mainline. The ADT data was provided for four (4) segments, and is summarized below in Table 2-29. In addition, diesel-truck traffic along the project vicinity segment of SR-210 was assumed to be 6.9%).

Table 2-29. Mainline ADT on SR-210

Segment	Existing (2011)	2016 Opening Year		2036 Horizon Year	
		No-Build Alternative	Build Alternative	No-Build Alternative	Build Alternative
East of State Street	85,619	94,481	94,481	129,900	129,900
State Street to Pepper Avenue	89,031	96,188	97,613	124,819	130,344
Pepper Ave to Riverside Avenue	89,031	96,188	96,188	124,819	124,819
West of Riverside Avenue	86,006	92,800	92,800	119,963	119,963

Adapted from: 2013 Traffic Memorandum. Assumes that total peak-hour volumes comprise 16% ADT volumes.

As shown in Table 2-29, mainline ADT on SR-210 is anticipated to change as follows, under the build alternative, when compared to the no-build alternative:

- East of State Street, ADT is expected to remain unchanged at Opening Year 2016 (94,418) and Horizon Year 2036 (129,900).
- Along the State Street to Pepper Avenue segment, ADT is expected to increase by 1,425, from 96,188 to 7,613, at Opening Year 2016 and increase by 5,525, from 124,819 to 130,344, at Horizon Year 2036.
- Along the Pepper Avenue to Riverside Avenue segment, ADT is expected to remain unchanged at Opening Year 2016 (96,188) and Horizon Year 2036 (124,819).
- West of Riverside Avenue, ADT is expected to remain unchanged at Opening Year 2016 (92,800) and Horizon Year 2036 (119,963).

At Opening Year 2016 and Horizon Year 2036, SR-210 mainline ADT within the project vicinity would remain below the 140,000 ADT criteria established by FHWA for all freeway segments, but not the California criteria of 100,000 ADT at Horizon Year 2036. As such, the proposed project is considered to be a project with low potential MSAT effects under state criteria.

¹⁶ FHWA. 2012. *Interim Guidance Update on Mobile-source Air Toxic Analysis in NEPA Documents*. September 30.

Air toxics analysis is an emerging area of research. Currently, limited tools and techniques are available for assessing project-specific health effects from MSATs because there are no established criteria for determining when MSAT emissions should be considered a significant issue with respect to NEPA.

To comply with Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22[b]) regarding incomplete or unavailable information, Appendix E of the Air Quality Report contains a discussion regarding how air toxics analysis is an emerging field and current scientific techniques, tools, and data are not sufficient to estimate accurately the human health effects that would result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), Appendix E of the Air Quality Report contains a summary of current studies regarding the health effects of MSATs.

The amount of MSAT emissions emitted under Alternative 1 (Build Alternative) or Alternative 2 (No-Build Alternative) would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because VMT is estimated to be similar for the build alternative when compared to no-build, MSAT emissions are also expected to be similar with respect to the two alternatives. As such, there would be no appreciable difference in overall MSAT emissions among either alternative. Also, regardless of the alternative chosen, emissions will likely be lower than present levels at Horizon Year 2036, as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under Alternative 1 (Build Alternative) there would be localized areas where VMT would increase (i.e., along Pepper Avenue), and other areas where VMT would decrease (e.g., around adjacent interchange locations). Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the Pepper Avenue extension and the proposed new freeway interchange, under Alternative 1 (Build Alternative). However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In summary, under Alternative 1 (Build Alternative) in the design year 2036 it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to Alternative 2 (No-Build Alternative), due to the reduced VMT associated with more direct routing, and EPA's MSAT reduction programs.

Criteria Pollutants

Long-term air quality effects are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emissions of ROG, NO_x, CO, PM₁₀, PM_{2.5}, and CO₂ for existing (2011), Opening Year (2016), and Horizon Year (2036) conditions were evaluated through modeling conducted using the CT-EMFAC emissions factor

model and EPA’s *Compilation of Air Pollutant Emission Factors*, AP-42, Section 13.2.1, with traffic data provided in the 2013 Supplemental Traffic Impact Analysis for the proposed project.

To analyze potential effects of projects, NEPA requires a comparison of a project’s emissions to no-build conditions at the opening year and horizon year, whereas CEQA requires a comparison of a project’s opening-year emissions with existing conditions. Table 2-30 summarizes the CT-EMFAC-modeled daily emissions. Vehicular emission rates, in general, are anticipated to decrease in future years due to the continuing improvements in engine technology and the retirement of older, higher emitting vehicles. The NEPA and CEQA analyses of the proposed project’s operational emissions of ROG, CO, NO_x, CO₂, PM₁₀, and PM_{2.5} are provided in Table 2-30.

Table 2-30. Summary of CT-EMFAC-modeled Operations Emissions

Scenario	Daily VMT	Pounds per Day for All, Except CO ₂ , which Is Metric Tons per Year					
		ROG	CO	NO _x	CO ₂	PM ₁₀	PM _{2.5}
Existing (2011)	218,554	62	1,268	604	40,896	17	16
2016 No-Build	237,286	37	803	461	42,029	7	7
2016 Build	238,176	37	806	462	42,187	7	7
2036 No-Build	312,188	27	500	246	50,456	9	8
2036 Build	315,641	27	506	249	51,015	9	9
Alternative 1 (Build Alternative) Increase/(Decrease) Compared with Existing 2011							
Scenario	Daily VMT	ROG	CO	NOX	CO2	PM10	PM2.5
2016 Build vs. Existing	18,731	(25)	(464)	(143)	1,133	(10)	(9)
2036 Build vs. Existing	97,087	(35)	(762)	(355)	10,118	(8)	(7)
Alternative 1 (Build Alternative) Increase/(Decrease) Compared with Respective No Build at 2016 and 2036							
Scenario	Daily VMT	ROG	CO	NOX	CO2	PM10	PM2.5
2016 Build vs. No-Build	891	<1	3	2	158	<1	<1
2036 Build vs. No-Build	3,453	<1	6	3	558	<1	<1
Source: Emissions modeled by ICF International based on traffic data from the August 2013 <i>Supplemental Traffic Impact Analysis</i> . (IBI Group 2013)							

CEQA. As shown in Table 2-30, when compared with existing conditions, Alternative 1 (Build Alternative) would result in decreases of ROG, CO, NO_x, PM₁₀, and PM_{2.5} exhaust emissions at the Opening Year (2016) when compared with existing conditions. Because VMT increases when compared with existing conditions, these emissions reductions are attributable to the retirement of older, higher emitting vehicles. Although CO₂ emissions are anticipated to increase along the SR-210 project limits, these emissions would likely be off-set elsewhere outside of the immediate project vicinity due to traffic redistribution effects (i.e., traffic decreases) that were not accounted for in the project’s traffic impact study. Therefore, no significant impacts under CEQA would occur.

NEPA. As shown in Table 2-30, at both Opening Year 2016 and Horizon Year 2036, mobile-source criteria pollutant and CO₂ emissions are anticipated to increase under the build condition, when compared to no-build. However, these emissions would likely be off-set elsewhere outside of the immediate project vicinity due to traffic redistribution effects (i.e., traffic decreases) that were not accounted for in the project’s traffic impact study. Therefore, no adverse effects under NEPA would occur.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

As identified in Table 2-30, modeled emissions would be nominally reduced under Alternative 2 (No-Build Alternative) when compared to Alternative 1 (Build Alternative). However, this alternative would not provide improved connectivity and more direct access to SR-210.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization measures, will be implemented to minimize short-term air quality impacts:

- **AQ-1:** To control the generation of construction-related fugitive dust emissions, the construction contractors will be required to comply with SCAQMD's Rule 403 requirements. Applicable PM₁₀ and PM_{2.5}-reducing construction practices presented in Rule 403 must be implemented throughout construction.
- **AQ-2:** The construction contractor shall comply with Caltrans' current Standard Specifications in Section 14.
- **AQ-3:** Section 14-9.01 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-4:** Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- **AQ-5:** Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right of way line, depending on local regulations.
- **AQ-6:** Spread soil binder on any unpaved roads used for construction purposes and all project construction parking areas.
- **AQ-7:** Rinse off trucks as they leave the right of way as necessary to control fugitive dust emissions.
- **AQ-8:** Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment, as provided in California Code of Regulations Title 17, Section 93114.
- **AQ-9:** Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts on existing communities.
- **AQ-10:** Locate equipment and material storage sites as far away from residential and park uses as practical, with a minimum distance of 300 feet.
- **AQ-11:** Establish Environmentally Sensitive Areas (ESAs) or their equivalent near sensitive air receptors where construction activities involving extended idling of diesel equipment would be prohibited, in compliance with applicable AQMD requirements.
- **AQ-12:** Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.

- **AQ-13:** Cover all transported loads of soils and wet materials prior to transport or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emissions of dust (particulate matter) during transportation.
- **AQ-14:** Promptly and regularly remove dust and mud on paved public roads from construction activity and traffic to decrease particulate matter.
- **AQ-15:** Route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- **AQ-16:** Install mulch or plant vegetation as soon as practicable following completion of all site disturbance activities to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues; controls, such as dampened straw, may be needed.

CLIMATE CHANGE

Climate change is analyzed at the end of this chapter. Neither the United States Environmental Protection Agency (U.S. EPA) nor Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in a separate California Environmental Quality Act (CEQA) discussion at the end of this chapter and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

2.14 Noise

REGULATORY SETTING

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The CEQA noise analysis is included at the end of this section.

NATIONAL ENVIRONMENTAL POLICY ACT AND 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

Table 2-31. Noise Abatement Criteria

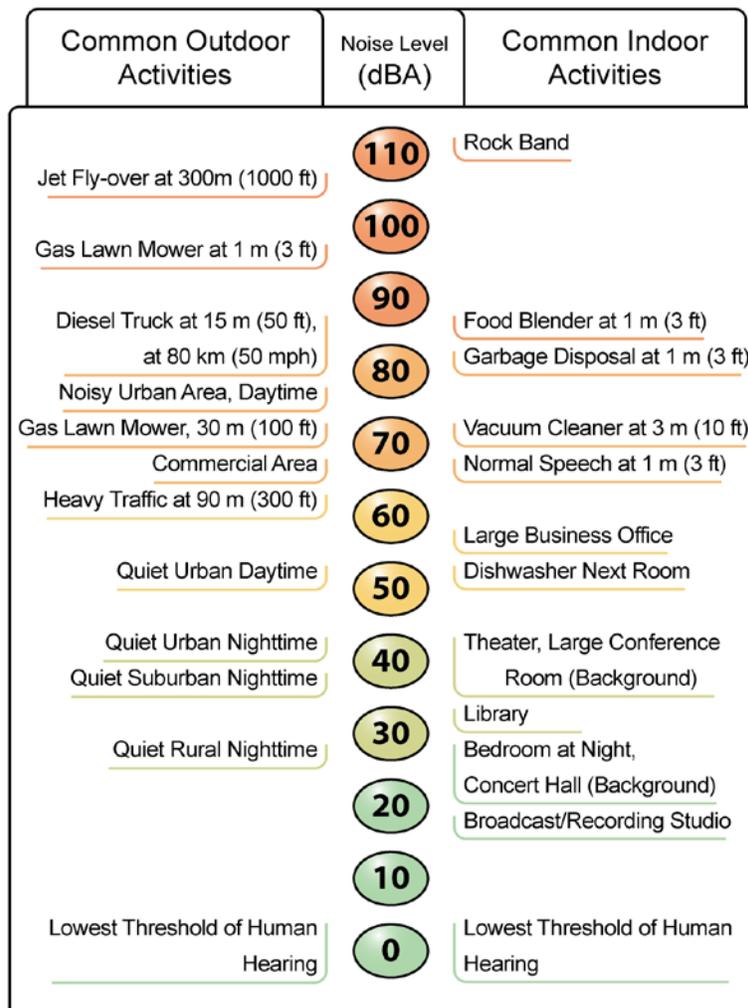
Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ¹	67 (Exterior)	Residential.
C ¹	67 (Exterior)	Active sport areas, amphitheatres, 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.

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

¹ Includes undeveloped lands permitted for this activity category.

Figure 2-20 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Figure 2-20. Noise Levels of Common Activities



In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, May 2011, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 7 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

AFFECTED ENVIRONMENT

Information used in this section is based upon the January 2014 *Noise Study Report* and March 2014 *Noise Abatement Decision Report*.

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. *Noise* is generally defined as unwanted or annoying sound that is typically associated with human activity and that interferes with normal activities. Sound levels are measured and expressed in decibels (dB). The human ear does not respond uniformly to sounds at all frequencies, being less sensitive to low and high frequencies than to medium frequencies, which correspond with human speech. In response, the A weighted noise level (or scale) has been developed. This A-weighted sound level is called the "noise level," which is referenced in units of dBA. Noise is measured on a logarithmic scale; a doubling of sound energy results in a three-dBA increase in noise levels. The human ear, however, does not typically notice changes in noise levels of less than three dBA. The *equivalent noise level* (Leq) is the average A weighted sound level measured over a given time interval. Leq can be measured over any time period, but is typically measured for 1-hour periods and is expressed as Leq(h).

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Land uses in the project area were categorized by land use type; Activity Category, as defined in Table 2-31; and the extent of frequent human use. Sports and recreation areas at Frisbie Park were identified as Activity Category C land uses in the project area. Although all developed land uses are evaluated in this analysis, as required by the Protocol, noise abatement was considered only for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as recreation areas.

Noise Measurement Sites

Existing noise levels were measured from March 13 through March 14, 2012. An additional, background noise measurement was conducted on April 10, 2012. Short-term monitoring (15 minutes in duration each) was conducted at three locations in the project area, and long-term monitoring (15-minute intervals taken for 24 hours or more) was conducted at one location (LT1). The measured and modeled locations are identified in Figure 2-21. The short-term measurement locations are also identified in Figure 2-21.

Noise monitoring sites (ST-1 through ST-3) were selected to be representative of ambient noise conditions near SR-210. One measurement (ST-4) was conducted to document other sources that contribute to noise levels in the project area (i.e., background noise). Background noise measurement ST-4 was located sufficiently far from SR-210 (approximately 2,300 feet away), such that the freeway did not influence the measured noise levels. Table 2-32 summarizes the results of the short-term noise monitoring conducted in the project area. The dominant source of background noise levels was observed to be local traffic, measured at sound levels of 44 to 45 dBA Leq. These levels are less than 10 dB below the measured noise levels near SR-210; therefore background community noise levels are negligible for the purposes of the subject project's noise impact analysis.

Table 2-32. Summary of Short-Term Measurements

Site ID	Area/ Measurement Location	Land Use/ Activity Category	Measurement Results (dBA)		Peak Noise-Hour Leq (dBA) ¹
			L _{eq}	L _{max}	
ST1	Frisbie Park (west end), 1920 Acacia Avenue	Recreation / B	64.1	70.5	69.9
			64.5	71.1	70.3
ST2	Frisbie Park (central-east portion), 1920 Acacia Avenue	Recreation / B	62.7	68.8	69.7
			62.9	70	69.9
ST3	Southeast side of proposed SR-210/Pepper Avenue Interchange	Undeveloped / G	56.6	64.5	63.2
			55.8	63.6	62.4
ST4 ²	1586 Mulberry Avenue	Residential / B	44.3	57.6	50
			45.1	58.7	50.8

Note: Refer to Figure 2-21 for measurement locations.
¹ Measured existing noise level, adjusted to the peak-noise-hour level using diurnal noise data from LT-1.
² No Calibration runs were necessary for ST-4. This receiver location was gathered for the purposes of deriving background noise levels devoid of SR-210
Source: *Noise Study Report 2014*

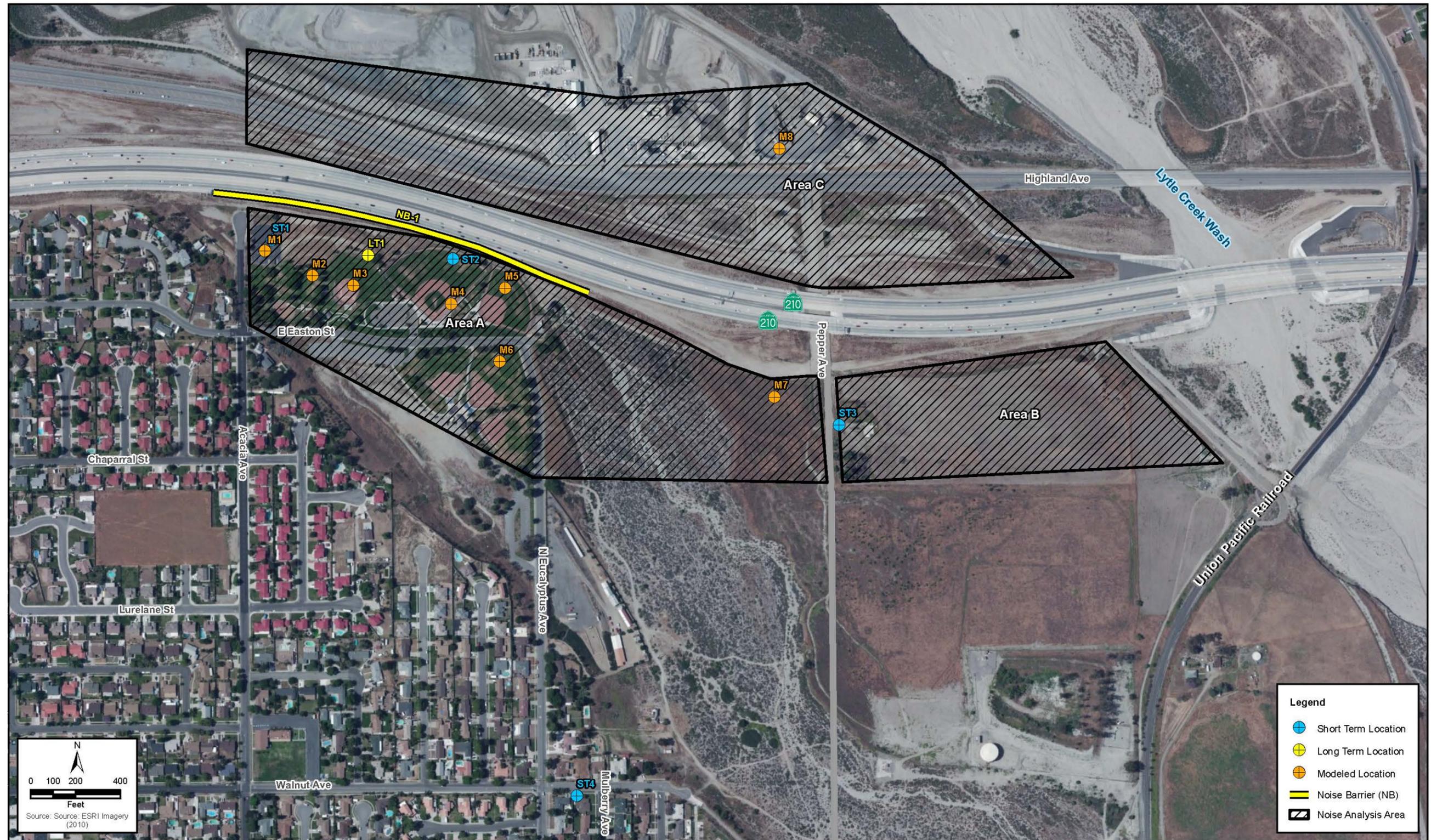


Figure 2-21
Analysis Areas, Noise Monitoring and Modeling Locations and Locations of Evaluated Noise Barriers

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Long-term monitoring was conducted at one location (LT1), located just north of the sports fields at Frisbie Park (1920 North Acacia Avenue), near the central portion of the park (in an east-west direction). The site was selected in order to document the daily traffic noise pattern, which was dominated by traffic noise on SR-210. The purpose of the long-term noise measurement was to determine the changes in noise levels within the project area throughout a typical day. Using the difference, or offset, in the simultaneous noise levels between the short-term and long-term data, the long-term measurement at LT1 was used to estimate existing peak-noise-hour levels at the representative short-term receivers. The long-term sound level data were collected from Tuesday, March 13, 2012, to Wednesday, March 14, 2012. The results of the long-term monitoring are summarized in Table 2-33.

Table 2-33. Summary of Long-Term Monitoring at Location LT-1

Date	Time (hour beginning)	1-Hour L_{eq} (dBA)	Difference from Loudest Hour (dB)
March 13, 2012	11:00:00	66.3	-5.8
	12:00:00	65.1	-7.0
	13:00:00	65.5	-6.6
	14:00:00	66.4	-5.7
	15:00:00	66.8	-5.3
	16:00:00	67.5	-4.6
	17:00:00	67.9	-4.2
	18:00:00	67.0	-5.1
	19:00:00	65.9	-6.2
	20:00:00	65.9	-6.2
	21:00:00	66.4	-5.7
	22:00:00	65.8	-6.3
	23:00:00	65.6	-6.5
March 14, 2012	0:00:00	63.5	-8.6
	1:00:00	61.9	-10.2
	2:00:00	62.2	-9.9
	3:00:00	62.5	-9.6
	4:00:00	64.4	-7.7
	5:00:00	67.1	-5.0
	6:00:00	69.9	-2.2
	7:00:00	72.1	0.0
	8:00:00	70.1	-2.0
	9:00:00	67.5	-4.6
	10:00:00	66.4	-5.7
Maximum		72	
Minimum		62	
Note: Worst-case noise hour is bolded . Source: Noise Study Report 2014			

According to Table 2-33, the loudest-hour noise level measured was 72.1 dBA Leq(h) during the 7 AM–8 AM hour.

The FHWA Traffic Noise Model (TNM Version 2.5) was used to compare measured traffic noise levels to modeled noise levels at field measurement locations using traffic count data collected at the time of the noise measurements. Table 2-34 compares measured and modeled noise levels at each measurement location. Appropriate agreement (less than four decibels) was achieved between the measured and modeled results.

Calibration results that did not agree with measured noise levels within two decibels were adjusted by the use of K-factors for the subsequent modeling of existing and future peak-noise-hour traffic noise. Table 2-34 shows which adjustment factors were applied to each modeling receiver. If the absolute value of the K-factor was less than two dBA, then the TNM modeling result was not adjusted.

Table 2-34. Comparison of Measured with Modeled Peak-Noise-Hour Sound Levels

Measurement Location	Measured Existing Sound Level (dBA)	Modeled Existing Sound Level (dBA)	Measured minus Modeled (dB)	K-Factor Used
ST1	64.1	65.7	-1.6	0
ST2	62.7	64.4	-1.7	0
ST3	56.6	59.6	-3.0	-3

To more accurately model the proposed interchange and the project area, the existing and future alignments were divided into three areas, and this is shown in Figure 2-21:

- Area A, south of SR-210 and adjacent to the EB off-ramp of the proposed SR-210/Pepper Avenue interchange. Land uses within Area A include baseball fields, a basketball court, and playground area in Frisbee Park. These land uses all fall within Activity Category C (67 dBA Leq[h]).
- Area B, south of SR-210 and adjacent to the EB on-ramp of the proposed SR-210/Pepper Avenue interchange. Area B is completely undeveloped and would fall within Activity Category G.
- Area C, north of Highland Avenue and the proposed SR-210/Pepper Avenue interchange. Land uses within Area C consist of undeveloped areas and industrial areas in the form of an aggregate quarry. Land uses in Area C fall under Activity Category F.

Noise levels were modeled at eight receivers (M1 through M8) using traffic count data as discussed further below. Table 2-36 presents the existing modeled noise levels at each receiver (ST1 through ST3 and modeled-only receivers M1 through M8). As shown in Table 2-36, existing peak-noise-hour traffic noise levels range from 58 to 68 dBA Leq(h). FHWA/Caltrans NAC is currently approached or exceeded at four (4) of the modeled receptors, which are representative of three (3) noise-sensitive (recreation) uses.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Temporary Increase in Community Noise Levels during Construction Activities. During construction of Alternative 1 (Build Alternative), noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by the Caltrans’s provisions in Section 14-8.02, “Noise Control” of the 2010 Standard Specifications and Special Provisions (SSP 14-8.02). Table 2-35 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects.

Table 2-35. Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels (dBA L _{max} at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA L _{max} at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	74 to 84	80
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Cranes	79 to 86	82
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	77 to 90	85
Tractors	77 to 82	80
Front-End Loaders	77 to 90	86
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 89	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman 1987
dBA = A-weighted decibels; L_{max} = maximum instantaneous noise level

Two types of short term noise impacts would occur during project construction. The first type would be from construction crew commutes, the transport of construction equipment, and materials to the project site, which would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities would be moved on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the project vicinity. A high single event noise exposure potential at a maximum level of 87 dBA L_{max} from trucks passing at 50 feet would exist. However, the projected construction traffic would be minimal when compared to existing traffic volumes on SR-210 and other affected streets, and its associated long term noise level change would not be perceptible. Therefore, construction related worker commutes and equipment transport noise impacts would be short-term and would not be adverse.

The second type of short-term noise impact would be from construction activities. Construction is performed in distinct steps, each of which has its own mix of equipment and consequently, its own noise characteristics. These various, sequential phases would change the character of the noise generated and the noise levels, along the project alignment as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation, allow construction related noise ranges to be categorized by work phase. Table 2-35 lists typical construction equipment noise levels (in L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Typical noise levels at 50 feet from an active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

Construction of Alternative 1 (Build Alternative) would require the use of earthmovers, bulldozers, paving machines, water trucks, dump trucks, concrete trucks, rollers, and pickup trucks. Noise associated with the use of construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 feet from the active construction area for the grading phase. As seen in Table 2-35, the maximum noise level generated by each earthmover is assumed to be approximately 86 dBA L_{max} at 50 feet from the earthmover in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 feet. The maximum noise level generated by water trucks and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA.

Each piece of construction equipment operates as an individual point source. The worst case composite noise level at the nearest residence during this phase of construction would be 91 dBA L_{max} (at a distance of 50 feet from an active construction area).

In addition to the standard construction equipment, the project may require the use of pile drivers, however, the use of pile drivers is highly unlikely and not anticipated at this time. As shown in Table 2-35, pile driving generates noise levels of up to 96 dBA L_{max} at 50 feet.

Construction noise would be short-term, intermittent, and overshadowed by local traffic noise. No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with applicable local noise standards and Caltrans' provisions in Section 14-8.02, "Noise Control," of the 2010 Standard Specifications and Special Provisions and applicable local noise standards (see measure **NOI-1** on Page 2-149).

Table 2-36 summarizes the traffic noise modeling results for existing conditions and design-year conditions with and without the project (Alternative 1 [Build Alternative] and Alternative 2 [No-Build Alternative]). The table also identifies whether noise abatement would be considered, predicted noise level with abatement, and whether the abatement would be considered reasonable and feasible. A detailed discussion of noise abatement is presented under Avoidance, Minimization, and/or Abatement Measures, on Page 2-149.

Table 2-36. Noise Levels for Existing, Future No-Build, and Future Build

Receptor ID	Area	Existing (2011) Noise Level (dBA)	Design Year (2036) Noise Level without Project (No-Build) (dBA)	Design Year (2036) Noise Level with Project (Build) (dBA)	Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement (dBA)						Reasonable and Feasible
						6-foot wall	8-foot wall	10-foot wall	12-foot wall	14-foot wall	16-foot wall	
M1	A	67	68	69	Yes	66	65	64	62	61	60	No
ST1	A	68	69	69	Yes	67	66	64	63	62	61	No
M2	A	67	69	69	Yes	67	65	65	63	62	61	No
M3	A	66	67	67	No ¹	65	64	63	61	61	60	No
M4	A	65	66	67	No ¹	65	64	63	61	60	60	No
ST2	A	66	67	68	No ¹	66	65	63	62	62	61	No
M5	A	65	66	68	No ¹	66	64	63	62	61	61	No
M6	A	62	64	64	No	63	62	61	60	59	58	No
M7	A	62	64	65	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ST3	B	58	60	66	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a
M8	C	64	66	67	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a

¹ Although not impacted, these receivers were included in the abatement analysis since they were located adjacent to the impacted receptors.

The results in Table 2-36 indicate that predicted traffic noise levels for the design-year (2036) with- and without-project conditions would approach (i.e., be within 1 dB) or exceed the NAC of 67 dBA Leq(h) for Activity Category C (recreation) land uses at seven receivers (M1, ST1, M2, M3, M4, ST2, and M5), all located within Area A. Within Area A, modeled design-year without project noise levels range from 64 dBA Leq(h) to 69 dBA Leq(h). Overall, modeled design-year noise levels range from 64 dBA Leq(h) to 69 dBA Leq(h).

Areas B and C do not have land uses classified as noise-sensitive per 23 CFR 772; however, the noise analysis includes modeled receivers for these areas in order to document the predicted future Alternative 1 (Build Alternative) noise levels for these areas. As shown in Table 2-36, Area B (an undeveloped area represented by receiver ST-3) would have a future Alternative 1 (Build Alternative) peak-hour traffic noise level of 66 dBA Leq, and Area C (a sand and gravel mining facility represented by receiver M8) would have a future Alternative 1 (Build Alternative) peak-hour traffic noise level of 67 dBA Leq.

The CEQA noise analysis is completely independent of the NEPA 23 CFR 772 analysis discussed in this section, which is centered on noise abatement criteria. 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.

Increases in noise levels between existing and future Alternative 1 (Build Alternative) conditions at the noise sensitive receptors in Area A would range from 2 dBA to 3 dBA. An increase of 3 or 4 dBA is considered to be barely perceptible to the human ear; while an increase of 5 dBA would be moderately perceptible. Furthermore, the majority of these receptors are associated with Frisbie Park. Frisbie Park's primary function is as an outdoor play area used for youth sports with an existing noise environment; the park is not reliant upon a quiet or tranquil environment in order to function. Therefore, under CEQA no significant noise impact would occur as a result of Alternative 1 (Build Alternative) and mitigation under CEQA would not be required.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

The results in Table 2-36 indicate that predicted traffic noise levels for the design-year (2036) without-project (Alternative 2 [No-Build Alternative]) and with-project (Alternative 1 [Build Alternative]) conditions would approach or exceed the NAC of 67 dBA Leq(h) for Activity Category C (recreation) land uses at seven receivers (M1, ST1, M2, M3, M4, ST2, and M5), all located within Area A. Modeled design-year without project noise levels range from 60 dBA Leq(h) at receiver ST3 to 69 dBA Leq(h) at receivers ST1 and M2. Overall, impacts would be similar to Alternative 1 (Build Alternative), except for M1, ST1, M4, ST2, M5, M7, and M8, which would measure 1-2 dBA less, and ST3, which would measure 6 dBA less, than Alternative 1 (Build Alternative).

AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

A Preliminary Noise Abatement Analysis was conducted to determine appropriate abatement measures. Noise barriers are evaluated for feasibility based on achievable noise reduction. For each noise barrier found to be acoustically feasible, reasonable cost allowances are calculated. For any noise barrier to be considered reasonable from a cost perspective, the estimated cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. A single noise barrier (Barrier NB-1) was evaluated for feasibility based on achievable noise reduction and reasonable cost allowance in the Noise Abatement Decision Report (NADR). The results are summarized below:

The traffic noise modeling results in Table 2-36 indicate that traffic noise levels at recreation areas within Frisbie Park in Area A are predicted to be in the range of 64 to 69 dBA Leq(h) in the design year. The results also indicate that the change in traffic noise between existing conditions and the design year is predicted to range from zero (0) dB at receivers M2, M3, M6, and m ST1 to two (2) dB at receiver M5. Because the noise level in the design year is predicted to approach or exceed the noise abatement criterion (67 dBA Leq[h]), traffic noise impacts are predicted at recreation land uses in this area, and noise abatement must be considered.

Receivers M1, ST1, M2, M3, M4, M5 and M6 represent a total of seven benefited receivers in Area A. Detailed modeling analysis was conducted for a barrier located at the edge of shoulder, which because of the source-receiver geometry, is the only location at which a noise barrier would be effective. The barrier evaluated is identified as Barrier NB-1 in Figure 2-21. Barrier heights in the range of 6 to 16 feet were evaluated in two-foot increments. Barriers ranging from 12 feet to 16 feet in height were determined to be feasible. To achieve a 5 dBA reduction (with a 7 dBA reduction for at least one receptor), a 12-foot noise wall would be needed. This wall would benefit six receivers. A 14-foot noise wall would be needed to benefit all seven receivers. If the total cost of the wall at this location is less than the total cost allowance, then the wall would likely be incorporated into the project. The total cost allowance, calculated in accordance with the Department's Traffic Noise Analysis Protocol, is \$330,000 for a 12-foot wall and \$385,000 for a 14-foot or 16-foot wall. However, the current estimated cost of the 12-foot wall is \$1,335,980, \$1,442,790 for the 14-foot wall, and \$1,532,550 for the 16-foot wall. Therefore, the walls were found to be not reasonable and noise walls are not proposed as part of the project (see Table 2-36).

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

To ensure that noise effects are minimized during construction, the contractor will adhere to the following minimization measures.

- **NOI-1:** Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of Caltrans' 2010 Standard Specifications and Special Provisions. The contractor shall not exceed 86 dBA L_{max} at 50 feet from the job site from 9 p.m. to 6 a.m. Internal combustion

engines shall be equipped with the manufacturer-recommended muffler. Internal combustion engine shall not be operated on the job site without the appropriate muffler.

For areas of project located within or adjacent to City of Rialto limits, City of Rialto Municipal Code Section 9.50 070 (Ordinance No. 1417) shall also apply during construction:

9.50.070 Disturbances from Construction Activity

A. No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided for by subsection B of this section.

B. The permitted hours for such construction work are as follows:

1. October 1st through April 30th.

Monday-Friday: 7:00 a.m. to 5:30 p.m.

Saturday: 8:00 a.m. to 5:00 p.m.

Sunday: No permissible hours

State holidays: No permissible hours

2. May 1st through September 30th:

Monday-Friday: 6:00 a.m. to 7:00 p.m.

Saturday: 8:00 a.m. to 5:00 p.m.

Sunday: No permissible hours

State holidays: No permissible hours

- **NOI-2:** In conjunction with adhering to measure **NOI-1** (above), if necessary in order to ensure implementation of measure **NOI-1**, the contractor may be required to implement additional noise reducing measures; including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

BIOLOGICAL ENVIRONMENT

2.15 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species (Section 2.19). Wetlands and other waters are discussed in Section 2.16.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Natural Environment Study*.

The biological study area (BSA) evaluated for the proposed project consists of the project footprint and an overall 200-foot buffer. The exception to this is that the study areas for each focused survey varied.

HABITAT TYPES

Vegetation community types supported within the study area are classified into nine vegetation communities: Riversidean alluvial fan sage scrub (RAFSS), disturbed Riversidean alluvial fan sage scrub, Riversidean sage scrub (revegetated), mule fat scrub, nonnative grassland, nonnative grassland/sambucus woodland, ruderal/disturbed, ornamental, and developed. These vegetation community types are described below and summarized in Table 2-37 and shown in Figure 2-22, Vegetation Communities.

Table 2-37. Biological Study Area Acreages by Vegetation Community

Vegetation Community	Biological Study Area (acre)	Project Footprint (acre)
Riversidean Alluvial Fan Sage Scrub	3.71	0.00
Disturbed Riversidean Alluvial Fan Sage Scrub	5.45	0.00 ^a
Riversidean Sage Scrub (revegetated)	28.06	18.98
Mulefat Scrub	0.36	0.00
Nonnative Grassland	3.79	0.59
Nonnative Grassland/Sambucus Woodland	2.38	0.08
Ruderal/Disturbed	12.78	6.55
Ornamental ^b	0.94	0.35
Developed	28.41	16.48
Total	85.88	43.03

^a No impacts to Disturbed Riversidean Alluvial Fan Sage Scrub would occur. All impacts would occur within the Developed portion of the SR-210 bridge over Lytle Creek Wash.

^b Includes *Platanus racemosa* and *Sambucus nigra*.

Riversidean Alluvial Fan Sage Scrub (RAFSS)

RAFSS occurs within approximately 3.71 acres of the BSA on the terraces of Lytle Creek Wash, and within a tributary of Lytle Creek in the southwest quadrant of the BSA. This community occurs within floodplains that experience infrequent but severe flood events. Plants occurring within this community are often drought-deciduous soft-leaved shrubs, with upland plants growing in the herb layer during non-flooding years. Within the BSA, the diversity of the RAFSS was high and included California Buckwheat (*Eriogonum fasciculatum*), California Broomsage (*Lepidospartum squamatum*), Hairy Yerba Santa (*Eriodictyon trichocalyx*), Lance-leaved Dudleya (*Dudleya lanceolata*), Deerweed (*Acmispon glaber*), Sapphire Woollystar (*Eriastrum sapphirinum*), California Sun Cup (*Cammsoniopsis bistorta*), Threadleaf Ragwort (*Senecio flaccidus*), California croton (*Croton californicus*), Black Sage (*Salvia mellifera*), White Sage (*S. apiana*), Chia (*S. columbariae*), Chaparral Yucca (*Hesperoyucca whipplei*), and California sagebrush (*Artemisia californica*).

Santa Ana River Woollystar, a federal and state listed species, was found within this community within the 200-foot buffer associated with the BSA. Additional details are provided in Section 2.19 (Threatened and Endangered Species).

Disturbed Riversidean Alluvial Fan Sage Scrub

The Disturbed RAFSS occurs within Lytle Creek Wash and comprises approximately 5.45 acres. Portions of Lytle Creek Wash are frequently disturbed by severe flash floods and by recreational users (i.e., off-road vehicles and equestrians); therefore, vegetation within Lytle Creek Wash is sparse and very patchy. Vegetation primarily consisted of California Buckwheat and Deerweed, with a few sparse herbs growing throughout.

Santa Ana River Woollystar was also observed within the 200-foot buffer in Lytle Creek Wash.

Riversidean Sage Scrub (revegetated)

This community is located entirely within previously graded and compacted areas associated with the rough-graded SR-210/Pepper Avenue interchange, manufactured slopes associated with SR-210, and two existing flood control basins located in the northeast and northwest quadrants of the BSA (Basins 1 and 2) (approximately 28.06 acres). These areas were subject to disturbance associated with the construction of SR-210, and have been revegetated with RSS species. Dominant species are California Buckwheat, Deerweed, Brittlebush (*Encelia californica*), and Telegraph Weed (*Heterotheca grandiflora*).

Mulefat Scrub

There is a small patch of Mulefat Scrub (approximately 0.36 acre) within the floodplain of Lytle Creek Wash, located in the southeastern quadrant of the BSA. This community is fairly disturbed due to disturbances associated with Lytle Creek (i.e., flooding and recreational activities); therefore, this community is relatively monotypic and primarily consists of Mulefat (*Baccharis salicifolia*).

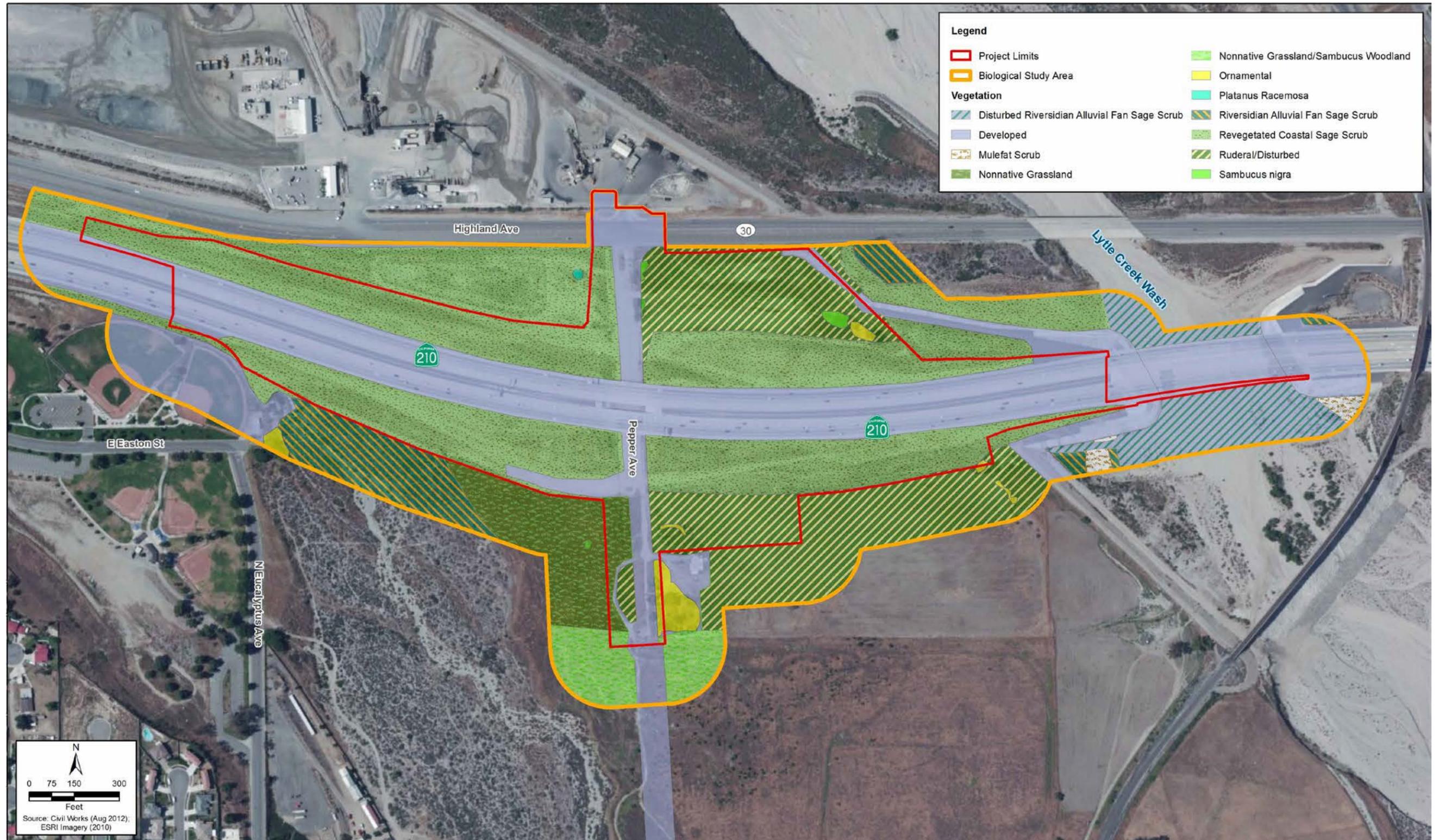


Figure 2-22
Biological Study Area Vegetation Communities

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Nonnative Grassland

The Nonnative Grassland is located within 3.79 acres west of Pepper Avenue and south of SR-210. The dominant species within this community are Rattail Sixweeks Grass (*Festuca myuros*), Rippgut Brome (*Bromus diandrus*), Compact Brome (*B. madritensis*), Downy Chess (*B. tectorum*), Common Fiddleneck (*Amsinckia menziesii*), Oat (*Avena* sp.), Hairy Vetch (*Vicia villosa*), and Wall Barley (*Hordeum murinum*).

Nonnative Grassland/Sambucus Woodland

This community comprises approximately 2.38 acres on both sides of the existing Pepper Avenue right of way, south of SR-210. The majority of the species dominant within the Nonnative Grassland (described above) are the dominant herbs within this community, including Rippgut Brome, Compact Brome, Common Fiddleneck, Oat, Hairy Vetch, and Wall Barley. In addition, there are several scattered individual Mexican Elderberry (*Sambucus nigra*), which comprise the woodland overstory within this community.

Ruderal/Disturbed

Roughly 12.78 acres of the BSA consists of ruderal/disturbed vegetation. Ruderal areas typically lack natural topography because they are often in disturbed areas that have been manipulated by activities such as discing or grading, such that the disturbances discourage growth of native vegetation. The dominant species in ruderal areas are often tolerant of frequent disturbances or soil compaction, and are typically nonnative or weedy in nature. Within the BSA, the common ruderal vegetation consisted of Rippgut Brome, Compact Brome, Tocolote (*Centaurea melitensis*), Russian Thistle (*Salsola tragus*), Common Sunflower (*Helianthus annuus*), Telegraph Weed, Tumbleweed (*Amaranthus albus*), Shortpod Mustard (*Hirschfeldia incana*), London Rocket (*Sisymbrium irio*), Lamb's Quarters (*Chenopodium album*), Nettleleaf Goosefoot (*C. murale*), Turkey Mullein (*Croton setigerus*), Sourclover (*Melilotus indicus*), Jimsonweed (*Datura stramonium*), and Puncturevine (*Tribulus terrestris*).

Ornamental

There are a number of trees within the BSA that have been planted as ornamentals such as Gum trees (*Eucalyptus* sp.) and Mexican Fan Palms (*Washingtonia robusta*). In addition, there are Mexican Elderberry (*Sambucus nigra*) shrubs and a Western Sycamore (*Platanus racemosa*) in the BSA that are disassociated with any other particular community. This community occurs on approximately 0.94 acre of the BSA.

Developed

The remainder of the BSA (approximately 28.41 acres) consists of developed lands in the form of the active roadway associated with SR-210 and bare ground (unvegetated) areas underneath the existing SR-210 undercrossing of Pepper Avenue, and Frisbee Park in the southwest quadrant of the BSA. Additional developed areas comprise compacted dirt roadways associated with the Pepper Avenue right of way. These dirt roadways have highly compacted soils that would not

support vegetation growth. In addition, these areas are frequently used by vehicles that further compact soils, inhibiting future vegetation growth.

WILDLIFE CORRIDORS

Wildlife corridors are often linear and facilitate efficient wildlife movement by providing adequate cover and lack of physical obstacles. Wildlife corridors do not provide Live-In Habitat for species.

Within the BSA, Lytle Creek may be used by wildlife as a corridor between the San Gabriel Mountains and the Santa Ana River. Although the southern portion of Lytle Creek has been channelized and adjacent areas developed, the topography of the creek is sufficient to accommodate animal movement.

ENVIRONMENTAL CONSEQUENCES

RAFSS is the only sensitive natural vegetation community present within the BSA. RAFSS is a plant community of concern because of the extent that the community has been drastically reduced during recent decades primarily due to flood control activities and human development in the region. RAFSS provides potential habitat for a number of special-status species, including SBKR, Los Angeles Pocket Mouse, Santa Ana River Woollystar, and Slender-horned Spineflower.

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Alternative 1 (Build Alternative) would not directly impact RAFSS or Disturbed RAFSS. In the area of existing RAFSS, construction work would be limited to the defined project footprint and would not encroach into RAFSS. The construction work proposed in the area of the Disturbed RAFSS would occur on the existing bridge (approximately 30 feet above the elevation of Lytle Creek Wash), and no disturbances are proposed within Lytle Creek Wash. There is a potential for indirect impacts to RAFSS due to construction activities, such as dust, spread of invasive weeds, and temporary dewatering of the site. Implementation of avoidance and minimization measures **BIO-1** through **BIO-11**, as well as minimization measure **AQ-1** (dust control) in Section 2.13 (see Page 2-135), would ensure that no impacts would occur to any RAFSS occurring adjacent to the project footprint.

In addition, the sensitive RAFSS beyond the project area is occupied habitat for three special-status species: SBKR, Los Angeles Pocket Mouse, and Santa Ana River Woollystar (refer to Sections 2.18 and 2.19). Although no direct removal of vegetation would occur, potential indirect impacts to RAFSS may also affect these species.

Over the long-term, there is a potential for indirect impacts to RAFSS from motor vehicles and pedestrians traversing the community. There is a potential for a spread of invasive weeds and degradation of the community. These impacts would be the same as existing conditions.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Direct impacts to RAFSS would not occur under this alternative. However, over the long-term, there is a potential for indirect impacts to RAFSS from motor vehicles and pedestrians traversing the community. There is also a potential for a spread of invasive weeds and degradation of the community.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of the following avoidance and minimization measures, in addition to minimization measure **AQ-1** on Page 2-135 in Section 2.13 and measures **HAZ-1** and **HAZ-3** on Pages 2-116 and 2-117 in Section 2.12 would ensure that impacts during construction are minimized. No mitigation measures would be required.

- **BIO-1: Avoid Clearing and Grubbing of RAFSS.** RAFSS is located within the buffer associated with the Biological Study Area (BSA), but is not located within the project footprint; therefore, clearing and grubbing of RAFSS would be avoided. Clear marking of construction limits will be implemented to ensure that impacts to RAFSS do not occur.
- **BIO-2: Regular watering for dust control.** Active construction areas will be watered regularly to control dust and minimize impacts to adjacent vegetation.
- **BIO-3: Firefighting Equipment and Preparation.** When work is conducted adjacent to RAFSS or Riversidean sage scrub, appropriate firefighting equipment (e.g., extinguishers, shovels, water truck) will be available on the project site during all phases of project construction to help minimize the chance of construction-related wildfires. Shields, protective mats, and/or other fire preventative methods will be used during grinding, welding, and other spark-inducing activities.
- **BIO-4: Environmental Training for All Construction Personnel.** A qualified biologist will conduct an environmental training session for all project personnel prior to staging or grading activities. The training will include a description of the species of concern and their habitats, the general provisions of the Federal Endangered Species Act and the California Endangered Species Act, the need to adhere to the provisions of the federal and state Endangered Species Acts, penalties associated with violating the provisions of the Acts, the general measures that are being implemented to conserve the species of concern as they relate to the proposed project, and the access routes and project site boundaries within which the project activities must be accomplished.
- **BIO-5: Presence of a Biological Monitor during Construction Activities.** A qualified biologist will be present to monitor construction activities for the duration of the proposed project to ensure that all practicable measures are being employed to avoid incidental disturbance of habitat and species of concern outside of the project limits. Special attention will be provided to ensure that the Environmentally Sensitive Area (ESA) (in **BIO-6**, below) fencing is installed correctly and maintained daily. Additionally, ongoing monitoring and reporting will occur for the duration of construction activities to ensure implementation of BMPs.

- **BIO-6: Installation of ESA Fencing.** Construction limits adjacent to sensitive resource areas (i.e., RAFSS) will be demarcated using ESA fencing (i.e., orange snow screen), which will be installed by construction personnel under supervision of a biological monitor. Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the project footprint and designated staging areas and routes of travel. The construction area(s) will be the minimal area necessary to complete the proposed project and will be specified in the construction plans. The ESA fencing will be reviewed daily by the biological monitor (as indicated in **BIO-5**) until the completion of all construction activities, or at a regular interval as to be determined in coordination with USFWS and CDFW. Construction personnel will be instructed that their activities are restricted to construction areas.
- **BIO-7: Removal of Exotic Plant Species.** Any exotic species that are removed during construction will be properly handled to prevent sprouting or regrowth on site.
- **BIO-8: Clean Construction Equipment of Mud and Debris.** Construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected by construction personnel to reduce the potential of spreading noxious weeds before mobilizing to the site and before leaving the site during the course of construction. Cleaning of equipment will occur at least 300 feet from ESA fencing in a designated area and will not drain to jurisdictional waters.
- **BIO-9: Guidance on Removal and Disposal of Vegetation.** Trucks carrying loads of vegetation that will be removed from the project site will be covered and disposed of in accordance with applicable laws and regulations.
- **BIO-10: Post-Construction Revegetation.** Once construction is complete, any disturbed areas remaining as bare ground will be hydro-seeded with a Caltrans-approved seed mix. The selection of planting seed mix and pre-emergents (herbicides) will be reviewed by the Caltrans District Biologist for consistency with Caltrans requirements.
- **BIO-11: Best Management Practices for Erosion Control and Water Pollution.** Applicable Best Management Practices will be implemented. These may include but are not limited to:
 - a. Water pollution and erosion control plans will be developed and implemented in accordance with Santa Ana Regional Water Quality Control Board (SARWQCB) requirements. Refer to measure **WR-1** on Page 2-102 in Section 2.9.
 - b. To avoid attracting wildlife to the project site, the construction will be kept as clean of debris as possible. All food related trash items will be enclosed in sealed containers and regularly removed from the site(s).

2.16 Wetlands and Other Waters

REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits, Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with *U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230)*, and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section (Section 2.9) for additional details.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Jurisdictional Delineation Report* and the February 2014 *Natural Environment Study*.

The February 2014 jurisdictional water resources delineation prepared for the proposed project was performed on May 4, 2012. The study area was defined as the project limits and an associated 100-foot buffer, including two basins, approximately 200 linear feet of Lytle Creek Wash, and one associated tributary.

Lytle Creek Wash and its tributaries connect to, or are direct tributaries of, the Santa Ana River. All features within the study area were delineated with the understanding that a request for a Preliminary Jurisdictional Delineation would be submitted for the project. As such, all features are considered waters of the U.S. (WoUS) under the jurisdiction of USACE, and subject to federal and state jurisdiction as regulated by the RWQCB. In addition, all features identified were determined to be subject to CDFW jurisdiction. Four drainages and two basins (total of six features) were observed and documented within the delineation study area (Figure 2-23). Table 2-38 presents a summary of waters of the U.S., waters of the State, and CDFW jurisdictional areas existing within the BSA. A description of each feature and its potential federal and state jurisdiction is as follows.

Drainage 1

Drainage 1 is an east-flowing ephemeral unnamed tributary of Lytle Creek Wash. The drainage consists of short, gradual banks and a sandy bed containing pockets of nonnative herbs and shrubs.

The primary purpose of the drainage is to convey runoff from SR-210. The dominant plant species associated with this feature include Shortpod Mustard, Deerweed, Telegraph Weed, and Ripgut Brome.

The drainage was dry at the time of this study (May 2012), though several areas throughout the feature contained indicators of seasonal flow events (i.e., sediment sorting). USACE jurisdiction, as indicated by the Ordinary High Water Mark (OHWM), averaged 2 feet throughout the drainage. No wetlands were observed in association with Drainage 1.

USACE/ Santa Ana Regional Water Quality Control Board (SARWQCB) jurisdictional areas associated with Drainage 1 within the study area totaled approximately 0.024 acre (527 linear feet) of non-wetland WoUS and waters of the State (WoS). CDFW jurisdiction totaled approximately 0.048 acre of unvegetated streambed (527 linear feet). No riparian vegetation was observed in association with Drainage 1. The extent of USACE, SARWQCB, and CDFW jurisdiction associated with the drainage is shown in Figure 2-23 (Sheet 1).

Drainage 2 (Frisbee Creek)

Drainage 2 (Frisbee Creek) is a southeast-flowing tributary of Lytle Creek Wash. Within the BSA, Drainage 2 ranges from short, gradual banks, to incised banks, and exhibits a sandy bed containing cobbles. The dominant plant species associated with this feature include Tall Flatsedge (*Cyperus eragrostis*) and Rye Grass (*Festuca perennis*).

The drainage contained water at the time of this study (May 2012), and several areas throughout the feature contained indicators of strong flow events. USACE jurisdiction, as indicated by the OHWM, averaged 17 feet throughout the drainage.

Jurisdictional areas associated with Drainage 2 within the study area totaled approximately 0.057 acre (204 linear feet) of USACE and SARWQCB jurisdiction, including 0.007 acre (37 linear feet) of USACE/ SARWQCB wetlands, and 0.050 acre (167 linear feet) of non-wetland waters of the U.S. and waters of the State. CDFW jurisdiction totaled approximately 0.094 acre (204 linear feet), including 0.007 acre (37 linear feet) of CDFW riparian vegetation and 0.087 acre (167 linear feet) of unvegetated streambed. The extent of USACE, SARWQCB, and CDFW jurisdiction associated with the drainage is shown in Figure 2-23 (Sheet 1).

Drainage 3

Drainage 3 is a short, southeast-flowing ephemeral unnamed tributary of Lytle Creek Wash. The drainage consists of very gradual banks and a sandy unvegetated bed. The dominant plant species associated with this feature include Shortpod Mustard, Tree Tobacco, Russian Thistle, Castor Bean (*Ricinus communis*), and Common Sunflower.

The drainage follows outside of the western bank of adjacent Lytle Creek Wash for approximately 700 feet. The drainage terminates outside of Lytle Creek Wash, approximately 20 feet from the western bank, but is apparently hydrologically connected to Lytle Creek Wash through groundwater due to its proximity to Lytle Creek Wash and earthen nature of the drainage, which allows for percolation and sub-surface connectivity.

The drainage was dry at the time of this study (May 2012), though several areas throughout the feature contained indicators of seasonal flow events. USACE jurisdiction, as indicated by the OHWM, averaged 11 feet throughout the drainage.

USACE/SARWQCB jurisdictional areas associated with Drainage 3 within the study area totaled approximately 0.028 acre (147 linear feet) of non-wetland waters of the U.S. and waters of the State. CDFW jurisdiction totaled approximately 0.053 acre (147 linear feet) of unvegetated streambed. No riparian vegetation was observed in association with Drainage 3. The extent of USACE, RWQCB, and CDFW jurisdiction associated with the wash is shown in Figure 2-22 (Sheet 2).

Drainage 4 (Lytle Creek Wash)

Lytle Creek Wash is a south-flowing blue-line tributary of the Santa Ana River. The wash consists of steep rip-rap banks and a sandy bed composed of deposited alluvium. The wash originates in the San Gabriel Mountains to the immediate north. The wash was sparsely vegetated and the dominant plant species associated with this feature included California Broomsage, California Buckwheat, and Deerweed.

The wash was dry at the time of the delineation (May 2012), though several areas throughout the feature contained indicators of seasonal flow events. USACE jurisdiction, as indicated by the OHWM, averaged 215 feet throughout the drainage.

USACE/SARWQCB jurisdictional areas associated with Drainage 4 (Lytle Creek Wash) within the study area totaled approximately 2.206 acres (263 linear feet) of non-wetland WoUS/WoS. No USACE/SARWQCB jurisdictional wetlands were observed within Drainage 4 (Lytle Creek Wash) within the study area. CDFW jurisdiction totaled approximately 2.514 acres (257 linear feet) of unvegetated streambed. No riparian vegetation was observed in association with Drainage 4 (Lytle Creek Wash). The extent of USACE, RWQCB, and CDFW jurisdiction associated with the wash is shown in Figure 2-22 (Sheet 2).

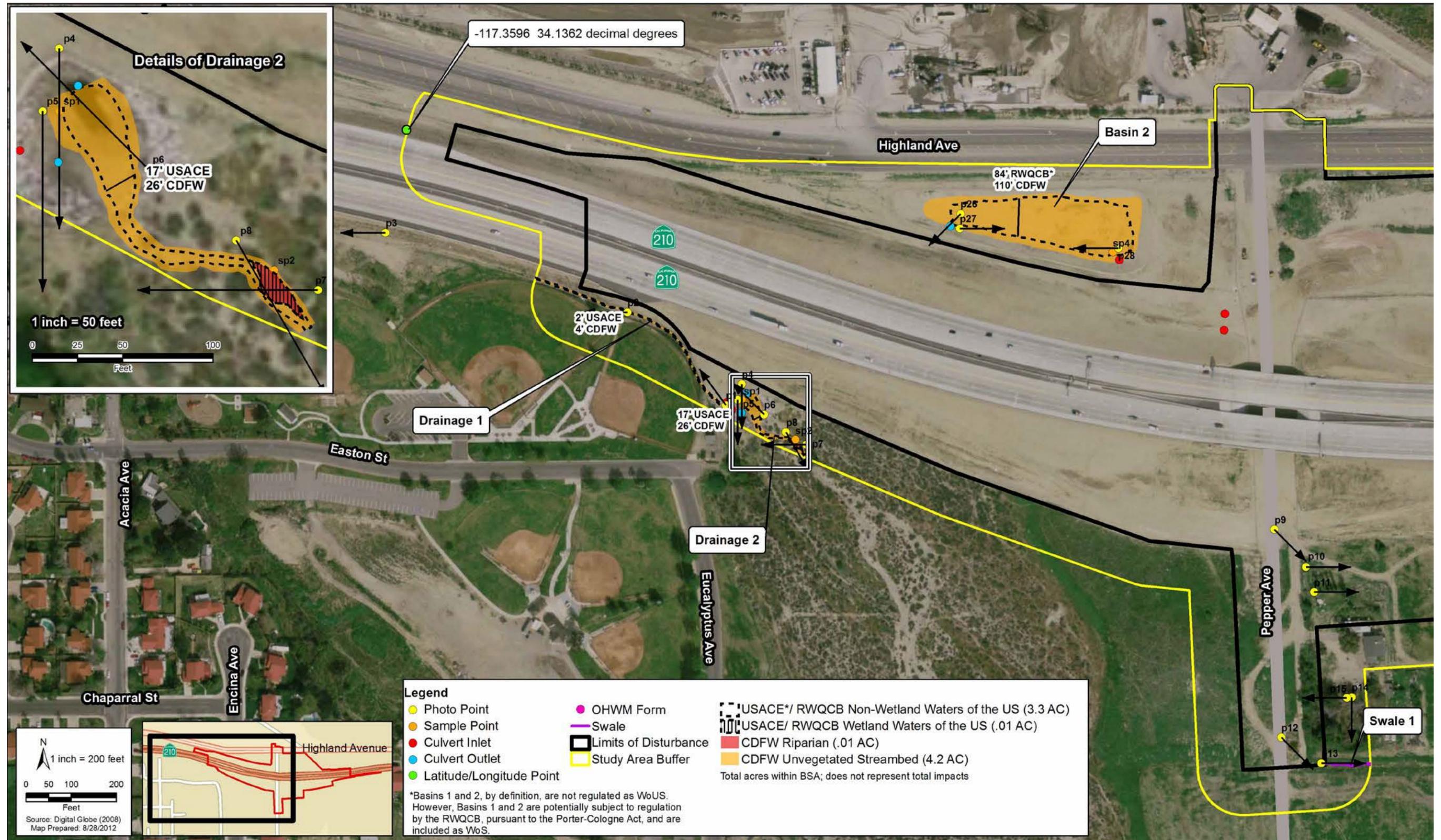


Figure 2-23
Jurisdictional Delineation – Biological Study Area, Sheet 1

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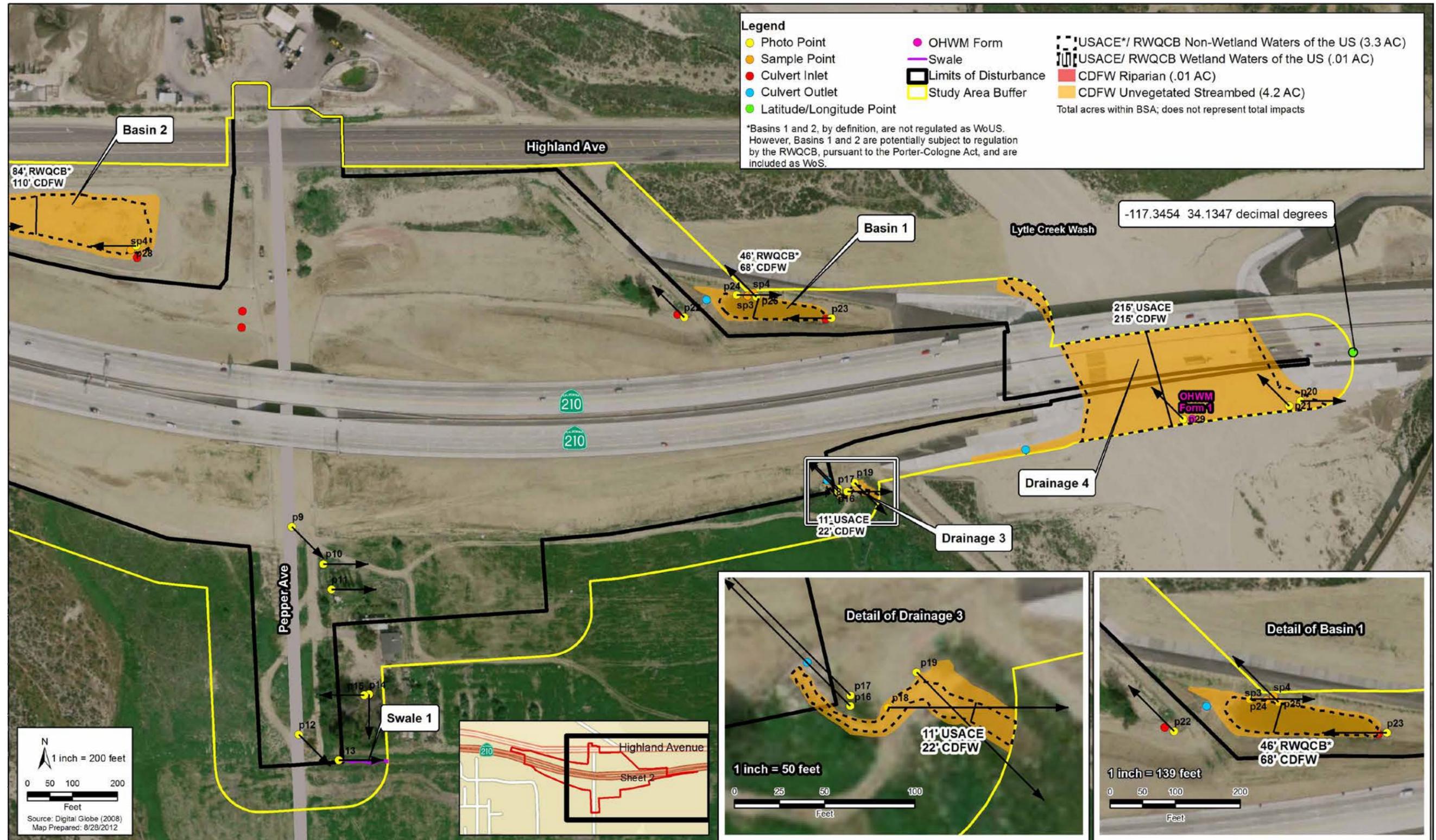


Figure 2-23
Jurisdictional Delineation – Biological Study Area, Sheet 2

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Basin 1

Basin 1 is an artificially constructed basin, which was constructed in uplands concurrently with the main-line SR-210, and is situated on the northern side of SR-210, south of Highland Avenue. This basin was apparently designed to capture, store, and treat storm water runoff from SR-210. The basin consists of moderately sloped banks covered in upland vegetation. Vegetation within the basin margin includes Common Sunflower, Rancher's Fiddleneck, Oat, and Common Fiddleneck. Basin 1 contained standing water at the time of the delineation (May 2012).

According to Clean Water Act-Sections 401 and 404, "Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States." Therefore, as this basin was constructed in uplands for the purpose of treating storm water runoff, Basin 1 is not regulated as waters of the U.S., by definition. However, Basin 1 is potentially subject to regulation by the SARWQCB as Waters of the State (WoS), pursuant to the Porter-Cologne Act.

SARWQCB jurisdictional areas associated with Basin 1 totaled approximately 0.206 acre of non-wetland WoS. CDFW jurisdiction totaled approximately 0.305 acre of unvegetated basin. No riparian vegetation was observed in association with Basin 1. The extent of SARWQCB and CDFW jurisdiction associated with the wash is shown on Figure 2-23.

Basin 2

Basin 2 is an artificially constructed basin, which was constructed in uplands concurrently with the main-line SR-210, and is situated on the northern side of SR-210, south of Highland Avenue. This basin was apparently designed to capture, store, and treat storm water runoff from SR-210. The basin consists of moderately sloped banks covered in upland vegetation. Vegetation within the basin margin includes Shortpod Mustard, Ripgut Brome, Compact Brome, and Common Sunflower. Basin 2 was dry at the time of the delineation (May 2012), but contained evidence of seasonal flow.

According to Clean Water Act-Sections 401 and 404 "Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States." Therefore, as this basin was constructed in uplands for the purpose of treating storm water runoff, Basin 2 is not regulated as WoUS, by definition. However, Basin 2 is potentially subject to regulation by the SARWQCB as WoS, pursuant to the Porter-Cologne Act.

SARWQCB jurisdictional areas associated with Basin 2 totaled approximately 0.823 acre of non-wetland WoS. CDFW jurisdiction totaled approximately 1.172 acre of unvegetated basin. No riparian vegetation was observed in association with Basin 2. The extent of SARWQCB and CDFW jurisdiction associated with the wash is shown on Figure 2-23.

Table 2-38. Summary of Existing Waters of the U.S., Waters of the State, and CDFW Jurisdictional Areas within the Biological Study Area

Feature	USACE/ SARWQCB Non-Wetland Waters of the U.S./Waters of the State (acres)	USACE/ SARWQCB Wetland Waters of the U.S./Waters of the State (acres)	USACE/ SARWQCB Waters of the U.S./Waters of the State Linear Feet	CDFW Streambed (acres)	CDFW Riparian (acres)	CDFW Linear Feet
Drainage 1	0.024	0.00	527	0.048	0.00	527
Drainage 2 (Frisbee Creek)	0.050	0.007	204	0.087	0.007	204
Drainage 3	0.028	0.00	147	0.053	0.00	147
Drainage 4 (Lytle Creek Wash)	2.206	0.00	257	2.514	0.00	257
Basin 1	0.206*	0.00	--	0.305	0.00	--
Basin 2	0.823*	0.00	--	1.172	0.00	--
Total	3.337*	0.007	1,135	4.179	0.007	1,135

*Basins 1 and 2, by definition, are not regulated as Waters of the U.S. However, Basins 1 and 2 are potentially subject to regulation by the RWQCB, pursuant to the Porter-Cologne Act, and are included as WoS.
Source: *Natural Environment Study 2014*

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

For the purpose of analysis, a distinction between temporary and permanent impacts to water resources has not been made, as only the outer extent of the anticipated project limits were available for analysis. As depicted on Figure 2-23, Drainage 3 is the only potentially jurisdictional feature within the study area that would be directly impacted by Alternative 1 (Build Alternative) during construction. Although Drainage 4 is technically within the project limits on Figure 2-23, construction associated with the proposed project would be limited to the existing bridge over Drainage 4, and no work is expected to encroach into Lytle Creek Wash. Table 2-39 summarizes the proposed impacts (permanent and temporary, combined) to WoUS, WoS, and CDFW streambeds.

Table 2-39. Summary of Waters of the U.S., Waters of the State, and CDFW Jurisdictional Impacts (Alternative 1 [Build Alternative])

Feature	USACE/ SARWQCB Non-Wetland Waters of the U.S./Waters of the State (acres)	USACE/ SARWQCB Wetland Waters of the U.S./Waters of the State (acres)	USACE/ SARWQCB Waters of the U.S./Waters of the State Linear Feet	CDFW Streambed (acres)	CDFW Riparian (acres)	CDFW Linear Feet
Drainage 3	0.003	0.00	25	0.005	0.00	25
Total	0.003	0.00	25	0.005	0.00	25

Source: *Natural Environment Study 2014*

Alternative 1 (Build Alternative) would impact a total of 0.003 acre of non-wetland WoUS and WoS. The total impact to CDFW unvegetated streambed would be 0.005 acre. No project-related impacts to jurisdictional wetlands or CDFW riparian habitat would occur, as all of these areas are located within the BSA outside of the project limits. During construction, there is a potential for increased risk of indirect impacts to adjacent jurisdictional waters; however, the avoidance and minimization measures (**BIO-5** through **BIO-11**) identified in Section 2.15 are expected to address these potential indirect effects.

The proposed project would impact a total of 0.003 acre of non-wetland Waters of the U.S. and Waters of the State. The total impact to CDFW unvegetated streambed would be 0.005 acre. These impacts are unavoidable and may require measures under Section 401 and 404 of the CWA and Section 1602 of the CDFW Code. Replacement of resources at a no less than 1:1 ratio is currently proposed to address the removal of 0.003 acre of nonwetland waters of the U.S./waters of the State and 0.005 acre of CDFW streambed. Final measures required under CWA Sections 401 and 404 and CDFW Code will be determined during the aquatic permit process. Refer to minimization measure **WET-2**. No project-related impacts to jurisdictional wetlands or CDFW riparian habitat would occur, as all of these areas are located within the BSA outside of the project limits. .

There is a potential for long-term indirect effects to jurisdictional waters, but this would not change from existing conditions.

COORDINATION AND PERMITTING

A permit, as regulated by Section 404 of the CWA, likely in the form of a non-notifying Nationwide Permit (since impacts to Waters of the U.S. are less than 0.10 acre) would be required for proposed impacts of 0.003 acre to nonwetland waters of the U.S. No wetlands are proposed to be impacted. A Water Quality Certification, as regulated by the RWQCB, would be required for proposed impacts of 0.003 acre to waters of the State. Acquisition of these permits would ensure compliance with CWA (Section 401 and 404) and Executive Order 11990. A Streambed Alteration Agreement, as regulated by Section 1602 of the CFGC, would be required for proposed project impacts of 0.005 acre to CDFW unvegetated streambed. Coordination with USACE, the RWQCB, or CDFW has not occurred to date. Please refer to Chapter 3 for a detailed discussion of coordination and copies of correspondence with the agencies.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Direct impacts to jurisdictional waters would not occur under this alternative. However, over the long-term, there is a potential for indirect impacts to jurisdictional waters from motor vehicles and pedestrians traversing the community.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measures **WR-1** on Page 2-102 in Section 2.9 and measures **BIO-5**, **BIO-6**, **BIO-8**, and **BIO-10** on Pages 2-157 and 2-158 in Section 2.15 would be implemented to avoid impacts to adjacent jurisdictional waters and to ensure that water resources outside of the direct impact area are not affected during construction or after construction, as a result of construction of the project.

Standard BMPs (measure **BIO-11** on Page 2-158 in Section 2.15, and measure **WET-1**, below) will be employed where jurisdictional waters are present, adjacent to the project limits.

- **WET-1: Best Management Practices for Erosion Control and Water Pollution.** Applicable Best Management Practices will be implemented. These may include but are not limited to:
 - Water pollution and erosion control plans will be developed and implemented in accordance with SARWQCB requirements.
 - Equipment storage, fueling, and staging areas will be located at sites with minimal risks of direct drainage into surface waters. Project related spills of hazardous materials will be reported to appropriate entities, including but not limited to the City and/or SARWQCB, and will be cleaned up immediately and contaminated soils removed to approved disposal areas.
 - To avoid attracting wildlife to the project site, the construction will be kept as clean of debris as possible. All food related trash items will be enclosed in sealed containers and regularly removed from the site(s).

No wetland waters are expected to be impacted. The following measure will address the project's potential impacts to jurisdictional non-wetland waters.

- **WET-2:** Impacts to 0.003 acre of non-wetland Waters of the U.S./Waters of the State and 0.005 acre of CDFW unvegetated streambed may require mitigation under Section 401 and 404 of the CWA and Section 1602 of the CFGC. Replacement of resources at a no less than 1:1 ratio is currently proposed to address the removal of 0.003 acre of Waters of the U.S./Waters of the State and 0.005 acre of CDFW streambed. Options for mitigation may include, but are not limited to, purchase of credits for invasive removal and on-going restoration through the Santa Ana Watershed Association In-Lieu Fee program. Final mitigation under CWA Sections 401 and 404 and CFGC 1602 will be determined during the aquatic permit process. Any measures included in these permits shall be implemented.

2.17 Plant Species

REGULATORY SETTING

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species section (Section 2.19) in this document for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC) Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, CA Public Resources Code, Sections 2100-21177.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Natural Environment Study*.

Prior to the first site visit, the 2012 California Natural Diversity Database (CNDDDB) and the CNPS’s Electronic Inventory were queried for plants, animals, and natural communities in California that have special regulatory or management status and could potentially occur in the BSA. Specifically, the database searches were conducted for lands occurring on the United States Geological Survey (USGS) 7.5-minute quadrangle maps on which the study area appears and the immediately surrounding quadrangles (Cajon, Silverwood Lake, Harrison Mountain, Lake Arrowhead, Redlands, Devore, Fontana, San Bernardino South). A complete list of the plant and animal species (including scientific nomenclature, regulatory status, and habitat requirements) and natural communities reviewed for the proposed project are provided in Appendix D. Finally, species were added, as appropriate, based on professional knowledge and experience with prior projects in the vicinity. To ensure the most up-to-date data was obtained, the query was rerun in August 2012.¹ Biological reports from the City of Rialto’s Pepper Avenue Extension Project located south of the BSA were also available for review prior to survey work.

¹ California Department of Fish and Wildlife (CDFW). 2012. California Natural Diversity Database, RareFind 4. San Bernardino North Nine Quad Search

A preliminary USFWS species list was obtained on July 18, 2012, from the USFWS Environmental Online Conservation System. No new species were identified in this species list from those already identified during the database searches.

There were 81 plant species ranked as special status by CNPS that were initially reviewed for the proposed project. Of these, 11 were considered to have a potential of occurring within the BSA. These species are listed in Table 2-40. The other 70 species were determined not to have a potential to occur based on one or more of the following: geographic and elevation distribution, lack of suitable habitat, lack of suitable soils, and tolerance to disturbances.

A habitat assessment was conducted on July 20, 2011, for special-status plants by a biologist experienced with the habitat requirements for the plant species. A focused survey for special-status plants was performed by qualified biologists in 2012 with a follow-up survey in 2013, within areas that had been determined to provide suitable habitat for special-status plants.

During the habitat assessment, up to 56.53 acres of suitable habitat for special-status plants were present within RSS, RAFSS, disturbed RAFSS, Nonnative Grassland, Nonnative Grassland/Sambucus Woodland, Mulefat Scrub, and Ruderal/Disturbed areas. Table 2-40 summarizes the suitable habitat within the BSA for each species.

Table 2-40. Suitable Habitat for Special-Status Nonlisted Plants

Species	Habitat Evaluation Results	Focused Survey Results
Plummer's Mariposa Lily (<i>Calochortus plummerae</i>)	Low potential to occur within 3.71 acres RAFSS and 5.45 acres of disturbed RAFSS in BSA.	Species absent during focused surveys performed in 2012.
Smooth Tarplant (<i>Centromadia pungens</i> ssp. <i>laevis</i>)	Moderate potential to occur within 3.82 acres of Nonnative Grassland and 13.24 Ruderal/Disturbed areas of BSA.	Species absent during focused surveys performed in 2012.
Parry's Spineflower (<i>Chorizanthe parryi</i> var. <i>parryi</i>)	Moderate potential within 3.71 acres RAFSS, and low potential to occur in 5.45 acres of disturbed RAFSS of BSA.	Species absent during focused surveys performed in 2012.
White-bracted Spineflower (<i>Chorizanthe xanti</i> var. <i>leucotheca</i>)	Low potential to occur in 28.06 acres of RSS, moderate potential within 3.71 acres of RAFSS, and low potential to occur in 5.45 acres of disturbed RAFSS within the BSA.	Species absent during focused surveys performed in 2012.
Mesa Horkelia (<i>Horkelia cuneata</i> ssp. <i>puberula</i>)	Low potential to occur within 28.06 acres RSS and 3.71 acres of disturbed RAFSS within the BSA.	Species absent during focused surveys performed in 2012.
California Satintail (<i>Imperata brevifolia</i>)	Low potential to occur in 28.06 acres of RSS, and moderate potential to occur within 3.71 acres of RAFSS within the BSA.	Species absent during focused surveys performed in 2012.
Southern California Black Walnut (<i>Juglans californica</i>)	Low potential to occur in undeveloped portions of BSA (approximately 56.53 acres).	Species absent during focused surveys performed in 2012.
Robinson's Pepper-grass (<i>Lepidium virginicum</i> var. <i>robinsonii</i>)	Moderate potential to occur in 28.06 acres of RSS within the BSA.	Species absent during focused surveys performed in 2012.
Ocellated Humboldt Lily (<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>)	Low potential to occur within 28.06 acres of RSS within the BSA.	Species absent during focused surveys performed in 2012.

Table 2-40. Suitable Habitat for Special-Status Nonlisted Plants Continued

Species	Habitat Evaluation Results	Focused Survey Results
Salt Spring Checkerbloom (<i>Sidalcea neomexicana</i>)	Moderate potential to occur in 3.71 acres of RAFSS and 5.45 acres disturbed RAFSS within the BSA.	Species absent during focused surveys performed in 2012.
San Bernardino Aster (<i>Symphotrichum defoliatum</i>)	Low potential to occur within 28.06 acres of RSS within the BSA.	Species absent during focused surveys performed in 2012.

None of the species with potential to occur were found during the three site visits conducted during the 2012 rare plant focused surveys.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

The proposed project would remove approximately 18.98 acres of revegetated RSS, 0.59 acre of Nonnative Grassland, 0.08 acre of Nonnative Grassland/Sambucus Woodland and 6.55 acres of Ruderal/Disturbed areas (total 26.20 acres), suitable for several nonlisted special-status plant species. None of these species were found within the BSA or project limits; therefore, no direct impacts to the 11 species would be expected. There is a potential for indirect impacts to adjacent lands to occur during construction, such as increased risk of fire, dust, and introduction of invasive species, which would reduce the quality of habitat suitable for these species. The avoidance and minimization measures (**BIO-1** through **BIO-11** and **WET-1**) described in Sections 2.15 and 2.16 would reduce any effects from construction activities on adjacent lands. No compensation would be required.

There is a potential for long-term effects to occur to lands adjacent to the proposed project; from motor vehicles and pedestrians traversing the community. There is a potential for a spread of invasive weeds and degradation of the community. These impacts would be the same as existing conditions and as Alternative 2 (No-Build Alternative).

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Direct impacts to special status plant species would not occur under this alternative. However, over the long-term, there is a potential for indirect impacts to occur to plants on lands adjacent to the proposed project from motor vehicles and pedestrians traversing the community.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of avoidance and minimization measures **BIO-1** through **BIO-11** described in Section 2.15 and avoidance/minimization measure **WET-1** (Section 2.16) would ensure that adverse impacts to Special Status plant species would not occur under NEPA and that impacts under CEQA would be less than significant. No compensation would be required.

2.18 Animal Species

REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. The US Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the California Fish and Game Code
- Section 4150 and 4152 of the California Fish and Game Code

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Natural Environment Study*.

Animal species in California that have special regulatory or management status were evaluated for potential to occur within the BSA. A complete list of species (including scientific names) was developed using the CNDDDB, and is included in the NES prepared for this project. Specifically, the database searches were conducted for lands occurring on the USGS 7.5-minute quadrangle maps on which the study area appears (San Bernardino North, 1996) and the immediately surrounding quadrangles (Cajon, Silverwood Lake, Harrison Mountain, Lake Arrowhead, Redlands, Devore, Fontana, San Bernardino South). Finally, species were added, as appropriate, based on professional knowledge and experience with prior projects in the vicinity. To ensure the most up-to-date data was obtained, the query was rerun in August 2012.

Most of the habitat evaluations for special-status species and resources were conducted during the reconnaissance survey by biologists familiar with species' habitat requirements.

Biological reports from the City of Rialto's Pepper Avenue Extension Project located south of the BSA were also available for review prior to survey work.

Furthermore, a preliminary USFWS species list was obtained on July 18, 2012, from the USFWS Environmental Online Conservation System. No new species were identified in this species list from those already identified during the database searches.

There are over 60 species of wildlife that were detected within the BSA during the fieldwork for the proposed project. Birds were the most commonly detected group within the BSA, including species such as Mourning Dove (*Zenaida macroura*), California Towhee (*Melospiza crissalis*), House Finch (*Haemorhous mexicanus*), American Crow (*Corvus brachyrhynchos*), Lesser Goldfinch (*Carduelis psaltria*), Northern Mockingbird (*Mimus polyglottos*), Spotted Towhee (*Pipilo maculatus*), European Starling (*Sturnus vulgaris*), Brewer's Blackbird (*Euphagus cyanocephalus*), Bewick's Wren (*Thryomanes bewickii*), Cliff Swallow (*Petrochelidon pyrrhonota*), Common Raven (*Corvus corax*), Anna's Hummingbird (*Calypte anna*), Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), Killdeer (*Charadrius vociferus*), Western Kingbird (*Tyrannus verticalis*), Cassin's Kingbird (*T. vociferans*), Rock Pigeon (*Columba livia*), and House Sparrow (*Passer domesticus*). Many of these species are common to the region and have adapted to environments that have been disturbed by humans.

The most commonly detected mammals were Desert Cottontail (*Sylvilagus audubonii*), California Ground Squirrel (*Spermophilus beecheyi*), Botta's Pocket Gopher (*Thomomys bottae*), Domestic Horse (*Equus caballus*), Domestic Dog (*Canis familiaris*), San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*), and Coyote (*Canis latrans*). These species commonly occur within the region and are tolerant of disturbed environments.

Reptiles that were observed within the BSA were Western Fence Lizard (*Sceloporus occidentalis*), Side-blotched Lizard (*Uta stansburiana*), and Western Whiptail (*Aspidoscelis tigris*). These species commonly occur in areas that have human disturbances.

There were seven special-status animals that were observed within the BSA during fieldwork. These are Yellow Warbler (*Dendroica petechia*), Loggerhead Shrike (*Lanius ludovicianus*), Northern Harrier (*Circus cyaneus*), San Diego Black-tailed Jackrabbit, San Diego Desert Woodrat (*Neotoma lepida intermedia*), Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*), and Los Angeles Pocket Mouse. All of these species are listed as California Species of Special Concern (SSC).

No federal or state listed wildlife species were observed or detected within the BSA during general and focused surveys.

There are 39 nonlisted special-status animals known to occur within the regional vicinity that were evaluated for the proposed project. Nonlisted special-status animals are those that are state species of special concern or are tracked by the CNDDB. Of the 39, the BSA provides suitable habitat for 15 animal species that are species of special concern. These are Orangethroat Whiptail (*Aspidoscelis hyperythra*), Coast Horned Lizard (*Phrynosoma blainvillii*), Burrowing Owl, Loggerhead Shrike, Pallid Bat (*Antrozous pallidus*), Western Mastiff Bat (*Eumops perotis*), Western Yellow Bat (*Lasiurus xanthinus*), Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*), Northwestern San Diego Pocket Mouse, Pallid San Diego Pocket Mouse (*Chaetodipus fallax pallidus*), Los Angeles Pocket Mouse, Southern Grasshopper Mouse (*Onychomys torridus ramona*), San Diego Desert Woodrat, San Diego Black-tailed Jackrabbit, and American Badger (*Taxidea taxus*). The following sections provide the results of the habitat evaluations, focused survey work, and relevant regulatory analysis.

Orangethroat Whiptail

This species is a state species of special concern. It can be found adjacent to floodplains or stream terraces with open sage scrub or chaparral communities.

Suitable habitat for the Orangethroat Whiptail is present within the approximately 37.22 acres of revegetated RSS, RAFSS, and disturbed RAFSS in the BSA. This species was observed during the initial reconnaissance survey.

Coast Horned Lizard

The Coast Horned Lizard is a state species of special concern. This species inhabits RSS and chaparral habitats with loose, sandy soils and an abundance of native ants.

Suitable habitat for the Coast Horned Lizard is present within an estimated 37.22 acres of revegetated RSS, RAFSS, and disturbed RAFSS in the BSA.

Northern Harrier

The Northern Harrier is a state species of special concern that breeds in freshwater marshes and wet meadows. This species forages over open lands with low grasses and shrubs.

A Northern Harrier was incidentally observed flying over the BSA. Within the BSA, there is approximately 44.63 acres of suitable foraging habitat as Nonnative Grasslands, Ruderal/Disturbed lands, and revegetated RSS. The BSA does not provide suitable nesting sites; therefore, there is no potential for the species to breed within the BSA.

Burrowing Owl

Burrowing Owl is a state species of special concern that inhabits open grasslands and shrublands where shrub cover is less than 30%. This owl occupies burrows created by burrowing mammals (i.e., California Ground Squirrel [*Spermophilus beecheyi*]), but it can also be found within man-made features (i.e., debris piles, banks of basins, open pipes).

A habitat assessment was conducted for Burrowing Owl within the study area, and 45.63 acres of suitable habitat exist within Nonnative Grassland, RSS, and Ruderal/Disturbed habitat within the BSA. A sparse concentration of California Ground Squirrel burrows was located throughout the Nonnative Grassland and Ruderal/Disturbed habitat along the eastern and southern edges of the BSA. There is also a potential for Burrowing Owl to forage within open lands within the project footprint and surrounding area. Quality of the habitat is low to moderate based on percent cover of vegetation, disturbances in the study area, and presence of suitable prey.

The focused survey was performed in July and August of 2011. Figure 2-24 depicts the Burrowing Owl focused survey area and suitable habitat areas for Burrowing Owl. No Burrowing Owls were detected during the focused survey effort or incidentally during other survey efforts. In addition, no sign (i.e., white wash, pellets, and scat) was found within the survey area. Although Burrowing Owl was not present within the study area in 2011, this species is highly mobile and could migrate to the project site during any time of the year.

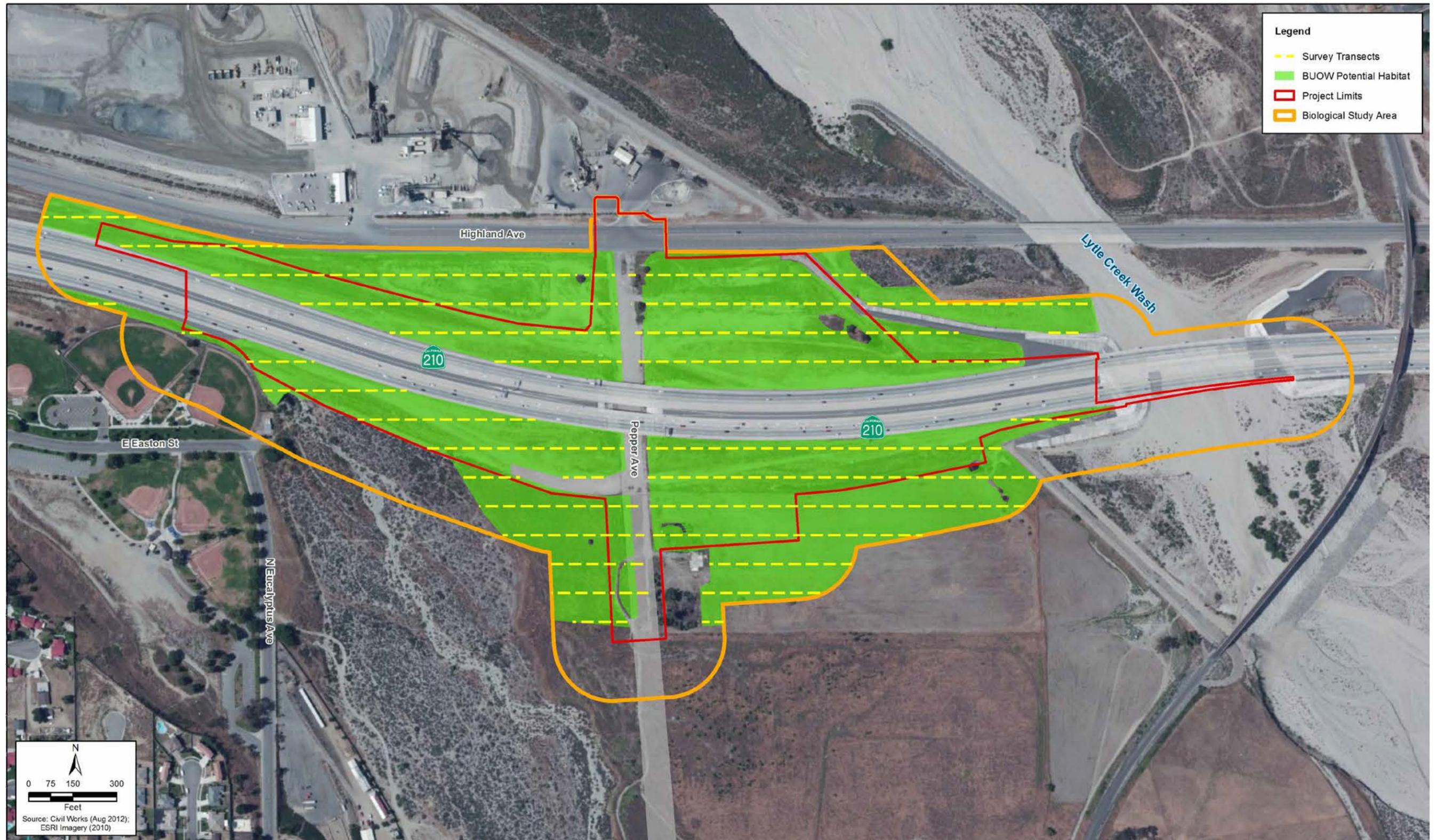


Figure 2-24
Burrowing Owl (BUOW) Focused Survey– Biological Study Area

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Loggerhead Shrike

The Loggerhead Shrike is a state species of special concern. This species occurs within lowland and foothill areas of California and is often seen in open areas with sparse trees or shrubs.

There is no suitable nesting habitat within the BSA for Loggerhead Shrike; however, this species was observed foraging within the BSA. Suitable foraging habitat is present within 31.85 acres of revegetated RSS and Nonnative Grassland.

Special-Status Bats

This section addresses potential impacts to Pallid Bat, Western Mastiff Bat, Western Yellow Bat, and Pocketed Free-tailed Bat, all of which are state species of special concern.

There is a potential for the proposed project to provide suitable roosting and foraging habitat for four special-status bat species (Pallid Bat, Western Mastiff Bat, Western Yellow Bat, and Pocketed Free-tailed Bat). There is approximately 53.39 acres of potential habitat (Ruderal/Disturbed, Ornamental, Nonnative Grassland, Nonnative Grassland/Sambucus Woodland, revegetated RSS, and disturbed RAFSS) that could be used for foraging. No roost sites were noted during any of the survey work; however, there is potential for bats to roost within ornamental mature trees and fan palms (approximately 0.94 acre), and under/within the existing SR-210 undercrossing structures (including the existing Pepper Avenue right of way and Lytle Creek Wash). The areas underneath the SR-210 undercrossing structures were specifically checked for roosting bat sign during the June 16, 2011, initial reconnaissance survey, and none was found. No bats or sign were observed during any of the biological studies.

Terrestrial Mammals

This section addresses potential effects on Los Angeles Pocket Mouse, Northwestern San Diego Pocket Mouse, Southern Grasshopper Mouse, San Diego Desert Woodrat, San Diego Black-tailed Jackrabbit, and American Badger. These species are state species of special concern.

Suitable habitat for six special-status terrestrial mammals is present within the BSA. Approximately 53.79 acres within revegetated RSS, RAFSS, Disturbed RAFSS, Nonnative Grassland, and Ruderal/Disturbed areas are suitable for terrestrial mammals. Soils within portions of the project footprint are highly compacted and have limited ability to support a few individuals of small burrowing mammal species. San Diego Pocket Mouse, Los Angeles Pocket Mouse, and San Diego Desert Woodrat were nonlisted special-status species caught during the July 2012 small mammal trapping effort. The San Diego Black-tailed Jackrabbit was incidentally observed within the BSA during survey work.

San Diego Pocket Mouse, Los Angeles Pocket Mouse, and San Diego Desert Woodrat were caught during the SBKR focused survey. Table 2-41 on the following page summarizes the number of individuals caught per species.

Table 2-41. Summary of Mammals Caught during Small Mammal Trapping Efforts

Species	Minimum Number Known to be Alive	Date Observed
Deer mouse	45	2012
	28	2013
Desert Cottontail	1	2012
	0	2013
Harvest Mouse	2	2012
	0	2013
Agile Kangaroo Rat	6	2012
	5	2013
San Diego Pocket Mouse*	13	2012
	12	2013
California Vole	1	2012
	0	2013
San Diego Desert Woodrat*	1	2012
	1	2013
Los Angeles Pocket Mouse*	1	2012
	5	2013
House Mouse	1	2012
	0	2013
Total	71	2012
	51	2013
* State Species of Special Concern		

Focused studies conducted in 2006 for the Pepper Avenue Extension project documented 39 individuals of Los Angeles Pocket Mouse within the RAFSS in the Lytle Creek tributary southwest of the project limits.² A separate focused study for the same project was conducted in 2009 and documented two individuals within ruderal habitat south of the BSA along the existing Pepper Avenue right of way.³

Raptor Foraging and Nesting

Southern California is home to a diversity of birds of prey (raptors), and many of these species are in decline. For most of the declining species, foraging requirements include extensive open, undisturbed, or lightly disturbed areas, especially grasslands. This type of habitat has declined severely in the region, affecting many species, but especially raptors. A few species, such as Red-tailed Hawk and American Kestrel, are somewhat adaptable to low-level human disturbance and can be readily observed adjacent to neighborhoods and other types of development. These species still require appropriate foraging habitat and low levels of disturbance in the vicinity of nesting sites.

² Michael Brandman Associates (MBA). 2006. *San Bernardino Kangaroo Rat Presence/Absence Trapping Surveys on the Pepper Avenue Specific Plan in the City of Rialto San Bernardino County, California.*

³ PBS&J. 2009. *San Bernardino Kangaroo Rat Presence/Absence Trapping Surveys, Pepper Avenue Extension Project.* Prepared for the City of Rialto, CA. November 17, 2009.

During the fieldwork for the proposed project, five species of raptor were detected within the study area: Cooper's Hawk (*Accipiter cooperii*), Red-tailed Hawk, Northern Harrier, American Kestrel, and Barn Owl (*Tyto alba*). During the initial reconnaissance survey, it was noted that a Barn Owl was occupying a space inside of the SR-210/Pepper Avenue undercrossing structures where a broken light fixture was present. There is a potential for the Barn Owl to nest inside of the undercrossing structures. This site was noted as active based on observation of fresh sign (i.e., scat and pellets) underneath the undercrossing structure and just below the opening of the broken light fixture.

No other raptors were observed breeding within the study area during subsequent surveys.

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Orangethroat Whiptail

Approximately 18.98 acres of suitable habitat RSS for Orangethroat Whiptail would be removed during construction activities. The RSS that would be removed is low quality habitat. There is a potential for indirect impacts to suitable RAFSS habitat adjacent to the project footprint during construction; however, the implementation of avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15 would ensure no indirect impacts would occur. No compensation is necessary.

Coast Horned Lizard

Approximately 18.98 acres of low quality suitable habitat for Coast Horned Lizard would be removed during construction activities. The RSS in the study area is revegetated and soils are highly compacted; thus, habitat is low quality. There is a potential for indirect impacts in the form of fire and introduction of invasive plants to RAFSS habitat adjacent to the project limits during construction; however, the implementation of avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15 would avoid and minimize these effects. No compensation is necessary.

Northern Harrier

The proposed project would remove approximately 26.12 acres of suitable foraging habitat for Northern Harrier. There is no potential for this species to use the BSA for nesting; therefore, no impacts to a nesting raptor would occur. Potential indirect effects to foraging habitat adjacent to the project limits include noise and dust that could deter the raptor from foraging near the project limits. Construction activities could also introduce nonnative invasive species and increase the risk of fire to adjacent lands, further reducing quality of suitable foraging habitat. The avoidance and minimization measures identified above would ensure no indirect impacts would affect suitable foraging habitat for Northern Harrier adjacent to the project limits. No compensation would be required.

Burrowing Owl

The proposed project would remove approximately 26.12 acres of suitable habitat that could be used for nesting or foraging by Burrowing Owl. Removal of low quality habitat within Ruderal/Disturbed lands in the project limits would have minimal impact on Burrowing Owl because this area is already heavily disturbed, and the BSA was determined to be unoccupied during the 2011 focused surveys.

No direct impacts to Burrowing Owl are anticipated based on their absence during the 2011 focused surveys; however, Burrowing Owl are highly mobile and can occur within suitable habitat any time of the year. Avoidance and minimization measures **ANI-1** through **ANI-3** on Page 2-184) would ensure no direct mortality of Burrowing Owl would occur if the species occupies the BSA prior to construction activities.

There is a potential for indirect impacts to suitable foraging habitat for Burrowing Owl adjacent to the project limits. These include spread of invasive plant species, increased fire risk during construction, and noise deterring Burrowing Owls from foraging adjacent to the project footprint. With the implementation of avoidance and minimization measures **BIO-2** through **BIO-10** in Section 2.15, these potential impacts would be greatly reduced. No compensation is necessary.

Loggerhead Shrike

The proposed project would remove approximately 19.57 acres of suitable foraging habitat. This habitat is of low quality based on its location adjacent to the SR-210 and previous disturbances within the right of way. No individuals would be impacted by the proposed project based on absence of suitable nesting habitat and the ability of the species to flee to avoid construction equipment. Any potential indirect effects from the long-term operation of the new interchange are not expected to increase substantially from existing conditions. There is also a potential for indirect effects to occur to potential foraging habitat adjacent to the disturbance limits during construction; however, these impacts would be temporary and would be greatly minimized and/or avoided with the implementation of avoidance and minimization measures **BIO-2** through **BIO-10** in Section 2.15. No compensation is necessary.

Special-Status Bats

Up to 26.55 acres of potentially suitable foraging habitat for special-status bats would be removed by the proposed project. Potential foraging habitat within the project limits is judged low quality. During construction, there is a potential for temporary indirect effects to occur from construction, noise, dust, etc., that could cause degradation of potential habitat. These effects are expected to potentially affect only a few individuals given the existing disturbance levels from SR-210. Additionally, the four species of special-status bats with potential to occur within the BSA are relatively common within the region, and the number of individuals that could potentially forage in the BSA is expected to be low. Potential temporary indirect effects to special-status bats would be avoided through the implementation of avoidance and minimization measures **BIO-2** through **BIO-10** in Section 2.15. Avoidance measure **ANI-4** would ensure that no direct take to special-status bat species would occur.

The proposed project would remove up to 0.35 acre of trees that could potentially be used for roosting. In addition, improvements to the undercrossing structures would discourage bats from roosting within the SR-210 undercrossing structures. No compensation is necessary.

Terrestrial Mammals

The proposed project would permanently remove approximately 26.12 acres of suitable habitat for San Diego Pocket Mouse, Los Angeles Pocket Mouse, San Diego Desert Woodrat, and San Diego Black-tailed Jackrabbit. In addition, there is a potential for construction-related indirect impacts to San Diego Pocket Mouse and Los Angeles Pocket Mouse adjacent to the project limits, such as collapse of burrows due to construction vibrations and increased risk of fire. Implementation of avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15 would reduce the potential for some indirect effects; however, there is a potential for indirect effects to cause mortality to a few individuals. No mortality to San Diego Desert Woodrat or San Diego Black-tailed Jackrabbit would be expected because these species would not burrow within the BSA. No compensation would be required.

Raptor Foraging and Nesting

There are 26.12 acres of potential raptor foraging habitat that would be directly and permanently removed by the proposed project. Foraging habitat that would be removed consists of Nonnative Grassland, Ruderal/Disturbed habitat, and revegetated RSS. In addition, there is approximately 0.35 acre of potential raptor nesting habitat that would be removed (within ornamental trees), as well as a potential direct impact to a Barn Owl that may be nesting within the SR-210/Pepper Avenue undercrossing structures.

Avoidance measure **ANI-5** on Page 2-186 would ensure that direct mortality of raptors and/or abandonment of nests with eggs and/or young would not occur and would comply with MBTA and Fish and Game Code. No compensation would be necessary.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Direct impacts to special status animal species would not occur under this alternative. However, over the long-term, there is a potential for indirect impacts to occur to animals on lands adjacent to the proposed project from motor vehicles and pedestrians traversing the community.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of the recommended avoidance and minimization measures below would avoid and reduce the potential effects to animals.

Orangethroat Whiptail

Compensation is not required. Avoidance and minimization measures **BIO-1** through **BIO-10**, and avoidance/minimization measure **WET-1**, already identified for other resources, would also provide protection to potential populations of this species adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Sections 2.15 and 2.16).

Coast Horned Lizard

Compensation is not required. Avoidance and minimization measures **BIO-1** through **BIO-10**, and avoidance/minimization measure **WET-1**, already identified for other resources would also provide protection to potential populations of this species adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Sections 2.15 and 2.16).

Northern Harrier

Compensation is not required. Since Northern Harrier is only expected to occur as a forager/migrant, avoidance and minimization measures **BIO-2** through **BIO-10** would reduce the loss of potential foraging habitat adjacent to the project limits (see Section 2.15).

Burrowing Owl

Compensation is not required. Avoidance and minimization measures **BIO-2** through **BIO-10** already identified for other resources would minimize impacts to this species adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Section 2.15).

The following avoidance and minimization measures would ensure there is no direct mortality to any owls that may migrate to the project site or study area prior to construction.

- **ANI-1: Take Avoidance Burrowing Owl Survey.** To determine if Burrowing Owl are occupying the project limits or adjacent areas prior to construction, a take avoidance survey following CDFW protocol (2012) will be conducted no less than 14 days prior to initiating ground disturbance activities. In addition, any time lapses between project activities would trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance. The survey will be conducted from civil twilight to 10:00 am or two hours before sunset until evening civil twilight within areas providing suitable habitat for Burrowing Owl. The survey will include the proposed project limits and a 300-ft buffer if performed between February 15 and August 31 (nesting season) and a 100-ft buffer if the survey is conducted outside of the nesting season. If Burrowing Owls are present, **ANI-2** or **ANI-3** shall be implemented.
- **ANI-2: Avoidance of Burrowing Owl During the Nesting Season.** If Burrowing Owl are found during pre-construction take avoidance surveys (**ANI-1**) during the nesting season, the Burrowing Owl will be fully avoided by establishing an appropriate buffer in coordination with CDFW (minimum of 300 feet), where feasible.
- **ANI-3: Passive Relocation of Burrowing Owl.** If Burrowing Owl are found during pre-construction take avoidance surveys outside of the nesting season, passive relocation by a qualified ornithologist will be conducted once it has been confirmed that pairing activities have not begun. Passive relocation efforts will be conducted in coordination with CDFW. If the Burrowing Owl is found to be paired and exhibiting potential nesting behavior, construction disturbance will not occur within 300 feet of the active burrow(s) until it is confirmed by the ornithologist that the pair is not nesting and that young are not present, or if present are independently foraging.

Loggerhead Shrike

Compensation is not required. Avoidance and minimization measures **BIO-2** through **BIO-10** already identified for other resources would also provide protection to potential populations of this species adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Section 2.15).

Special-Status Bats

Compensation is not required. Avoidance and minimization measures **BIO-2** through **BIO-10** already identified for other resources would also provide protection to potential bat habitat adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Section 2.15).

The following avoidance measure would ensure that no direct take to special-status bat species would occur.

- **ANI-4: Preconstruction Bat Survey.** To prevent impacts on daytime bat roosts and maternity roosts, a qualified biologist will be retained to conduct bat and bat roosting site surveys prior to commencement of mature tree removal activities. This pre-construction survey will be conducted at any mature tree proposed for removal and within 100 feet of the project limits. If roosting sites or bats are not found, a report confirming their absence will be sent to the CDFW and no further mitigation will be required.

If the pre-construction survey finds bats to be roosting, and tree removal is scheduled to occur between October 1 and March 30 (outside of the maternity season of April 1 through September 30), eviction of bats will be conducted using bat exclusion techniques, developed by Bat Conservation International (BCI) and in consultation with CDFW. These techniques allow the bats to exit the roosting site but prevent re-occupation of the site. Where applicable for tree roosts, the following two-step cutting process would occur: Surrounding branches that do not house bats at the time that the eviction would occur would be removed as step one. This would alter the condition of the roost tree, causing bats to abandon the roost. The tree can then be fully removed as step two. A visual inspection of the roost tree would be required prior to removal to verify that all bats have been successfully excluded. This work will be completed by a bat exclusion professional.

If the pre-construction survey finds bats to be roosting and tree removal is scheduled to occur during the maternity season (April 1 through September 30), a qualified biologist will monitor the roost to determine if the roost site is a maternal roost. This may be determined by either visual inspection of the roost for bat pups, if possible, or monitoring the roost after the adults leave for the night to listen for bat pups. If the roost is determined to not be a maternal roost, then the bats will be evicted as described above. If the roost is determined to be a maternal roost, eviction of a maternal roost cannot occur during the nursery season, as bat pups cannot leave the roost until they have reached maturity. In this case, a 250-foot-wide buffer zone (or an alternative width, as determined in consultation with CDFW) will be established around the roosting site, within which no construction-related impacts will occur until the qualified biologist has determined the bat pups are mature enough to permanently leave the roost.

Terrestrial Mammals

Compensation is not required. Avoidance and minimization measures **BIO-1** through **BIO-10** already identified for other resources would also provide protection to potential populations of this species adjacent to the project limits of Alternative 1 (Build Alternative) during construction (see Section 2.15).

Raptor Foraging and Nesting

The following avoidance measure would ensure that direct mortality of raptors and/or abandonment of nests with eggs and/or young would not occur and would comply with MBTA and CFGC.

- **ANI-5: Preconstruction Raptor Surveys.** Within 30 days prior to the commencement of construction (if between January 15 and September 1), a qualified biologist will perform a raptor nesting survey that will consist of a single visit to ascertain whether there are active raptor nests within 300 feet of the project footprint. This survey will also identify the species of nesting raptor and to the degree feasible, nesting stage (e.g., incubation of eggs, feeding of young, near fledging). Nests will be mapped (not by using GPS because close encroachment may cause nest abandonment). If active nests are found, construction will not occur within 300 feet of the nest until the nesting attempt has been completed and/or abandoned due to non-project-related reasons.

2.19 Threatened and Endangered Species

REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Natural Environment Study*.

Federal and state endangered and/or threatened plant and animal species are known to occur within the region. The following sections provide the results of the habitat evaluations, focused survey work, and relevant regulatory analysis. A species list was requested from USFWS and was received on July 18, 2012. Consultation with USFWS occurred on September 19, 2011, July 12, 2012, and August 6, 2013. A detailed discussion regarding coordination with USFWS is provided in Chapter 3.

PLANTS

There were 11 federal and/or state threatened and endangered plant species that were initially reviewed for the proposed project. Of these, only four species were judged to have the potential to occur within the study area based on species requirements and study area conditions. These four species are Nevin’s Barberry (*Berberis nevinii*), Plummer’s Mariposa Lily (*Calochortus plummerae*), Slender-horned Spineflower (*Dodecahema leptoceras*), and Santa Ana River Woollystar (*Eriastrum densifolium* ssp. *sanctorum*).

Up to 50.0 acres of potential habitat (within RAFSS, disturbed RAFSS, RSS, and Ruderal/Disturbed areas) in the BSA was considered suitable for Nevin’s Barberry, Plummer’s Mariposa Lily, Slender-horned Spineflower, and Santa Ana River Woollystar. Suitable habitat was deemed absent for all other federal and/or state listed species known to occur in the region.

Table 2-42 provides a summary of the vegetation communities where each species had potential to occur within the study area.

Table 2-42. Summary of Listed Plant Habitat Evaluation and Focused Survey Results

Species	Habitat Evaluation Results	Focused Survey Results
Nevin’s Barberry	Low potential to occur within approximately 3.71 acres of RAFSS and 5.45 acre of disturbed RAFSS in the BSA. No suitable habitat is present within project limits.	Species absent during focused surveys performed in 2012.
Plummer’s Mariposa Lily	Low potential to occur within approximately 3.71 acres RAFSS, 5.45 acres of disturbed RAFSS, and 28.06 acres of RSS within BSA. No suitable habitat is present within project limits.	Species absent during focused surveys performed in 2012.
Slender-horned Spineflower	Moderate potential to occur within approximately 3.71 acres of RAFSS, 5.45 acre of disturbed RAFSS, and 12.78 acres of Ruderal/Disturbed areas.	Species absent during focused surveys performed in 2012.
Santa Ana River Woollystar	Present within 3.71 acres of RAFSS, 5.45 acres of disturbed RAFSS, and 12.78 acres of Ruderal/Disturbed habitat.	Eleven individuals were found within the RAFSS and disturbed RAFSS community in the BSA during focused surveys performed in 2012. A single individual was noted in the BSA during the initial reconnaissance in 2011. No individuals were found within the project footprint.

Two individuals of Santa Ana River Woollystar were found within the BSA within RAFSS in the southwest quadrant of the BSA and nine individuals were found within the disturbed RAFSS during the 2012 focused survey. Additionally, 11 individuals were found within Lytle Creek Wash during the 2013 focused survey. A single individual was also noted within the disturbed RAFSS during the initial reconnaissance in 2011. Santa Ana River Woollystar was not found within the project limits. No other federal or state listed plant species were found within the BSA or project limits.

ANIMALS

There are 12 federally and/or state threatened and endangered animal species known to occur within the region. Of these, only one animal species, SBKR, was judged to have potential to occur within the BSA based on species requirements and conditions within the BSA. The following section provides the results and regulatory analysis for this species.

Of the 12 listed species initially reviewed, eight are federally listed (Santa Ana Sucker, Arroyo Toad, California Red-legged Frog, Sierra Madre Yellow-legged Frog, Coastal California Gnatcatcher, Southwestern Willow Flycatcher, Least Bell's Vireo, and Stephen's Kangaroo Rat), and it has been determined that no effects to these species would occur as a result of the construction of the proposed project.

San Bernardino Kangaroo Rat (SBKR)

SBKR is a federally endangered and state species of special concern. This species occupies intermediate seral stage RAFSS habitat and prefers soils that are sandy loam to sandy gravel. The BSA also occurs within Designated Critical Habitat (Unit 2) for SBKR (Figure 2-25).

There is approximately 53.79 acres of suitable habitat for SBKR within the BSA (in RAFSS, disturbed RAFSS, Nonnative Grassland, RSS, and Ruderal/Disturbed areas). SBKR is known to occupy the RAFSS outside of the project area, west of Pepper Avenue and south of SR-210. Focused surveys in 2006 found 12 individuals within the RAFSS south of SR-210.⁴ Therefore, the RAFSS within the BSA but outside of the project site is considered occupied habitat and was not surveyed in 2012 and 2013.

To ascertain if SBKR is present within the disturbance limits for the proposed project, the 2012 and 2013 SBKR focused survey were limited to the area within the project footprint, and areas directly adjacent potentially subject to indirect effect. Within the BSA, approximately 12.78 acres of Ruderal/Disturbed habitat and 28.06 acres of revegetated RSS was considered low quality habitat for SBKR based on the area's adjacency to occupied RAFSS. No SBKR were present within the revegetated RSS or in Ruderal/Disturbed areas during 2012 and 2013 surveys; therefore, these areas are considered unoccupied by SBKR. The occupied habitat for SBKR is limited to the RAFSS community outside of the project footprint.

Approximately 55.4 acres of the BSA occurs within Designated Critical Habitat for SBKR.

⁴ Michael Brandman Associates (MBA). 2006. *San Bernardino Kangaroo Rat Presence/Absence Trapping Surveys on the Pepper Avenue Specific Plan in the City of Rialto San Bernardino County, California.*

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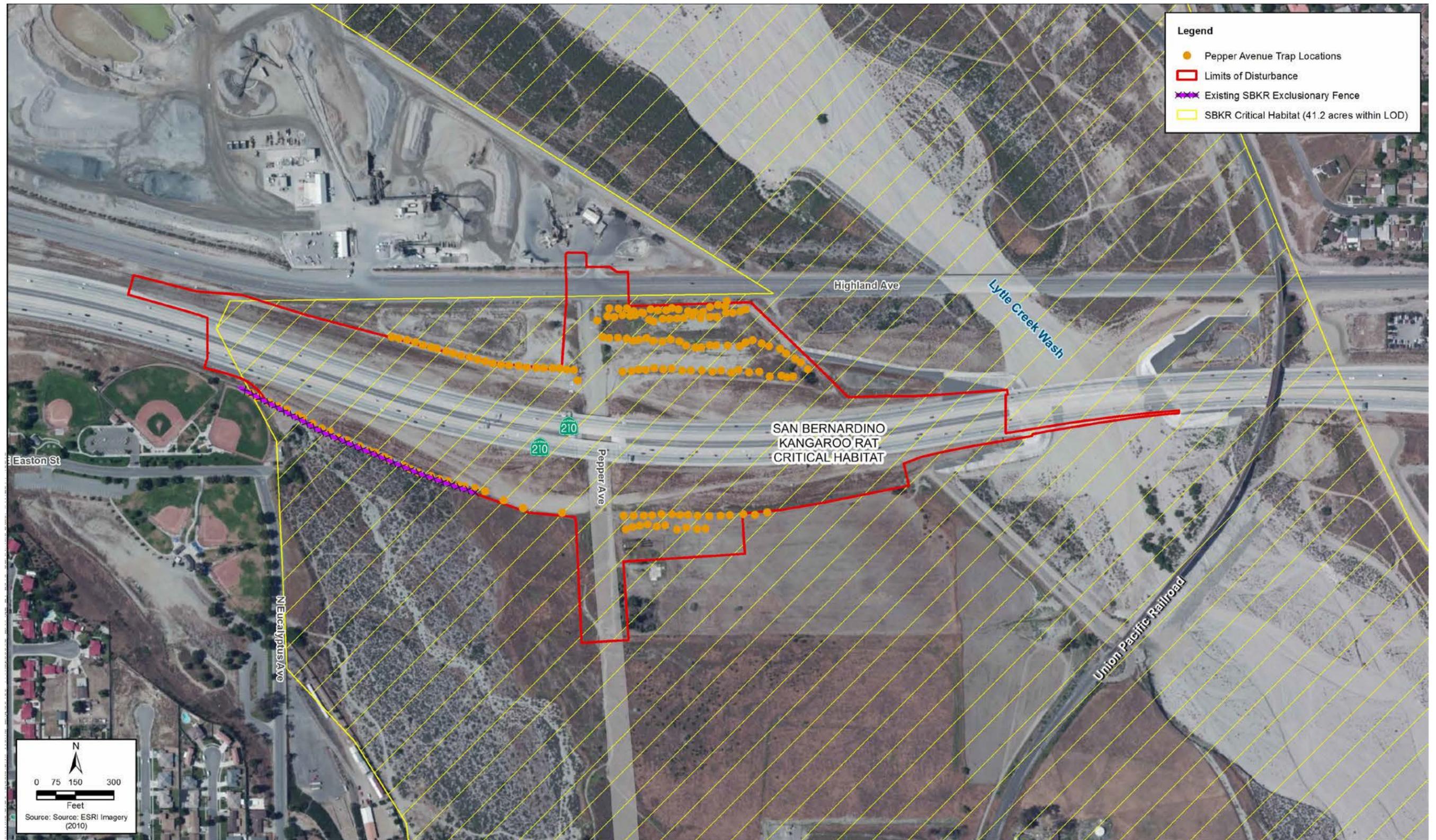


Figure 2-25
San Bernardino Kangaroo Rat Trap Lines – Project Site

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ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

Since Santa Ana River Woollystar individuals were found within the BSA but are considered to be absent from the project limits, no direct impacts to this species are proposed. There is a potential for temporary indirect effects to nine individuals of Santa Ana River Woollystar present adjacent to the project limits. In addition, a larger population of Santa Ana River Woollystar is contiguous to the south of the BSA; the individuals located in the BSA are at the northern boundary of this larger population. Any project impacts (direct or indirect) to Santa Ana River Woollystar would require Section 7 consultation with USFWS. Implementation of avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15 would ensure that this species is protected during construction activities and no impacts to the species would occur.

There is a potential for long-term indirect effects to Santa Ana River Woollystar; however, these effects would not be worse than the existing conditions. Indirect effects that could occur include spread of invasive weeds transported by vehicles to the area, increased risk of fire, and potential maintenance activities within the right of way.

No other listed plants would be directly or indirectly impacted by the proposed project, as they were not found during the focused survey.

Since no RAFSS would be removed by the proposed project, no direct impacts from construction-related activities are expected to occur to SBKR. Potential indirect effects during construction include increased risk of fire, ground shaking, and invasion of nonnative plants reducing habitat quality of RAFSS adjacent to the project limits. These indirect impacts would be avoided and/or minimized by implementing avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15, avoidance/minimization measure **WET-1** in Section 2.16 and avoidance measure **END-1** (on Page 2-195).

Approximately 26.0 acres of Designated Critical Habitat (excluding developed lands) for SBKR would be removed by the project. However, the Critical Habitat area that will be directly impacted lacks the physical and biological requirements for SBKR (i.e., alluvial sage scrub plants, current alluvial processes, and dynamic geomorphic processes). Additionally, 130 credits were purchased by Caltrans on February 9, 2000, from the Vulcan Materials Company Cajon Creek Habitat Conservation Management Area (Vulcan Bank), to offset impacts to suitable SBKR habitat (including designated Critical Habitat) associated with the construction of SR-210. Of the total 41.2 acres of SBKR Critical Habitat within the proposed project footprint, approximately 29.2 acres occur in the area that was impacted by the construction of SR-210 (see Figure 2-25). Therefore, 29.2 acres of the 41.2 acres of designated SBKR Critical Habitat within the proposed project footprint have been fully mitigated.

In addition, eight (8) credits (8 acres of habitat credits) were purchased on April 13, 2010 from the Vulcan Bank, to offset impacts to suitable SBKR habitat (including designated Critical Habitat). Of this, 1.5 acres occur within the proposed project footprint and have already been fully mitigated

through this purchase of credits. Therefore, for the purpose of the project, the 1.5 acres have been considered developed and were not considered as an impact to suitable SBKR Critical Habitat.

Impacts to the remaining undeveloped 8.70 acres of designated SBKR Critical Habitat are proposed to be mitigated in the Vulcan Bank at a 2:1 ratio (17.4 acres), or as determined after the Section 7 consultation with USFWS. Additionally, in order to protect SBKR from potential impacts associated with construction and operation of the eastbound off-ramp facility, avoidance measure **END-1** will be implemented. Final determination regarding potential mitigation measure(s) for this species will occur in conjunction with completion of the required Section 7 consultation with USFWS.

Caltrans has determined that Alternative 1 (Build Alternative) would have “no effect” on Nevin’s Barberry, Plummer’s Mariposa Lily, or the Slender-horned Spineflower, for the following reasons:

- Nevin’s Barberry – No direct or indirect impacts would occur to this species, as it was absent during focused surveys.
- Plummer’s Mariposa Lily – No direct or indirect impacts would occur to this species, as it was absent during focused surveys.
- Slender-horned Spineflower – No direct or indirect impacts would occur to this species, as it was absent during focused surveys.

Pending completion of Section 7 consultation, Caltrans has determined that Alternative 1 (Build Alternative) is anticipated to result in a “may affect, not likely to adversely affect” finding on the Santa Ana River Woollystar or SBKR for the following reasons:

- Santa Ana River Woollystar – Alternative 1 (Build Alternative) would not result in direct impacts to this species, but would result in temporary indirect impacts to this species during construction. Implementation of avoidance and minimization measures would ensure no impacts would occur during construction. There is a potential for long-term indirect effects to Santa Ana River Woollystar; however, these effects would not be worse than the existing conditions.
- SBKR – Approximately 26.0 acres of Designated Critical Habitat for SBKR would be removed by Alternative 1 (Build Alternative). However, through the previous purchase of habitat credits, as described in detail above, only 8.7 acres of the impacted habitat would require mitigation in the Vulcan Bank or other approved SBKR bank at a 2:1 ratio (17.4 acres). Additionally, there would be potential indirect effects during construction activities and operation of the eastbound off-ramp facility. Implementation of avoidance and minimization measures would ensure these impacts would be avoided and/or reduced. Final mitigation for this species will be determined through Section 7 consultation with USFWS.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

No impacts to the SBKR would occur under this alternative.

Direct impacts to threatened and endangered plant species would not occur under this alternative. There is a potential for long-term indirect effects to Santa Ana River Woollystar; however, these

effects would not be worse than the existing conditions. Indirect effects that could occur include spread of invasive weeds transported by vehicles to the area, increased risk of fire, and potential maintenance activities within the right of way.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

PLANTS

Avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15 and avoidance/minimization measure **WET-1** in Section 2.16 would ensure that Santa Ana River Woollystar found adjacent to the project limits would be protected from potential temporary indirect effects (e.g., degradation of habitat by dust and fire) caused during construction activities.

Since this species would not be directly impacted during project activities, and mitigation measures are proposed to ensure that indirect impacts do not occur during construction of the proposed project, compensation for the loss of Santa Ana River Woollystar would not be required.

ANIMALS

Implementation of avoidance and minimization measures **BIO-1** through **BIO-10** in Section 2.15, avoidance/minimization measure **WET-1** in Section 2.16, and avoidance measure **END-1** would ensure no impacts would occur to SBKR, which are known to inhabit the RAFSS habitat just south of the project area.

- SBKR would not be directly impacted by the proposed project. However, since federally Designated Critical Habitat would be removed, the creation and/or preservation of lands suitable for SBKR may be required. Mitigation for this species will be determined through Section 7 consultation with USFWS.
- **END-1: Maintenance of SBKR Exclusionary Fencing.** To protect San Bernardino Kangaroo Rat (SBKR) from construction areas, SBKR exclusionary fencing (EF) has been used. SBKR Critical Habitat (i.e., RAFSS) adjacent to construction areas will be demarcated using EF, and EF has been installed by construction personnel under the supervision of a biological monitor. EF consists of a fine, wire mesh, opaque fencing material. The location of EF will be placed along State right of way at the southwest corner of the project area. EF follows the right of way fence from coordinates (34.13486 / -117.35759) for approximately 500 feet toward the east. The EF was buried below ground 12-18 inches, and extends for 36 inches above ground. This will help to exclude SBKR entering construction areas during construction activities, from known occupied SBKR habitat south of the State right of way. The EF will be reviewed by the biological monitor and maintained daily (as indicated in **BIO-5** in Section 2.15), until the completion of all construction activities, or at a regular interval as to be determined in coordination with USFWS and CDFW.
- **END-2:** Temporary and permanent impacts on 8.70 acres of designated SBKR critical habitat are proposed to be mitigated in the Vulcan Bank at a 2:1 ratio, or as determined after the Section 7 consultation with USFWS. Impacts to 29.2 acres to SBKR critical habitat have been previously mitigated through the purchase of 130 credits from the Vulcan Materials Company Cajon Creek Habitat Conservation Management Area.

2.20 Invasive Species

REGULATORY SETTING

On February 3, 1999, President Clinton signed Executive Order (EO 13112) requiring federal agencies to combat the introduction or spread of invasive species in the United States (U.S.). The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State’s invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

AFFECTED ENVIRONMENT

Information used in this section is based upon the February 2014 *Natural Environment Study*.

Seeds of invasive species can be transported to new areas through a variety of mechanisms including vehicles and animals. Recurring fires can encourage the establishment of invasive species; so can some forms of routine land maintenance (e.g., discing). The impact invasive species have on southern California native vegetation communities and the plants and animals that reside within these areas are in some circumstances catastrophic. Because of this, there is a need to identify and recommend measures for ground disturbing projects that would reduce and/or avoid further transport of invasive species into natural open space areas.

Over 25 invasive plant species were identified within the study area. These are Oat, Fivehorn Smotherweed, Ripgut Grass, Downy Chess, Tocalote, Bermuda Grass, Redstem Filaree, Rattail Sixweeks Grass, Rye Grass, Shortpod Mustard, Wall Barley, Smooth Cat’s-ear, Sweet Alyssum, Horehound, California Burclover, Tree Tobacco, Crimson Fountain Grass, English Plantain, Annual Beard Grass, Castorbean, Russian Thistle, Common Mediterranean Grass, London Rocket, Smilo Grass, Saltcedar, Woolly Mullein, and Mexican Fan Palm. These species are classified as exotic pest plants by the California Invasive Plant Council and thus are known to invade natural open space areas and degrade native ecosystems.⁵

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1 (BUILD ALTERNATIVE)

During construction activities, construction vehicles may transport invasive plant species from past work sites to the study area, or between work areas within the study area. With the implementation of minimization and avoidance measures, any potential impacts from the

⁵ California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-002. California Invasive Plant Council: Berkeley, CA.

introduction of invasive species during construction would not be adverse under NEPA or significant under CEQA.

The proposed project would remove approximately 26.55 acres of undeveloped lands, of which a portion would remain undeveloped to serve as a shoulder and/or maintenance buffer. Post-construction bare ground can serve as a breeding ground for invasive plant species. The potential for adverse effects to natural open spaces from the introduction of invasive species is a possibility, and potential impacts could be severe. However, with the implementation of minimization and avoidance measures, any potential indirect impacts from the introduction of invasive species would be avoided or otherwise minimized.

ALTERNATIVE 2 (NO-BUILD ALTERNATIVE)

Under Alternative 2 (No-Build Alternative), no project-related effects involving invasive species would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The proposed project is expected to disturb the ground and remove both nonnative and native vegetation. In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the proposed project would not use species listed as invasive. To ensure the proposed project does not promote the introduction of invasive species to the remaining open space within the BSA, avoidance and minimization measures **BIO-1, BIO-3, and BIO-6** through **BIO-11** in Section 2.15 will be followed. In addition, the following minimization measure will be implemented:

- **INV-1:** In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

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2.21 Cumulative Impacts

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 effects 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 types of 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 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.

METHODOLOGY

Caltrans, in conjunction with FHWA and U.S. Environmental Protection Agency, developed a guidance document entitled, *Guidance for Preparers of Cumulative Impact Analysis* (2005). The following is based on the referenced guidance.

As specified in the guidance, if a proposed project will not cause direct or indirect impacts to a resource, it will not contribute to a cumulative impact on that resource, and need not be evaluated with respect to potential cumulative impact. As discussed at the beginning of Chapter 2, and in various sections of Chapter 2 of this Environmental Document, the project will not result in direct or indirect impacts to the following resources and therefore no discussion is provided:

- Farmlands/timberlands
- Coastal Zone
- Wild and Scenic Rivers
- Cultural Resources
- Paleontological Resources

RESOURCES EVALUATED FOR POTENTIAL CUMULATIVE IMPACTS

The following discussion of potential cumulative impacts is presented by environmental resource area. A list of planned projects included in the analysis, the reasonably foreseeable projects considered in this analysis are listed in Table 2-1 on page 2-9 of this Environmental Document. Three projects in the City of Rialto and no projects located in the City of San Bernardino are currently planned within the resource study areas of the proposed project. Based upon available information, none of the related projects would be constructed concurrently with the proposed project; therefore, there is no potential for cumulative temporary construction impacts resulting from the concurrent execution of multiple projects within the study area.

COMMUNITY

Growth

The resource study area (RSA) for this analysis was selected on the basis of where cumulative impacts that may affect the community and environmental conditions of the community, if identified, would most likely occur. Highland Avenue is identified as the northern boundary of the RSA since the area north of the project and Highland Avenue is undeveloped, with the exception of an aggregate mining operation, and no community impacts were identified for this area. The western boundary of the RSA is Riverside Avenue and California Street is the eastern boundary. Baseline Road serves as the southern limit.

The area immediately south of the project site is largely undeveloped vacant land with some utilities; however, just south of this point and to the west the land is fully developed as residential neighborhoods. Lytle Creek Wash is located just east of the project and to the east of Lytle Creek Wash the area is almost entirely built out. The City of Rialto's General Plan designates a small portion of the vacant area south of the project site for business park uses and the remainder for low-density residential development. To the north of the interchange there are physical features that limit the accessibility from the interchange, in particular the long present mining operation on the north side of Highland. Areas to the north of SR-210 and west of Lytle Creek are more readily accessible from the existing SR-210/Riverside Avenue interchange. Aside from the mining operation, the area north of the project site is undeveloped and vacant where it is within the Lytle Creek floodplain and beyond where the terrain is extremely steep. Developable land to the north of the project site is also nearly built out with the exception of the area just described. Given the project's location above a floodplain and adjacent to known habitat areas, opportunities for development are limited. Potential for development in the vicinity of the project would be expected to be confined to areas that are not considered high-risk flood areas. Within the interchange sphere of influence this would be limited to in-fill on those developable lands immediately south of the interchange.

SR-210 and the Union Pacific Railroad line are the dominant transportation facilities within the RSA, and have historically been the primary source of air quality and noise impacts to the community within the RSA. Most notably, construction of the portion of SR-210 that runs through the RSA began in the early 2000s and was completed in 2007.

In combination with the recently completed City of Rialto Pepper Avenue Extension and Pepper Avenue Gap Closure projects, the proposed SR-210/Pepper Avenue new interchange project would make development of the in-fill areas to the south of the proposed interchange more attractive. Although the improved transportation infrastructure that the project will provide could be a contributing factor to a change within these infill areas (i.e., from being undeveloped to being developed), the City's completion of Pepper Avenue to Highland Avenue is pivotal for potential development and the City's land use designation in this area indicates anticipation of such potential.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA to the community, related to land use and growth.

Without the new SR-210 ramps, the Pepper Avenue Extension and Gap Closure projects would still allow for development of the in-fill areas to the south of SR-210 and make development of this area more attractive, and more easily realized, than before completion of Pepper Avenue to Highland Avenue. Alternative 2 (No-Build Alternative) would result in no contribution to any potential community impacts related to land use and growth.

Parks and Recreation Facilities

The RSA for the purposes of parks and recreation facilities is the area bounded by Highland Avenue on the north, Riverside Avenue on the west, California Street on east, and Baseline Road on the south.

Within the resource study area one park, Frisbie Park, which is a City of Rialto public park, is present. The proposed project would not have a direct impact on the park. With the exception of minimized temporary impacts related to air quality and noise, there would be no impacts to Frisbie Park. If other projects were to be constructed at the same time as the interchange directly adjacent to Frisbie Park, then localized, short-term, cumulative noise and air impacts at the park could occur during construction. There are currently no known projects planned to be constructed within the resource study area, at the same time as the proposed SR-210/Pepper Avenue new interchange project.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to parks and recreation facilities.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential impacts related to parks and recreation facilities.

Traffic and Transportation

The RSA for the purposes of traffic and transportation is the area bounded by Highland Avenue on the north, Riverside Avenue on the west, California Street on east, and Baseline Road on the south. Alternative 1 (Build Alternative) would provide a new connection from Pepper Avenue to SR-210. This new connection has been planned for as part of the overall regional transportation

network, and specifically by the City of Rialto in its 2010 General Plan. Alternative 1 would not reduce access to any existing development in the RSA, instead it is expected to alter the circulation patterns within the RSA in a beneficial way, by providing greater regional connectivity to the community. In addition to improved mobility for vehicles, pedestrian mobility will also be improved with the construction of the associated sidewalks.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to traffic and transportation.

Vehicle delay is anticipated to increase at the existing SR-210/Riverside Avenue and SR-210/State Street-University Parkway interchanges under Alternative 2 (No-Build Alternative). Although Alternative 2 (No Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to traffic and transportation, it also provides no benefits related to traffic and transportation.

Air Quality

The RSA for the purposes of air quality is the area studied in conjunction with completion of the proposed SR-210/Pepper Avenue new interchange project's required interagency coordination with SCAG's Transportation Conformity Working Group.

The project is listed in the conforming FTIP and RTP, which also account for future projects in the region that would contribute to cumulative air quality impacts. The design concept and scope proposed are the same as the design concept and scope in the RTP and FTIP listings and the project meets the Regional- and Project-Level Air Quality Conformity requirements. SCAG's 2012-2035 RTP/SCS accounts for future development in the project area and region.

Air quality analysis for the proposed project includes consideration of future traffic conditions in the year 2036 (the project's design horizon year). The analysis concluded that the proposed project would not conflict with or obstruct implementation of the applicable air quality management plan, violate any air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to air quality.

Vehicle delay is anticipated to increase at the existing SR-210/Riverside Avenue and SR-210/State Street-University Parkway interchanges under Alternative 2 (No-Build Alternative), however, Alternative 2 (No Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to air quality.

Noise

The RSA for noise is the area bounded by Highland Avenue on the north, Riverside Avenue on the west, California Street on east, and Baseline Road on the south. As discussed in Section 2.14, the predicted traffic noise levels for the future (2036) without-project (Alternative 2 [No-Build Alternative]) and with-project (Alternative 1 [Build Alternative]) conditions would approach or exceed the NAC of 67 dBA Leq(h) at three sensitive receivers. The increases in noise levels between existing and future with project conditions at noise sensitive receptors would range from 3 dBA to 5 dBA. An increase of 3 or 4 dBA is considered to be barely perceptible to the human ear; while an increase of 5 dBA generally perceived as a distinctly noticeable increase. In comparing the future with project (Alternative 1 [Build Alternative]) to the future Alternative 2 (No-Build Alternative) condition the increase in noise ranges from 0 to 2 dBA, which would be considered barely perceptible. Furthermore, the majority of these receptors are associated with Frisbie Park. Frisbie Park's primary function is as an outdoor play area used for youth sports with an existing noise environment; the park is not reliant upon a quiet or tranquil environment in order to function.

A review of the reasonableness of noise walls was conducted. The evaluated walls were found to not be reasonable; therefore, noise walls are not proposed. The noise increase from Alternative 1 (Build Alternative) in combination with the City of Rialto Pepper Avenue projects may contribute to a cumulative increase in operational ambient noise levels within the project area. However, the City's Pepper Avenue projects have been accounted for in the noise analysis conducted for the proposed project.

Neither Alternative 1 (Build Alternative) or Alternative 2 (No Build Alternative) are anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to noise.

Visual/Aesthetics

The RSA for aesthetics is considered to be a viewshed that falls within Lytle Creek Wash, extending out 0.75 mile on the west and 0.75 mile east, and 0.5 mile north and south from the project area. Only one of the related projects listed in Table 2-1 appears to occur within the project viewshed—the City of Rialto Pepper Avenue Extension project.

Given that the visual quality within the project viewshed was assessed as low-to-moderate, that no scenic vistas or corridors are present within the project viewshed, and that Alternative 1 (Build Alternative) would not introduce new structural elements that would block existing views of mountain ridgelines, no substantial project-related impacts to the visual environment would occur.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to visual/aesthetics.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential impacts related to visual/aesthetics.

PHYSICAL ENVIRONMENT

Water Quality

The RSA for the proposed project is the Lytle Creek Sub Watershed within the larger Santa Ana River Watershed. The proposed project has a low potential to cause adverse water quality problems to surface waters or groundwater in the area. The proposed project is approximately 0.4 mile away from the channelized Lytle Creek and the proposed water quality basins would treat storm water flows before they discharge into the creek. In addition, runoff would be minimized by the implementation of BMPs required by the Caltrans' and City MS4 Permits, Construction General Permit, and regional storm water management plans. Given the low potential for

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to water quality.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential impacts related to water quality.

BIOLOGICAL ENVIRONMENT

Natural Communities of Special Concern

The RSA is defined as the project limits and a 200-foot buffer. Since the proposed project would not remove any RAFSS and measures **BIO-2** through **BIO-10** on Pages 2-157 and 2-158 in Section 2.15 (Natural Communities) would ensure no indirect impacts would occur to the community, Alternative 1 (Build Alternative) would not contribute to direct cumulative impacts to the RAFSS community.

There is a potential for Alternative 1 (Build Alternative) to contribute to indirect cumulative impacts over the long-term, but these indirect effects would not differ from the existing conditions at the project site and would not be anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA.

Under Alternative 2 (No-Build Alternative), no modification of the existing transportation network would occur. No contribution to any potential cumulative impacts related to natural communities of special concern would be expected.

Waters of the U.S. and State Streambeds

The RSA is defined as the project limits and an associated 100-foot buffer, including two basins, approximately 200 linear feet of Lytle Creek Wash, and one associated tributary. The proposed project would directly contribute to the regional loss of Waters of the U.S., Waters of the State, and CDFW unvegetated streambed. Impacts to 0.003 acre of non-wetland Waters of the State and 0.005 acre of California Department of Fish and Wildlife (CDFW) unvegetated streambed are not anticipated to result in a cumulatively considerable contribution to the decline of jurisdictional waters within the region. Measures **BIO-5** through **BIO-10** identified on Pages 2-157 and 2-158 in Section 2.15 would be implemented to ensure protection of federal and/or state

jurisdictional features adjacent to the project footprint. Measure **WET-2** will address the project's potential impacts to jurisdictional non-wetland waters.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to waters of the U.S. or State Streambeds.

Under Alternative 2 (No-Build Alternative), no modification of the existing transportation network would occur. No contribution to any potential cumulative impacts related to waters of the U.S. or State Streambeds would be expected.

Raptor Nesting and Foraging

The RSA is defined as the project limits and an associated 200-foot buffer. The proposed project would permanently remove 26.12 acres of potential raptor foraging and 0.35 acre of potential raptor nesting habitat. Both of these habitats are located adjacent to or near SR-210; therefore, raptors may also forage and nest adjacent to the project limits. Measure **ANI-5** on Page 2-186 of this Environmental Document is expected to ensure that direct mortality does not occur to raptors during construction of the project. The three identified planned projects would also be expected to reduce potential foraging habitat as well as some nesting habitat. This loss of suitable habitat could potentially contribute to a decline of the species within the RSA; however, the potentially suitable habitat proposed for removal is considered to be low to moderate quality, and 18.51 acres potentially suitable habitat would remain undisturbed within the RSA. This is based on the types of raptors potentially affected.

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to raptor nesting and foraging.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to raptor nesting and foraging.

Nonlisted Special-Status Plants

The RSA is defined as the project limits and an associated 200-foot buffer. Up to 26.20 acres of suitable habitat for the Plummer's Mariposa Lily, Smooth Tarplant, Parry's Spineflower, White-bracted Spineflower, Mesa Horkelia, California Satintail, Southern California Black Walnut, Robinson's Pepper-grass, Ocellated Humboldt Lily, Salt Spring Checkerbloom, and San Bernardino Aster would be removed by the proposed project. The loss of 26.2 acres associated with the construction of the proposed project may contribute to cumulative effects on these species; however, given the quantity of habitat suitable for these species within the regional vicinity, and that 25.53 of the 26.2 acres (18.98 acres of revegetated RSS and 6.55 acres of Ruderal/Disturbed) of suitable habitat is relatively low quality (as the revegetated RSS and Ruderal/Disturbed habitat proposed to be removed occur on heavily compacted soils resulting from the construction of SR-210, thus reducing natural recruitment of plants into the this area).

Alternative 1 (Build Alternative) is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to nonlisted special-status plants.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to nonlisted special-status plants.

Threatened and Endangered Animals

The RSA is defined as the project limits and an associated 200-foot buffer. The three identified projects planned for within the regional vicinity of the proposed project are anticipated to contribute to habitat fragmentation of existing RAFSS, thereby reducing the amount of suitable habitat available for and occupied by SBKR. In addition, the planned projects would contribute to the loss of occupied Designated Critical Habitat.

Although Alternative 1 (Build Alternative) impacts 8.7 acres of federally Designated SBKR Critical Habitat, due to the negative trapping results and poor quality of habitat within Critical Habitat in the RSA, and in consideration of the commitment of the SR-210/Pepper Avenue new interchange project to purchase credits from the Vulcan Materials Company Cajon Creek Habitat Conservation Management Area, based on coordination with the USFWS, Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to threatened and endangered animal species.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to threatened and endangered animals.

Nonlisted Special Status Animals

Orangethroat Whiptail and Coast Horned Lizards

The RSA for Orangethroat Whiptail and Coast Horned Lizards is defined as the project limits and an associated 200-foot buffer. The proposed project is expected to remove 18.98 acres of low quality suitable RSS habitat and has the potential to impact a limited number of Orangethroat Whiptail. The proposed project is also expected to remove 18.98 acres of low quality suitable habitat and has the potential to impact a limited number of Coast Horned Lizards. Both of these species are common regionally where suitable habitat and food resources are present. Because only low quality habitat either of these two species is proposed for removal,

Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to Orangethroat Whiptail or Coast Horned Lizards.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to Orangethroat Whiptail or Horned Coast Lizards.

Burrowing Owl

The RSA for Burrowing Owl consists of the project limits and a 500-ft buffer. The proposed project would remove 26.12 acres of the total 44.63 acres of potential Burrowing Owl habitat within the RSA that could be used as nesting or foraging habitat. Measures **ANI-1** through **ANI-3** on Page 2-184 of this Environmental Document are expected to ensure that direct mortality does not occur to Burrowing Owls during construction of the project. The loss of potentially suitable habitat could potentially contribute to a decline of the species within the RSA; however, the potentially suitable habitat proposed for removal is considered to be low to moderate quality, and 18.51 acres potentially suitable habitat would remain undisturbed within the RSA.

Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to Burrowing Owl.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to Burrowing Owl.

Loggerhead Shrike

The RSA for Loggerhead Shrike is defined as the project limits and an associated 200-foot buffer. The proposed project would remove 19.57 acres of low quality foraging habitat for the Loggerhead Shrike.

Because this species is common regionally where suitable habitat and food resources are present, and because only low quality foraging habitat for this species is proposed for removal, Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to Loggerhead Shrike.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to Loggerhead Shrike.

Special-Status Bat Species

The RSA for special-status bat species is defined as the project limits and an associated 200-foot buffer. The proposed project would remove up to 26.55 acres of suitable foraging habitat for the Pallid Bat, Western Mastiff Bat, Western Yellow Bat, and Pocketed-Free-tailed Bat, all of which are state species of special concern. Only a small amount of the project area (0.35 acre) provides potential roosting habitat for special-status bat species. Based on the presence of low quality foraging habitat, limited roosting possibilities, the project's adjacency to a highly traveled highway, and current land uses, the number of individuals potentially affected by the project is expected to be low. Overall, the proposed project would not make a cumulatively considerable contribution to the regional decline of special-status bats given the degraded condition of existing potential foraging habitat, the limited number of individuals expected to be affected, and the relatively common status of each species in the region.

Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to the above identified four special-status species of bats.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to the above identified four special-status species of bats.

San Diego Pocket Mouse and Los Angeles Pocket Mouse

The RSA for San Diego Pocket Mouse and Los Angeles Pocket Mouse is defined as the project limits and an associated 200-foot buffer. The proposed project would have potential to cause direct and indirect effects to a few individual San Diego Pocket Mouse and Los Angeles Pocket Mouse.

Since the distribution of these species is still widespread throughout the region and the number of individuals expected to be affected would be low (given the degraded quality of the habitat proposed for removal and the results of the 2012 trapping surveys), Alternative 1 is not anticipated to result in substantial cumulative effects under NEPA or substantial cumulative impacts under CEQA, related to the San Diego Pocket Mouse and Los Angeles Pocket Mouse.

Alternative 2 (No-Build Alternative) would result in no contribution to any potential cumulative impacts related to the San Diego Pocket Mouse and Los Angeles Pocket Mouse.

2.22 Climate Change (CEQA)

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 (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions in order to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)¹.

There are four primary strategies for reducing 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 cooperatively.²

REGULATORY SETTING

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 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 GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

¹ http://climatechange.transportation.org/ghg_mitigation/

² http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Executive Order (EO) S-3-05: (signed on June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill (AB 32), Núñez and Pavley, the Global Warming Solutions Act of 2006: AB 32 sets the same overall 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."

Executive Order S-20-06: (signed on October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change. Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required 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 the California Air Resources Board (CARB) to set regional emissions reduction targets from 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 for the achievement of the emissions target for their 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.

Federal

Although climate change and GHG reduction is a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis.³ FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation 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. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

³ To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

The four strategies set forth by FHWA to lessen climate change impacts correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

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 greenhouse gases 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 NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.⁴

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017–2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President

⁴ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

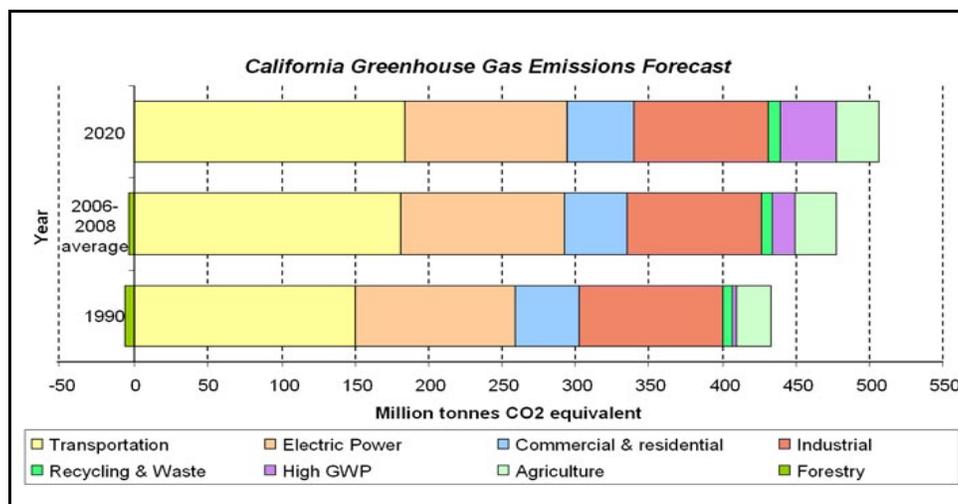
Barack Obama’s 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

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.⁵ 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. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 2-26. California Greenhouse Gas Forecast



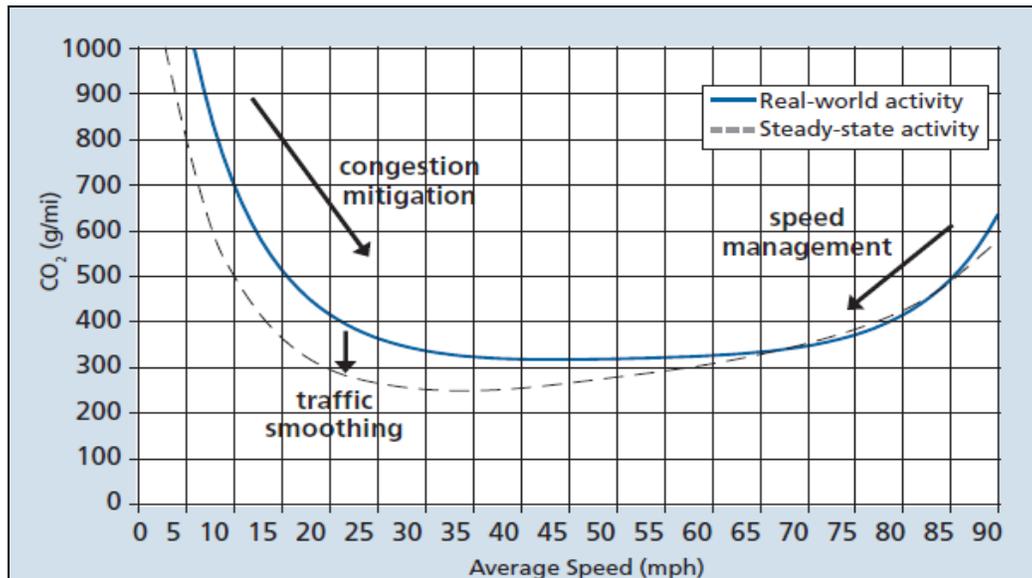
Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

⁵ 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).

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.⁶

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide (CO₂) from mobile sources, such as automobiles, occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0–25 miles per hour (see Figure 2-27). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, GHG emissions, particularly CO₂, may be reduced.

Figure 2-27. Possible Effect of Traffic Operation Strategies in Reducing On-road CO₂ Emissions⁷



Using CT-EMFAC emissions factors and traffic data included in the Traffic Impact Analysis for the proposed project, CO₂ emissions based on Existing/Baseline 2011, Opening Year 2016, and Horizon Year 2036 traffic conditions were analyzed. The forecast of CO₂ emissions under Alternative 1 (Build Alternative) and Alternative 2 (No-Build Alternative) is provided in Table 2-43.⁸

⁶ Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

⁷ Barth, Matthew, and Kanok Boriboonsomsin. 2010. Traffic Congestion and Greenhouse Gases. *TR News* 268 May–June. Available: <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>.

⁸ IBI Group. 2013. *Supplemental Traffic Impact Analysis-State Route 210/Pepper Avenue New Interchange*. August

As shown in Table 2-43, the modeled CO₂ emissions in the future years 2016 and 2036 are higher than those for the existing/baseline year 2011, which is attributed to the growth in VMT⁹. At both the Opening Year 2016 and Horizon Year 2036, modeled CO₂ emissions under Alternative 1 (Build Alternative) would be higher than those under Alternative 2 (No-Build Alternative). As shown in Figure 2-27, CO₂ emissions factors increase as travel speed increases up to and beyond approximately 55 mph.

Table 2-43. Summary of CT-EMFAC-modeled CO₂ Emissions

Scenario	Daily VMT	Metric Tons per Year CO ₂ Emissions ^a
2011 Existing/Baseline	218,554	40,896
2016 No-Build Alternative	237,286	42,029
2016 Build Alternative	238,176	42,187
2036 No-Build Alternative	312,188	50,456
2036 Build Alternative	315,641	51,015

^a CO₂ Emissions modeled by ICF International based on traffic data provided by IBI Group.

Modeled CO₂ emission estimates are useful only for comparison between project alternatives. These estimates are not necessarily an accurate reflection of what the true CO₂ emissions will be because CO₂ emissions are dependent on other factors that are not part of the model, such as the fuel mix,¹⁰ rate of acceleration, and the aerodynamics and efficiency of the vehicles.

In addition, the 2012 Southern California Association of Governments (SCAG) 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (2012–2035 RTP) includes strategies to reduce VMT and associated per capita energy consumption from the transportation sector as well as mitigation measures related to energy that are designed to reduce consumption and increase the use and availability of renewable sources of energy in the region. Potential mitigation programs identified in the 2012–2035 RTP to reduce GHG emissions include increased construction of infrastructure and automobile fuel efficiency to accommodate increased use of alternative-fuel motor vehicles as well as coordinating transportation, land use, and air quality planning to reduce VMT, energy use, and GHG emissions.

The EIR for the 2012–2035 RTP performed a GHG emission reduction strategy consistency analysis to evaluate impacts related to climate change associated with the 2012–2035 RTP. This consistency analysis evaluated consistency with the CARB; Public Utilities Commission; Business, Transportation, and Housing Agency; State and Consumer Services Agency; and EPA GHG reduction strategies and found that impacts on climate change are considered significant even with implementation of mitigation measures. To help mitigate impacts associated with the 2012–2035 RTP, SCAG identified potential Best Available Control Technology (BACT) measures to mitigate the impacts of growing transportation energy demand associated with the RTP.¹¹ Measures under

⁹ Traffic data provided by IBI Group, 2013.

¹⁰ EMFAC model emission rates are only for direct engine-out CO₂ emissions, not full fuel cycle. Fuel cycle emission rates can vary dramatically, depending on the amount of additives like ethanol and the source of the fuel components.

¹¹ SCAG. 2012. *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy*.

consideration for the proposed project from the SCAG list of potential BACT measures are identified with the full suite of proposed measures included in the project for reducing GHG emissions and potential climate change impacts from the project; refer to Page 2-218.

CONSTRUCTION EMISSIONS

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from 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.

An analysis of construction-related emissions was provided in Section 2.2.6. Construction emissions of criteria pollutants are considered temporary emissions. This is not the case with GHGs because of the cumulative nature of GHGs, which remain in the earth's atmosphere long after the time of emission. Approximately 1,282 metric tons of CO₂ emissions associated with proposed project construction would endure in the atmosphere with construction of Alternative 1 (Build Alternative). With innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

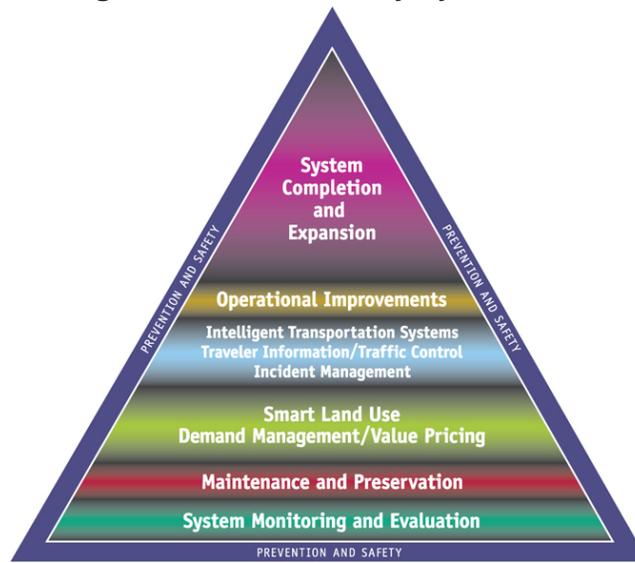
CEQA CONCLUSION

Based on the above, it is Caltrans's determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding the project's direct impact and its contribution on the cumulative scale to climate change. However, as previously stated, Caltrans does anticipate a reduction in greenhouse gas emissions with the project. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

GREENHOUSE GAS REDUCTION STRATEGIES

The Department continues to be involved on the Governor's Climate Action Team as ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 2-28: The Mobility Pyramid.

Figure 2-28. The Mobility Pyramid



The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department works closely with local jurisdictions on planning activities but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participating on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391 (Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (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.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 2-44 summarizes the Departmental and statewide efforts that the Department is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans.¹²

¹²Caltrans. 2006. *Climate Action Program at Caltrans*. December.

Table 2-44. Climate Change Strategies/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix	1.2	4.2
				25% fly ash cement mix > 50% fly ash/slag mix	0.36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

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)¹³ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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

- **CC-1: Comply with SCAQMD Rules and Regulations.** According to Caltrans' Standard Specifications, the contractor must comply with all of SCAQMD's rules, ordinances, and regulations regarding air quality restrictions. See also minimization measure **AQ-3** on Page 2-135 in Section 2.13 (Air Quality).

Measures under consideration for the proposed project from the SCAG list of potential BACT measures include:

- **CC-2: Use Energy-efficient Lighting.** The Project would incorporate the use of energy-efficient lighting, such as light-emitting diode traffic signals, to the extent feasible. Light-emitting diodes consume 10% of the electricity of traditional lights, which would also help reduce the project's carbon dioxide emissions.
- **CC-3: Provide Landscaping** (in lieu of shade trees). Landscaping reduces surface warming and through photosynthesis, and decreases CO₂. Landscaping would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the project. The landscape planting would help offset some project CO₂ emissions. Landscaping measures are currently proposed for the proposed project; refer to minimization measure **VR-2** on Page 2-82 in Section 2.6 (Visual/Aesthetics) and minimization measure **BIO-10** on Page 2-158 in Section 2.15 (Natural Communities). Use the minimum feasible amount of GHG-emitting construction materials that is feasible;
- **CC-4:** Use of lighter-colored pavement where feasible.
- **CC-5:** Recycle construction debris to maximum extent feasible.

ADAPTATION STRATEGIES

"Adaptation strategies" refer to how the Department and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and 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

¹³ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

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. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (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, 2011,¹⁴ 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 provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

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.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009),¹⁵ which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

¹⁴ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

¹⁵ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹⁶ to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- 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.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to 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, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once

¹⁶ *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.

statewide planning scenarios become available, the Department will be able to review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

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. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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